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Demonstration and Validation of Enhanced Monitored Natural Recovery at DoD Sites

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14. ABSTRACT

The objective of this project is to foster broader understanding and acceptance of the EMNR remedy through demonstration and validation of performance and cost-effectiveness at DoD contaminated sediment sites. Broader use of EMNR has several potential benefits to DoD and the broader scientific community, including reduced material costs compared to conventional isolation capping and/or dredging, accelerated recovery and reduced long-term monitoring costs compared to MNR, elimination of removal and disposal costs associated with dredging, and elimination/reduction of impacts to benthic communities compared to conventional isolation capping and dredging remedies. Because most of the contaminated sediment at Navy/USMC and DoD sites often falls into the "moderately" contaminated classification, EMNR has the potential to find widespread application, particularly as an adjunct to other more active remedies that might be applied in areas of higher contamination at the site. With cleanup costs estimated to exceed $1B, the broader application of EMNR could save DoD tens to hundreds of million dollars. EMNR also could facilitate more rapid acceptance and site closure for DoD sites where MNR is the most appropriate remedy but agency resistance or concerns make MNR acceptance difficult.

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Enhanced Monitored Natural Recovery, sediments, Chemicals of concern, GPS, Habitat Enhancement Cap, Investigation-Derived Waste, National Pollutant Discharge Elimination System, Remedial Design, Thin layer capping, Total organic carbon

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Abbreviations and Acronyms

%	Percent
µg/kg	Microgram per kilogram
µm	Micrometer
B-IBI	Benthic Index of Biotic Integrity
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cm	Centimeter
CoC	Chemicals of concern
CTD	Conductivity, temperature, and density sonde
CY	Cubic yard
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DDX	The sum of DDD, DDE and DDT
DoD	Department of Defense
DoN	Department of the Navy
DQOs	Data Quality Objectives
ENMR	Enhanced monitored natural recovery
ENVIRON	ENVIRON International Corporation
ER-N	Environmental Restoration – Navy
ESTCP	Environment Security Technology Certification Program
FS	Feasibility study
ft	Foot or feet
GPS	Global Positioning System
HEC	Habitat Enhancement Cap
IDW	Investigation-Derived Waste
in	Inch(es)
IRA	Interim remedial action
LTMP	Long-term Monitoring Plan
m	Meter(s)
m^2	Square meter(s)
MCB	Marine Corps Base
MHHW	Mean Higher High Water
MLLW	Mean Lower Low Water
mm	Millimeter(s)
MNR	Monitored Natural Recovery
MQO	Measurement Quality Objective

MSL	Mean Sea Level
NCP	National Contingency Plan
NOV	Notice of violation
NPDES	National Pollutant Discharge Elimination System
OBS	Optical back scatter
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PO	Performance Objective
ppb	Parts per billion
ppt	Parts per thousand
PSD	Particle Size Distribution
psu	Practical salinity units
QAPP	Quality Assurance Project Plan
QWS	Quantico Watershed Study
RD	Remedial Design
SARA	Superfund Amendments and Reauthorization Act
SEAP	Sediment Ecosystem Assessment Protocol
SED-FSP	Sediment Friction Sound Probe
SPI	Sediment Profile Imagery
SPME	Solid-phase microextraction
SSC	SPAWAR Systems Center
SWI	Sediment-water interface
t	Time
TLC	Thin layer capping
TOC	Total organic carbon
USMC	United States Marine Corps
VADEQ	Virginia Department of Environmental Quality

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Executive Summary

E.S.1. Objectives of the Demonstration

This project evaluated the performance of enhanced monitored natural recovery (EMNR) as an innovative and cost effective remedy for legacy sediment contaminants. This evaluation was conducted under field conditions at the Quantico Marine Corps Base (MCB), Quantico, Virginia. The remedy involved the placement of a thin-layer cap (TLC) of clean sand to enhance natural recovery and reduce contaminant bioavailability to benthic organisms and subsequent potential threats to higher trophic levels. While clean sand was used at the Quantico Site, TLC material can include a broader range of clean material, including for example clean dredged sediment that meets the chemical criteria for reuse. In some cases, dredged sediment may be preferable to quarried sand, because it has natural organic matter to support benthic life and to help sequester and retard dissolved contaminant transport from underlying sediment.

The objective of this project is to foster broader understanding and acceptance of the EMNR remedy through demonstration and validation of performance and cost-effectiveness at DoD contaminated sediment sites. Broader use of EMNR has several potential benefits to DoD and the broader scientific community, including reduced material costs compared to conventional isolation capping and/or dredging, accelerated recovery and reduced long-term monitoring costs compared to MNR, elimination of removal and disposal costs associated with dredging, and elimination/reduction of impacts to benthic communities compared to conventional isolation capping and dredging remedies. Because most of the contaminated sediment at Navy/USMC and DoD sites often falls into the "moderately" contaminated classification, EMNR has the potential to find widespread application, particularly as an adjunct to other more active remedies that might be applied in areas of higher contamination at the site. With cleanup costs estimated to exceed $1B, the broader application of EMNR could save DoD tens to hundreds of million dollars. EMNR also could facilitate more rapid acceptance and site closure for DoD sites where MNR is the most appropriate remedy but agency resistance or concerns make MNR acceptance difficult.

E.S.2. Technology Description

EMNR involves the placement of a thin layer (commonly, less than 30 cm) of clean sand or clean sediment over contaminated sediment, coupled with ongoing natural recovery processes and monitoring programs, to achieve ecological recovery and risk reduction at contaminated sediment sites. At most sites, effectiveness is based on the combination of the TLC and ongoing deposition processes that combine to reduce surface sediment chemical concentrations and isolate deeper sediment contaminant deposits. EMNR has emerged over the last 5-10 years as a viable hybrid of traditional capping and MNR. The development and application of the technology thus draws heavily from the lessons learned in the development of these component remedies. The remedy can be viewed in two phases including the active phase when the TLC is implemented, and the performance/recovery phase during which the effectiveness of the TLC and ongoing natural processes are gauged through monitoring. The active phase relies essentially on traditional capping with the primary difference that EMNR relies on a relatively thin cap layer; to assure effectiveness, cap thickness generally must be more carefully regulated for EMNR than for a thicker isolation cap. The performance phase integrates monitoring strategies consistent with both capping and MNR.

In general, the TLC is not designed to provide complete chemical isolation, but to provide a reasonable degree of physical isolation and to rapidly achieve low chemical concentrations targeting site-specific remedial action objectives and remedial goals; EMNR also reduces potential resuspension or transport of contaminated sediment particles (Palermo et al., 1998). The design thickness for a TLC is typically driven by the bioturbation depth for organisms that are expected to colonize the cap surface, underlying sediment chemical concentrations, and the expected contribution of natural deposition processes further to isolate sediment contaminants. Because the cap is thin, the impact on bathymetry is generally minimal, permitting application in areas where thicker caps would not be feasible without dredging.

The project site for implementation of this study was Site 99, the Quantico Embayment site, Quantico, VA. The EMNR / TLC technology was referred to as a "Habitat Enhancement Cap" (HEC). The HEC, described in this report, generally serves the same functions as EMNR. Grain sizes of the cap material were selected in the final design to be stable during both normal river flows and during periods of flood flows and storm-generated waves. Ideally, sediment sizes would be chosen to match surrounding grain sizes within the freshwater tidal systems of the Potomac River. The HEC material consisted of common sand fill material, poorly to well sorted with less than 5 percent fines passing a 200-micron sieve and with a grain size distribution characteristically between fine and coarse grain. Because it was not possible to place a perfectly uniform cap layer underwater, and to place a cap with a minimum thickness of 6 inches, construction specifications called for the placement of an average of 9 to 12 inches of material over the remedial footprint to ensure a minimum of 6 inches throughout.

E.S.3. Demonstration Results

This project was designed to evaluate the performance and effectiveness of the Quantico EMNR remedy and the utility of available monitoring tools to address EMNR performance, short-term implementation success, the ability to project long-term remedy success, and the understanding of the mechanisms and processes that regulate EMNR effectiveness. Performance was analyzed using a combination of quantitative and qualitative tests to achieve the objectives of the project. The extent to which expected performance metrics were achieved was evaluated from data collected during the pre-construction baseline monitoring and post-construction monitoring. The performance objectives (POs) are provided in Table ES-1 below.

Table ES-1. Performance objectives for EMNR at Quantico Embayment

Performance Objective	Data Requirements	Success Criteria	Success Criteria Met
PO1 Evaluate cap placement and determine physical stability of TLC	Sediment core profiling (visual classification)	Compare cap thicknesses with design specifications. Average cap thickness should not be less than 6 inches or a minimum cap thickness of 2 inches in the areas targeted for a 6-inch cap.	Yes
	Bathymetry	Compare bathymetric resolution with target thicknesses and sediment coring results. Bathymetric changes in elevation should be qualitatively consistent with cap thickness measurements made by coring. Compare elevation change measured by bathymetry with cap thickness specifications at coring stations. Average elevation change should be on the order of 6 inches and the majority of the cap area should show positive elevation change from 2014 baseline.	Yes
	Sediment Profile Imagery (SPI)	Compare baseline and post-placement SPI images. SPI camera able to distinguish TLC from native sediment and resolve cap thicknesses less than or equal to the camera penetration depth. SPI measured cap thickness should be qualitatively consistent with cap thickness measurements made by coring.	Yes
	Sediment Friction Sound Probe (SED-FSP)	Compare cap thicknesses with design specifications. FSP measurements should be able to distinguish TLC from native sediment and accuracy in identifying mixing depth within 50% of estimates indicated by grain size analysis of sediment cores.	Yes
PO2 Determine the extent of sediment and contaminant mixing	Sediment core profiling (visual classification)	Mixing and deposition layers are clearly visible and can be distinguished from cap material. Mixing and deposition layer thicknesses can be quantified to support interpretation of contaminant profiles.	Yes
	SPI camera	SPI camera able to distinguish mixing and depositional layers associated with the TLC. Provide qualitative estimates of the degree of mixing to support interpretation of contaminant profiles.	Yes
	SED-FSP	SED-FSP able to distinguish mixing and depositional layers associated with the TLC. Provide qualitative estimates of the extent of mixing and deposition to support interpretation of contaminant profiles.	Yes

Performance Objective	Data Requirements	Success Criteria	Success Criteria Met
	Surface sediment TOC, and grain size	Compare baseline, post-cap placement, and long-term monitoring results. Changes in TOC and grainsize can be used to quantify vertical mixing and deposition to support interpretation of contaminant profiles.	Yes
	Sediment Traps	Sediment trap mass provides quantitative estimate of new deposition. Sediment trap chemistry provides estimate of depositional flux to support interpretation of contaminant profiles.	Yes
	Surface sediment chemistry	Compare baseline, post-cap placement, and long-term monitoring results. Vertical mixing and deposition do not alter contaminant profiles sufficiently to cause failure of the EMNR remedy.	Yes
PO3 Evaluate surface sediment chemical concentration reductions	DDX analyses from core samples	Compare baseline, post-cap placement, and long-term monitoring results for core sample DDX levels. Significant reduction in DDX compared to baseline and/or levels should not increase beyond sediment PRGs; 650 ppb total DDX. Reduction in exposure compared to baseline is sustained over 2 years.	Yes
PO4 Evaluate reductions in chemical bioavailability and bioaccumulation	*In situ* bioaccumulation tests	Compare baseline, post-cap placement, and long-term monitoring results. Significant reduction in bioaccumulation and surface sediment porewater concentrations of DDX compared to baseline. Reduction in bioaccumulation and porewater concentrations compared to baseline levels are sustained over 2 years.	Yes
	DDX concentrations in sediment porewater with passive samplers (SPME)		Yes
PO5 Determine the rate of benthic recovery	Pre- and post-cap placement benthic taxonomic surveys	Measure and compare benthic community health indices across baseline, post-placement, and long-term monitoring data. Comparable or improved benthic community conditions relative to baseline by the end of the two year monitoring period.	Yes
	SPI camera images within and around perimeter of TLC footprint	Compare SPI results with taxonomic surveys. Identify infaunal successional stages, RPD depth, and bioturbation depth.	No due to method limitations

Performance Objective 1 was the evaluation of cap placement and determination of physical stability of TLC. Success was measured based on cap thickness by differentiating the cap material from the underlying native sediment as measured using multiple methods including sediment core profiling, bathymetry, Sediment Profile Imagery (SPI), and Sediment Friction Sound Probe (SED-FSP). Success of this phase of the project was evaluated based on the overall stability in the thickness of the cap over time, as well as by the ability of the different measurement techniques to gage the stability. While the coring measurements provide the most direct measure of cap thickness, they were limited spatially, so other measurements such as the bathymetric mapping, SED-FSP and SPI provide additional information on the spatial stability of the TLC. Stability of the EMNR cap was a reflection of the cap design and of site-specific conditions including placement accuracy and distribution, hydrodynamics, cap material grain size, natural sedimentation rates, and benthic mixing processes. Results provided insight into cap placement and thickness and into mixing processes that may have occurred during or after cap placement.

Overall, the performance objectives for cap placement and stability were met. The sediment coring confirmed that the cap was remaining relatively stable over time, and the bathymetric mapping, SPI camera and SED-FSP system all provided confirmatory evidence for cap stability. These additional measures also provided much broader spatial coverage which enhanced the understanding of the overall stability of the cap. Sediment core profiling demonstrated the average cap depth was at least inches 6 inches at all stations (average of 10 inches in the most recent long-term monitoring event). The bathymetric surveys clearly show the changes in elevation related to the cap placement, and these measured changes were consistent with the target thickness for the cap. In the SPI survey, only Station 03 on the south-eastern edge of the cap site appeared to be without cap sediment. SED-FSP was in general agreement with other measurements of thickness and provided additional insight into vertical mixing of the cap with underlying and newly deposited sediments.

The stability of the TLC was further supported by the current meter results that indicated currents at the site were generally low relative to critical threshold velocities at both measurement stations and under flow conditions for two different seasons (spring and summer). Thus it is unexpected that the cap would be disturbed by normal spring and summer currents. It is still possible that the cap could be disturbed under storm conditions, especially storm associated waves due to the shallow nature of the site.

Performance Objective 2 was an evaluation of the extent of sediment and contaminant mixing. Data collected to support assessment of this performance objective included measures that elucidated the mixing and deposition of sediment, and measures that directly measured the mixing and deposition of contaminants. In this project, we evaluated the use of sediment core visual analysis, sediment core TOC and grain size analysis, SPI camera, SED-FSP, and sediment trap mass collection as measures of sediment mixing and deposition. We also evaluated sediment core contaminant profiles for direct measurement of the influence of mixing and deposition on contaminant distributions within the TLC. Visual analysis of sediment cores was used to qualitatively evaluate evidence of mixing within the cap over time based on observable differences in coloration and particle size between the native material, new deposition material, and the TLC material. TOC and grain size analysis provided a more quantitative measure of these same differences. SPI camera results were particularly useful for distinguishing sediment

deposition layers and surface sediment mixing zones. The SED-FSP provided evidence for both bottom-up and top-down mixing based on vertical variations in mean grain size (limited to the 2016 event). Material collected in the sediment traps was used to estimate the mass flux of depositional sediment to the cap as well as the contaminant flux associated with this deposition. Vertically-segmented bulk sediment chemistry measurements provided a direct measure of the vertical movement of contamination associated with mixing and deposition processes. And finally, passive sampler porewater profiling was used to evaluate changes in porewater exposure that might have been associated with mixing processes or other porewater processes such as advection or diffusion.

Success of this performance objective was gaged by how well these measures could assess benthic mixing, and ultimately by how these processes influenced the broader performance metric for surface sediment exposure and ecological response (see PO4 and PO5). As with all natural environments, sediment mixing was expected to occur, and TLCs are not necessarily designed to prevent mixing. This element of the project focused on quantifying the extent of sediment mixing and the extent to which these processes increased or reduced the exposure to DDX in surface sediments.

Overall, the performance objectives for sediment and contaminant mixing in the cap were met. Multiple lines of evidence indicated that the dominant processes observed were some disturbance associated with the installation of the cap, followed by longer term top-down mixing. The SPI camera results and the SED-FSP results provided a broader spatial context, while the visual analysis, TOC, grain size, and bulk sediment chemistry provided a more detailed and quantitative assessment of the focus stations at the site. While the long-term trends indicate that top-down mixing is ongoing and wide spread, the material depositing at the site appears to be relatively low in concentration, and thus the top-down mixing is not expected to result in a loss of performance of the EMNR remedy. Importantly, the multiple lines of evidence also indicated the relatively limited amount of bottom-up mixing. This is critical to the performance of the TLC because bottom up mixing could bring higher concentration sediments into the surface zone where biological exposure is much more likely. These findings were confirmed by the bulk sediment chemistry data that indicated minimal change in the DDX concentrations in the bottom interval of the cap just above the native sediments.

Performance Objective 3 was the evaluation of reductions in surface sediment chemical concentrations. Reduction in surface sediment concentrations was a key remedy objective for the TLC in order to reduce the ecological risk of DDX exposure. As described above, processes such as bottom-up mixing of native sediment, or top-down mixing of new deposition had the potential to influence the success of the EMNR remedy in achieving the expected reductions in surface sediment concentrations. Under this performance objective, we evaluated the performance of the remedy with respected to achieving the desired level of reduction in concentration in surface sediments. Data required for the assessment of the performance objective included DDX concentrations in surface sediment samples and sediment cores. Results for the performance objective were supplemented by the results of the cap mixing PO2, which provide information on mixing rates and extent. Sediment samples were obtained prior to and following TLC placement (2-, 14-, and 25-month post-placement) on and off cap. Success was measured by the change in surface sediment DDX concentrations following the installation of the cap, and the long-term persistence of the change out to the 25-month sampling event.

The analysis for PO3 indicated that the TLC surface sediment is remaining below pre-TLC placement levels and that recontamination from either top-down or bottom up mixing has not occurred to an extent that would compromise the remedy. Thus the success criteria were met. Bulk sediment chemistry found reductions in concentration of total DDX were below the PRG, significant reductions over time as well as significantly lower concentrations in the TLC compared to underlying native sediment, and reductions for on cap stations were greater than off cap stations for all events on average. Sediment traps indicated relatively high deposition rates of material with lower concentrations in the post-placement events compared to baseline.

Performance Objective 4 was the evaluation of reductions in chemical bioavailability and bioaccumulation. Reducing the concentration of DDX in surface sediment was expected to in turn reduce exposure of the native benthic invertebrate community, potential direct adverse effects, as well as reduction in the potential to indirectly or directly adversely affect higher trophic level fish, birds, and mammals. The extent to which the TLC contributed to reductions in bioavailability and consequently reduced the potential for bioaccumulation up the food web was the focus of this performance objective.

The parameters to evaluate changes in bioavailability and bioaccumulation included direct measurement of DDX concentrations in benthic invertebrate tissue using *in situ* bioaccumulation testing, as well as measurement of sediment porewater concentrations with ex situ passive samplers as an indicator of the bioavailable chemical fraction in sediments. Success was measured based on reduction in uptake by benthic invertebrates as measured by *in situ* bioaccumulation testing, and reductions in surface sediment porewater DDX concentrations as measured by ex situ passive samplers, respectively.

Overall, the success criteria for reductions in bioavailability were met. Significant reductions in concentrations of total DDX in *L. variegatus* tissue (lipid weight basis) was observed in short- and long-term events (on average). Reductions in concentrations of total DDX in *C. fuminea* tissue were also observed in short-term and long-term events on average, with significant reductions in the short-term event. Concentrations of total DDX in surface sediment porewater were reduced in all events compared to baseline, with significant reductions in the short-term monitoring and most recent long-term monitoring event.

Performance Objective 5 was an evaluation of the rate of benthic recovery following TLC placement. Along with reducing contaminant levels and bioaccumulation, a key goal of the EMNR remedy was to enhance the subtidal habitat at the site for benthic invertebrates. High levels of contaminants can have direct impacts on the health and composition of the benthic community, and creating a relatively clean environment for benthic colonization is an important aspect of the EMNR remedy. The time for benthic recovery and potential impact of the cap on the benthic community was evaluated. Projection of the long-term effectiveness of the TLC remedy was evaluated based on the rate at which the benthic community recovered after cap placement and the extent to which the benthic community showed improvement compared to baseline conditions.

Laboratory treatability studies performed prior to the installation of the TLC suggested a conceptual model for the benthic recovery in which the cap would initially reduce the benthic populations due to smothering of the native population beneath the cap, followed by a relatively

rapid recolonization that should continue to improve over longer time periods as more clean, natural sediment was mixed into the cap from top-down mixing. To test this, the rate and extent of sediment cap colonization was evaluated as well as the way in which cap conditions were similar to or differ from regional background conditions. Of interest was whether the TLC improved, hindered, or was otherwise neutral regarding the quality of benthic habitat. Data required to evaluate the impact of the TLC on the benthic community included benthic taxonomic surveys before and after cap placement (five on-cap stations and two off-cap stations), and SPI camera photos to document benthic colonization. Results were used to document the effects of TLC placement on the presence of the benthic community and to document changes in community structure over time after cap placement.

Overall, the performance objective success criteria were met using the direct benthic census data over the long-term with the TLC increasing scores for abundance, richness, and diversity. The B-IBI was scored in the highest category in the long-term monitoring events. SPI survey results were not found to be in agreement with the benthic community census, and significantly less confidence was placed in the SPI results due to noted limitations under the conditions present at the site.

Future Projections

Recovery of surface sediment concentrations with EMNR (thin-layer Habitat Enhancement Cap) provides physical isolation of the impacted sediments to the benthic community and prevents resuspension or transport of impacted-sediments. Reduction in concentrations of DDX in surface sediments with the EMNR remedial option occurs in a shorter timeframe compared to MNR as shown in Figure ES-1. The measured concentrations in surface sediment decreased from an average of 573 µg/kg, dw in 2009 (57 months prior to TLC placement) and 264 µg/kg, dw in 2012 (20 months prior to TLC placement). After EMNR placement, measured concentrations in the 2-, 14-, and 25-month events show the concentration reaching 51 µg/kg, dw (average surface sediment) and projected to reach concentrations similar to off-cap measurement within 60 months or sooner. Concentrations in surface sediment with MNR remedy are projected to continue to decline; however, at a much slower rate of recovery. The rate of recovery under MNR was estimated based on reductions in DDX concentrations for the two off cap stations from 57 months pre-placement to 25-months post-placement, and assuming a linear rate of decline. This rate of decline was applied to surface concentrations measured at the time of cap placement to derive the MNR curve.

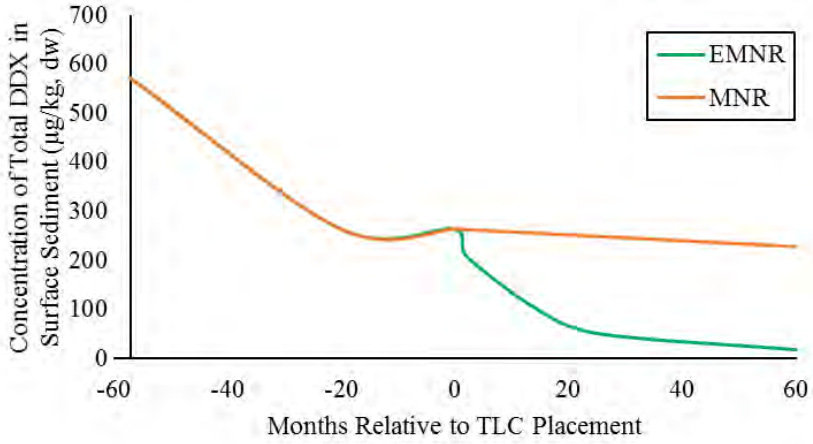


Figure ES-1. Illustration of EMNR and MNR Performance relative to total sediment DDX concentrations.

E.S.4. Implementation Issues

Although conventional isolation caps have demonstrated effectiveness in the management and remediation of chemically impacted sediment, rigorous demonstration and validation of the effectiveness of EMNR remains limited (USEPA 2005). Ongoing questions regarding the application, performance, and ecological impacts of EMNR have limited its widespread implementation. To address these implementation issues, the following relevant questions were posed. Evaluation of these questions based on the literature compiled and the demonstrations conducted as part of this project are presented below.

Is artificially-increased sediment deposition via TLC placement an effective strategy for enhancing MNR and accelerating natural system recovery rates?

The effectiveness of the TLC strategy for accelerating MNR appears to be a viable remediation approach depending on site conditions. From a process perspective, key aspects of the success of the TLC and the overall EMNR approach are that: (1) the TLC remain relatively stable above the sediment to be isolated; (2) any new deposition is relatively clean compared to surface sediment goals, even if the rate of deposition is low; (3) bottom-up mixing of the TLC is limited to the extent that the elevated levels of contamination in the underlying sediment do not unduly influence the exposure in the surface sediments following placement of the TLC; (4) advection rates through the cap are not so significant that they lead to a high level of porewater movement from below the TLC into the TLC; and (5) the remedy should demonstrate direct reduction in bioavailability over the short-term and long-term. For the Quantico embayment site where we conducted our demonstration, all of these conditions were documented to be satisfied. Multiple measures of cap thickness and elevation indicated that the cap material was remaining relatively stable and within design guidelines. New deposition, as characterized by sediment traps and surface sediment interval samples, was generally low in DDX. Bottom-up mixing was documented to be limited based on multiple lines of evidence. While advection rates were not directly measured, porewater measurements at critical intervals within the cap showed that advection was not significant enough to unduly influence the concentrations within the cap. Finally, direct measurements of bioavailability including uptake in organisms and porewater

concentrations generally indicated significant reductions over both short and long time periods out to 2 years.

How sensitive is EMNR performance to the accuracy of TLC placement?

Sensitivity of the EMNR performance to the accuracy of TLC placement appears to be relatively high. This is because the layer being applied is generally thin, and on the same order of magnitude in thickness as the bioactive zone of the sediments. To be effective, the TLC must also accommodate a certain degree of bottom-up mixing that is likely to occur either during the installation or due to physical or biological disturbance over time. Thus key aspects of the sensitivity to placement include the relative thickness of the TLC compared to the bioactive zone, and the degree of bottom-up mixing that is expected based on construction methods and site specific likelihood of physical and biological disturbance following placement. For the demonstration at Quantico Embayment, the bioactive zone was relatively shallow because of the freshwater, riverine nature of the site. Also, it was observed that the installation of the TLC generally achieved target thickness throughout the site so that there were few areas where biological activity was likely to interact with the underlying sediments. In addition, physical disturbance of the TLC appeared to have been limited to localized resuspension during the installation of the cap, resulting in some interleaving of native sediments with the cap material, but not to the extent that it interfered with the effectiveness of the remedy over the 2 years of observations.

What are the short-term construction (risk-of-remedy) effects associated with EMNR and to what extent does TLC application influence benthic community survival?

The primary risks related to the construction of the TLC appear to be potential short- to mid-term effects on the benthic community, along with some amount of disturbance of the native sediment associated with the depositing of the TLC material. The effects on the benthic community are expected to be a function of both the initial covering of the native sediments that can result in smothering of the existing infaunal community, as well as the potential that the community could be degraded over the mid-term as a result of the differing grain size and TOC characteristics of the TLC material. From our laboratory treatability studies, we observed significant smothering effects from placement of thin layers of sand over infaunal organisms. However, at the demonstration site at Quantico Embayment, we observed relatively rapid recovery of the benthic community following construction of the TLC. While the sand material may not have provided optimal habitat initially, it was observed that over time, top-down mixing of relatively clean sediment deposits into the surface layer tended to improve the habitat characteristics, and a general improvement in benthic community health was observed relative to the pre-construction conditions.

Under what range of physical, biological, and chemical conditions will EMNR be effective?

The range of effectiveness of EMNR was not completely explored in this project. However, general considerations for the selection of EMNR are becoming well established. From a physical perspective, the remedy should generally be applied at sites that are relatively quiescent, and not subject to significant physical disturbance that would disrupt or penetrate the cap to a degree that the underlying sediments would be re-exposed or significantly mixed into the TLC.

The native materials must also have the physical strength to support the TLC so that gravitational mixing does not lead to failure of the TLC. From a biological perspective, the TLC thickness should consider the nature and scale of bioactivity in the surface sediments, and the expected route of exposure for the risk endpoints under consideration. From a chemical perspective, EMNR is generally viewed as being most effective at sites where MNR would be effective, but deposition rates are potentially too low to reach the desired clean up goals in a reasonable amount of time. Thus most sites where EMNR has been applied have exposure levels that are near risk thresholds, as opposed to higher concentration hot spots. For the Quantico Embayment site, our results reflect these physical, biological and chemical conditions. The site is in a relatively protected embayment, the bioactivity was limited due to the freshwater nature of the site, and the concentrations (other than in areas targeted for removal) were relatively close to the target PRG.

With respect to grain size, total organic carbon (TOC) content, and other biogeochemical parameters that influence habitat quality, how can EMNR design be optimized?

This remains a key question that was not thoroughly addressed in this project. Follow-on studies have been proposed to address this optimization question. In general, EMNR has been carried out using TLCs constructed with sand, which is optimal from a stability and construction perspective, but not necessarily optimal from a habitat or environmental protection perspective. The sand materials are often not consistent with the grain size characteristics of the native sediments, and thus create a habitat that is also inconsistent with the site conditions. In addition, the sand material contains essentially no TOC, which may create a less optimal habitat while also providing little to no binding capacity for contaminants. While the traditional sand TLC was shown to be effective over 2 years at the Quantico Embayment site, future development of a more comprehensive approach and guidance for the selection and optimization of EMNR that addressed this question would be highly beneficial to the broader implementation of the remedy.

How effective is EMNR in reducing chemical mobility and biological exposure potential in surface sediment?

Overall, review of the historical literature, and our experience with the Quantico Embayment site indicated that EMNR can be highly effective and reducing exposure in surface sediments. EMNR remedy effectiveness seems to be a function of three primary considerations, including careful consideration of site condition for the selection of EMNR, proper design of the EMNR remedy to meet site-specific conditions, and adequate monitoring to assure remedy success and address any potential defects in the TLC. For the Quantico Embayment site, the EMNR remedy was shown to be effective in reducing exposure in surface sediments as measured by bulk sediment total DDX concentrations, porewater DDX concentrations, and direct measurement of bioaccumulation in two site-exposed benthic organisms.

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1. Introduction

This project evaluated the performance of enhanced monitored natural recovery (EMNR) as an innovative and cost effective remedy for legacy sediment contaminants. This evaluation was conducted under field conditions at the Quantico Marine Corps Base (MCB), Quantico, Virginia. The remedy involved the placement of a thin-layer cap (TLC) of clean sediment material to enhance natural recovery and reduce contaminant bioavailability to benthic organisms and subsequent potential threats to higher trophic levels.

The project began in 2009 under project number ER-0827 (Demonstration Plan, dated April 5, 2009) and included a case study review of EMNR sediment sites titled *A Review of Thin-Layer Placement Applications to Enhance Natural Recovery Of Contaminated Sediment* (Merritt et al., 2010). Initially, all pre-remedy (laboratory and field) and post-remedy (field) efforts were planned under project number ER-0827; however, due to unforeseen delays in signing of the Record of Decision (ROD), the TLC remedy installation was postponed, resulting in the postponement of project ER0827 until the ROD would be finalized and signed.

In September 2011, the ROD for Site 99, the Quantico Embayment, and Site 96, the Old Landfill Southern Wetlands Site was signed (NAVFAC WA 2011). Upon review of the ROD, discussions with the Navy Remedial Project Manager and the ESTCP Sponsor, a decision was made to restart the project and carry out the post-remedial monitoring efforts as described in the original demonstration plan, with some modifications as described within the revised Demonstration Plan dated August 28, 2014. ER-201368 is the new Environment Security Technology Certification Program (ESTCP) project number used for the remainder of the study.

In this report, performance results of the EMNR technology are combined with remedy implementation costs to evaluate the cost effectiveness of the technology at full scale. Results of this work will improve the understanding and acceptance of EMNR as a remedy alternative for contaminated sediment sites.

1.1. Background

Contaminated sediment cleanup costs at Navy and United States Marine Corps (USMC) sites are estimated to exceed $1B. For these sites, ecological recovery and reduced exposure risks are achieved primarily by reducing chemical bioavailability and exposure in surface sediment, thereby controlling or eliminating chemical exposure pathways. However, cost effective remedies for sediment management at moderately impacted Navy/USMC sites are lacking. Currently, the primary remedial options implemented by the Navy/USMC are dredging, isolation capping, and monitored natural recovery (MNR, USEPA 2005). Dredging is expensive, difficult to implement without generation of residuals, and may result in negative impacts to aquatic habitat, the benthic community, and surface water quality. Conventional isolation capping, although less expensive than dredging, may also negatively impact benthic community structure and composition, and by altering site bathymetry, capping may negatively influence the quality of aquatic and near shore habitats. MNR is cost effective, but it's utility as a remedial strategy is highly site-specific and may require years or decades to demonstrate adequate risk reduction.

MNR combined with TLC is often referred to as Enhanced Monitored Natural Recovery (EMNR) and has the potential to accelerate and improve the effectiveness of MNR as a remedial strategy. A hypothetical demonstration of the benefit of TLC addition to MNR is presented in Figure 1. The MNR scenario in Figure 1 represents an environment in which capping is not considered as a component of system recovery. Both the MNR and EMNR surface sediment concentrations approach regional background levels with time. The EMNR scenario accelerates sediment concentration reductions, but results in some level of rebound due to the natural deposition of sediments with background chemical concentrations over the clean cap material. The rebound also may be due to biological mixing of the clean sediment material with underlying native sediment or porewater migration through the TLC. Notably, background chemical concentrations establish asymptotic cleanup levels for all technologies, including capping and dredging.

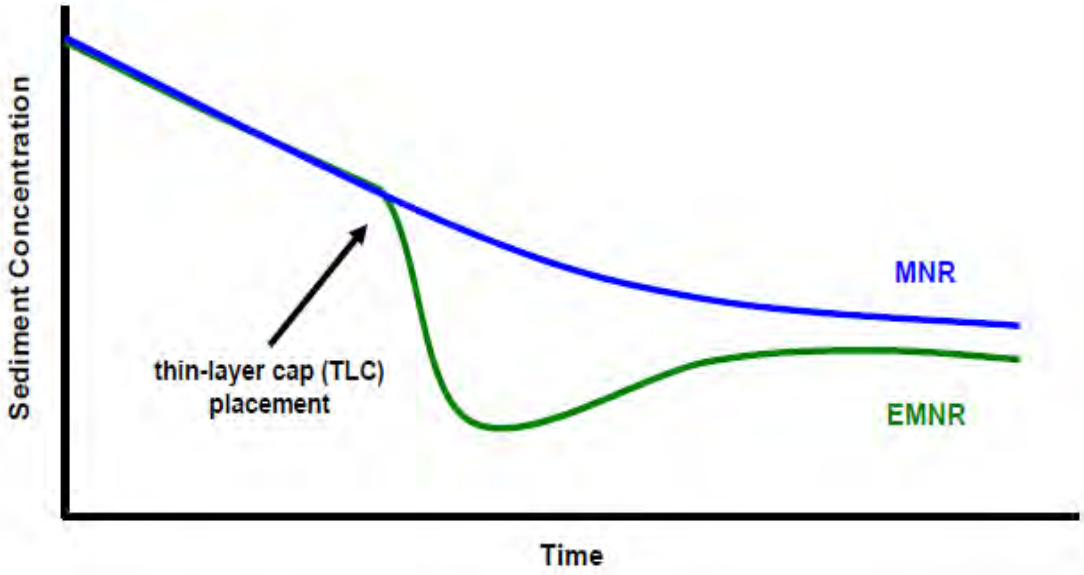


Figure 1. Hypothetical relationship between chemical concentrations in surface sediment and temporal evolution of system recovery under MNR and EMNR.

The placement of a TLC augments background or unamended recovery rates by placing a layer of clean material over sediment characterized by elevated chemical concentrations. The thickness of this layer of clean materials is typically between 15 and 30 centimeters (cm). TLCs accelerate the natural recovery of a system through burial and dilution of underlying impacted sediment. Although the physical mixing of sediment by sediment-dwelling organisms is generally confined to surface sediment, TLCs are generally implemented with the recognition that some biological or physical mixing of the cap with underlying sediment is likely to occur. In contrast to isolation caps, TLCs are not generally intended to provide complete isolation of the native sediment bed by creating a complete seal over the contaminated sediment (Brannon et al., 1985). Thus, design of the TLC must account for chemical concentrations in the native sediment bed surface when targeting site-specific remedial goals.

The placement of a TLC facilitates the re-establishment of benthic organisms, as well as minimizing disruption of the native benthic community, while accelerating natural sedimentation and disrupting exposure pathways for benthic invertebrates (NRC 2003; USEPA 2005). TLCs

also minimize displacement of aquatic habitat by minimizing the change in surface sediment elevations. Moreover, as the cost for implementation of EMNR may be significantly lower than the cost for implementation of dredging or isolation capping remedies, EMNR may demonstrate the potential for accelerating system recovery in a cost-effective manner, while minimizing negative environmental impacts (Oregon DEQ 2005; Battelle et al., 2007).

Potential limitations to the effectiveness of EMNR include penetration or disturbance of the cap surface, concerns regarding long-term cap stability, sensitivity to accurate placement, excessive intermixing with native sediments, and, for amended caps, changes in the chemical binding capacity of cap amendments with time (NRC 2001). These concerns are not limited to EMNR and reflect common concerns associated with the placement of all remedial caps, including caps used as backfill to address post-dredge residuals.

Although conventional isolation caps have demonstrated effectiveness in the management and remediation of chemically impacted sediment, rigorous demonstration and validation of the effectiveness of EMNR remains limited (USEPA 2005). It is likely that ongoing questions regarding the application, performance, and ecological impacts of EMNR limit its widespread application. Relevant questions include:

- Is artificially-increased sediment deposition via TLC placement an effective strategy for enhancing MNR and accelerating natural system recovery rates?
- How sensitive is EMNR performance to the accuracy of TLC placement?
- What are the short-term construction (risk-of-remedy) effects associated with EMNR and to what extent does TLC application influence benthic community survival?
- Under what range of physical, biological, and chemical conditions will EMNR be effective?
- With respect to grain size, total organic carbon (TOC) content, and other biogeochemical parameters that influence habitat quality, how can EMNR design be optimized?
- How effective is EMNR in reducing chemical mobility and biological exposure potential in surface sediment?

1.2. Objective of the Demonstration

The objective of this project is to foster broader understanding and acceptance of the EMNR remedy through demonstration and validation of performance and cost-effectiveness at DoD contaminated sediment sites.

DoD faces increasing demands to address contaminated sediment sites, requiring improved understanding of potential remedial options and methods to assess their performance. Broader use of EMNR has several potential benefits to DoD and the broader scientific community, including reduced material costs compared to conventional isolation capping and/or dredging, accelerated recovery and reduced long-term monitoring costs compared to MNR, elimination of removal and disposal costs associated with dredging, and elimination/reduction of impacts to benthic communities compared to conventional isolation capping and dredging remedies. Because most of the contaminated sediment at Navy/USMC and DoD sites often falls into the "moderately" contaminated classification, EMNR has the potential to find widespread application, particularly as an adjunct to other more active remedies that might be applied in

areas of higher contamination at the site. With cleanup costs estimated to exceed $1B, the broader application of EMNR could save DoD tens to hundreds of million dollars. EMNR also could facilitate more rapid acceptance and site closure for DoD sites where MNR is the most appropriate remedy but agency resistance or concerns make MNR acceptance difficult.

Primary end-user issues for EMNR generally include (1) concern with leaving contamination in place, (2) concern with the effectiveness of the remedy, (3) concerns with the permanence of the remedy, and (4) the perception of using dilution of surface sediment chemical concentrations as a remedy. The first issue is common to many *in situ* remedies (e.g., traditional capping, MNR, in-situ amendments) and can be addressed through risk communication. The second issue will be addressed directly in this demonstration by rigorously evaluating the full scale effectiveness of the EMNR remedy at the Quantico site. The third issue will be addressed to the extent possible by this short-term demonstration as well as by an accompanying Case Study Review and Technical report (Merritt et al 2010; Environ and SSC Pacific, 2009) and possibly by a potential follow-up verification study for long-term performance to be proposed at a future date.

Publications and presentations associated with this effort will improve the visibility of EMNR as a potential remedy within the community of practitioners, and will improve understanding of the appropriate application of the remedy. The fourth issue will be addressed by demonstrating that EMNR accomplishes more than just surface sediment dilution, and is an appropriate risk-management strategy that reduces chemical exposures, bioavailability, and risk. This will be achieved by (1) reviewing and documenting cost and performance data from sites where EMNR has been previously implemented, and (2) a full-scale field demonstration and validation of EMNR at a DoD contaminated sediment site. Results of this demonstration will provide DoD site managers and regulatory agencies with well-documented cost, performance, and risk-of-remedy data with which to evaluate EMNR during the remedy selection phase and to gauge remedy effectiveness during the monitoring phase.

Our approach to demonstration and validation of the EMNR process will focus on the following key technical performance issues:

- Utility of available monitoring tools to address EMNR performance
- Short-term implementation success
- Ability to project the potential for long-term remedy success
- Determination of the mechanisms and processes that regulate EMNR effectiveness

Full-scale validation of this technology in the field will help to foster improved DoD and regulatory confidence in this technology.

1.3. Regulatory Drivers

The remedy at the Quantico Embayment is being conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). Implementation of the CERCLA remediation process is outlined in Title 40 of the Code of Federal Regulations (40 CFR) Part 300, National Oil and Hazardous Substance Contingency Plan (NCP).

2. Technology

This section describes the EMNR technology to provide a better understanding of its functionality and operation. Also presented are past applications and the advantages and limitations of this remedial alternative, and its application at the Quantico site.

2.1. Technology Description

EMNR involves the placement of a thin layer (commonly, less than 30 cm) of clean sand or clean sediment over contaminated sediment, coupled with ongoing natural recovery processes and monitoring program, to achieve ecological recovery and risk reduction at contaminated sediment sites. At most sites, effectiveness is based on the combination of the TLC and ongoing deposition processes that combine to reduce surface sediment chemical concentrations and isolate deeper sediment contaminant deposits. EMNR has emerged over the last 5-10 years as a viable hybrid of traditional capping and MNR. The development and application of the technology thus draws heavily from the lessons learned in the development of these component remedies. The remedy can be viewed in two phases including the active phase when the TLC is implemented, and the performance/recovery phase during which the effectiveness of the TLC and ongoing natural processes are gauged through monitoring. The active phase relies essentially on traditional capping with the primary difference that EMNR relies on a relatively thin cap layer; to assure effectiveness, cap thickness generally must be more carefully regulated for EMNR than for a thicker isolation cap. The performance phase integrates monitoring strategies consistent with both capping and MNR.

At the Quantico Site, the EMNR / TLC technology was referred to as a "Habitat Enhancement Cap" (HEC). The HEC, described below, generally serves the same functions as EMNR.

2.1.1. Thin Layer Capping Phase – Background Information

In the context of EMNR, thin layer capping is a method of enhancing or accelerating natural recovery through rapid deposition of a thin layer of clean material. In general, the TLC is not designed to provide complete chemical isolation, but to provide a reasonable degree of physical isolation and to rapidly achieve low chemical concentrations targeting site-specific remedial action objectives and remedial goals; EMNR also reduces potential resuspension or transport of contaminated sediment particles (Palermo et al., 1998). The design thickness for a TLC is typically driven by the bioturbation depth for organisms that are expected to colonize the cap surface, underlying sediment chemical concentrations, and the expected contribution of natural deposition processes further to isolate sediment contaminants. Because the cap is thin, the impact on bathymetry is generally minimal, permitting application in areas where thicker caps would not be feasible without dredging.

A variety of materials can be used for the TLC to provide the necessary engineering specifications and to target site-specific habitat characteristics. At some sites, including portions of the Quantico Embayment, the cap can be subsequently enhanced with vegetation to provide increased stability and habitat quality. Material selection is critical in assuring a reasonable degree of stability in the response to currents, waves, and other potential physical disturbances. The TLC caps can be placed in deeper waters using a range of construction methods including

either hydraulic or mechanical methods or in shallow waters by working from the adjacent shoreline using mechanical earthmoving equipment. Factors that drive the proper selection of placement technology include water depth, current velocities, wave heights, access by floating equipment, and distance from the shoreline.

A significant challenge for TLC is accurate placement with respect to cap thickness. The industry has developed a variety of cap placement methods to improve placement accuracy and to assure the uniform distribution of cap materials. Occasionally, TLC designs target a greater thickness to make sure that the design thickness is achieved at all locations. For example, if the design thickness is 6 inches, a 9-inch cap may be placed assuming a 3-inch tolerance for placement. The cost for cap placement depends on factors including crew costs, equipment costs, material costs and production rate. Production rate can vary based on site specific factors including accessibility, water depth, and weather and sea conditions.

Short-term monitoring associated with the TLC generally involves verification of accurate material placement. Water quality may also be monitored, generally focusing on effects on total suspended solids (TSS) and turbidity in the vicinity of the work area. Other construction monitoring components to be considered may include dissolved oxygen, ammonia, and total sulfides or sediment traps to collect and measure resuspended bottom sediments; these alterative monitoring components generally reflect site-specific concerns or targets during remediation.

Traditional techniques for monitoring cap placement include bathymetric surveys (Lillycrop et al., 1991), sediment core sampling, sediment profiling camera (e.g., http://www.remots.com), visual observation (shallow water), or diver observations. Precision bathymetry is the most common monitoring tool for TLC projects and generally includes surveys prior to placement of the cap, periodically during placement, and at the completion of placement (Palermo et al., 1998). Other monitoring tools that have proved useful on a site specific basis include side scan sonar, sub-bottom profilers, and multi-beam depth sounding systems.

After placement, surface sediment chemical concentrations may be monitored to establish a post-placement chemistry baseline for the site.

2.1.2. Characteristics of the TLC at the Quantico Marine Corps Base, Quantico, VA

The project site for implementation of this study was Site 99, the Quantico Embayment site, Quantico, VA (Figure 2). Conceptual design drawings of the Quantico TLC are presented in the Draft-Final Remedial Design (Battelle 2009) and include plan view as well as cross-sectional representations of the cap, and highlights shore side topography and placement area bathymetry.

The contaminated sediment within the Quantico Embayment remedial footprint (10.9 acres) was covered with a thin-layer HEC (Figure 3). The HEC (also referred to in this document as a thin-layer cap) involved placement of capping material (sand) under water and was designed to provide physical isolation of the contaminated sediment from the benthic environment and to prevent resuspension or transport of contaminated sediment while providing viable habitat for several different species and creating wetland habitat. With the exception of the Sewage Treatment Plant drainage channel, no dredging or excavation was conducted. The existing rock revetment along the shoreline of Site 4 was covered with imported fill material to provide better

habitat. The upper portion of the new fill was planted with upland vegetation, and at lower elevations, the fill was planted with appropriate types of wetland vegetation to restore the Potomac River shoreline to more functional conditions (NAVFAC WA 2011).

The HEC was constructed in summer of 2014 and the grain sizes of the cap material were selected in the final design to be stable during both normal river flows and during periods of flood flows and storm-generated waves. Ideally, sediment sizes would be chosen to match surrounding grain sizes within the freshwater tidal systems of the Potomac River. The HEC material consisted of common sand fill material, poorly to well sorted with less than 5 percent fines passing a 200-micron sieve and with a grain size distribution characteristically between fine and coarse grain. The material had a minimum D50 of 0.5 mm or greater (NAVFAC WA 2011).

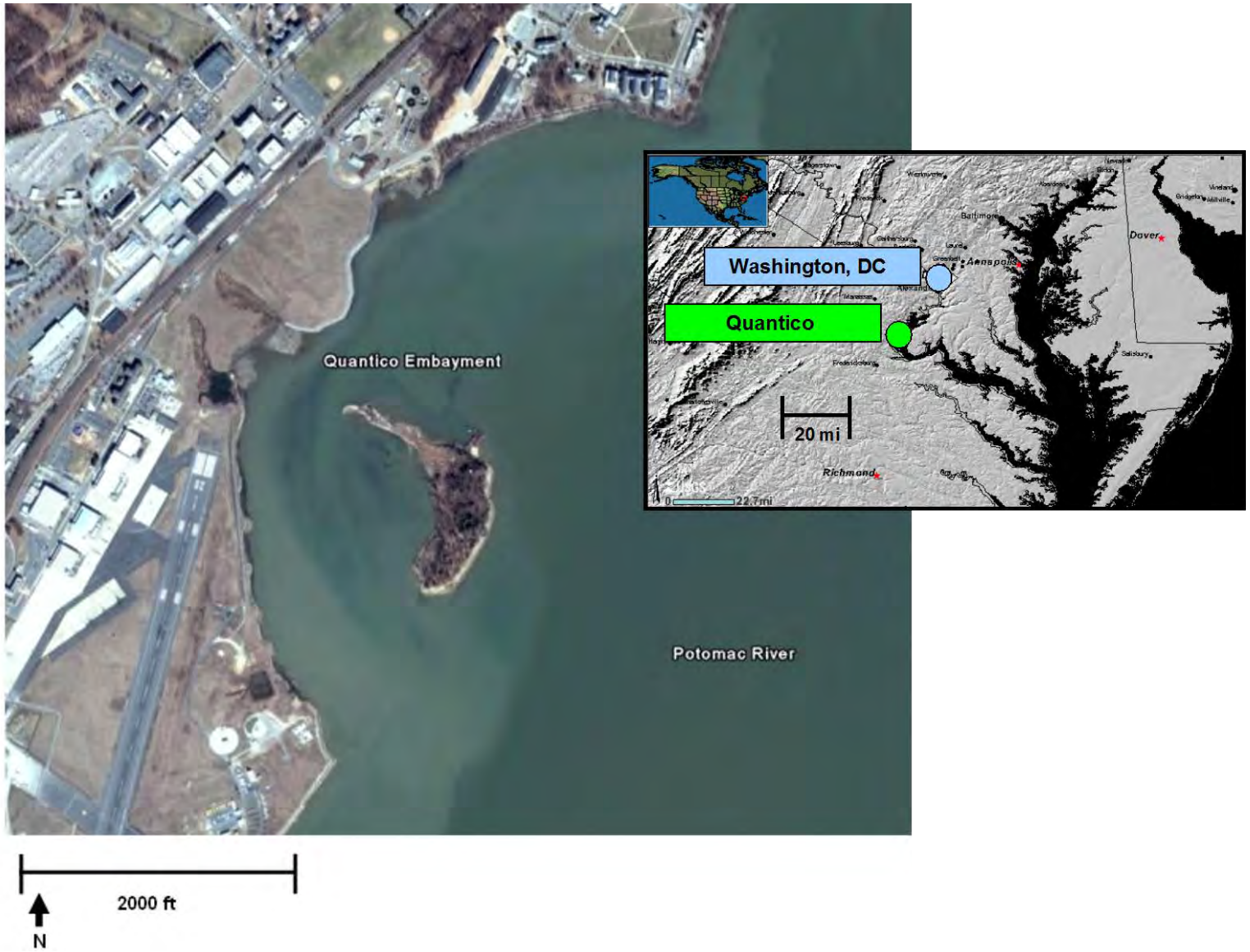


Figure 2. Quantico Embayment, Quantico Marine Corps Base, Quantico, VA.



Figure 3. Site 99 work areas (referenced from AGVIQ-CH2M HILL 2012).

For the Quantico Embayment, the HEC was placed by spreading a sand slurry over the remedial footprint. Sand was delivered to the site by truck or barge and transferred into a mixing tank. Water was added to form a slurry, which was pumped to a shallow-draft spreader barge. The spreader barge was moved at a carefully controlled rate as the slurry was discharged to spread the cap material evenly over the sediment. Because it was not possible to place a perfectly uniform cap layer underwater, and to place a cap with a minimum thickness of 6 inches, construction specifications called for the placement of an average of 9 to 12 inches of material over the remedial footprint to ensure a minimum of 6 inches throughout (NAVFAC WA 2011).

For the purpose of installation, the HEC area was been divided into four zones, as shown in the Remedial Design (RD) drawings (Figure 4 in this document): Zone 1 (light blue and red areas), Zone 2 (dark blue), Zone 3 (orange), and Zone 4 (green and pink). The fill material was placed in the HEC area using equipment from the shoreline where possible (Zones 2 through 4) and with shallow-sand spreading barges (Zone 1). Fill material was placed and graded in Zones 2 through 4 in accordance with RD drawings. Fill material was not graded in Zone 1. The fill material in Zone 1 was placed using hydraulic methods (dredge piping) in the HEC area from barges. Additional details regarding cap placement were defined in the Final Remedial Action Work Plan dated February 2012 (AGVIQ-CH2M HILL 2012) and are not discussed further in this document.

Wetland vegetation was incorporated into the shoreline areas of the cap design to further maintain cap integrity. The wetland was designed to be compatible with existing wetland systems, which are tidal freshwater wetlands. Plantings were conducted to reflect the three hydrologically influenced zones within tidal systems, open water, intertidal marsh, and high marsh. Along the Site 4 shoreline, the existing rock revetment was left in place and covered with imported fill material to provide better habitat. The upper portion of the new fill was planted with upland vegetation because the top of the rock was 6 feet above the high tide elevation. At lower elevations, the new fill was planted with appropriate types of wetland vegetation to restore the shoreline to more natural conditions (AGVIQ-CH2M HILL 2012).

The tidal wetlands created as part of the remedy provided stabilization of the cap and contaminated sediments, and a greater assimilative capacity for contaminants that may potentially move through the cap. The wetlands also protect against groundwater discharge, and provide revitalized habitat for impacted ecological receptors. In areas that are distant from the landfill where contaminant levels are reduced, the cap aided in the natural recovery of contaminated sediments on the edge of the restored wetland. As part of the regulatory project, physical, chemical, and/or biological monitoring was conducted to evaluate the integrity and condition of the cap and the effectiveness of the remedy; the details of the monitoring are described in the *Final IR Site 99 Long-Term Monitoring Plan* (NAVFAC WA 2010, AGVIQ-CH2M HILL 2012) and summarized in Table 1.

This project was not involved in the design or implementation of the sediment cap, except insofar as the project team needed to understand the cap design and plans to monitor cap performance. The opportunity for this ESTCP study was to capitalize on an existing TLC and to leverage the full scale TLC implementation costs for this project. The Chesapeake Division, Naval Facilities Engineering Command is responsible for the Environmental Restoration – Navy (ER-N) remedial action design and implementation for the Quantico Embayment site. This

ESTCP demonstration, carried out by Space and Naval Warfare Systems Center, Pacific (SSC Pacific) and Ramboll Environ US Corporation (Ramboll Environ, formerly ENVIRON International Corporation), was not engaged in and is not responsible for meeting regulatory objectives for the Site; rather, we focused on providing a detailed demonstration of the performance and effectiveness of EMNR with respect to the utility of available monitoring tools to address EMNR performance, short-term implementation success, and the ability to project long-term remedy success. Results of this work contribute to the industry's understanding of the mechanisms and processes that regulate EMNR effectiveness.

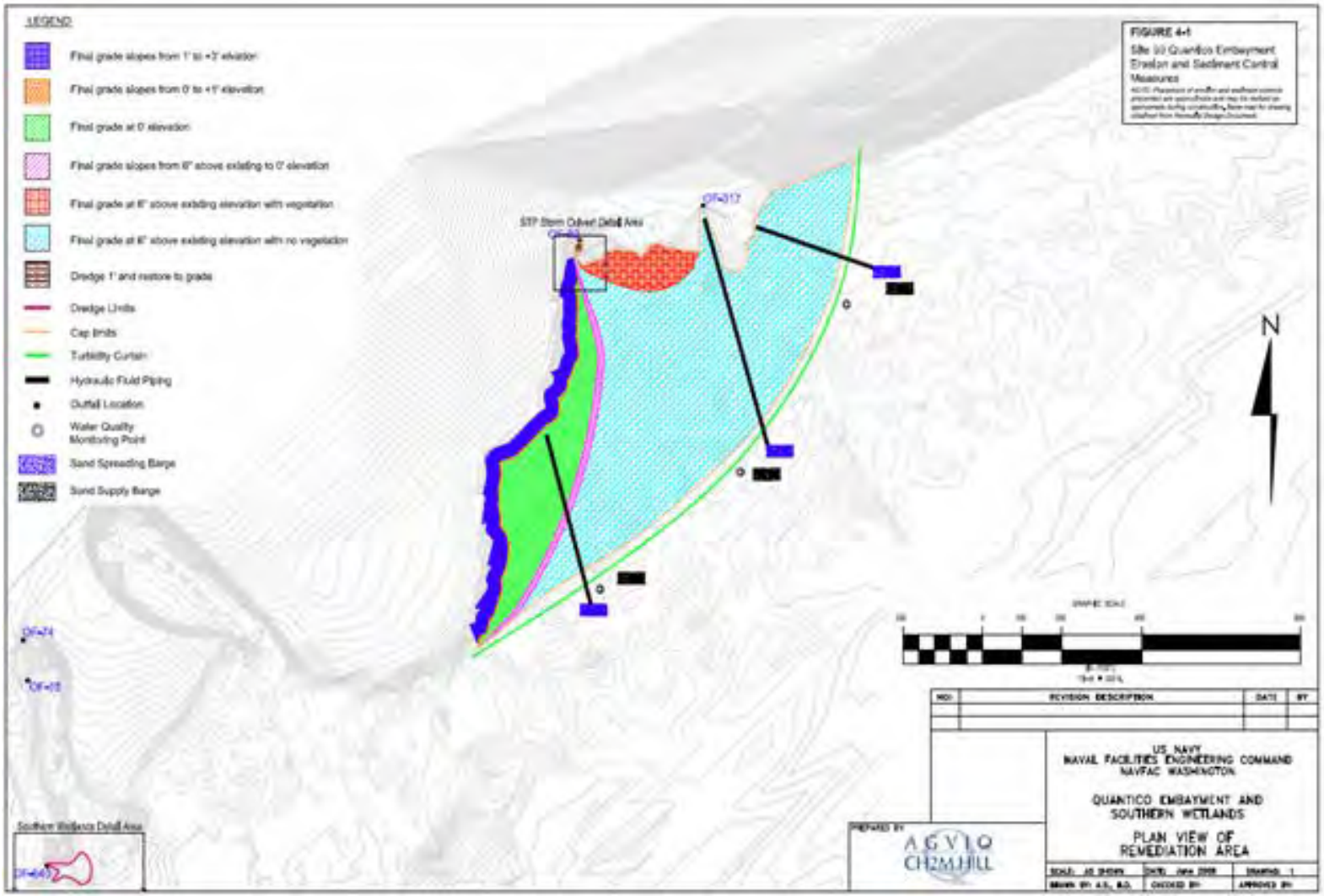


Figure 4. Quantico Embayment and Southern Wetlands Remediation Area (from AGVIQ-CH2M HILL 2012).

Table 1. Site 99 Long-Term Management Plan (LTMP) for IR Site 99, MCB Quantico (Battelle and Neptune, 2010).

AREA	MATRIX	ANALYSIS	DATA QUALITY OBJECTIVE (DQO): DECISION STATEMENT/STUDY QUESTION	NUMBER OF SAMPLES					
				Year 0 (Pre-Baseline Construction)	YR 1	YR 2	YR 3	YR 4	YR 5
FISH TISSUE SAMPLES									
Quantico Embayment (including one sample from the mouth of the STP drainage channel)	Tissue – Killifish, whole body (note 2)	PCB congeners; 2,4' and 4,4'-DDx isomers; Percent moisture; Total lipids	Primary Question 1: Have remedial actions in IR Site 99 reduced risk to piscivorous birds in the Quantico Embayment and PRSA1 from ingestion of forage fish and intermediate predator fish exposed to elevated DDx levels in sediments to acceptable levels?	10	10	10	10	10	10
	Tissue – Intermediate Predator Fish (e.g. perch, bass), whole body (note 3)	PCB congeners; 2,4' and 4,4'-DDx isomers; Percent moisture; Total lipids		0	0	0	0	0	6
POREWATER SAMPLES									
Quantico Embayment, Southern Wetlands, Unnamed Tributary, STP drainage channel	Porewater (note 4)	PCB congeners; TCL pesticides; TCL SVOCs (selected); TCL VOCs (selected)	1) Are contaminants in the groundwater under IR Site 4 being transported to the Quantico Embayment, Southern Wetlands, or Unnamed Tributary and eventually to the Potomac River at levels exceeding groundwater risk criteria identified in WS#15? 2) Are contaminants from the Site 99 Soil Areas being transported via groundwater to the adjacent Quantico Embayment and eventually to the Potomac River at levels exceeding groundwater risk criteria identified in WS#15?	0	(25)/105 3 3 1	10 3 3 1	10 3 3 1	10 3 3 1	10 3 3 1

Table 1. (cont.)

AREA	MATRIX	ANALYSIS	DATA QUALITY OBJECTIVE (DQO): DECISION STATEMENT/STUDY QUESTION	NUMBER OF SAMPLES					
				Year 0 (Pre-Baseline Construction)	YR 1	YR 2	YR 3	YR 4	YR 5
SEDIMENT SAMPLES									
Quantico Embayment, Southern Wetlands, Unnamed Tributary STP drainage channel	Sediment (note 4)	PCB congeners; TCL pesticides; TCL SVOCs (selected); TCL VOCs (selected); Grain size; Total organic carbon; Percent moisture	No DQO.	0	10 3 3 1	0	0	0	0
HABITAT CAP MONITORING									
Quantico Embayment	Habitat cap and constructed wetlands (note 6) a) 0.72 acre upland transition zone b) 0.12 acre high marsh c) 2.51 acre low marsh d) 7.71 acre unvegetated open water	Bathymetry/ Topography Cap thickness	1) Is the HEC and created wetland remaining stable and, therefore, effective at reducing potential physical and biological transport pathways for contaminants in Embayment sediments over time, thus reducing ecological risks? 2) Is the slope and cover in the Site 99 Soil Areas remaining stable with no erosion into the adjacent drainage area?	0	0 (note7)	0 (note8)	0 (note8)	0 (note8)	1
Quantico Embayment	Constructed wetlands a) Low marsh zone b) High marsh zone c) Upland transitional zone Site 99 Soil Areas	Wetland quality measures (note 9)/ visual inspections (vista) (note 10)		0	0 0 0 0	14 vista vista vista	14 vista vista vista	14 vista vista vista	14 vista vista vista
Quantico Embayment	Open Water	SAV coverage Benthic community (SPI) Fish community		0	1 21 1	1 21 1	1 21 1	1 21 1	1 21 1

NOTES:
1. Note that sample numbers do not include field QC samples.
2. Each killifish sample will represent a composite of multiple fish (approximately 30-40 fish weighing a minimum of 50 grams) in order to achieve required analytical mass. Only killifish greater than 5 cm in size will be included in the sample, and no individual fish will represent greater than 25% of the sample mass.
3. Each fish will represent a composite of multiple fish (approximately 10 fish weighing a minimum of 50 grams) in order to achieve required analytical mass
4. Porewater collected a minimum of 12 -18" below the sediment-water interface. Sediment associated with the porewater will only be collected in post-construction Year 1 to assist in understanding the expected variability associated with the porewater data.
5. Porewater will be monitored from 25 locations in Year 1, with samples collected and analyzed from the 10 stations showing the highest flow rate and separation (groundwater defined b water quality parameters) from Potomac River surface water.
6. Habitat cap will also be assessed after any large storm event.
7. Bathymetry and topography surveys will be conducted by the construction contractor (as-built survey) immediately following completion of construction and for one year postconstructi as described in the construction work plan.
8. Habitat cap will only be sampled for bathymetry/topography to determine cap thickness if evidence of cover instability is identified.
9. Percent survival in the low marsh, high marsh, and upland transitional zones will be quantified in Year 1 as part of the construction work plan; percent cover and diversity in Years 2- 5 will be quantified only in the low marsh zone at the 14 sample locations as described in the LTMP. The visual inspection analysis will use one or more vista location(s) that will cover the entire constructed wetland. The 14 sample locations to evaluate intertidal/low marsh habitat wetland quality will be randomized each year.
10. Vista or observational locations covering the entire 10.9 acre HEC and the 0.5 acre Site 99 Soil Areas will be established in Year 1 by the construction contractor and returned to each year (Years 2 through 5) as part of this LTMP.

2.1.3. Chronological Summary of the Development of the Technology to Date

EMNR has been implemented as a component of overall site remedial strategies that have included sediment dredging, construction of confined disposal facilities, isolation capping, debris removal, and MNR. EMNR combines conventional, accepted knowledge regarding sediment capping processes (e.g., material placement techniques, design considerations and limitations, hydrodynamics, and appropriate monitoring strategies) with an understanding of background site conditions (e.g., sedimentation and burial dynamics, bioturbation and/or hydrodynamic mixing, plus other possible forms of natural risk attenuation).

As documented in the *Review of Thin-Layer Placement Applications to Enhance Natural Recovery of Contaminated Sediment* (Merritt et al 2010), EMNR has been implemented successfully at the Wyckoff/Eagle Harbor Superfund Site in Bainbridge Island (WA), the Ketchikan Pulp Company Site in Ketchikan (AK), and the Bremerton Naval Complex in Bremerton (WA). For these sites, EMNR was selected for those portions of the remedial area in which stated goals were to reduce the concentration of chemicals in the biologically active zone of sediment in a manner that would enhance the potential for ecologically balanced re-colonization, while not causing widespread disturbance to existing habitat. Chemicals of concern (CoC) addressed using EMNR include mercury and other metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and diffusive toxicants including sulfide, ammonia, and 4-methylphenol. Field pilot studies of EMNR placement have also been conducted at the Palos Verdes shelf site in California, the Duwamish Waterway in Washington, and the Anacostia River in the District of Columbia. For these sites, available data focused primarily on implementation and short-term post-placement monitoring, and were incomplete for the evaluation of long-term EMNR performance.

2.2. Technology Development

EMNR / TLC accelerates the physical isolation and natural recovery processes such as burial or sorption compared to MNR. This is an increasingly accepted technology that is seeing relatively broad consideration in feasibility studies for remedy screening, evaluation, and selection. Despite its broad consideration and increasing application, EMNR has not been studied as much as dredging and capping, contributing to some of the uncertainties associated with this technology. In principle, aquatic habitat is preserved or enhanced by EMNR compared to a dredging remedial option. Complete isolation of underlying sediment to the overlying water above the TLC surface is not the engineering goal in EMNR. Rather acceleration of the MNR processes to reduce time to achieve remedial action objectives (ITRC 2017). This demonstration will add substantially to our understanding of EMNR / TLC performance.

2.3. Advantages and Limitations of the Technology

Successful implementation of EMNR is contingent on both the effectiveness of the capping technology and the degree to which background site conditions are understood. If both aspects of implementation are realized, EMNR is expected to result in a stable, *in situ* sediment remedy that is accomplished with minimal short-term disturbance to the benthic ecosystem. As with all *in situ* remedies, limitations to success include the fact that the remedy leaves chemical

contaminants in place and that changes to site hydrodynamic conditions (such as resulting from long term variation in near-shore land use, flow magnitude, or tidal range) could impact the long term physical stability of the emplaced cap. Such limitations can be overcome; however, with careful design considerations and an accurate, site-specific understanding of the role that hydrodynamics plays in chemical fate and transport, and by institutional controls that limit anthropogenic disturbances of the remedy.

The primary advantage of EMNR is that it provides a low-cost alternative that takes leverages ongoing natural recovery processes and accelerates those processes to cost-effectively reduce ecological and human health risks. EMNR also minimizes ecological impacts that may be realized by more aggressive technologies like dredging and capping. By minimizing negative ecological impacts, EMNR may be more ecologically suited to existing habitats, and may be employed to accelerate post-remediation habitat recovery.

The primary disadvantages of EMNR are that it is generally more costly than a pure MNR remedy, the thin-cap provides only a minimal barrier over the contaminated sediments, and the sand materials that are generally used have limited binding capacity and thus may not always protect against porewater migration or other processes that may introduce contamination to the cap.

3. Performance Objectives

This project was designed to evaluate the performance and effectiveness of the Quantico EMNR remedy and the utility of available monitoring tools to address EMNR performance, short-term implementation success, the ability to project long-term remedy success, and the understanding of the mechanisms and processes that regulate EMNR effectiveness.

The demonstration was designed to provide baseline (pre-cap construction) monitoring and post-construction long-term monitoring at 2, 14 and 25 months after installation of the EMNR cap. Performance was analyzed using a combination of quantitative and qualitative tests to achieve the objectives of the project. The performance objectives are provided in Table 2. Additional details regarding the design of this study, data requirements, and statistical analyses are provided in section 5 Test Design and the Demonstration Plan (Chadwick et al., 2013).

This project was a field-scale demonstration designed to assess the performance and effectiveness of the Quantico Embayment TLC remedy. At the Quantico Embayment site, the EMNR cap was designed to address sediments that are moderately contaminated with the chlorinated pesticide dichlorodiphenyltrichloroethane (DDT) and its derivatives dichlorodiphenyldichloroethane (DDD) and dichlorodiphenyldichloroethylene (DDE). For this document, and unless specified by species, DDT, DDD, and DDE are defined collectively as DDX. The TLC was designed to accelerate natural system recovery by promoting sediment burial and reducing chemical exposures and risk to biological receptors.

The extent to which expected performance metrics were achieved was evaluated from data collected during the pre-construction baseline monitoring and post-construction monitoring. An overview of this sampling is provided below and detailed chronological information for the demonstration plan is provided in section 5 Test Design. Monitoring phases included: 1) pre-placement baseline of biological, physical, and chemical conditions; and 2) long-term monitoring (for this project, 2-years of monitoring) following TLC placement to evaluate remedy performance. Sampling during all monitoring phases focused on the capped area and on reference stations located outside of the capping area.

Although the duration of this project may not be sufficient for a full evaluation of long-term remedy effectiveness, results of this project do provide insight into the overall effectiveness of the EMNR remedy over the 2 year monitoring period. This demonstration project also evaluated the utility of various innovative tools and approaches to monitor remedy effectiveness; the efficacy of those tools also is evaluated herein. To the extent possible, the post-remedy 2-year monitoring results were used to project certain facets of long-term remedy effectiveness using empirical data, conceptual models, statistical analyses or other approaches; however, a fully-definitive evaluation of remedy performance may require longer-term monitoring. The need for additional monitoring is discussed in Section 8 and is also captured within the long-term monitoring plan for the site (Battelle and Neptune, 2010).

Table 2. Performance objectives for EMNR at Quantico Embayment.

Performance Objective	Data Requirements	Success Criteria	Success Criteria Met
PO1 Evaluate cap placement and determine physical stability of TLC	Sediment core profiling (visual classification)	Compare cap thicknesses with design specifications. Average cap thickness should not be less than 6 inches or a minimum cap thickness of 2 inches in the areas targeted for a 6-inch cap.	Yes
	Bathymetry	Compare bathymetric resolution with target thicknesses and sediment coring results. Bathymetric changes in elevation should be qualitatively consistent with cap thickness measurements made by coring. Compare elevation change measured by bathymetry with cap thickness specifications at coring stations. Average elevation change should be on the order of 6 inches and the majority of the cap area should show positive elevation change from 2014 baseline.	Yes
	Sediment Profile Imagery (SPI)	Compare baseline and post-placement SPI images. SPI camera able to distinguish TLC from native sediment and resolve cap thicknesses less than or equal to the camera penetration depth. SPI measured cap thickness should be qualitatively consistent with cap thickness measurements made by coring.	Yes
	Sediment Friction Sound Probe (SED-FSP)	Compare cap thicknesses with design specifications. FSP measurements should be able to distinguish TLC from native sediment and accuracy in identifying mixing depth within 50% of estimates indicated by grain size analysis of sediment cores.	Yes
PO2 Determine the extent of sediment and contaminant mixing	Sediment core profiling (visual classification)	Mixing and deposition layers are clearly visible and can be distinguished from cap material. Mixing and deposition layer thicknesses can be quantified to support interpretation of contaminant profiles.	Yes
	SPI camera	SPI camera able to distinguish mixing and depositional layers associated with the TLC. Provide qualitative estimates of the degree of mixing to support interpretation of contaminant profiles.	Yes
	SED-FSP	SED-FSP able to distinguish mixing and depositional layers associated with the TLC. Provide qualitative estimates of the extent of mixing and deposition to support interpretation of contaminant profiles.	Yes

Performance Objective	Data Requirements	Success Criteria	Success Criteria Met
	Surface sediment TOC, and grain size	Compare baseline, post-cap placement, and long-term monitoring results. Changes in TOC and grainsize can be used to quantify vertical mixing and deposition to support interpretation of contaminant profiles.	Yes
	Sediment Traps	Sediment trap mass provides quantitative estimate of new deposition. Sediment trap chemistry provides estimate of depositional flux to support interpretation of contaminant profiles.	Yes
	Surface sediment chemistry	Compare baseline, post-cap placement, and long-term monitoring results. Vertical mixing and deposition do not alter contaminant profiles sufficiently to cause failure of the EMNR remedy.	Yes
PO3 Evaluate surface sediment chemical concentration reductions	DDX analyses from core samples	Compare baseline, post-cap placement, and long-term monitoring results for core sample DDX levels. Significant reduction in DDX compared to baseline and/or levels should not increase beyond sediment PRGs; 650 ppb total DDX. Reduction in exposure compared to baseline is sustained over 2 years.	Yes
PO4 Evaluate reductions in chemical bioavailability and bioaccumulation	*In situ* bioaccumulation tests	Compare baseline, post-cap placement, and long-term monitoring results. Significant reduction in bioaccumulation and surface sediment porewater concentrations of DDX compared to baseline. Reduction in bioaccumulation and porewater concentrations compared to baseline levels are sustained over 2 years.	Yes
	DDX concentrations in sediment porewater with passive samplers (SPME)		Yes
PO5 Determine the rate of benthic recovery	Pre- and post-cap placement benthic taxonomic surveys	Measure and compare benthic community health indices across baseline, post-placement, and long-term monitoring data. Comparable or improved benthic community conditions relative to baseline by the end of the two year monitoring period.	Yes
	SPI camera images within and around perimeter of TLC footprint	Compare SPI results with taxonomic surveys. Identify infaunal successional stages, RPD depth, and bioturbation depth.	No due to method limitations

3.1. Performance Objective 1 (PO1): Evaluate Cap Placement and Determine Physical Stability of TLC

3.1.1. Introduction

The Navy implemented EMNR to remediate sediment containing elevated concentrations of DDX in portions of the Quantico Embayment. Effective performance is dependent on construction and the relative stability of the TLC, among other factors evaluated in other performance objectives. Placement uniformity and long-term TLC stability are important success criteria. Some level of redistribution and settling or consolidation is to be expected after cap placement in a natural environment.

Success was measured based on cap thickness by differentiating the cap material from the underlying native sediment as measured using multiple methods including sediment core profiling, bathymetry, Sediment Profile Imagery (SPI), and Sediment Friction Sound Probe (SED-FSP). Success of this phase of the project was evaluated based on the overall stability in the thickness of the cap over time, as well as by the ability of the different measurement techniques to gage the stability. While the coring measurements provide the most direct measure of cap thickness, they were limited spatially, so other measurements such as the bathymetric mapping, SED-FSP and SPI provide additional information on the spatial stability of the TLC. Stability of the EMNR cap was a reflection of the cap design and of site-specific conditions including placement accuracy and distribution, hydrodynamics, cap material grain size, natural sedimentation rates, and benthic mixing processes. Results provided insight into cap placement and thickness and into mixing processes that may have occurred during or after cap placement.

3.1.2. Sediment Core Profiling

3.1.2.1. Data Collection and Treatment

The depth of the cap-native sediment interface was recorded immediately following cap placement (confirmation coring) to confirm placement objectives were met, and again at the short term (2-months post-placement) and long term (14- and 25-months post-placement) monitoring events to measure stability of the TLC. The methods are detailed in Section 5 Test Design. The cap thicknesses visually observed for each of the five replicate cores at each multimeric station were averaged and compared to target design specifications. The design specifications stated the average cap thickness over the target area should not be less than 6 inches (15 cm) or a minimum cap thickness of 2 inches (5 cm) or less in the areas targeted for a 6-inch cap (other than in those areas where cap thickness is less than 2 inches by design).

3.1.2.2. Data Interpretation and Extent the Success Criteria Were Met

The performance objective was met since the average cap thickness as an average of all stations in each post-placement event and as an average of the five replicate cores at each station was greater than or equal to 6 inches (15 cm), and the minimum cap thickness always exceeded 2 inches (5 cm). Overall, the average thickness observed in the 2-month post-placement event (30 cm), decreased slightly in the first annual event (25 cm) and remained constant in the second annual event (25 cm). Results are discussed further in Section 5.7 (Sampling Results).

3.1.3. Bathymetry

3.1.3.1. Data Collection and Treatment

A bathymetry survey was made before and after cap placement by the construction contractor and as part of the long-term monitoring for IR Site 99 (NAVFAC WA 2010). The bathymetric survey was intended to provide contextual information for other analyses, rather than as a means of assessing either the constancy of cap thickness across the study area or the extent to which cap materials consolidate over time. Bathymetric survey data is known to have a certain amount of error associated with measurements, therefore this metric may not be useful on its' own to assess cap thickness over time, but the data is useful when used conjunction with other lines of evidence (sediment coring, SPI camera, SED-FSP). In addition, the bathymetric measurements only reflect changes in elevation which should be related to cap thickness but could be influenced by compaction of the underlying sediments and mixing. Despite these limitations, bathymetric survey and elevation data before cap placement were compared to post-placement surveys by simple subtraction to infer cap thickness through time and compared to other collected metrics. The methods are detailed in Section 5 Test Design.

3.1.3.2. Data Interpretation and Extent the Success Criteria Were Met

The performance objectives stated that the elevation change measured by bathymetry should be on the order of 6 inches and the majority of the cap area should show positive elevation change from 2014 baseline, and that the bathymetric changes in elevation should be qualitatively consistent with cap thickness measurements.

The performance objectives were met since within the target TLC area, the mean elevation increased by 7 inches and 6 inches from the baseline 2014 survey to the post-remedial 2015 and 2016 surveys, respectively (Table 3). In addition, the bathymetric difference mapping for 2015 and 2016 showed positive changes in elevation throughout the majority (>94% for 2015 and >82% for 2016) of the target cap area. Also, the bathymetric difference mapping for subtraction of the 2015 elevation from the 2016 elevation reflected the stability of the cap over the two years following placement, with generally very little change between the two post-cap surveys with a mean difference across the cap area of only -3 cm. Comparing the bathymetric elevation changes with the cap thickness measurements for the on-cap coring stations showed that the two measures were qualitatively comparable with the exception of station QT-3 where the bathymetry consistently showed a smaller change in elevation than was reflected in the cores. The average values for change in elevation showed a slight bias toward lower values than the coring which was expected due to compaction and mixing of the cap material with the native sediment.

Overall, the bathymetric surveys clearly show the changes in elevation related to the cap placement, and these measured changes were consistent with the target thickness for the cap. Annual surveys for the two years following the cap placement showed only very small changes in elevation, indicating that the cap appears to be relatively stable in elevation. Results are discussed further in section 5.7 (Sampling Results).

3.1.4. Sediment Profile Imagery

3.1.4.1. Data Collection and Treatment

The effectiveness of the SPI camera as a visual monitoring tool was a function of the degree to which the camera could differentiate between the native sediment and the TLC as well as the ability of the camera to penetrate into the TLC to a sufficient depth to resolve the vertical structure of the cap. The methods are detailed in Section 5 Test Design.

3.1.4.2. Data Interpretation and Extent the Success Criteria Were Met

The performance objectives for the SPI measurements stated that the SPI camera should be able to distinguish TLC from native sediment, resolve cap thicknesses less than or equal to the camera penetration depth, and that the SPI measured cap thickness should be qualitatively consistent with cap thickness measurements made by coring.

The objectives were met with qualifications because the SPI measurement was able to distinguish clearly between native and cap sediments. This allowed the SPI to be used to quantitatively gage the cap thickness so long as the cap thickness was less than or equal to the camera penetration depth. At stations where the cap thickness was greater than the camera penetration depth, only an upper bound for cap thick ness could be determined. The SPI and coring-based cap thickness measurements were consistent in that the SPI indicated average cap thicknesses of >4.9 inches and >5.4 inches for the 2014 and 2015 surveys, respectively, while the coring measurements indicated thicknesses of 8.5 inches and 10.7 inches for the corresponding years (Table 3). Due to limited penetration of the SPI camera at a large percentage of the stations, the 6 inch cap thickness metric could not be fully evaluated, but the measurements were generally consistent with this metric.

The broader spatial coverage of the SPI system provided additional insights beyond the limited coring stations, in particular in identifying areas of reduced cap cover. In the 2-month post construction survey (2014), 19 of 21 stations had a cap thickness of at least 2 inches (one station with 1 inch thickness was on the edge of the TLC). The sediment surface at cap stations during this survey showed primarily clean sands. Stations that were located 25 to 50 m away from the cap to the southeast appeared to be all native sediments with no cap sediment indicating minimal migration of the cap material. The cap appeared to completely cover the SPI stations located on the cap. In the 14-month event (2015), all on-cap stations had a cap thickness of at least 2 inches, with the exception of one station on the edge of the target area. Only Station 03 on the south-eastern edge of the cap site appeared to be without cap sediment. The SPI survey also was conducted in the 25-month sampling event; however, the results are currently pending.

Overall, the SPI system provided a useful means of distinguishing cap material from native sediment as a means of evaluating cap stability. The limited camera penetration at many sites did limit the ability to quantify the total cap thickness, so the measurement often only provided a lower bound. This limitation was related both to the difficulty of pushing the camera through sand, and the challenges of working off of a small boat in shallow water with a hand-push system, rather than the traditional weighted drive frame. Detailed results for the SPI surveys are provided in Section 5.7

3.1.5. Sediment Friction Sound Probe

3.1.5.1. Data Collection and Treatment

The SED-FSP was used in the determination of vertical mean particle size profiles to analyze cap thickness and stability. Usable data were limited to the 25-month event (2016). Friction sound profile data were interpreted to determine the depth of the cap-native sediment interface. Cap thicknesses were compared to performance objectives (described above) to determine cap placement and stability through time. Where the SED-FSP measurements were co-located with sediment coring, the two methods were compared to determine agreement. The methods are detailed in Section 5 Test Design.

3.1.5.2. Data Interpretation and Extent the Success Criteria Were Met

The performance objectives for the SED-FSP were to show that the SED-FSP measurements could distinguish TLC material from native sediment, that SED-FSP-measured cap thicknesses met the cap design specifications, and that the accuracy in identifying mixing depth by SED-FSP be within 50% of estimates indicated by the sediment cores.

The objectives were met because the SED-FSP was able to clearly distinguish cap material from native material. The SED-FSP results satisfied the performance objectives with an average thickness for cap and mixed material of about 12.8 inches (32.6 cm) at the on-cap stations with a minimum thickness of 6.5 inches (16.5 cm). Comparing the SED-FSP results with the coring measurements showed close agreement with the average thickness for the SED-FSP (cap and mixed material) for the five stations of 9.8 inches, and the average for the coring at 9.9 inches, well within the 50% level of agreement (Table 3).

The spatial distribution for the cap material from the SED-FSP mapping showed that undisturbed layers of the original cap material were still present at about half of the cap area at thicknesses exceeding 15 cm. When the mixed and cap material were considered, the results indicated thicknesses exceeding 15 cm throughout the capping area. Because mixing with native sediment and new deposits are expected over time at an EMNR site, these results indicate that the cap is behaving in a manner consistent with the EMNR concept. The maps also indicate no obvious movement of significant amounts of capping material into off cap areas, at least along the two transects that were surveyed to the east of the cap area.

The SED-FSP also provided additional insight into the vertical structure of the cap and its interaction with the underlying sediments and newly deposited sediment on top of the cap. The SED-FSP profiles provided a rapid, in-situ means of determining the thickness of the undisturbed capping material, as well as the thickness of these mixing layers on the upper and lower interfaces of the cap material.

Overall, the SED-FSP provided cap thickness measurements that were highly consistent with the sediment coring results, while providing a much more rapid means of characterizing the spatial and vertical distribution of cap material relative to the traditional coring methods. Detailed results for the SED-FSP survey are provided in Section 5.7.

3.1.6. Summary for Cap Thickness and Stability

Overall, the performance objectives for cap placement and stability were met. The sediment coring confirmed that the cap was remaining relatively stable over time, and the bathymetric mapping, SPI camera and SED-FSP system all provided confirmatory evidence for cap stability (Table 3; Figure 5). These additional measures also provided much broader spatial coverage which enhanced the understanding of the overall stability of the cap. Sediment core profiling demonstrated the average cap depth was at least inches 6 inches at all stations (average of 10 inches in the most recent long-term monitoring event). The bathymetric surveys clearly show the changes in elevation related to the cap placement, and these measured changes were consistent with the target thickness for the cap. In the SPI survey, only Station 03 on the south-eastern edge of the cap site appeared to be without cap sediment. SED-FSP was in general agreement with other measurements of thickness and provided additional insight into vertical mixing of the cap with underlying and newly deposited sediments.

Table 3. Summary and comparison of TLC thickness and stability over space and time.

Station	2014					2015					2016				
	Const	Coring	Bathy	FSP	SPI	Const	Coring	Bathy	FSP	SPI	Const	Coring	Bathy	FSP	SPI
QT-1	6.0	7.1	NA	NA	>4.2	NA	5.9	4.1	NA	0.0	NA	5.9	5.6	10.5	NA
QT-2	10.0	15.7	NA	NA	>3.3	NA	6.7	12.6	NA	3.5	NA	6.7	7.3	6.8	NA
QT-3	8.0	11.0	NA	NA	>7.2	NA	9.1	3.3	NA	8.7	NA	9.8	1.6	8.4	NA
QT-4	8.5	12.6	NA	NA	>4.6	NA	15.4	10.0	NA	6.3	NA	9.4	10.4	8.9	NA
QT-5	10.0	13.0	NA	NA	>5.3	NA	16.3	12.6	NA	>8.4	NA	17.5	12.2	14.5	NA
Average	8.5	11.9	NA	NA	>4.9	NA	10.7	8.5	NA	>5.4	NA	9.9	7.4	9.8	NA

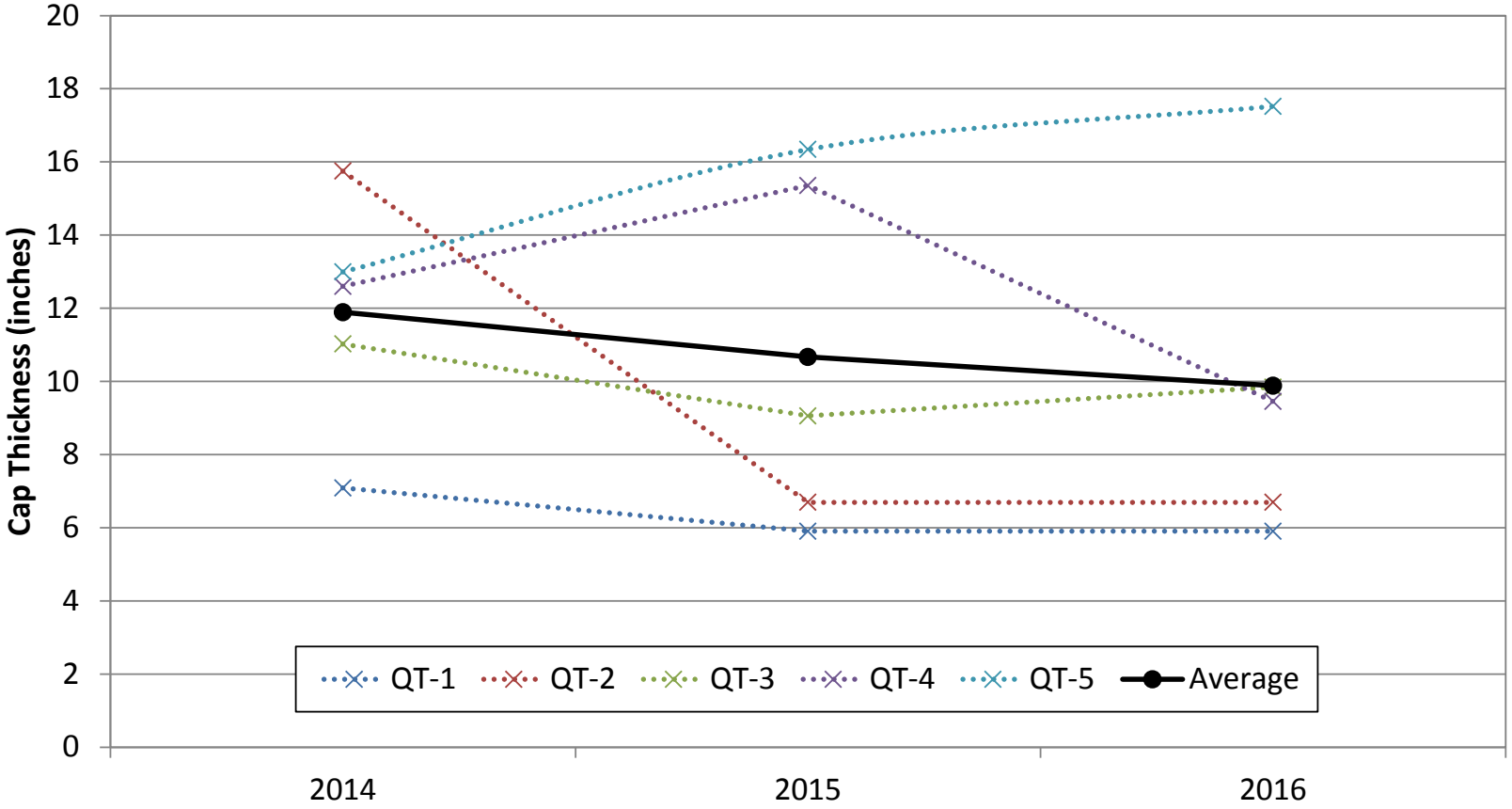


Figure 5. Trends in sediment core visual cap thickness over the three survey events for the five on-cap monitoring stations and the overall average thickness.

3.2. Performance Objective 2 (PO2): Determine Extent of Sediment and Contaminant Mixing

3.2.1. Introduction

The effectiveness of the TLC remedy is a function of the degree to which it controls surface sediment chemical concentrations with time, reducing chemical exposures and bioavailability. The effectiveness of EMNR in reducing surface sediment concentrations is influenced by the both the extent and depth of TLC mixing with underlying sediment and the deposition of new sediment on top of the cap. This performance objective evaluated the extent of sediment mixing from these processes after placement of the TLC. Effective performance of EMNR relies on relative stability of the TLC and subsequent deposition of relatively clean sediment to promote sediment burial and to limit environmental exposure to the untreated underlying sediment. The goal was not necessarily to eliminate sediment mixing, but to limit mixing with underlying sediment so that DDX concentrations in the cap remain below target concentrations[1], and to assure that new sediment depositing on to the cap were not leading to recontamination of the surface sediment. At most contaminated sediment sites, some level of surface sediment recontamination is likely. The issue is whether recontamination due to mixing exceeds target remedial goals, and whether recontamination enters the site from an off-site source (i.e., top-down) or from underlying and buried sediment (i.e., bottom-up). The analysis of sediment mixing was used to differentiate surface sediment depositional processes versus contaminant migration via bioturbation mixing and resuspension/redeposition.

Data collected to support assessment of this performance objective included measures that elucidated the mixing and deposition of sediment, and measures that directly measured the mixing and deposition of contaminants. In this project, we evaluated the use of sediment core visual analysis, sediment core TOC and grain size analysis, SPI camera, SED-FSP, and sediment trap mass collection as measures of sediment mixing and deposition. We also evaluated sediment core contaminant profiles for direct measurement of the influence of mixing and deposition on contaminant distributions within the TLC. Visual analysis of sediment cores was used to qualitatively evaluate evidence of mixing within the cap over time based on observable differences in coloration and particle size between the native material, new deposition material, and the TLC material. TOC and grain size analysis provided a more quantitative measure of these same differences. SPI camera results were particularly useful for distinguishing sediment deposition layers and surface sediment mixing zones. The SED-FSP provided evidence for both bottom-up and top-down mixing based on vertical variations in mean grain size (limited to the 2016 event). Material collected in the sediment traps was used to estimate the mass flux of depositional sediment to the cap as well as the contaminant flux associated with this deposition. Vertically-segmented bulk sediment chemistry measurements provided a direct measure of the vertical movement of contamination associated with mixing and deposition processes. And finally, passive sampler porewater profiling was used to evaluate changes in porewater exposure

[1] Remedial goals identified in Section 2.7 of the Record of Decision (NAVFAC 2011) for Site 99 Quantico Embayment and PRSA1 sediment: DDX – 650 µg/kg; PCBs – 730 µg/kg (protection of fish) and 1,195 µg/kg (protection of birds).

that might have been associated with mixing processes or other porewater processes such as advection or diffusion.

Success of this performance objective was gaged by how well these measures could assess benthic mixing, and ultimately by how these processes influenced the broader performance metric for surface sediment exposure and ecological response (see PO4 and PO5). As with all natural environments, sediment mixing was expected to occur, and TLCs are not necessarily designed to prevent mixing. This element of the project focused on quantifying the extent of sediment mixing and the extent to which these processes increased or reduced the exposure to DDX in surface sediments.

3.2.2. Sediment Core Profiling

3.2.2.1. Data Collection and Treatment

Sediment cores collected during the short term (2-months post-placement) and long term (14- and 25-months post-placement) events were used to visually evaluate mixing of native sediments in cap material. The sediment collection methods are detailed in Section 5 Test Design and photologs of cores are shown in Appendix E. Core photos were examined for mixing based on observable differences in coloration and particle size between the native material, new deposition material, and the TLC material. The visual analysis of replicate sediment core images from stations on the cap footprint were then used in conjunction with physical and chemical measures discussed above to evaluate the degree of mixing within the TLC. The methods are detailed in Section 5 Test Design.

3.2.2.2. Data Interpretation and Extent the Success Criteria Were Met

The success criterion was met, subject to the limitations below, because visual confirmation of mixing was observable from sediment core profiling. From the core photographs, we identified three classes of mixing that could influence the performance of the TLC including:

- Bottom-up mixing of native sediment with the TLC
- Thickness of new deposits on top of the TLC
- Top-down mixing of new deposits with the TLC
- Interleaving of native sediment with TLC strata likely associated with disturbance during or after TLC installation

The visual analysis was limited especially at the native-cap interface as the TLC aged, where it was often difficult to determine if mixed silt and sand layers were associated with the cap or were purely native materials. General observations from the analysis showed that the cap was largely undisturbed at the 2-month event (2014) with minimal mixing or deposition detectable from the visual analysis, although there was evidence of interleaving especially in the more southerly stations (QT4 and QT5). The 14-month (2015) and 25-month (2016) events showed relatively similar results with a significant degree of top-down mixing, but still minimal bottom-up mixing. There was also a slight trend toward increasing deposition on top of the cap observed between 2015 and 2016. The visual observations were qualitatively consistent with the measurements for TOC and grainsize. Detailed results for the coring survey are provided in Section 5.7.

3.2.3. Total Organic Carbon

3.2.3.1. Data Collection and Treatment

Total organic carbon content was measured in 3 surface sediment intervals in the top 7 cm of the cap, bottom of the cap, and 3 intervals in the top 7 cm of the native sediment. Sediment samples were obtained prior to and following TLC placement (2-, 14-, and 25-month post-placement), on and off cap. Measurements in these intervals were used to understand mixing of deposited material from the top down, mixing within the cap and mixing of the cap with the underlying sediments. The methods are detailed in Section 5 Test Design.

3.2.3.2. Data Interpretation and Extent the Success Criteria Were Met

The performance objective for the TOC measurements was to compare baseline, post-cap placement, and long-term monitoring results to determine if changes in TOC could be used to quantify vertical mixing and deposition to support interpretation of contaminant profiles. The success criterion was considered to be met if observations as to whether mixing occurred could be made. Because the native material was relatively high in TOC and the cap material was very low in TOC, the contrast in TOC provided a means of evaluating the interaction between these two endpoints. New sediment deposition was also expected to be relatively in high in TOC compared to the TLC material. The analysis is considered to be qualitative because (1) TOC is not a conservative property and thus the endpoint values can shift over time, (2) different TOC methods were used over the course of the project that may have had differing extraction efficiencies, and (3) the measurements were only made in portions of the cap.

The success criterion was met, subject to the qualitative limits described above, because TOC content depth profiles allowed for observations as to whether mixing occurred, informed our understanding of the general mechanisms of mixing, and provided a basis for interpreting the vertical variations in contaminant concentrations observed in the cap.

Two primary mixing processes were observed based on the TOC data. In the 2-month event (2014), there was evidence of some of the sampling strata between 0-7 cm below the SWI having elevated TOC levels for the mid to southern station (3, 4 and 5). These elevated levels were attributed to disturbances that likely occurred during the installation of the TLC and were consistent with the visual observations that showed a higher presence of interleaved dark sediment layers in the cap at these stations. Over time, the TOC data suggests that top-down mixing became the more dominant process with more uniform TOC levels through the cap across all stations, and with TOC levels showing progressively less contrast in concentration compared to the TOC levels in the native sediments below the cap. By the 25-month event, TOC content was nearly uniform in the top 7 cm of the TLC at each station, indicating mixing within the surface cap materials. Stations 2, 4 and 5 maintained lower surface sediment TOC content relative to underlying sediment, indicating less top-down mixing. The interval 0-2 cm above the cap-native sediment interface remained lower in TOC content through 25 months and across all stations, indicating the relative stability of the lower interface and in general a low degree of bottom-up mixing. Overall, the results seem to indicate that initial disturbance associated with the installation, followed by longer-term top-down mixing were the most prevalent mechanisms leading to the observed patterns. Detailed results for TOC are provided in Section 5.7.

3.2.4. Grain Size

3.2.4.1. Data Collection and Treatment

Grain size was measured in 3 surface sediment intervals in the top 7 cm of the cap, bottom of the cap, and 3 intervals in the top 7 cm of the native sediment. Sediment samples were obtained prior to and following TLC placement (2-, 14-, and 25-month post-placement), on and off cap. Measurements in these intervals was used to understand mixing of deposited material from the top down, mixing within the cap and mixing of the cap with the underlying sediments. The methods are detailed in Section 5 Test Design.

3.2.4.2. Data Interpretation and Extent the Success Criteria Were Met

The performance objective for the grain size measurements was to compare baseline, post-cap placement, and long-term monitoring results to determine if changes in grain size could be used to quantify vertical mixing and deposition to support interpretation of contaminant profiles. The success criterion was considered to be met if observations as to whether mixing occurred could be made. Because the native material was relatively high in fines (silt and clay) and the cap material was very low in fines, the contrast in fines (or sand content) provided a means of evaluating the interaction between these two endpoints. New sediment deposition was also expected to be relatively in high in fines compared to the TLC material. The analysis is considered to be qualitative because there is still a significant sand fraction in the native material and it is not possible to clearly distinguish between the sand associated with the native material and the sand associated with the cap, and the measurements were only made in portions of the cap.

The success criterion was met, subject to the limitations described above, because fines/sand content depth profiles allowed for observations as to whether mixing occurred, informed our understanding of the general mechanisms of mixing, and provided a basis for interpreting the vertical variations in contaminant concentrations observed in the cap.

From the baseline measurements, sand content in the native material ranged from about 80% in the northern part of the site, to about 40% in the southern part of the site. The cap material was essentially 100% sand. During the Month-2 monitoring event, the upper 7 cm was dominated by sand (92% on average). Stations in the southern end of the cap footprint (Stations 3, 4 and 5) showed a higher influence of fines, consistent with the TOC measurements, reinforcing the interpretation that there was some level of disturbance of the native sediment during the TLC. During the 14-month event, the upper 7 cm had a somewhat higher sand content compared to the 2-month event (95% on average), with the primary indication of mixing at Station 3. By the 25-month event, the percent of sand decreased in the top 7 cm overall (91% on average) and particularly at Stations 1 and 3 where fines content in the 10-20% range was observed throughout the upper layers of the TLC. The interval 0-2 cm above the cap-native sediment interface remained sand-dominated through 25 months, indicating the relative stability of the lower interface, and the general lack of bottom-up mixing. Consistent with the TOC measurements, the grain size results seem to indicate that initial disturbance associated with the installation, followed by longer-term top-down mixing were the most prevalent mechanisms leading to the observed patterns. Detailed results for grain size are provided in Section 5.7.

3.2.5. SPI Survey

3.2.5.1. Data Collection and Treatment

SPI images were collected throughout the TLC area and at off-cap stations. To evaluate mixing, the images were classified as to the grain size major mode, and comments were assigned as to the presence of fines in relation to cap materials. Because of the limitations discussed previously on penetration depth, the SPI results were generally only applicable to evaluating top down mixing or the presence of fines within the upper portions of the cap. The methods are detailed in Section 5 Test Design.

3.2.5.2. Data Interpretation and Extent the Success Criteria Were Met

The performance objective for the SPI camera was to be able to distinguish mixing and depositional layers associated with the TLC in order to provide qualitative estimates of the degree of mixing to support interpretation of contaminant profiles. The SPI camera grain size major mode and comments were evaluated. Grain size major modes with silt present in on-cap stations were interpreted as being influenced by mixing, because the TLC material was essentially entirely made up of sand. Station comments indicating a fines layer residing on top of the cap were interpreted to indicate new deposition on top of the TLC. Results were not evaluated in detail for the mechanism of mixing, however the common presence of a deposition layer and fine material penetrating into the cap was inferred to indicate potential top-down mixing. The analysis was considered qualitative because the visual analysis of images is inherently qualitative, the SPI results did not include detailed analysis of vertical distribution of fines, the penetration of the camera generally did not extend fully through the TLC, and the 25-month survey data were not available for analysis. The SPI camera did provide a broader spatial evaluation of mixing relative to the limited locations for the coring survey.

The success criterion was met, subject to the qualitative limits described above, because SPI images allowed for observations as to whether mixing occurred, informed our understanding of the spatial distribution of mixing, and provided a basis for interpreting the vertical variations in contaminant concentrations observed in the cap.

Results from the 2-month event generally showed an intact TLC with minimal mixing and deposition. Of the 22 stations surveyed, only 6 (27%) showed evidence of fines within the cap and only 4 (18%) showed evidence of a depositional layer on top of the cap. In general, the depositional layers that were observed were noted as “floc” layers. Only 2 stations (9%) showed evidence of both fines within the cap and deposition on top of the cap, indicating that top-down mixing was likely very limited within this short time frame following construction of the TLC. In contrast, by the time of the 14-month event, of the 23 stations surveyed, 10 stations (43%) showed evidence of fines within the cap, 9 stations (39%) showed evidence of deposition on top of the cap, and 8 stations (35%) had both conditions. This suggests that deposition and top-down mixing were much more prevalent 14 months after construction of the cap. The findings are consistent with the visual observations from the sediment cores, but provide a much broader spatial assessment than the limited coring stations. Detailed results for SPI surveys are provided in Section 5.7.

3.2.6. Sediment Friction Sound Probe

3.2.6.1. Data Collection and Treatment

The SED-FSP was used in the determination of vertical mean particle size profiles to analyze deposition and mixing within the cap. Usable data were limited to the 25-month event (2016). Friction sound profile data were interpreted to determine the extent of mixed layers above and below the TLC, and the thickness of any depositional layer on top of the cap. The methods are detailed in Section 5 Test Design.

3.2.6.2. Data Interpretation and Extent the Success Criteria Were Met

The performance objective for the SED-FSP was to be able to distinguish mixing and depositional layers associated with the TLC and provide qualitative estimates of the extent of mixing and deposition to support interpretation of contaminant profiles. The SED-FSP mean grain size profiles were evaluated. Mean grain size data were interpreted as:

- Predominantly Native Sediment/New Deposition: $D50 \leq 100$ μm
- Mixed Native Sediment/Sand Cap Material: $100 < D50 \leq 300$ μm
- Predominantly Sand Cap Material: $300 < D50$ μm

Using these definitions, cap thickness was determined from the SED-FSP profiles, along with estimated thicknesses for deposition layers on top of the cap, and mixing layers between new deposition and cap material, and underlying native sediment and cap material.

The analysis was considered qualitative because the SED-FSP is a screening tool for particle size, the SED-FSP could not distinguish between sand associated with the cap and native sand, and data were only available for the 25-month event. The SED-FSP camera did provide a broader spatial evaluation of mixing relative to the limited locations for the coring survey.

The success criterion was met, subject to the qualitative limits described above, because SED-FSP data allowed for observations as to whether mixing occurred, informed our understanding of the spatial distribution of mixing, and provided a basis for interpreting the vertical variations in contaminant concentrations observed in the cap.

Results from the 25-month event showed that depositional layers and mixing were clearly evident in the SED-FSP mean grain size profiles. Out of the 24 on-cap stations evaluated in the survey, all 24 (100%) had at least a trace layer of new deposition, 23 (96%) showed evidence of top-down mixing, 22 (92%) showed evidence of bottom-up mixing, and 7 (29%) showed evidence of interleaved layering. Consistent with the other measures of mixing, top-down mixing was generally more significant with an average extent over the on-cap stations of 8.3 cm, compared to an average of 4.5 cm for bottom-up mixing. The average depth of the new deposition layer at the on-cap stations was 3.7 cm. Overall, the SED-FSP provided a rapid means of assessing the spatial distribution of mixing and new deposition and its potential influence on the TLC. Detailed results for SED-FSP surveys are provided in Section 5.7.

3.2.7. Sediment Traps

3.2.7.1. Data Collection and Treatment

The sediment trap data were used in the determination of depositional mass loading and contaminant flux to the surface of the cap to support evaluation of deposition and mixing within the cap. Data were available from three events including the fall baseline event in 2009, the post-cap survey in September 2014, and the post-cap survey in August 2016. During each event, traps were placed at three locations including the north, mid and south areas of the cap. The sediment trap methods are detailed in Section 5 Test Design.

3.2.7.2. Data Interpretation and Extent the Success Criteria Were Met

The performance objectives for the sediment trap survey were that sediment trap mass would provide quantitative estimates of new deposition and that sediment trap chemistry would provide estimates of depositional flux to support interpretation of TLC contaminant profiles. The analysis was considered quantitative because it provided a direct measure of the mass and contaminant flux to the top of the cap. However, the quantification is subject to a number of limitations including that that data were only collected during a 2-3 week portion of the summer season, the data were not collected during every sampling event, the data were collected at a limited number of stations, and the traps do not distinguish between new deposition and localized resuspension.

The success criterion was met, subject to the limitations described above, because sediment trap data allowed for observations of the deposition rate and mass flux of DDX to the top of the cap, informed our understanding of the spatial distribution of deposition and top-down mixing, and provided a basis for interpreting the vertical variations in contaminant concentrations observed in the cap.

Results for deposition rates ranged from 5.6 – 14 $g/cm^2/y$ across the stations and the events. A consistent spatial trend was observed across the events with highest deposition rates at the North station, while the deposition rates at the Mid and South stations were generally comparable. These rates translate to deposition thicknesses in the range of 4.3 – 9.0 cm/y, which are relatively high and likely represent a combination of both new deposition and local resuspension. Analytical results indicated that deposited sediments were dominated by fines with sand fractions generally in the range of 10%. TOC content in the trap samples generally decreased following the capping and was consistent with off-cap TOC levels from the surface sediments at the reference stations. Chemical concentrations for DDX showed a clear trend with reduced concentrations of total DDX following the cap placement as reflected in the low concentrations in trap materials from the 2014 and 2016 events. Averaged across the cap stations the reductions in trap sediment concentrations for the 2014 and 2016 events were about 70% and 65%, respectively. As with the trap concentrations, the depositional fluxes showed a marked decrease following the installation of the cap with reductions in mass flux of total DDX of about 63% for 2014 and 72% for 2016. Overall, the sediment trap results indicate relatively high deposition (or re-deposition) rates, with DDX concentrations in the depositing sediments substantially lower in both of the post capping sampling events, and grain size, TOC and DDX content of the post capping trap sediments consistent with the characteristics of off-cap sediments to the east of the capping area. Detailed results for SED-FSP surveys are provided in Section 5.7.

3.2.8. Bulk Sediment Chemistry

3.2.8.1. Data Collection and Treatment

Bulk sediment chemistry samples were collected from cores at on-cap locations, and in grab samples at off-cap locations. Concentrations of DDX were measured in 3 surface sediment intervals in the top 7 cm of the cap, bottom of the cap, and 3 intervals in the top 7 cm of the native sediment. Sediment samples were obtained prior to and following TLC placement (2-, 14-, and 25-month post-placement), on and off cap. Measurements in these intervals were used to understand mixing of deposited material from the top down, mixing within the cap, and mixing of the cap with the underlying sediments. Statistical analyses were performed as detailed in Section 5.6 Sampling Methods.

3.2.8.2. Data Interpretation and Extent the Success Criteria Were Met

The performance objective for the bulk sediment sampling was to compare baseline, post-cap placement, and long-term monitoring results to verify that vertical mixing and deposition did not alter contaminant profiles sufficiently to cause failure of the EMNR remedy. Changes associated with top-down mixing were expected to show up in the 3 surface sediment intervals, while changes associated with bottom-up mixing were expected to be detected in the cap interval above the cap/native sediment interface. Changes within the cap associated with larger scale disturbance (for example during installation) were expected to be detected by the bulk sediment sampling just after construction during the 2-month event prior to any significant opportunity for other types of mixing to be influential. The analysis was considered quantitative because the DDX concentrations were measured directly in the intervals of interest. However, the approach was limited by the lack of continuous sampling intervals throughout the cap, by the availability of only three baseline stations versus five post-construction monitoring stations, by the lack of broader spatial coverage based on the limited number of stations, and by the heterogeneity associated with the distribution of DDX at the site.

The success criterion was met, subject to the qualitative limits described above, because the bulk sediment sampling allowed for quantitative comparisons of the DDX concentrations in the cap intervals that were expected to be most strongly influenced by mixing. Along with the other measures described above, the bulk sediment measurements provided key observations as to the types and magnitude of mixing and the degree to which it influenced the success of the EMNR remedy.

During the short-term monitoring event (2-months post-TLC), average DDX concentrations in 0-2 cm below SWI (535 µg/kg dw) had greater concentrations than both the 2-5 cm (31 µg/kg dw) and 5-7 cm (64 µg/kg dw) below SWI intervals. These trends held constant in the 14 month event, with concentrations being the greatest in the surface layer, 0-2 cm (210 µg/kg dw) compared to the 2-5 and 5-7 cm intervals, which had concentrations of 50 and 52 µg/kg dw, respectively. Results from the 25-month event show a relatively uniform profile of low DDX concentrations for the 0-2, 2-5 and 5-7 cm below SWI intervals; results were 52, 46 and 56 µg/kg dw, respectively. These results indicate that the higher levels of DDX observed during the 2- and 14-month events was likely the result of disturbance during the installation of the cap, since the elevated levels were present immediately following construction and were primarily

found on in the surface interval of the cap. The reductions in concentration observed over the longer term during the 25-month event suggest that a combination of deposition of cleaner material and top-down mixing into the cap led to reductions of these initially elevated levels of DDX. Additionally, DDX concentrations in the 0-2 cm above the cap native sediment interface generally remained low throughout the entire monitoring period, indicating minimal bottom-up mixing influence on the TLC. Detailed results for bulk sediment chemistry are provided in Section 5.7.

3.2.9. Summary

Overall, the performance objectives for sediment and contaminant mixing in the cap were met. Multiple lines of evidence indicated that the dominant processes observed were some disturbance associated with the installation of the cap, followed by longer term top-down mixing. The SPI camera results and the SED-FSP results provided a broader spatial context, while the visual analysis, TOC, grain size, and bulk sediment chemistry provided a more detailed and quantitative assessment of the focus stations at the site. While the long-term trends indicate that top-down mixing is ongoing and wide spread, the material depositing at the site appears to be relatively low in concentration, and thus the top-down mixing is not expected to result in a loss of performance of the EMNR remedy. Importantly, the multiple lines of evidence also indicated the relatively limited amount of bottom-up mixing. This is critical to the performance of the TLC because bottom up mixing could bring higher concentration sediments into the surface zone where biological exposure is much more likely. These findings were confirmed by the bulk sediment chemistry data that indicated minimal change in the DDX concentrations in the bottom interval of the cap just above the native sediments.

3.3. Performance Objective 3 (PO3): Evaluate Surface Sediment Chemical Concentration Reductions

3.3.1. Introduction

Reduction in surface sediment concentrations was a key remedy objective for the TLC in order to reduce the ecological risk of DDX exposure. As described above, processes such as bottom-up mixing of native sediment, or top-down mixing of new deposition had the potential to influence the success of the EMNR remedy in achieving the expected reductions in surface sediment concentrations. Under this performance objective, we evaluated the performance of the remedy with respected to achieving the desired level of reduction in concentration in surface sediments.

Data required for the assessment of the performance objective included DDX concentrations in surface sediment samples and sediment cores. Results for the performance objective were supplemented by the results of the cap mixing PO2, which provide information on mixing rates and extent. Sediment samples were obtained prior to and following TLC placement (2-, 14-, and 25-month post-placement) on and off cap.

Success was measured by the change in surface sediment DDX concentrations following the installation of the cap, and the long-term persistence of the change out to the 25-month sampling event.

3.3.2. DDX analyses for surface sediments

3.3.2.1. Data Collection and Treatment

Concentrations of DDX were measured within the TLC and in the native sediment. Sediment samples were obtained prior to and following TLC placement (2-, 14-, and 25-month post-placement) on and off cap. Performance of the remedy focused on the changes in the surface sediment layer where exposure was most likely. At on-cap locations, undisturbed, intact, continuous sediment cores were collected in general accordance with ASTM 1391 (ASTM 2008), utilizing a TLC integrity coring device. Five cores were collected at each station, the cores were sub-sectioned into pre-defined intervals, and the intervals were composited. Off-cap surface sediment samples (0-10 cm) were collected with a petite Ponar grab sampler.

For the purposes of this analysis, the surface sediment at on-cap locations was represented by the average of the upper three intervals of the core samples that extended from the sediment-water interface down to 7 cm. Total DDX concentrations were reported on both a dry weight and organic carbon normalized basis. However, because the organic carbon levels in the cap were very low, due to changes in TOC analytical methods over the course of the study, and because the site PRGs were not normalize, the organic carbon normalized concentrations were considered unreliable and were not used in the assessment of the performance objective. The results thus focused on the un-normalized total DDX concentrations. Details of the sampling methods and statistical analyses that were performed are provided in Section 5.6 Sampling Methods.

3.3.2.2. Data Interpretation and Extent the Success Criteria Were Met

The performance objective for the surface sediment sampling was to compare baseline, post-cap placement, and long-term monitoring results for DDX levels to determine if significant reductions in DDX occurred compared to baseline, that reductions were maintained of the long term (2 years), and that levels were consistently below the sediment PRGs of 650 ppb total DDX. Based on the conceptual model for EMNR, changes in surface sediment concentrations were expected to occur immediately following the installation of the TLC and approach levels consistent with the low concentration in the TLC material. After that time, surface sediment concentrations were expected to slowly trend toward the regional background concentration as deposition and top-down mixing continued to influence the remedy. The analysis was quantitative in that DDX concentrations were directly measured in the surface sediments at all of the time intervals of the study. However, the assessment was limited in that measurements were only performed at five on-cap stations, measurements were only performed during the summer season, and the monitoring only extended for a period of two years.

The success criterion was met, subject to the limitations described above, because the DDX concentrations in the surface sediment were immediately reduced following the installation of the TLC, the reductions persisted throughout the monitoring period for up to two years, and the average concentrations in the surface sediment intervals were always below the PRG. The assessment was also supported by the findings of PO2 which indicated that bottom-up mixing of the contaminated underlying sediments was limited, and that top-down mixing, while prevalent, was associated with relatively clean deposits of new sediment material which did not adversely impact the surface sediments of the TLC.

Concentrations of total DDX in surface sediment (top 7 cm below SWI) were an average of 973 µg/kg, dw in the baseline 2 event, decreased in the short-term monitoring (210 µg/kg, dw) and continued to decrease in the first and second annual long-term post-placement events (104 µg/kg, dw in the 14-month event and 51 µg/kg, dw in the 25-month). Significant reductions in log transformed concentrations of total DDX in surface sediment (top 7 cm below SWI) between the baseline and 2-month ($p = 0.02$, 77% decrease), 14-month ($p = 0.002$, 48% decrease) and 25-month ($p < 0.0001$, 91% decrease) events were observed (Figure 6). While monitoring stations 1 and 4 were not included in the percent reductions due to lack of co-located baseline stations, concentrations of total DDX in surface sediment at these stations were also well below the PRG. Greater reductions were observed on cap than off cap stations for each event, on average in the top 7cm below SWI. In the short term, Reductions off cap in the 2-month event were 52% at the off cap stations compared to 77% decrease observed at the on cap stations (Figure 6). Over the long term, reductions of 39% and 41% were found at the off cap station while decreases of 48% and 91% were observed at the on cap stations for 14- and 25-month events, respectively. As shown in Figure 6, the 14-month event has wide variability for average on-cap percent reductions, which is driven by an increase in DDX concentrations at monitoring station 2, from 170 to 510 µg/kg. Excluding this value results in a reduction of 79 ± 39%. Additionally, comparisons of DDX reductions were made between the TLC material (0-7 cm below SWI) and the underlying native sediment (0-7 cm below cap-native sediment) for each monitoring event. Again, significant reductions in log DDX concentrations were observed in the short-term event ($p < 0.001$, 55% decrease), the first annual post-placement event ($p=0.02$, 17% decrease), and the

last long-term post-placement monitoring event (p <0.001, 81% decrease). Detailed results for bulk sediment chemistry are provided in Section 5.7.

3.3.3. Summary

The analysis for PO3 indicated that the TLC surface sediment is remaining below pre-TLC placement levels and that recontamination from either top-down or bottom up mixing has not occurred to an extent that would compromise the remedy. Thus the success criteria were met. Bulk sediment chemistry found reductions in concentration of total DDX were below the PRG, significant reductions over time as well as significantly lower concentrations in the TLC compared to underlying native sediment, and reductions for on cap stations were greater than off cap stations for all events on average. Sediment traps indicated relatively high deposition rates of material with lower concentrations in the post-placement events compared to baseline.

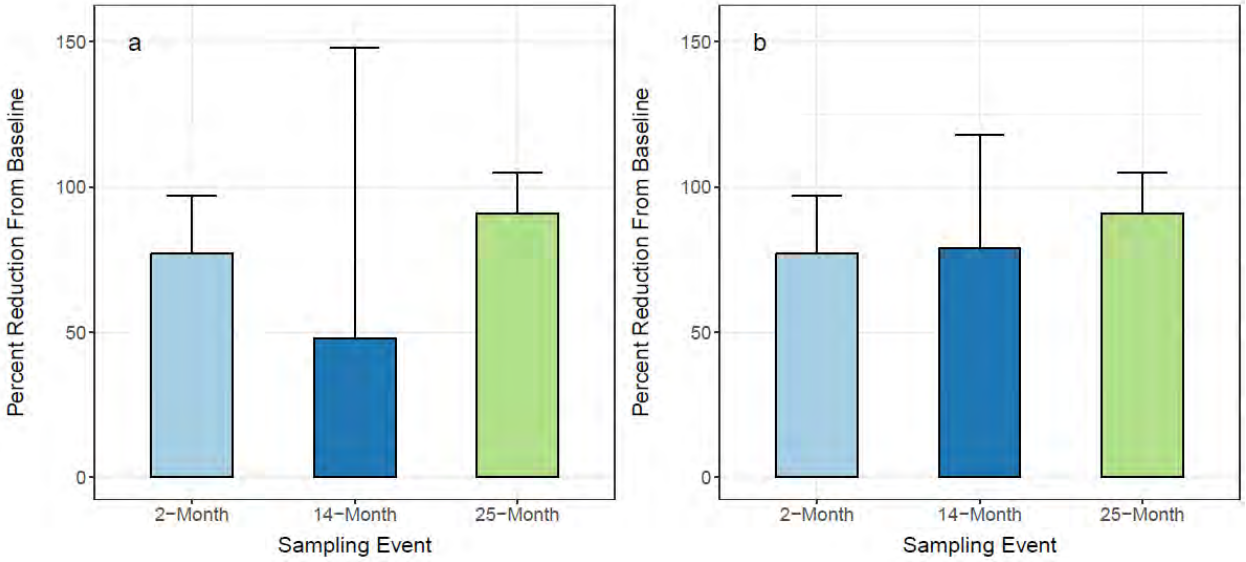


Figure 6. Reduction in surface sediment (0-7 cm) total DDX concentrations compared to baseline (%) including all data (a) and excluding increase of DDX concentrations at one station during the 14-month event (b).

3.4. Performance Objective 4 (PO4): Evaluate Reductions in Chemical Bioavailability and Bioaccumulation

3.4.1. Introduction

Reducing the concentration of DDX in surface sediment was expected to in turn reduce exposure of the native benthic invertebrate community, potential direct adverse effects, as well as reduction in the potential to indirectly or directly adversely affect higher trophic level fish, birds, and mammals. The extent to which the TLC contributed to reductions in bioavailability and consequently reduced the potential for bioaccumulation up the food web was the focus of this performance objective.

The parameters to evaluate changes in bioavailability and bioaccumulation included direct measurement of DDX concentrations in benthic invertebrate tissue using *in situ* bioaccumulation testing, as well as measurement of sediment porewater concentrations with *ex situ* passive samplers as an indicator of the bioavailable chemical fraction in sediments. Success was measured based on reduction in uptake by benthic invertebrates as measured by *in situ* bioaccumulation testing, and reductions in surface sediment porewater DDX concentrations as measured by *ex situ* passive samplers, respectively.

3.4.2. *In Situ* Bioaccumulation

3.4.2.1. Data Collection and Treatment

The Sediment Ecosystem Assessment Protocol (SEAP) technology was used for *in situ* bioaccumulation testing with oligochaete *Lumbriculus variegatus* and clam *Corbicula fluminea*. Multi-metric stations on and off cap were monitored pre- and post-placement in short-term and long-term monitoring events. Concentrations of DDX in tissue were lipid normalized to account for variation in tissue lipid content. Statistical analyses were performed to determine whether significant reductions in uptake in the short- and long-term timeframes were observed. Details of the sampling methods and statistical analyses that were performed are provided in Section 5.6 Sampling Methods.

3.4.2.2. Data Interpretation and Extent the Success Criteria Were Met

The performance objective for the bioaccumulation testing was to compare baseline, post-cap placement, and long-term monitoring results to verify that significant reduction in bioaccumulation of DDX occurred compared to baseline, and that reductions were sustained over 2 years. Based on the conceptual model for EMNR and the observed changes in the surface sediment concentrations, reductions in bioavailability of DDX were expected to occur immediately following the installation of the TLC and consistent with the low DDX concentration in the TLC material. After that time, low levels of bioavailability were expected to be maintained as deposition and top-down mixing of relatively clean material continued to influence the remedy. The analysis was quantitative in that DDX concentrations were directly measured in the tissues of organisms exposed to site surface sediments at all of the time intervals of the study. However, the assessment was limited in that measurements were only performed at five on-cap stations, measurements were only performed during the summer season, and the monitoring only extended for a period of two years.

The success criterion was met with some qualifications and subject to the limitations described above. The average reductions in bioaccumulation of total DDX in *Lumbriculus variegatus* tissue in the 2-, 14- and 25-month post remedy across the on cap stations were 72%, 67% and 86%, respectively (lipid weight basis). Significant reductions were observed in both the short-term and long-term monitoring. Greater reductions in the 25-month event indicated the remedy was performing as intended. Reductions of total DDX in *L. variegatus* tissue at the off-cap stations also indicates the potential that the EMNR remedy is having a positive effect at off-cap locations, or that natural recovery is occurring as well, or both (71% reduction in 25-month post-placement monitoring event). For *Corbicula fluminea*, average reductions in uptake of total DDX in tissue in the 2-, 14- and 25-month post remedy across the on cap stations were 55%, 25% and 33%, respectively (lipid weight basis). Short-term reductions were statistically significant; however, reductions in the long-term events were not statistically significant, largely due to variability associated with observations at Station 3. Thus overall, bioaccumulation was reduced for both organisms and in all survey events compared to baseline, however the reductions in the longer term events for *Corbicula fluminea* were not statistically significant.

3.4.3. Surface Sediment Porewater (*Ex Situ* Passive Sampling)

3.4.3.1. Data Collection and Treatment

Concentrations of DDX congeners in surface sediment porewater were measured via *ex situ* passive sampling with SPME. Porewater concentrations were expected to provide an indicator of the bioavailable fraction of DDX in surface sediments. Multi-metric stations on and off cap were monitored pre- and post-placement in short-term and long-term monitoring events. Statistical analyses were performed to determine whether significant reductions in uptake in the short- and long-term timeframes were observed. Details of the sampling methods and statistical analyses that were performed are provided in Section 5.6 Sampling Methods.

3.4.3.2. Data Interpretation and Extent the Success Criteria Were Met

The performance objective for the porewater testing was to compare baseline, post-cap placement, and long-term monitoring results to verify that significant reduction in surface sediment porewater concentrations of DDX occurred compared to baseline, and that reductions were sustained over 2 years. Based on the conceptual model for EMNR and the observed changes in the surface sediment concentrations, reductions in bioavailability of DDX were expected to occur immediately following the installation of the TLC and consistent with the low DDX concentration in the TLC material. After that time, low levels of bioavailability were expected to be maintained as deposition and top-down mixing of relatively clean material continued to influence the remedy. The analysis was qualitative in that DDX porewater concentrations in surface sediments were only an indicator of bioavailability, and not a direct measure. Other limitations of the porewater measurements included that the assessment was only performed at five on-cap stations, measurements were only performed during the summer season, and the monitoring only extended for a period of two years.

The success criterion was met with some qualifications and subject to the limitations described above. Concentrations of total DDX (log-transformed) in surface sediment porewater (0-7 cm below sediment-water interface (SWI)) were significantly reduced in the short-term monitoring

(2-months post-placement) and long-term monitoring (25-month post-placement). Concentrations were also lower than baseline in the 14-month post-placement monitoring; however, these reductions were not statistically significant. Reductions were 61%, 30%, and 48% for the 2-, 14-, and 25-month events, respectively (with lower decreases in the 14- and 25-month events being influenced by potential outliers). Thus overall, bioavailability, as indicated by surface sediment porewater concentrations, was reduced in all survey events compared to baseline, however the reductions in the 14-month were not statistically significant.

3.4.4. Summary

Overall, the success criteria for reductions in bioavailability were met. Significant reductions in concentrations of total DDX in *L. variegatus* tissue (lipid weight basis) was observed in short- and long-term events (on average). Reductions in concentrations of total DDX in *C. fuminea* tissue were also observed in short-term and long-term events on average, with significant reductions in the short-term event. Concentrations of total DDX in surface sediment porewater were reduced in all events compared to baseline, with significant reductions in the short-term monitoring and most recent long-term monitoring event.

3.5. Performance Objective 5 (PO5): Determine the Rate of Benthic Recovery

3.5.1. Introduction

Along with reducing contaminant levels and bioaccumulation, a key goal of the EMNR remedy was to enhance the subtidal habitat at the site for benthic invertebrates. High levels of contaminants can have direct impacts on the health and composition of the benthic community, and creating a relatively clean environment for benthic colonization is an important aspect of the EMNR remedy. The time for benthic recovery and potential impact of the cap on the benthic community was evaluated. Projection of the long-term effectiveness of the TLC remedy was evaluated based on the rate at which the benthic community recovered after cap placement and the extent to which the benthic community showed improvement compared to baseline conditions.

Laboratory treatability studies performed prior to the installation of the TLC suggested a conceptual model for the benthic recovery in which the cap would initially reduce the benthic populations due to smothering of the native population beneath the cap, followed by a relatively rapid recolonization that should continue to improve over longer time periods as more clean, natural sediment was mixed into the cap from top-down mixing. To test this, the rate and extent of sediment cap colonization was evaluated as well as the way in which cap conditions were similar to or differ from regional background conditions. Of interest was whether the TLC improved, hindered, or was otherwise neutral regarding the quality of benthic habitat. Data required to evaluate the impact of the TLC on the benthic community included benthic taxonomic surveys before and after cap placement (five on-cap stations and two off-cap stations), and SPI camera photos to document benthic colonization. Results were used to document the effects of TLC placement on the presence of the benthic community and to document changes in community structure over time after cap placement.

3.5.2. Benthic Community Census

3.5.2.1. Data Collection and Treatment

Benthic community census involved the enumeration of each benthic organism in a sample of the top 10 cm of sediment. Based on this enumeration, various indices were evaluated to compare pre-cap placement events from spring 2009 and fall 2012 (baseline 1 and baseline 3) to short term (2-months post-placement) and long term (14- and 25-months post-placement) events as well as regional background conditions. Indices included total abundance, taxa richness, Shannon-Weiner diversity, Pielou's evenness, and a benthic-index of biotic integrity (B-IBI).

3.5.2.2. Data Interpretation and Extent the Success Criteria Were Met

The performance objective for the benthic community census testing was to measure and compare benthic community health indices across baseline, post-placement, and long-term monitoring data, and verify that comparable or improved benthic community conditions relative to baseline were present by the end of the two year monitoring period. Based on the conceptual model for EMNR, the benthic community health was expected to potentially degrade somewhat immediately following the TLC installation, followed by a relatively rapid improvement such that by the end of the two year monitoring period, the conditions should be comparable or

improved relative to the baseline. The analysis was quantitative in that the population of benthic invertebrates was directly surveyed from surface sediment samples collected from the top 10 cm of the sediment column both on and off the cap. However, the assessment was limited in that measurements were only performed at five on-cap stations, measurements were only performed during the summer season, and the monitoring only extended for a period of two years.

The success criteria for the performance objective were met or exceeded as there were no significant adverse effects to benthic communities due to presence of the cap, and showed a general improvement in conditions over the long-term. In the short-term (2-months post-placement), abundance, richness, and diversity were significantly increased compared to pre-cap benthic surveys for both on and off cap stations, but no significant difference in evenness was observed. The B-IBI score during the short-term monitoring event was within the range of scores observed during the pre-cap placement sampling events. In the first annual post-cap placement monitoring event, abundance, richness, and diversity in the cap footprint continued to be significantly greater than pre-cap placement values; abundance and richness metrics in the cap footprint were also greater than off cap stations during the same event. B-IBI scores increased to conditions similar to pre-cap conditions and achieved a score in the highest possible category ("Meets restoration goals"; Llanso, 2002). In the second year following cap placement, in general, abundance, richness, and diversity for stations in the cap footprint became more similar to pre-cap conditions. B-IBI on cap reached its' highest scores, but overall, remained similar to the fall 2012 pre-cap monitoring event, achieving a score of "Meets restoration goals" (Llanso, 2002). Measures of abundance, richness, diversity, and B-IBI scores indicates better conditions on cap in the final post-placement monitoring event compared to off cap stations.

3.5.3. SPI Survey

3.5.3.1. Data Collection and Treatment

SPI survey methods are described above for PO1. The analysis was considered to by qualitative because the biological activity and habitat quality are only inferred from the images rather than directly measured as with the benthic census. In addition, the application of the SPI was considered to be significantly limited for benthic assessment because the freshwater successional model developed for lake bottoms was not particularly useful for characterizing infauna in rivers because burrows, feeding pits, and subsurface voids can be destroyed quickly by either river currents, or wind-driven energy, or deposition, and about one-third of the stations in the baseline were indeterminate infaunal successional stage. Therefore, only a very qualitative comparison of the infaunal observations in the baseline to the short-term and long-term post-placement observations was possible. Apparent redox potential discontinuity and bioturbation observations also were evaluated qualitatively to understand the potential effect of the cap in the short- and long-term recovery of the benthic community.

3.5.3.2. Data Interpretation and Extent the Success Criteria Were Met

In the short-term (2-months post-placement), sediment profile images showed little to no evidence that biological processes were occurring, such as bioturbation. The RPD appeared to be dominated by physical processes. Small tubes were observed at half the stations and fecal pellets likely from bivalves were observed at several stations. Oligochaetes were dominant at

less than one-third of stations. Gas voids occurred at half the stations and were the most obvious signs of biogenic activity. There was no evidence in the sediment profile images that biological processes were involved in sediment mixing.
Bioturbation, which is a primary mixing process in marine sediments, is not an important factor in transitional or tidal freshwater benthic habitats (Diaz 1994). In general, conditions were equivalent with successional Stage 1 indicating benthic recolonization has not occurred to a great degree in the short-term (baseline observations were stage 2 or 3 at nearly half the stations).

In the first annual post-placement monitoring event, observations at each station continued to be equivalent to Stage 1 indicating benthic recolonization had not occurred substantially. The RPD was shallower at stations where resuspension-deposition likely occurred and the deepest RPD values were observed in sandy porous sediment, primarily a function of porewater circulation driven by current or wave action that pumps oxygenated water into the sediment (physical processes). The most obvious signs of biological processes, gas voids, were observed at nearly half the stations. There was no evidence in the sediment profile images that biological processes were involved in sediment mixing. Bioturbation, which is a primary mixing process in marine sediments, is not an important factor in transitional or tidal freshwater benthic habitats (Diaz, 1994).

The results for the final monitoring event (2 years following placement of TLC) were not available at the time this document was prepared.

Overall, the SPI results were found to be most useful for observations related to cap placement, deposition and mixing, and of limited use for the assessment of benthic community health.

3.5.4. Summary

Overall, the performance objective success criteria were met using the direct benthic census data over the long-term with the TLC increasing scores for abundance, richness, and diversity. The B-IBI was scored in the highest category in the long-term monitoring events. SPI survey results were not found to be in agreement with the benthic community census, and significantly less confidence was placed in the SPI results due to noted limitations under the conditions present at the site.

4. Site Description

Quantico Embayment is a semi-circular inlet of the Potomac River (Figure 7). Its surface area is approximately 190 acres. Within the southern half of the bay, and approximately 500 feet from the shoreline, is a 12-acre private island called Chopawamsic Island (12 acres). A broad shelf between 3 to 5 feet depth is located northeast of the island, and an historical river channel left a small depression approximately 16-20 feet deep west of the island. In general, the water depths of the bay range from tidal level along the shoreline to 5 to 6 feet where the bay meets the Potomac River.

Adjacent to the location selected for TLC are the Southern Wetlands, representing approximately 1.6-acre of tidal, freshwater, emergent marsh located immediately south of the Site 4 Old Landfill and adjacent to the Quantico Embayment (Figure 7).

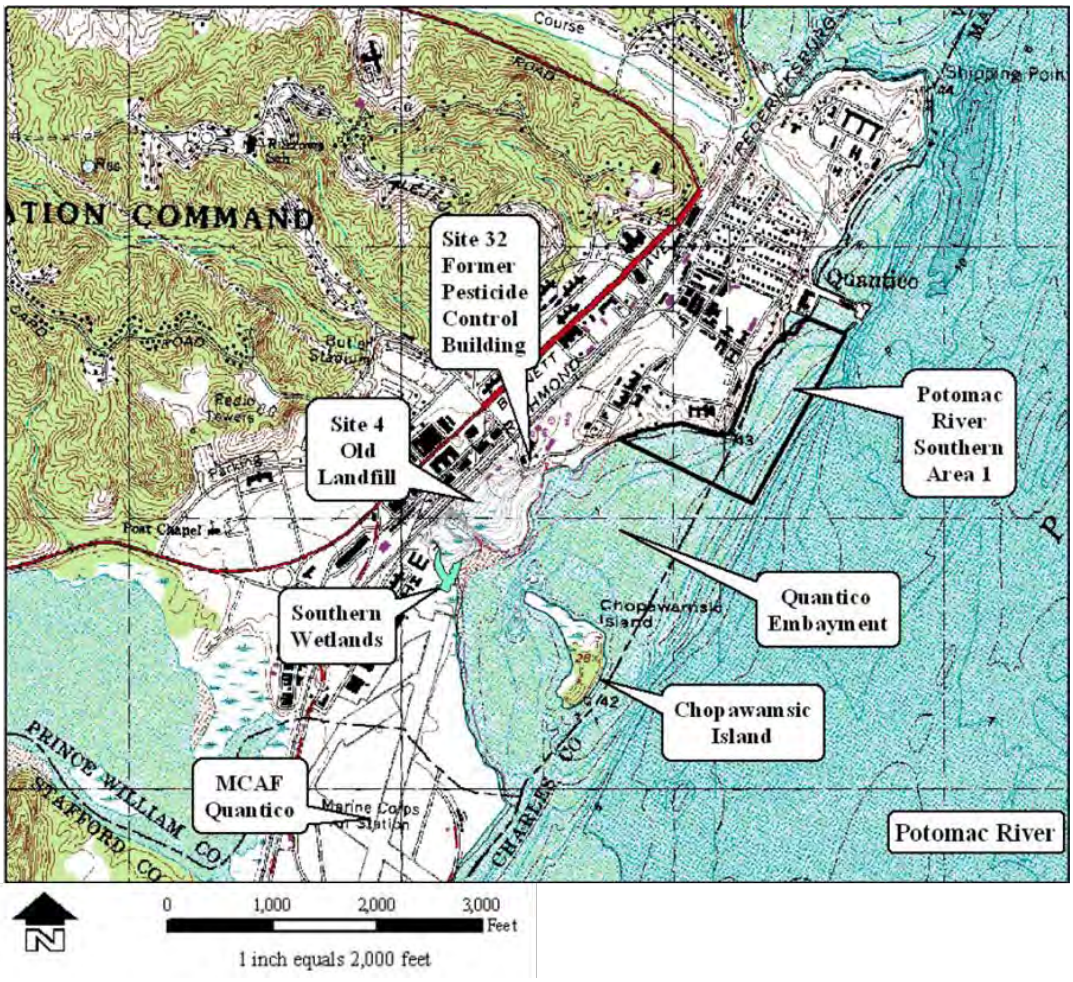


Figure 7. Site map for Quantico Bay, Chopawansic Island, and the Potomac River (referenced from Battelle et al., 2007)

4.1. Site Selection

Quantico Embayment was selected as the test site for this demonstration. The site offered a unique opportunity to evaluate a full-scale implementation of EMNR at a DoD site. The costs associated with conducting this demonstration (estimated >$4 M for cap installation alone) would be prohibitive without the opportunity to leverage the effort with the ER-N remedial effort. Factors including the unique leveraging opportunity at a DoD site, the presence of a baseline ecological risk analysis (Battelle and Neptune and Co., 2004; TtNUS 2006; Battelle and Neptune and Co., 2005), the presence of existing data to characterize the nature and distribution of CoCs, including DDX, and the low energy conditions in the embayment all support the selection of the Quantico Embayment as a highly desirable site for demonstration and validation of the EMNR process. The location of the TLC in Quantico Embayment is presented in Figure 9.

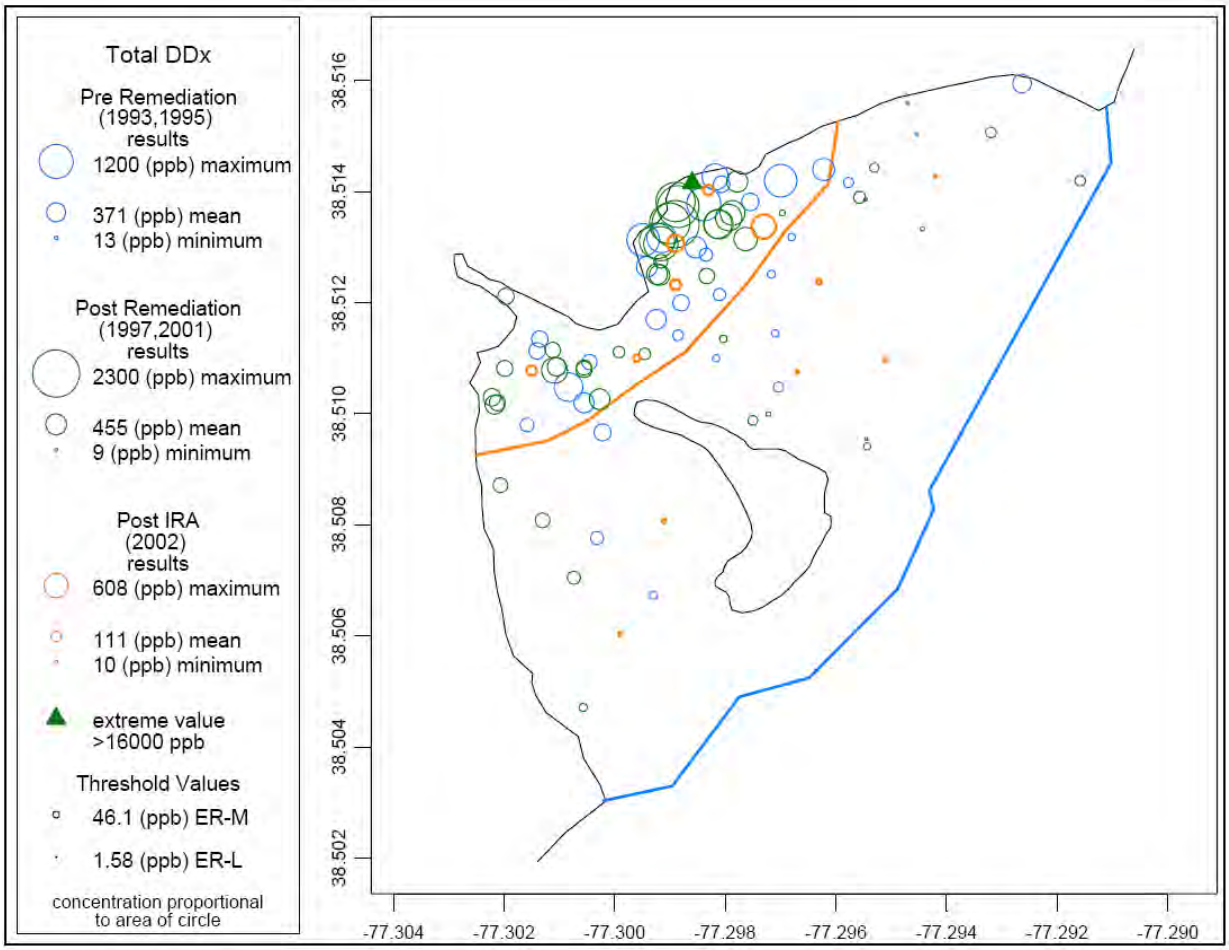


Figure 8. Concentration of DDX in Quantico Embayment sediment. The orange line represents the boundary between the Inner Quantico Embayment and the Outer Quantico Embayment. The blue line represents the boundary between the Outer Quantico Embayment and the Potomac River (from Battelle and Neptune 2004).



Figure 9. Approximate extent of TLC in the Quantico Embayment. The cap area encompasses sediment with surface sediment DDX concentrations greater than or equal to 200 µg/kg (Adapted from Battelle 2008).

4.2. Site Location and History

The site selected for the EMNR demonstration is an embayment of the Potomac River (Figure 7) referred to as the Quantico Embayment. The Quantico Embayment is located at the Quantico Marine Corps Base (MCB), approximately 35 miles south of Washington, DC and 75 miles north of Richmond, Virginia. The embayment is approximately 190 acres in extent and is located adjacent to the Quantico MCB Old Landfill (Site 4) (Battelle et al., 2007). The Old Landfill operated from the early 1920s until 1971, at which point its use was replaced by other municipal landfills (Battelle et al., 2007). Material disposed of at the Old Landfill have included municipal refuse, construction debris, paint and paint thinners, transformers, dielectric fluids, waste oils, batteries, and compressors. Prior to the mid-1960s, waste materials were burned before burial at the site (Battelle et al., 2007). Chemical inputs to Quantico Embayment have originated from seepage and runoff from the Old Landfill as well as possible runoff from the Former Pesticide Control Building (Site 32) located north of the Old Landfill and near the current wastewater treatment plant (Figure 10). Prior to its destruction in 1985 by a fire, the Former Pesticide Control Building contained approximately 500 pounds of stored pesticides. Runoff from this site

appears to have drained into a designated drainage channel located along the northern portion of the landfill, and then into the embayment. The Department of the Navy and regulatory agencies have agreed that, upon completion of the removal action at Site 32, soils from this location will no longer represent potential chemical inputs to the Quantico Embayment.

In 1993, the Virginia Department of Environmental Quality (VADEQ) issued a Notice of Violation (NOV) to the Quantico MCB related to the unpermitted discharge and leaching of PCBs, pesticides, petroleum hydrocarbons, and metals from the Old Landfill into the Potomac River. Measures to control chemical releases from the Old Landfill were implemented by the Department of the Navy following the NOV. An interim remedial action (IRA) was conducted in 1997, with the intention of abating chemical discharge into the Potomac River. The IRA resulted in the placement of a barrier over the landfill, removal of contaminated sediment and waste material from the embayment and drainage channel, and installation of a riprap revetment for erosion protection. The effectiveness of the IRA was assessed during a Post-IRA Study Investigation in 2002 (Battelle and Neptune, 2004) for the Quantico Watershed Study (QWS). Based on analyses of surface sediment grab samples, subsurface sediment core samples (maximum depth of 1.5 ft or 0.47 m), and biological samples (fish and submerged aquatic plants) collected within the embayment as well as references areas, it was determined that exposure to 4,4'-DDD and 4,4'-DDE in Quantico Embayment sediment and forage fish posed potential ecological risk to piscivorous birds. This potential ecological risk along with risks to piscivorous birds, omnivorous mammals, and fish in adjacent areas within the MCB, prompted a Feasibility Study (FS) (Battelle et al., 2007) to evaluate potential sediment remedial actions. Of five proposed remedial alternatives for the site, a combination of Habitat Enhancement Capping with MNR was the preferred remedy for protecting human health and the environment, as well as complying with federal and state environmental laws (Battelle et al., 2007).

The demonstration site at Quantico is a shallow embayment with an average water depth of 1.5 m. This location is defined predominantly as a freshwater system, with minimal tidal influence (between 0.3 m to 0.7 m tidal range). Surface water salinity at this site ranges from between 0.5 practical salinity units (psu) to 3 psu, with the higher salinity occurring during lower river flow conditions in the late summer and early fall. Sediment is typically fine-grained, with greater than 55 percent (%) silt and clay (Battelle and Neptune 2004). More coarse-grained sediment is located along the shoreline and adjacent to outfalls, and finer-grained sediment (with greater than 80% silt and clay) is located in outer areas of the embayment (Battelle et al., 2007). Based on the grain size distribution and evidence of low flow velocities within the embayment, it is assumed that this site is depositional in nature.

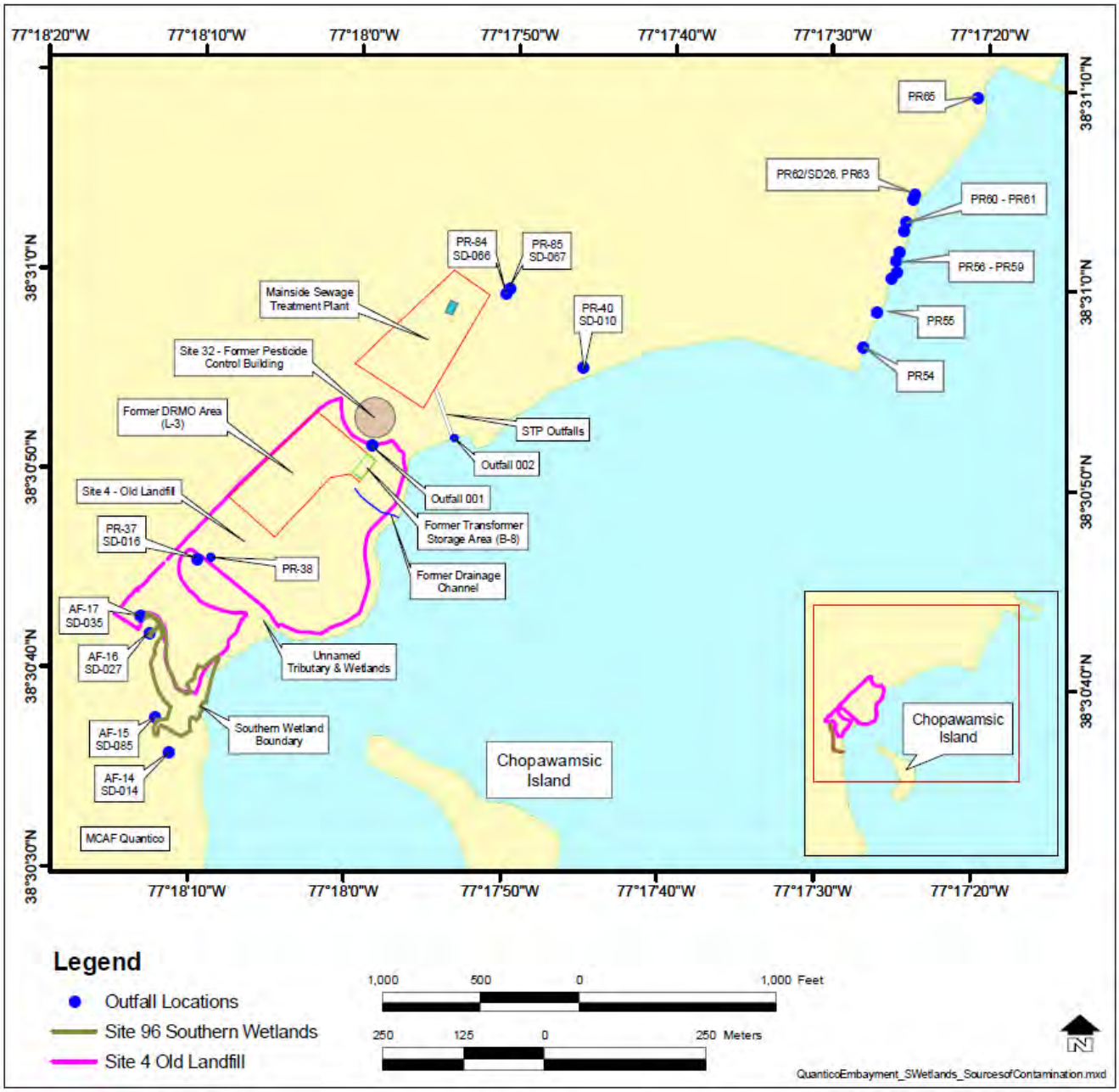


Figure 10. Potential sources of contaminants to the Quantico Embayment and adjacent habitats (referenced from Battelle, 2009).

4.3. Site Geology/Hydrogeology

No information on the site geology is discussed in existing reports (Battelle 2005, 2008, 2009; Battelle et al., 2004, 2005, 2007) and therefore is not presented here.

Based on navigation charts and tide tables mean higher high water (MHHW) is 0.83 ft above mean sea level (MSL) and mean lower low water (MLLW) is 0.76 feet below MSL (Figure 11; Battelle, 2009).

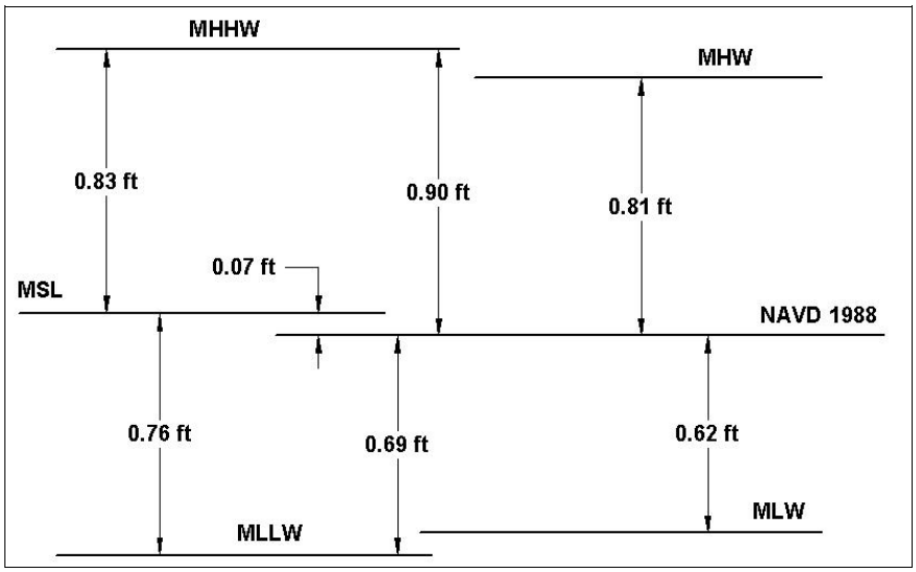


Figure 11. General hydrologic range in the Potomac River at MCB Quantico (from Battelle, 2009). MHHW-mean higher high water; MHW-mean high water; MSL-mean seal level; NAVD 1988-North American Vertical Datum of 1988; MLW-mean low water; MLLW- mean lower low water.

4.4. Contaminant Distribution

The Quantico Embayment and adjacent habitats, including the Southern Wetlands, have historically received numerous potential contaminants from several sources. These sources include the Site 4 Old Landfill, the Former Pesticide Control Building, the Mainside Sewage Treatment Plant, and the active Marine Corps Air Facility [MCAF] Quantico (Figure 10).

In addition, a number of historical and current storm water outfalls had or have discharge points draining to the Quantico Embayment (Figure 10). Prior to the separation of the storm and sanitary sewer systems at MCB Quantico, these outfalls may have been a source of chemical constituents to the embayment from various operations (e.g., maintenance facilities, floor drains, and wash racks). Six outfalls are currently regulated under NPDES permits, and drain directly into the Southern Wetlands and/or Quantico Embayment. Of these, two outfalls discharge non-contact cooling water and steam condensate, and one discharges steam condensate only. NPDES-permitted outfalls within MBC are not expected to be a significant current source of potential contamination; non-NPDES permitted outfalls are also not expected to be continuing sources of potential contamination as they only drain storm runoff from buildings and parking

lots (Battelle, 2009). Present chemical inputs to Quantico Embayment from Potomac River sources are considered minimal (Battelle and Neptune, 2004).

Although CoCs at this site included PAHs, metals, chlorinated pesticides, and PCBs in both surface (0 to 10 cm) and subsurface (greater than 10 cm) sediment, the presence and concentration of DDX compounds drive the requirement for site remedy. DDX compounds, consisting of DDT and its degradation products DDD and DDE, have generally been measured at the highest concentration levels in the northern portion of the inner portion of the Quantico Embayment adjacent to the northern edge of the Site 4 Old Landfill and adjacent to the potential runoff stream from the Former Pesticide Control Building (Figure 10). Sediment sampling suggests that DDX concentrations both increase with depth in the sediment and are generally highest in the near-shore area (Battelle, 2007).

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5. Test Design

This section provides a detailed description of the experimental design, sampling and analytical methods, and analytical validation conducted in order to evaluate the effectiveness of EMNR at the Quantico Embayment site. Tools and approaches presented below focus on physical, chemical, and biological characterizations of the site, both pre-and post-implementation of the TLC remedy to address the performance objectives defined in section 3.

5.1. Conceptual Experimental Design

This project examined changes in physical, chemical, and biological parameters of the site prior to and following placement of a TLC in support of EMNR demonstration.

Physical parameters assessed in this project included the following:

- The distribution and coverage, uniformity, minimum and maximum thicknesses of the TLC after placement.
- The stability of the TLC to hydrodynamic forces.
- Changes in TLC stability over time resulting from natural sedimentation, benthic mixing, and hydrodynamic forces.

Chemical parameters included:

- Surface sediment chemical concentrations following cap placement.
- Monitoring of the extent to which the new sediment (cap) surface may be recontaminated from either the water column (top-down) or via mixing with underlying sediment (bottom-up).
- Movement of contaminants via porewater migration.

Biological parameters included:

- Assessment of community recovery following cap placement and characterization of the extent to which cap placement and the creation of a new sediment surface may affect the health and composition of the benthic community.
- Assessment of ecological risk reduction via monitoring of DDX bioaccumulation in invertebrates.

5.2. Baseline Characterization

Pre-placement monitoring represents baseline characterization of physical, chemical, and biological conditions. Baseline characterization was initially conducted in spring and fall 2009 to target different environmental and ecological conditions at the site (SSC Pacific, Environ and Army Corps of Engineers 2009). However, due to delays in the TLC installation, all follow-on work was postponed until such time that the regulatory work at Site 99 (TLC installation) would resume. In conjunction with plans to proceed with post-cap monitoring, a related ESTCP Project (ER-201130, Gunther Rosen, Principal Investigator) was able to proceed and use Site 99 as part of their demonstration of the SEAP Protocol. Because the SEAP project is an integral

component of this demonstration project, every effort was made to ensure that project objectives could be aligned to maximize the benefit to each project. Sampling related to ESTCP Project ER-201130 to establish additional baseline conditions was conducted in October 2012. Data collected in each baseline characterizations included the following parameters as summarized in Table 4 and as described here:

Three baseline characterizations occurred in the following timeframes to establish pre-remedial conditions:

1. Baseline 1: April – May 2009
2. Baseline 2: August – September 2009
3. Baseline 3: October 2012

Further information on the baseline characterization (e.g., sample locations, methods, results, and data evaluation) is provided in the sections below with the post-remedial monitoring events.

Table 4. Summary of baseline characterization activities.

Parameter	Baseline 1 Spring 2009	Baseline 2 Fall 2009	Baseline 3 Fall 2012
Bathymetry	X	--	--
Hydrodynamic monitoring (current meter)	X	X	--
Deposition rates and concentrations of DDX in deposited sediment (Sediment trap)	--	X	--
Physical and chemical analysis of sediment cores	--	X	X [1]
Concentrations of DDX in tissue from *in situ* bioaccumulation testing	--	X	X
Concentrations of DDX in tissue from native pelagic invertebrate	--	X	--
Concentrations of DDX in Porewater (*Ex Situ* Passive Sampling)	--	X	--
Concentrations of DDX in Porewater (*In Situ* Passive Sampling)	--	--	X[2]
SPI	--	X	--
Benthic community census	X	--	X

[1] Grab samples only

[2] Samples provided to D. Reible but results not used in this demonstration

5.3. Treatability or Laboratory Study Results

Prior to field sampling, laboratory sediment was used to examine the uptake of DDX by a representative benthic invertebrate and to assess survival, and growth of representative benthic species following placement of the TLC, as well as fate and transport mechanisms of DDX (initial mixing of TLC material with native sediment, bioaccumulation and biotransport of DDX

in benthic organisms, etc.). Data allowed several fundamental uncertainties regarding capping and DDX fate and transport to be addressed under controlled laboratory conditions, as well as provided information to optimize the experimental design for post-capping chemical and biological measurements. For laboratory physical burial effects and bioaccumulation experiments, a series of three experiments were conducted in in July 2009 by Dr. Guilherme Lotufo at ERDC facilities in Vicksburg, MS. Detailed methods and results of the experiments are provided in Appendix B and are summarized as follows:

Bioaccumulation kinetics findings:

- Steady-state bioaccumulation of DDX occurred within two weeks in small invertebrates.
- Bioavailability within typical range (BSAF ~ 1-2).

Findings on the effects of resident invertebrates:

- Steady-state bioaccumulation of DDX occurred within two weeks in small invertebrates.
- Bioavailability within typical range (BSAF ~ 1-2).
- Only a small percentage of the invertebrates were able to migrate into 0.5-ft cap and establish in upper layer. None remained in smothered Quantico sediment underneath sand.
- Total DDX in *Lumbriculus* and *Leptocheirus* remained relatively unchanged at day 28 relative to day 14 day.
- Concentrations of DDX were 4 times greater in *Leptocheirus* compared to *Lumbriculus* tissue (5 times for lipid-normalized residues).
- Insufficient mass of invertebrates were recovered from the sand cap; therefore body residue could not be derived.

Colonization of sand cap findings:

- Most invertebrates added to the established cap (colonization experiment) were alive after 14 days.
- DDX body residue in *Lumbriculus* added to top of cap was only 8% of that measured in worms exposed to Quantico sediment.

5.4. Design and Layout of Technology Components

Performance of enhanced monitored natural recovery at the Site was evaluated by establishing a baseline and comparing the results of the baseline characterization to post-placement monitoring events to document the extent to which the remedy reduces bioavailable concentrations of the contaminant and the potential effects to ecological health of the native benthic community. Sediments adjacent to the thin layer cap were monitored as well as the native sediments underlying the cap. A thorough description with accompanying schematic diagrams of all technology components as deployed are provided in Section 5.5 (Field Testing). The target area for the TLC is shown in Figure 9.

5.5. Field Testing

The post-cap placement monitoring was performed in the short-term (2-months post-placement), and long-term (1 and 2 years after cap placement). Post-cap long-term monitoring was conducted in the fall each year to coincide seasonally with baseline characterization (Baseline 2 and Baseline 3 as described in section 5.2 [Baseline Characterization]).

Post-cap placement monitoring activities including tools or parameters to evaluate each physical, chemical, and biological characterization are summarized in Table 5.

5.5.1. Sample locations (Multi-metric sample locations)

Baseline 1 sample locations are shown in Figure 12 and Baseline 2 locations are shown in Figure 13. In Baseline 3 and short term and long term post-placement monitoring events, sample locations included 5 on-cap and 2 off-cap stations for physical, chemical and biological characterization as shown in Figure 14. Locations were surveyed using a hand-held global positioning system (GPS) unit to record the coordinates of each station (Table 7). Comparison of the locations of the multi-metric stations over time is shown in Table 8.

Table 5. Summary of post-placement activities.

Parameter	0-month post-placement	2-month post-placement	14-month post-placement	25-month post placement
Bathymetry	X	X	X	X
Friction sound probe	--	X	X	X
Deposition rates and concentrations of DDX in deposited sediment (Sediment trap)	--	X	--	X
Physical and chemical analysis of sediment cores	X [1]	X	X	X
Concentrations of DDX in tissue from *in situ* bioaccumulation testing	--	X	X	X
Concentrations of DDX in Porewater (*Ex Situ* Passive Sampling)	--	X	X	X
Concentrations of DDX in Porewater (*In Situ* Passive Sampling)	--	X[2]	X[2]	X[2]
SPI	--	X	X	X
Benthic community census	--	X	X	X

[1] Confirmation sediment core profiling only

[2] Samples provided to D. Reible but results not used in this demonstration

5.5.2. Schedule and activities

The schedule for the baseline characterization, remedy placement, and post-placement monitoring events is provided in Table 6.

Table 6. Baseline characterization and post-placement monitoring event schedule.

Event	Dates
Baseline 1	April to May 2009
Baseline 2	August to September 2009
Baseline 3	October 2012
Remedy Placement 0-month post-placement	June 2014
Short Term Post-Placement Monitoring: 2 Month Post-Remedial Monitoring Event	September 2014
Long Term Post-Placement Monitoring: 14 Month Post- Remedial Monitoring Event	September 2015
Long Term Post-Placement Monitoring: 25 Month Post- Remedial Monitoring Event	August 2016



Figure 12. Baseline 1 (Spring 2009) multi-metric sample locations.



Figure 13. Baseline 2 (Fall 2009) multi-metric sample locations.



Figure 14. Baseline 3 (Fall 2012) and post-placement multi-metric sample locations.

Table 7. Sample locations for baseline and post-TLC sampling events.

Station ID	Type	Placement Relative to TLC [1]	Latitude	Longitude
Baseline 1				
Cap 1	Benthic Community Census	On-cap	38.51315	-77.29824
Cap 2	Benthic Community Census	On-cap	38.51311	-77.29836
Cap 3	Benthic Community Census	On-cap	38.51326	-77.29766
Off Cap 1	Benthic Community Census	Off-cap	38.51212	-77.29865
Off Cap 2	Benthic Community Census	Off-cap	38.51351	-77.29671
Off Cap 3	Benthic Community Census	Off-cap	38.51432	-77.29616
Baseline 2				
Cap 1	Multi-metric	On-cap	38.5127972	-77.2986417
Cap 2	Multi-metric	On-cap	38.5135306	-77.2980583
Cap 3	Multi-metric	On-cap	38.5141528	-77.297175
Off Cap 1	Multi-metric	Off-cap	38.511975	-77.2975889
Off Cap 2	Multi-metric	Off-cap	38.5142167	-77.2946889
Baseline 3[2] and Post-Placement Monitoring Events				
QT-1	Multi-metric	On-cap	38.5144694	-77.2968806
QT-2	Multi-metric	On-cap	38.5140083	-77.2972361
QT-3	Multi-metric	On-cap	38.5136972	-77.2977639
QT-4	Multi-metric	On-cap	38.5132083	-77.2981417
QT-5	Multi-metric	On-cap	38.5128278	-77.2985222
QT-6	Multi-metric	Off-cap	38.5142139	-77.2945833
QT-7	Multi-metric	Off-cap	38.5119833	-77.297475

[1] In reference to the target area for the TLC in the baselines (pre-remedial events)
[2] Baseline 3 did not include QB-7 as monitoring station.

Table 8. Station IDs for multi-metric stations during all sampling events.

Baseline 1 (May 2009)	Baseline 2 (September 2009)	Baseline 3 (October 2012)	2-Month Post-Cap (September 2014)	14-Month Post-Cap (September 2015)	25-Month Post-Cap (August 2016)	Within Cap Placement Area?
NA	NA	QB 1	QT2-1	QT14-1	QT25-1	Within
CAP 3	CAP 3	QB 2	QT2-2	QT14-2	QT25-2	Within
CAP 2	CAP 2	QB 3	QT2-3	QT14-3	QT25-3	Within
NA	NA	QB 4	QT2-4	QT14-4	QT25-4	Within
CAP 1	CAP 1	QB 5	QT2-5	QT14-5	QT25-5	Within
OFF CAP 2	OFF CAP 2	QB 6	QT2-6	QT14-6	QT25-6	Outside
OFF CAP 1	OFF CAP 1	NA	QT2-7	QT14-7	QT25-7	Outside
OFF CAP 3	NA	NA	NA	NA	NA	Outside

NA: not applicable

5.6. Sampling Methods

Sampling events, tools, and parameters are summarized in section 5.5 (Field Testing). Sample locations are described in section 5.5.1 (Sample locations).

A description of sampling conducted including collection methods, analytical methods, and approach to data treatment and evaluation is described below. A summary of samples collected is provided in Table 9. A summary of the analytical methods is presented in Table 10.

All analytical equipment was calibrated according to manufacturer instructions. Field duplicate and replicate samples collected for quality assurance purposes are summarized in Table 9. A field blank was collected following laboratory protocols. Additional laboratory quality control samples required by the referenced method, including laboratory control sample/laboratory control sample duplicate analyses, matrix spike/matrix spike duplicate analyses, surrogate recoveries, and other method specific quality control samples were followed and provided in analytical reporting from the analytical laboratory.

To the extent possible, disposable sampling equipment was used for samples involving chemical measurements to minimize decontamination requirements. Decontamination of stainless steel mixing bowls and utensils was conducted as follows. The bulk of any sediment material adhered to the equipment was scraped from the equipment into a containment bucket. The sediment (e.g., cap material) was returned to the river at the end of the day unless otherwise directed by the Navy. Equipment was then rinsed with river water to remove any remaining sediment. Next, the water-rinsed equipment was cleaned with Alconox. Finally, the equipment was triple rinsed with river water and final rinse with distilled water. All investigation-derived waste (IDW) was disposed properly, in accordance with base procedures. Further details on quality assurance procedures are provided in Appendix C.

Table 9. Sample and station counts by sampling event.

Parameter	Baseline 1 and Baseline 2			Baseline 3			2-month post-placement			14-month post-placement			25-month post-placement		
	Primary Sample Count	QA/QC Sample Count	Station Count	Primary Sample Count	QA/QC Sample Count	Station Count	Primary Sample Count	QA/QC Sample Count	Station Count	Primary Sample Count	QA/QC Sample Count	Station Count	Primary Sample Count	QA/QC Sample Count	Station Count
Hydrodynamic monitoring (current meter)	3,258 readings	--	2	3,752 readings	--	2	--	--	--	--	--	--	--	--	--
Friction sound probe and confirmation cores (Grain size, porewater)	--	--	--	--	--	--	--	--	--	--	--	--	--	1 field duplicate	27
Sediment trap (mass, DDX)	3	--	3	--	--	--	3	--	3	--	--	--	3	--	3
Bulk Sediment (DDX, TOC, Grain Size, Sediment texture)	**14 samples** -3 core intervals at each on cap station -1 grab at each on-cap station -1 grab at each off-cap station	**3 field duplicate samples** -3 core intervals at one on cap station	**5 stations** -3 on-cap stations -2 off-cap stations	**6 samples** -1 grab at each on cap station -1 grab at each off cap station	--	**6 stations** -5 on-cap stations -1 off-cap station	**37 samples** -7 core intervals at each on cap station -1 grab at each off-cap station	**7 field duplicate samples** -7 core intervals at each on cap station	**7 stations** -5 on-cap stations -2 off-cap stations	**37 samples** -7 core intervals at each on cap station -1 grab at each off-cap station	**7 field duplicate samples** -7 core intervals at each on cap station	**7 stations** -5 on-cap stations -2 off-cap stations	**37 samples** -7 core intervals at each on cap station -1 grab at each off-cap station	**7 field duplicate samples** -7 core intervals at each on cap station	**7 stations** -5 on-cap stations -2 off-cap stations
In Situ bioaccumulation testing (DDX, lipid)	**4 samples** -Species: Lv[1]	**1 field duplicate sample**	**4 stations** -3 on-cap stations -1 off-cap stations	**5 samples of each species** Lv and Cf[1]	--	**6 stations** -5 on-cap stations -1 off-cap station	**7 samples per species** Lv and Cf	**1 field duplicate per species**	**7 stations** -5 on-cap stations -2 off-cap stations	**7 samples per species** Lv and Cf	**1 field duplicate per species**	**7 stations** -5 on-cap stations -2 off-cap stations	**7 samples per species** Lv and Cf	**1 field duplicate per species**	**7 stations** -5 on-cap stations -2 off-cap stations
Native pelagic invertebrate tissue (DDX, lipid)	**5 samples**	--	**5 stations** -3 on-cap stations -2 off-cap stations	--	--	--	--	--	--	--	--	--	--	--	--
Ex Situ Porewater (DDX)	**14** -3 core intervals at each on cap station -1 grab at each on-cap station -1 grab at each off-cap station	**3 field duplicate samples** -3 core intervals at one on cap station	**5 stations** -3 on-cap stations -2 off-cap stations	--	--	--	**37 samples** -7 core intervals at each on cap station -1 grab at each off-cap station	**7 field duplicate samples** -7 core intervals at each on cap station	**7 stations** -5 on-cap stations -2 off-cap stations	**37 samples** -7 core intervals at each on cap station -1 grab at each off-cap station	**7 field duplicate samples** -7 core intervals at each on cap station	**7 stations** -5 on-cap stations -2 off-cap stations	**37 samples** -7 core intervals at each on cap station -1 grab at each off-cap station	**7 field duplicate samples** -7 core intervals at each on cap station	**7 stations** -5 on-cap stations -2 off-cap stations
In Situ Porewater (DDX)	--	--	--	**6 Samples** -1 interval at each station	**2 field duplicates per interval**	**6 stations** -5 on-cap stations -1 off-cap station	**84 samples** - 12 intervals at each station	**2 field duplicates per interval**	**7 stations** -5 on-cap stations -2 off-cap stations	**23 samples** -1 to 5 intervals at each station	**3 field duplicates**	**7 stations** -5 on-cap stations -2 off-cap stations	**42 samples** - 2 to 11 intervals at each station	**2 field duplicates per interval**	**7 stations** -5 on-cap stations -2 off-cap stations
SPI	**51 images**	**28 duplicate images**	**51 stations**	--	--	--	**32 images**	**1 to 3 images per station**	**32 stations**	**21 images**	**1 to 3 images per station**	**21 stations**	*Pending*	*Pending*	*Pending*
Benthic community census	**6 samples**	**1 field duplicate;** QA/QC performed by taxonomic laboratory	**6 stations** -3 on-cap stations -3 off-cap stations	**6 samples**	QA/QC performed by taxonomic laboratory	**6 stations** -5 on-cap stations -1 off-cap station	**7 samples**	QA/QC performed by taxonomic laboratory	**7 stations** -5 on-cap stations -2 off-cap stations	**7 samples**	QA/QC performed by taxonomic laboratory	**7 stations** -5 on-cap stations -2 off-cap stations	**7 samples**	QA/QC performed by taxonomic laboratory	**7 stations** -5 on-cap stations -2 off-cap stations

[1] Abbreviations: Lv: *Lumbriculus variegatus*; Cf: *Corbicula fluminea*

Table 10. Analytical methods utilized during the project.

Matrix	Analyte	Method
Sediment	DDX	EPA 8081A
Sediment	TOC	SW846 9060A [1]
Sediment	Moisture	ASTM D2216
Sediment	Grain size	ASTM D422
Porewater (*in situ*)	DDX	EPA 8081A; Reible and Lotufo (2012)
Porewater (*ex situ*)	DDX	EPA 8081A; Method followed You (2007) and Yang (2008)
Invertebrate Tissue	DDX	EPA 8081A

[1] EPA 9060A used in baseline, 2-, and 25-month events. In 14-month event, modified Walkley Black (heated during the digestion) was used.

5.6.1. Bathymetry

The objective of the bathymetric surveys was to document the water depths in the capping area prior to and following the placement of the cap. Changes in water depths before and after the cap placement provide a general indication of the spatial distribution and uniformity of the placement. Changes in water depths over time following the cap placement provide a general indication of the stability of the cap and a basis for interpretation of finer scale coring measurements at the multi-metric stations.

Bathymetry data over the cap were collected during three survey events on March 31, 2015, 23-24 August 2015, and 23 August 2016. The first data set, collected just prior to the cap installation by Waterway Surveys and Engineering Ltd., was provided by the Remedial Program Manager to include in our evaluation. Data collection for the 2015 and 2015 post-capping surveys was conducted using a Teledyne Oceanscience Z-Boat 1800 remote control hydrographic survey boat with a Ceepulse 100™ 20 kHz echosounder integrated with a Hemisphere A101 Global Positioning Satellite (GPS) receiver (Figure 15). The remote control vessel was manually operated using joy stick controls from a nearby small boat. Data were collected along transects that ran both parallel to the shoreline as well as perpendicular to the shoreline with a goal of covering the cap area with transects spaced ~10-m apart (Figure 16). Water depth data were collected at a 6-Hz data rate and GPS data at 5-Hz, generating a value roughly every 30 cm along the vessel track at a nominal boat speed of 3 kts. All data were stored on-board the Z-Boat's data management system for post-processing.

The bathymetry data processing began with a data download from the data system to a comma separated variable (CSV) datafile that was further processed with a combination of Miscrosoft Excel, Matlab®, and/or Eye4Soft Hydromagic hydrographic survey software. The GPS and bottom depth data were time-matched into a single datafile containing longitude (x), latitude (y), and bottom depth (z) records. The data were evaluated for outliers, errors, and overlaps, particularly when the transducer was too shallow for a good reading (~0.3 m), got stuck on a shoreline or in algal mats, or when the system was brought to shore for battery changes or other operational tasks. Best professional judgement was used to make these corrections. The bottom depths in this dataset were then corrected for the fixed transducer depth and differences between the default 1500 m/s sound velocity of the unit with measured values using a Sontek Castaway® CTD unit. A final step was to transform the measured water depths to a North American Datum 1988 (NAVD 88) reference elevation as described below.

Barometrically compensated water surface elevation was determined using a Solinst Levelogger® Edge Model 3001 water level sensor and a Solinst Barologger Edge 3001 barometric pressure sensor deployed at the nearby Quantico Marina ~ 1 km away. The water level sensor was placed ~1 m below the water surface inside of a perforated PVC pipe (Figure 17) to measure the ~1' tidal variations during the surveys. The elevation of the sensor in NAVD88 was measured using a Trimble GEOXH6000 1-cm GPS receiver using Trimble with Terrasync 5.61 Centimeter Edition software. The unit's antenna was placed directly on top of the pipe to determine position and elevation at 1-s intervals over multiple 1-min acquisition periods. The position and elevation were corrected with Trimble Pathfinder Office Version 5.80 software using corrections from the National Geodetic Survey's Continuously Operating Reference Station in Newington, VA (CORS Station ID: LOYB). The water surface elevation

over time in NAVD88 was determined by subtraction as shown in Figure 18. The water surface elevations in NAVD88 were interpolated then time matched to the depth dataset to generate a final CSV data file with bottom elevation data in the NAVD88 reference datum.

The final bathymetry datasets were gridded and contoured using Golden Graphics Surfer software to create final regular rectangular data array and to generate graphical representations of the data. The gridding process was conducted using a Kriging method that was based on an 80x86 rectangular set of grid lines having ~5 m spacing. The grid was then masked to fit within an area that encompassed the data collection area while minimizing the area outside of it (minimizing extrapolation). This grid was run through a 3x3 Gaussian low-pass filter to smooth and finalize the final interpolated dataset. Difference maps were then generated using the grid math function of Surfer.



Figure 15. Teledyne Oceanscience Z-Boat 1800 remote control hydrographic survey boat used during the 2015 and 2016 surveys undergoing preparation (top photo) and surveying in work area with Chopawamsic Island in the background (bottom photo).



Figure 16. Typical track line for the bathymetric surveys at Quantico Embayment. This track is from the 2015 post-cap survey.

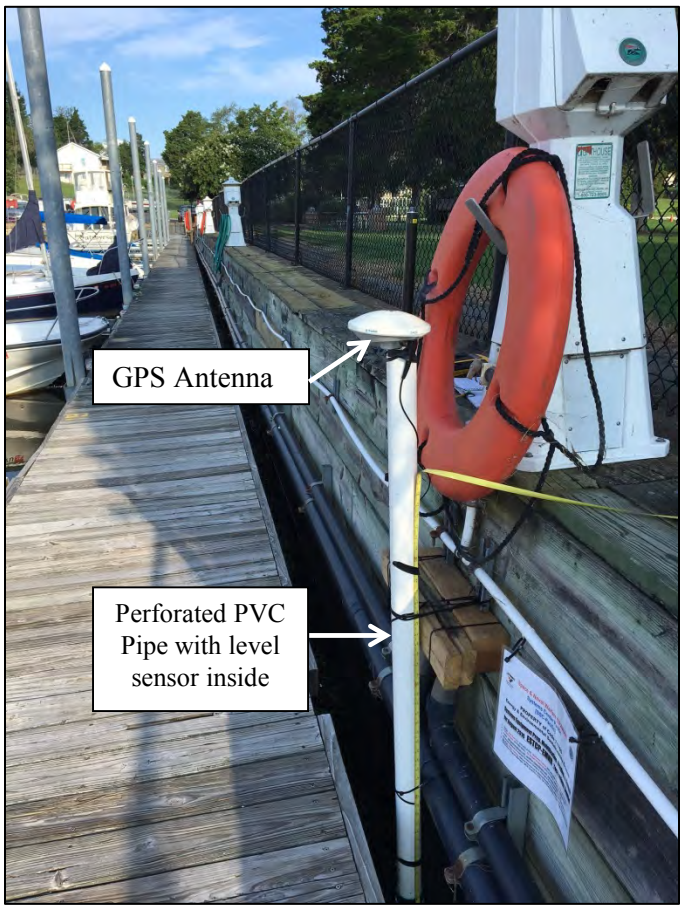


Figure 17. Level and barologger sensors set up inside vertical tube at Quantico Marina with Trimble GPS antenna atop the tube during position and vertical height measurements.

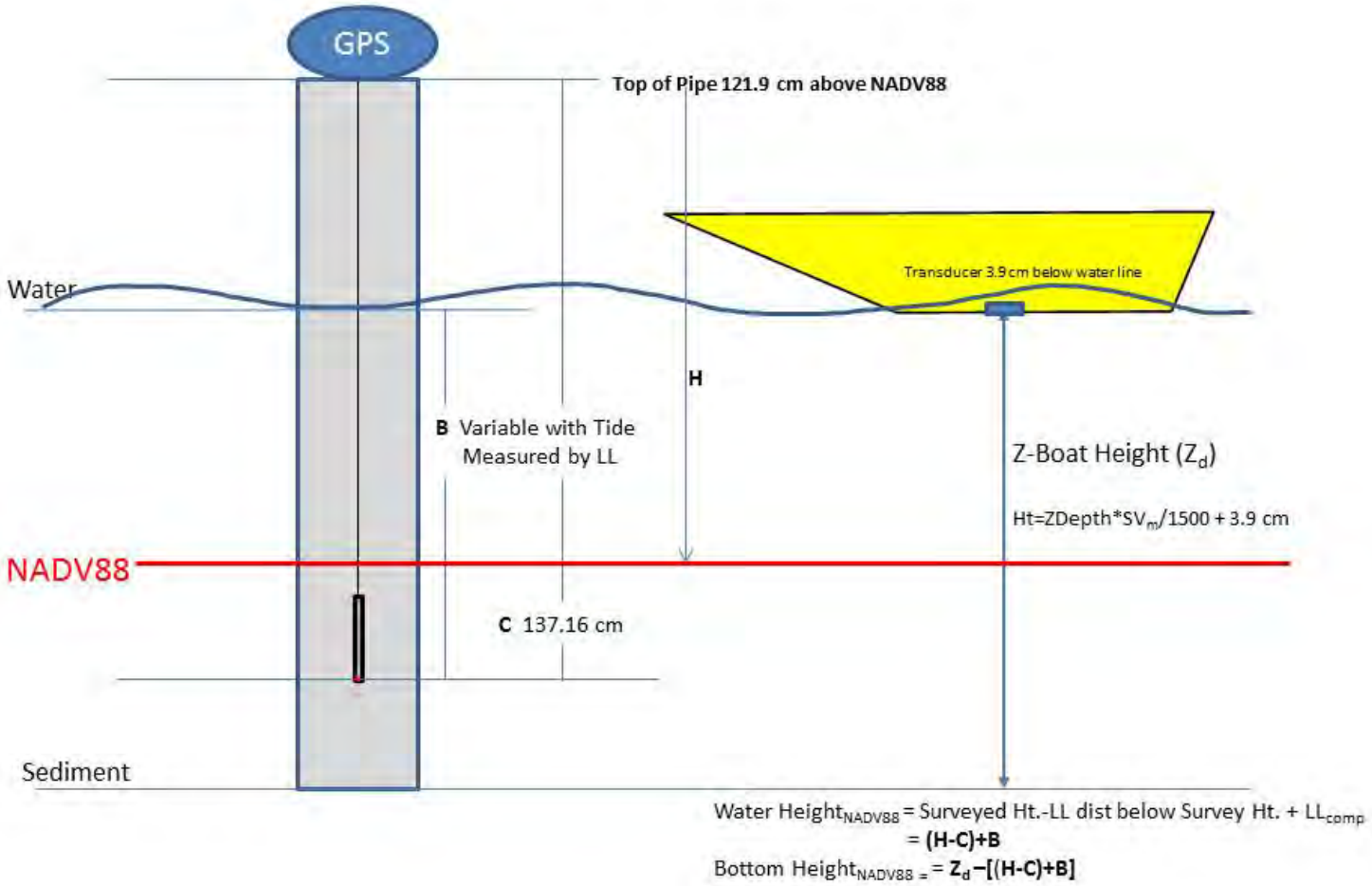


Figure 18. Example schematic drawing and equations used to reference bottom depths to NAVD88.

5.6.2. Hydrodynamic monitoring (Current Meter Measurements)

The objective of the current meter measurements was to document water velocities in the capping area so that cap stability could be assessed.

Current meters were deployed at two on-cap locations (Q1-S4 and Q2-S4) prior to the installation of the cap (Figure 19). Two rounds of measurements were carried out. The first round was in the spring of 2009 during the period 4/9/2009 – 5/2/2009. The second round was during the fall of 2009 during the period 9/1/09 – 9/27/09. Currents were measured using InterOcean S4 current meters. The S4 is an electromagnetic current meter that measures the voltage resulting from the motion of a conductor (water flow velocity) through a magnetic field according to Faraday's law of electromagnetic induction. The S4 conductor length is the effective path between the sensing electrodes. The magnetic field intensity is generated by a circular coil, internal to the S4, driven by a precisely regulated alternating current. The use of an alternating magnetic field and synchronous detection techniques to measure the voltage at the sensing electrodes provides an extremely stable, low noise current measurement. Two orthogonal pairs of electrodes and an internal flux gate compass provide the current vector.

At each station, the S4 was bolted to an aluminum angle iron and the angle iron was pushed into the sediment by wading so that the current meter was suspended 1 ft (30 cm) above the sediment-water interface (Figure 20). Measurements were recorded for a period of 1 minute every 10 minutes with each 1 minute interval including approximately 160 individual readings. During the spring deployment, a total of 3258 readings were collected, and during the fall a total of 3752 readings were recorded. Site locations, depths and deployment periods for the two events are summarized in Table 11.

To evaluate sediment stability the current meter records were compared to critical mean water column velocities for initiation of sediment movement (U_{cm}) and sediment suspension (U_{cs}). Critical velocities were estimated using the following relationships for sediment movement using the following equation (Soulsby, 1997):

$$U_{cm} = 0.19(d_{50})^{0.1} log\left(\frac{12h}{6d_{50}}\right)$$

and for sediment suspension (Soulsby, 1997):

$$U_{cs} = 2.8\left(\frac{h}{d_{50}}\right)^{0.1}\left((s-1)gd_{50}\right)^{0.5}$$

where d_{50} is the median diameter from the grain size distribution, h is the water depth, s is the specific gravity of the sediment, and g is the acceleration of gravity. The d50 was determined to be 0.46 mm from the grain size distribution for the cement sand that was used for the cap (Figure 21). Water depths (h) at the two stations were determined from the 2009 bathymetry and then corrected using the average cap thickness of 9 inches (23 cm) taken from the post-construction coring survey. The specific gravity of the cement sand used for the cap was 2.66. Using these values, the mean water column velocities for initiation of sediment movement and sediment suspension were determined (Table 12). Measured velocities at each station during each sampling event were then compared to these values. Velocities below the critical values were

interpreted as indicating bed stability, and velocities above the critical values were interpreted as indicating bed instability.

Table 11. Locations, depths and sampling periods for the S4 current meter deployments at Quantico Embayment during the 2009 baseline events.

Period	Station	Latitude (deg NAD83)	Longitude (deg NAD83)	Depth (m)	Start Date	End Date
Spring 2009	Q1-S4	38.51243	-77.29893	0.50	4/9/2009	5/2/2009
	Q2-S4	38.51316	-77.29798	1.20	4/9/2009	5/2/2009
Fall 2009	Q1-S4	38.51243	-77.29893	0.50	9/1/2009	9/27/2009
	Q2-S4	38.51316	-77.29798	1.20	9/1/2009	9/27/2009

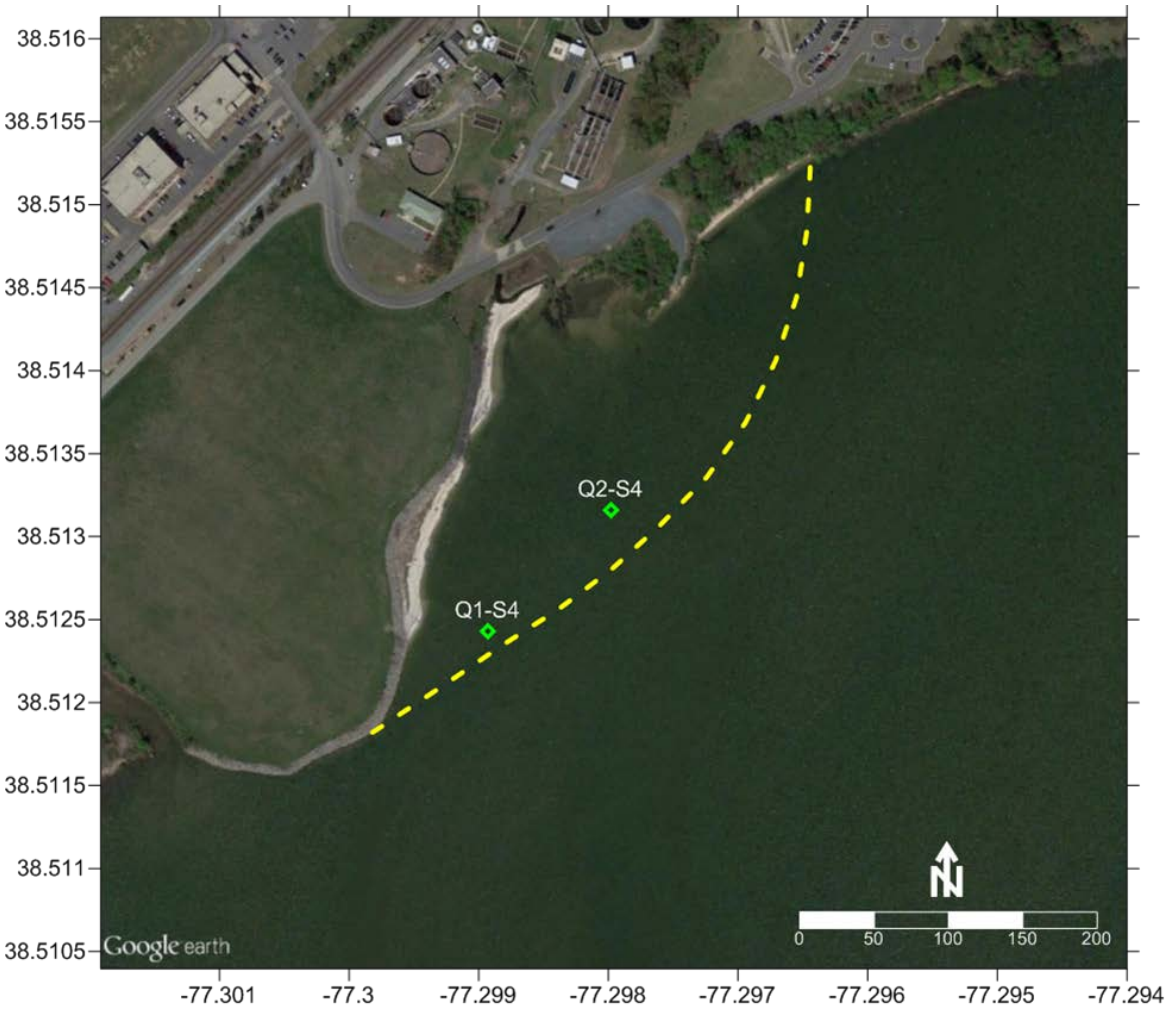


Figure 19. Map showing the locations of the current meter stations at Quantico Embayment during the 2009 baseline events.



Figure 20. Preparing the aluminum angle iron spike to support the S4 current meter.

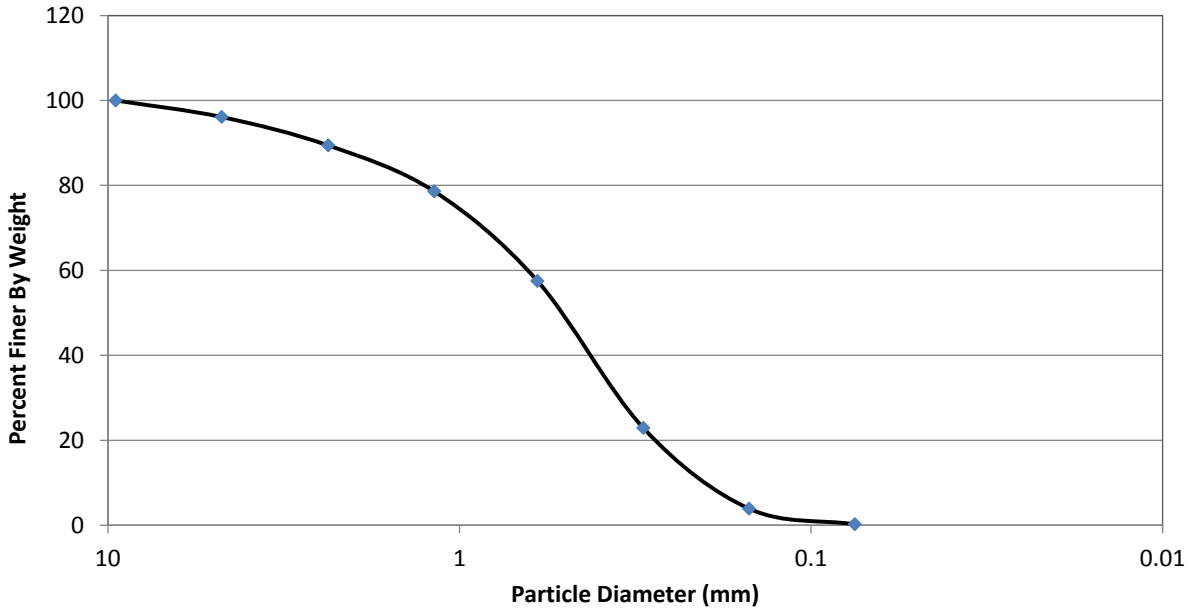


Figure 21. Particle size distribution for the cement sand used for the Quantico Embayment habitat enhancement cap.

Table 12. Parameters used to estimate the critical water column velocities.

Station	Pre-Cap Depth (m)	Cap Thickness (m)	Post-Cap Depth (m)	Cap Material d50 (mm)	Cap Material Specific Gravity	Critical Velocity for Bed Movement (cm/s)	Critical Velocity for Bed Suspension (cm/s)
Q1-S4	0.50	0.23	0.27	0.46	2.66	0.33	0.54
Q2-S4	1.20	0.22	0.99	0.46	2.66	0.37	0.59

5.6.3. Friction sound probe

Cap thickness data were acquired from multiple sources including a post-capping coring survey conducted by the construction contractor in 2014, coring surveys conducted at the multi-metric cap stations during the post-capping surveys of 2014, 2015 and 2016, SPI camera surveys during the post-capping surveys of 2014, 2015 and 2016, and Sediment Friction Sound Probe (SED-FSP) surveys conducted as part of the post-capping surveys of 2014 and 2016. Methods for the 2014 coring survey conducted by the construction contractor were not available for this report, but the results are included below. Methods and results for the SED-FSP measurements are described below. Equipment problems during the 2014 SED-FSP survey precluded the collection and use of valid data, so only the 2016 data were used. Location maps for the post-construction coring survey and the SED-FSP survey thickness measurement stations are shown in Figure 22 and Figure 23, respectively.

The SED-FSP uses friction-sound as a method for in-situ, screening-level measurement of grain size. On a theoretical basis, friction-sound is believed to be generated when phonons are produced by the breaking or excitation of atomic or molecular bonds as a contact surface moves over or through a particle matrix. Friction-sound intensity has been shown to be a linear function of the radius of particles in contact with the surface and the velocity of the probing surface. The SED-FSP unit developed and used by SPAWARSYSCEN PACIFIC employs this correlation to infer grain size. The effectiveness of the SED-FSP system was demonstrated during an Environmental Security and Technology Certification Program (ESTCP) project (No. ER-0919) in a variety of contaminated sediment management scenarios including measurement of thickness of a contaminated sediment cap site located on the Anacostia River in Washington, DC.

The SED-FSP sensor probe consists of a ½ inch diameter, meter long stainless steel probe containing an acoustic microphone at the tip. As the probe surface moves through the sediment matrix the generated friction sound is recorded by the embedded microphone. The microphone signal is transmitted through a physical interface to an electronics processing package that then transmits the processed acoustic signal to recording software. Figure 1 below shows the main components of the SED-FSP probe including the probe tip, probe physical interface, electronics interface/package and recording software.

The SED-FSP probe is coupled to a 5/8 inch diameter pneumatic piston/cylinder drive unit mounted onto an aluminum frame assembly (Figure 25). The pneumatic system is remotely operated by the user through a multiple-valve mechanism that controls compressed air flow to the cylinder drive. During deployment the SED-FSP assembly is lowered from a deployment platform onto the sediment surface, the probe is fully retracted with the tip near the water/sediment surface interface. Pneumatic hoses and a data transfer cable of as long as 150 ft. allow for remote operation of the system. As the pneumatic cylinder is activated by the user the SED-FSP probe tip extends downwards and penetrates the sediment bed to a maximum depth of 2 feet. The friction sound that is generated due to penetration of the probe into the sediment bed is transmitted and processed by the SED-FSP system and the data stored on a PC. Prior to deployment, the SED-FSP is calibrated for grain size by correlating acoustic intensity to sediments of known mean grain sizes. Using calibration parameters the acoustic signals are post-processed to arrive at grain size estimates.

The data collection interval of the SED-FSP during the Quantico survey was 162 milliseconds, equivalent to acoustic data acquisition every 1 to 1.5 cm. of probe travel, depending on the probe speed. Using the stored acoustic data and known probe penetration speed a vertical depth profile of grain size was assembled for each of the probed stations. When applied to a sediment cap site the depth profile indicates the interfaces of water column, native sediment and cap material. Cap thickness is acquired from the native sediment - cap interfaces.

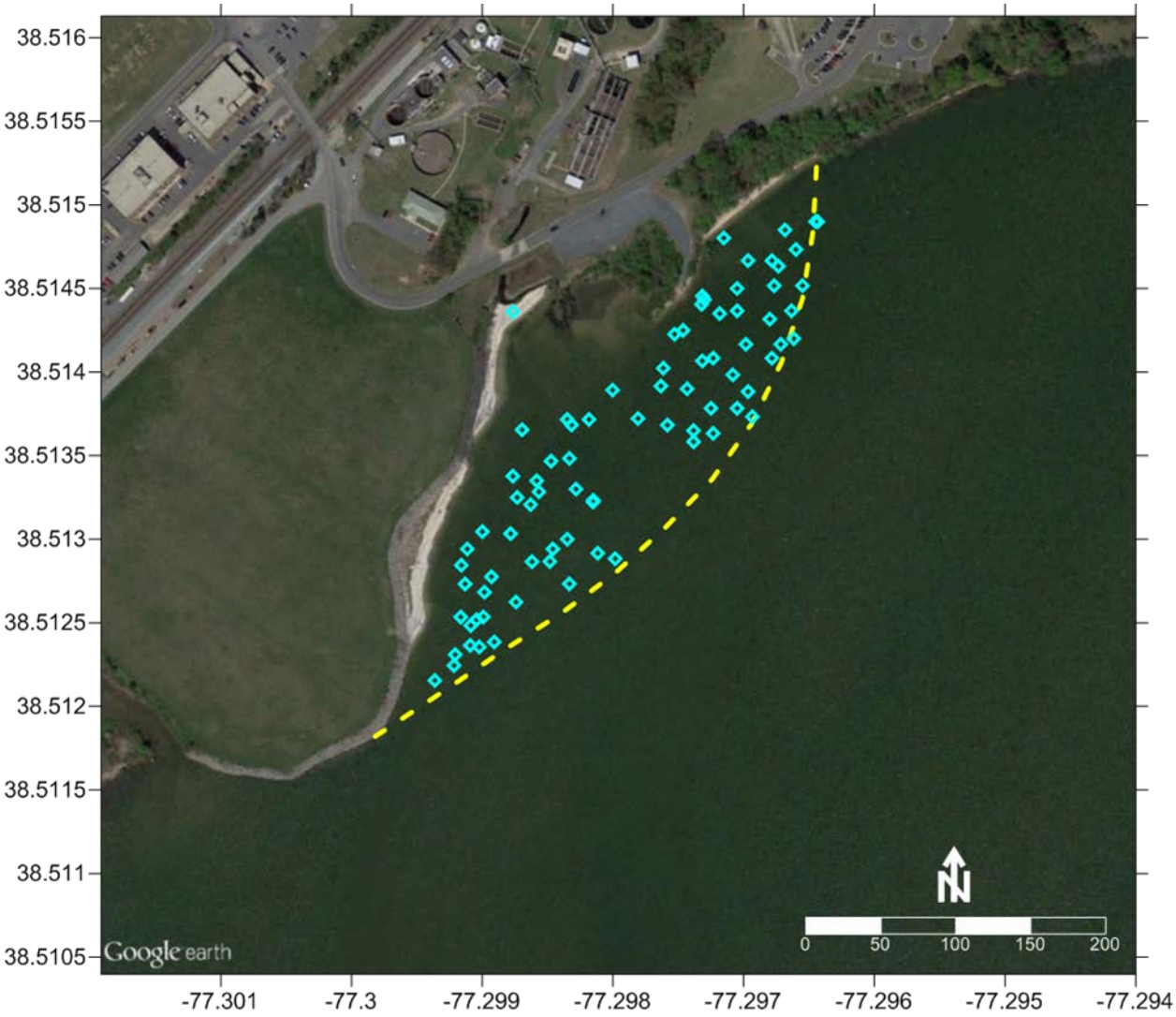


Figure 22. Location map for the cap thickness survey stations collected by the construction contractor immediately following the construction of the cap in 2014.

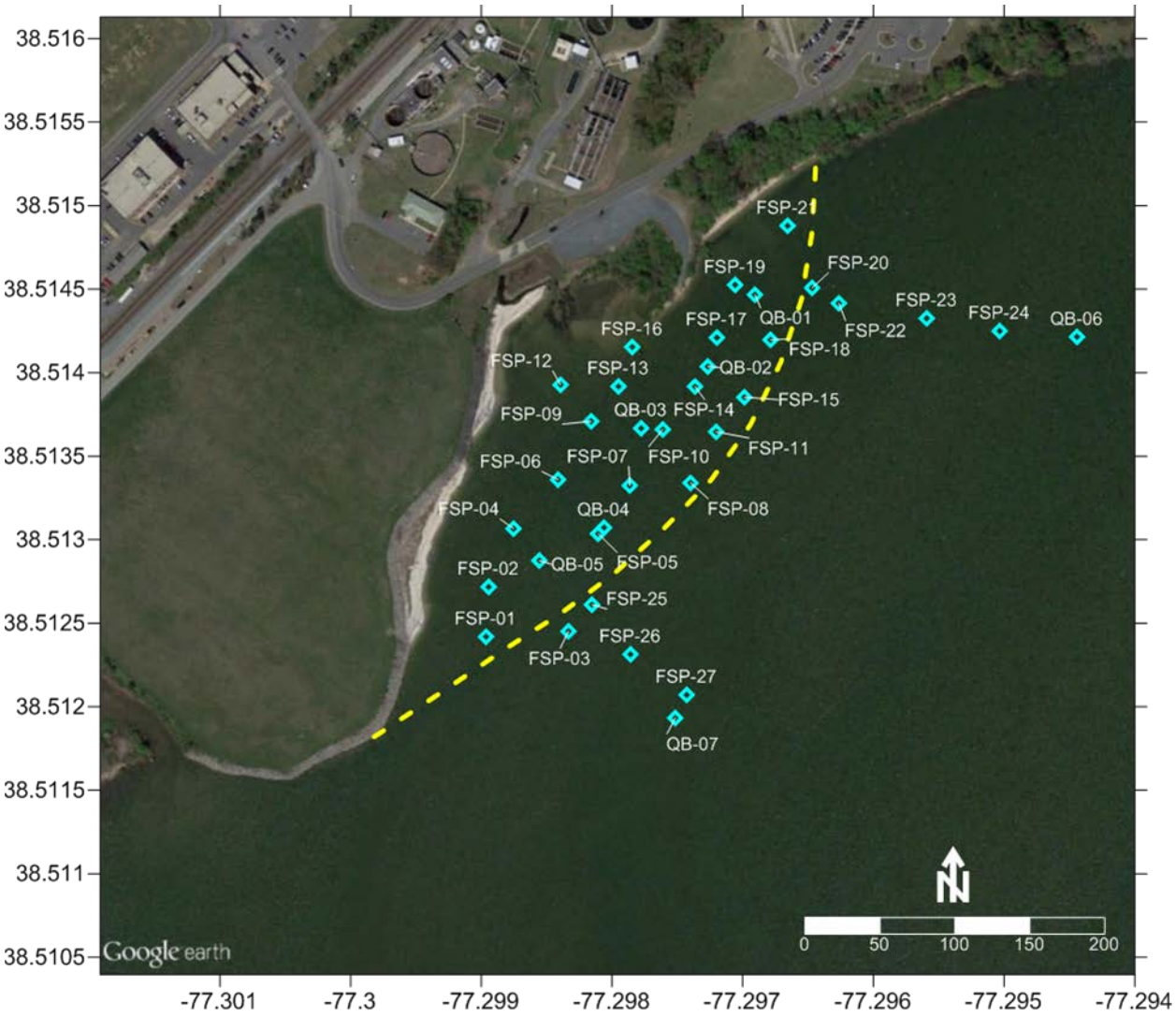


Figure 23. Location map for the SED-FSP stations where cap thickness was measured during the 2016 post-cap field event.

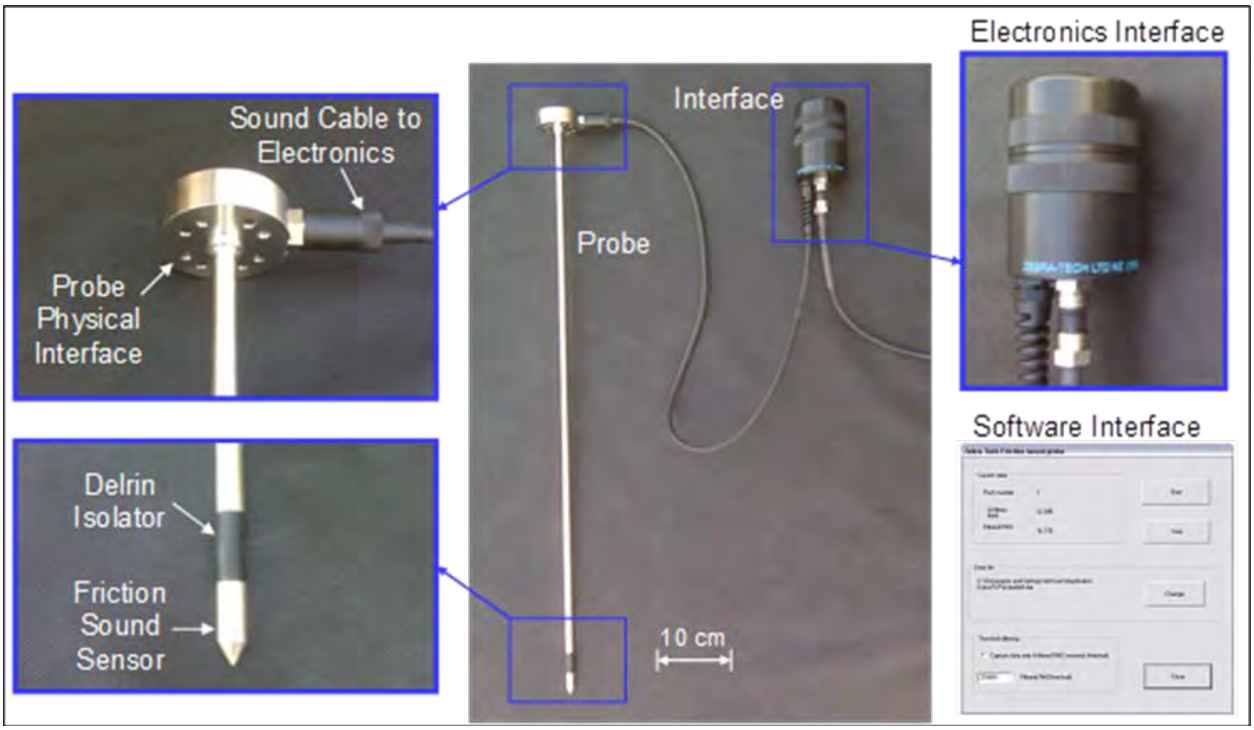


Figure 24. Sediment friction sound probe (SED-FSP) including sensor tip, probe/electronics interface, electronics package, and data recording software.



Figure 25. SED-FSP system; probe and frame assembly.

5.6.4. Sediment Traps

The objective of the sediment trap deployments at Quantico Embayment was to quantify the deposition rates and chemical loading associated with sediment deposition in the on-cap area both prior to and following the thin-layer cap placement.

Sediment traps were deployed during three events including the fall baseline event in 2009, the post-cap survey in September 2014, and the post-cap survey in August 2016. Procedures generally followed the methods described in Blake et al. (2007). During each event, traps were placed at three locations including the north, mid and south areas of the cap (Figure 26 and Table 13). Traps were deployed for periods ranging from about 14 - 23 days with the shortest deployment during 2016 and the longest deployment during 2009. The traps used during the 2009 event were constructed from 30 in by 6 in diameter PVC pipe providing an aspect ratio of 5:1. A single trap was deployed at each station. During the 2014 and 2016 events, multiple traps constructed from 10 in by 2 in PVC pipe (still 5:1 aspect) were used to provide a lower profile for the shallow water (Figure 27). A total of 13 traps were deployed at each station in a plastic rack to provide adequate surface area comparable to the larger traps from 2009.

During all deployments, each trap was covered with coarse mesh to prevent entrance of large organisms. Prior to deployment, the traps were filled about 1/3 full with a solution consisting of 50 ppt brine and Rhodamine dye to mark the brine layer. The remaining volume of each trap was carefully filled with ambient surface water. The mechanism for trapping the sediments lies in the strong density gradient between the denser, brine layer and the overlying ambient water. An internal surface is created at the interface of these layers, making it very difficult to mix water from one layer into the other. As a result, when sediments fall into the brine layer they are effectively trapped. The Rhodamine dye in the brine layer was used to visualize any disturbance of the brine layer during the deployment.

Each trap was capped prior to deployment to minimize disturbance while placing the traps. Traps were deployed by wading or divers at each site and staked in place. Once in place, traps were left with the caps on for at least 3 hours to allow any sediment that was disturbed during the deployment to settle. Each trap was then carefully uncapped and left in place for the remaining time of the deployment. At the conclusion of the deployment, sediment traps were capped by wading or divers and brought to the surface. Traps were then carefully lifted into the vessel and transported to the shore for sediment processing.

On site, sediment traps were placed in an ice bath to deter biological growth and decomposition within the traps. Sediment traps were then left in a stationary position for several hours to allow suspended particles to settle to the bottom of the trap. At this point the traps contained three layers: the sediment, the brine and the surface water. The surface water and brine layers from the traps were first pumped off using a peristaltic pump. Care was taken during this step to remove as much of the brine layer as possible without disturbing the sediment layer at the bottom of the trap. Tubing from the peristaltic pump was soaked in a laboratory detergent and rinsed with deionized (DI) water prior to pumping water from each trap. Once the overlying water was removed from each sediment trap, sediments were transferred into clean, pre-weighed sampling containers for shipment to the laboratory for further processing. Any sediments remaining in the traps were rinsed into the container with DI water.

At the laboratory, sediments were then allowed to remain undisturbed for at least 12 hours to allow for the consolidation of sediments in each container. After this settling period, any water that separated to the surface was carefully removed using a peristaltic pump. Each container was then weighed to determine the total wet weight of the sediment in each trap. Subsamples were taken from each container and dried in an oven for 48 hours at 100° to determine the percent moisture for each sample. This data was then used to determine the total dry weight of sediment deposited into each trap over the deployment period. The remaining sediments from each trap grouping were then combined, homogenized, and placed into laboratory containers a shipped for further chemical analysis. Trap sediments from each deployment were analyzed for TOC, grainsize and DDT compounds.

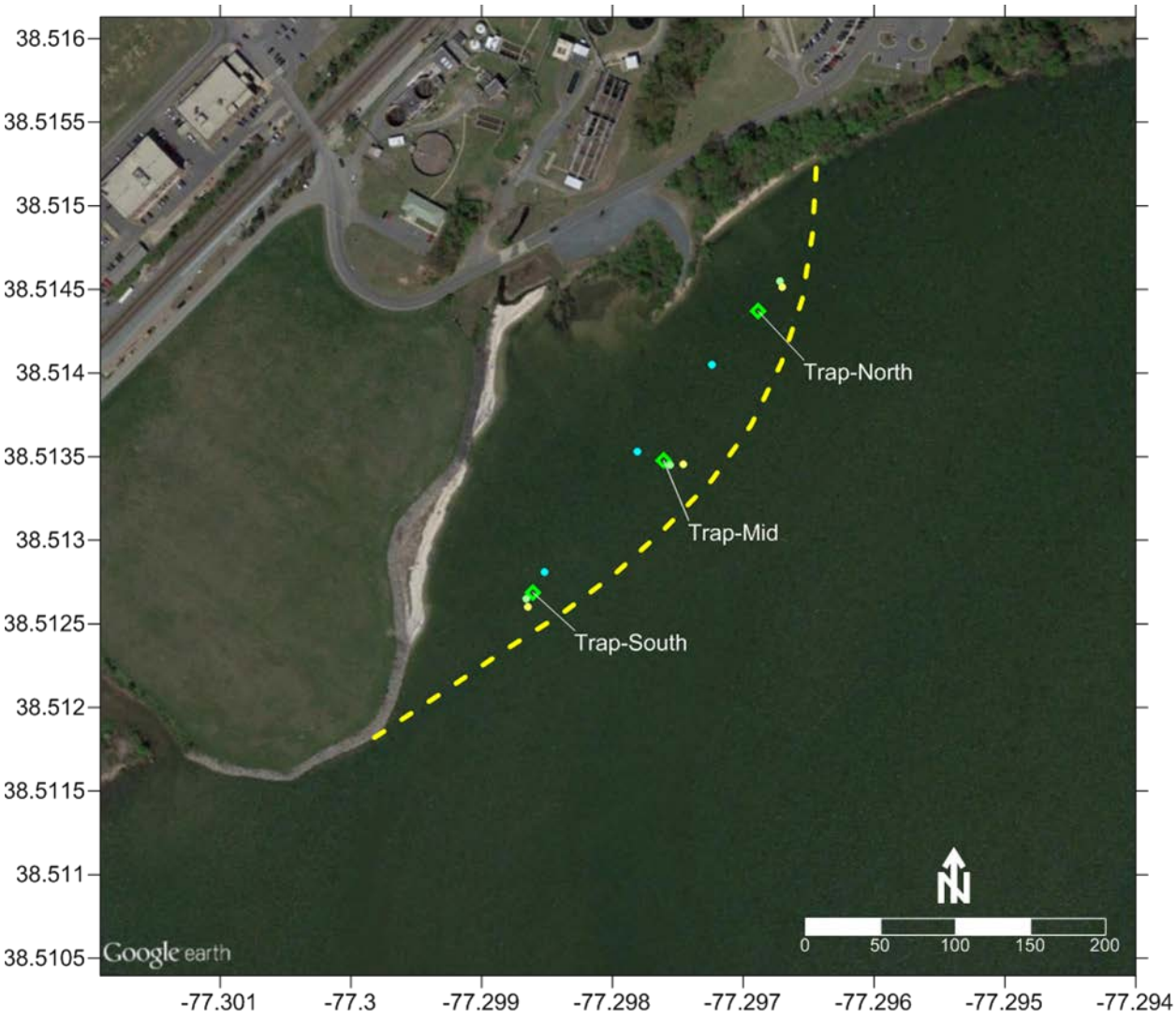


Figure 26. Location map for the sediment traps deployed at Quantico Embayment. The green diamonds indicate the average location for the three sampling events. Colored dots indicate 2009 event (blue), 2014 event (green) and 2016 event (yellow).

Table 13. Sediment trap locations.

Station	Baseline September 2009		Post-Cap September 2014		Post-Cap August 2016	
	Long. (NAD83)	Lat. (NAD83)	Long. (NAD83)	Lat. (NAD83)	Long. (NAD83)	Lat. (NAD83)
Trap-South	-77.29852	38.51281	-77.29866	38.51265	-77.29865	38.51260
Trap-Mid	-77.29781	38.51353	-77.29756	38.51345	-77.29746	38.51345
Trap-North	-77.29724	38.51405	-77.29672	38.51455	-77.29670	38.51451

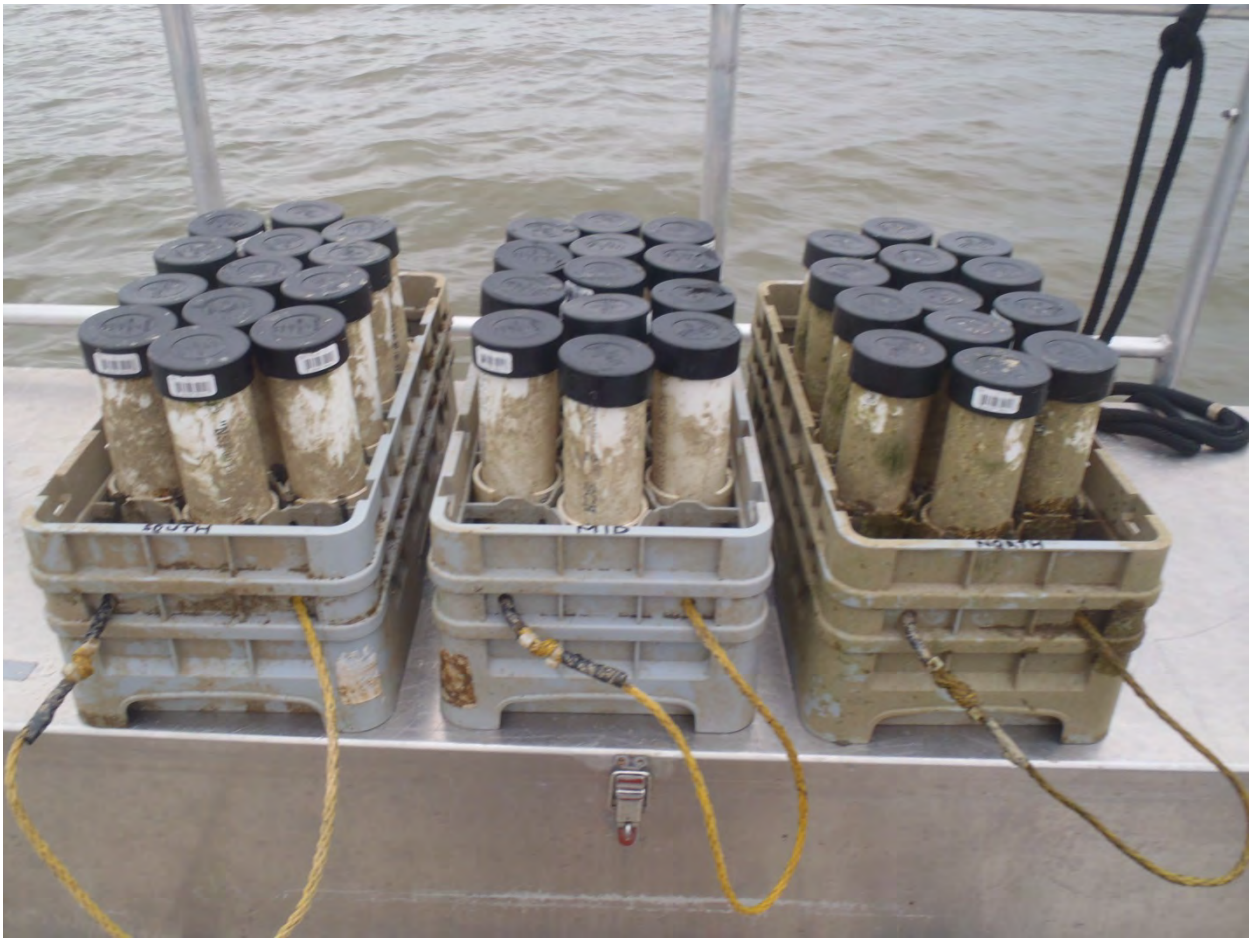


Figure 27. Sediment traps used during the 2014 and 2016 sampling events. Black caps were removed after deployment and replaced prior to retrieval.

5.6.5. Bulk Sediment

5.6.5.1. Sample Collection, Processing, and Handling

Core Samples

Undisturbed, intact, continuous sediment cores were collected in general accordance with ASTM 1391 (ASTM 2008), utilizing a TLC integrity coring device, developed by SSC PACIFIC, in collaboration with the University of California San Diego (UCSD). The new, clean core tube (6' length, 2" inner diameter, cellulose acetate butyrate) was inserted into an external polyvinyl chloride (PVC) sleeve that was drove into the TLC and native sediment, to the target depth, using a slide hammer. If refusal was met before target depth, an immediately adjacent location was found. The top of the core tube was capped and the core was pulled out while leaving the external PVC liner in the sediment. The sample was retained within the core tube, and the bottom of the core was capped. The sample in the core tube was then brought to the surface for up-right storage until processing on shore. The external PVC liner was filled with the appropriate amount of clean replacement cap material before removing the liner. The Standard Operating Procedure (SOP) for the integrity core sampler is provided in Appendix D. Five replicate cores were collected at each multimetric station to achieve sufficient sample mass. An additional five replicate cores were collected at multimetric station 5, and was treated as a field duplicate. Once collected, cores were taped with electrical tape on top and bottom, labelled with core ID and up-right orientation, then stored up-right for transit to onshore processing area.

At the onshore processing area, the cores were split lengthwise, sediment core profiling was conducted (visual sediment texture classification as described below), and photographs were taken of each core. The interface of the bottom of the TLC and native sediment was visually identified. Each core was sectioned into intervals as follows (Figure 28):

- Within the thin layer cap;
    - 0-2 cm below the water-cap interface
    - 2-5 cm below the water-cap interface
    - 5-7 cm below the water-cap interface
- Across the mixing boundary between the cap and the underlying native sediment; and
    - 0-2 cm above the cap-native sediment interface
- Within the underlying native sediment
    - 0-2 cm below the cap-native sediment interface
    - 2-5 cm below the cap-native sediment interface
    - 5-7 cm below the cap-native sediment interface

The intervals were composited from each of the five stations at a station and homogenized. The homogenized sample was subsampled into laboratory-provided sample containers for physical and chemical analysis as well as *ex situ* passive sampling as described below.

Each sample was clearly labeled with sample ID, project name, point of contact and analysis to be performed. Samples were maintained at 4 degrees Celsius (˚C) prior to and during overnight shipment to the analytical laboratory, USACE Engineer Research and Development Center (ERDC). *Ex situ* sediment samples were shipped to SPAWAR SSC Pacific laboratory for further processing (described below).



Figure 28. Sediment core penetration and sectioning approach for physical and chemical characterization

Grab Samples

A petite Ponar grab sampler (Figure 29) was used to collect surface (0 – 10 cm) sediment samples at the two off cap reference areas and the benthic community census samples. Additionally, petite Ponar grab samples were collected on the cap footprint at each monitoring station during baseline 2 and baseline 3 events. The homogenized sample was subsampled into laboratory-provided sample containers for physical and chemical analysis as well as *ex situ* passive sampling as described below. Each sample was clearly labeled with sample ID, project name, point of contact and analysis to be performed. Samples were maintained at 4 degrees Celsius (°C) prior to and during overnight shipment to the analytical laboratory, ERDC. *Ex situ* sediment samples were shipped to SPAWAR SSC Pacific laboratory for further processing (described below).

The petite Ponar grab samples an area of approximately 0.023 m^2 (0.152 m x 0.152 m) to a depth of 0.10 m. The petite Ponar grab is a relatively small and light set of jaws that are lowered opened and close when touching the surface of the bottom sediment. It is equipped with mesh screens and rubber flaps to cover the jaws allowing water to pass through the device during descent and reducing disturbance from bow waves at the sediment-water interface. The rubber flaps protect the sample from washout during ascent after sample recovery (USEPA 2007).



Figure 29**. Picture of a petite Ponar grab used for the benthic invertebrate surveys (courtesy of Wildco, www.wildco.com).**

Each sediment sample were inspected prior to subsequent processing to ensure the sample is acceptable, i.e., the sample was undisturbed by the bow waves of the dredge and did not washout during retrieval. Conditions indicative of sample acceptability are (USEPA 2007):

- The dredge is not overfilled such that sediment touches the top of the sampler.
- Overlying water is present (but is removed prior to processing and storage).
- Overlying water is clear, or not excessively turbid.
- The sediment-water interface is intact and relatively undisturbed, with no indication of channeling or washout.
- The desired depth of penetration has been achieved.
- There is no evidence of sample loss such as through incomplete closure of the dredge, sediment penetration at an angle, or tilting upon retrieval.

If these criteria were not achieved, the sample was rejected and another grab was collected. The location of consecutive attempts were as close to the original attempt as possible and located in the "upstream" direction of any existing current. Rejected samples were discarded in a manner that did not affect subsequent samples at that station or other sampling stations (USEPA 2007).

5.6.5.2. Physical Analyses and Data Treatment

Sediment Core Profiling (Visual Classification)

Core logging for sediment texture was performed in general accordance with ASTM D2488 (ASTM International 2009). The sediment texture for the length of each core was noted in the field logs. The depth of the cap-native sediment interface was also noted for each core and was averaged for the five replicate cores to determine a single depth measurement at each station. Also, a determination of the extent of mixing was made based on qualitative visual observations of each core.

Total Organic Carbon

The total organic carbon content of sediment samples were analyzed by 9060A in baseline and 2- and 25-month events and Walkley Black in 14-month event (heated during digestion). Differences in TOC content between the methods are evident, with the most recent annual events having TOC contents lower than expected. Due to unforeseen changes in analytical methods for TOC between the 2-month and 14-month sampling events, as well as unexplained variability and patterns between events, temporal comparisons of TOC was not possible.

Grain Size

The grain size distribution of sediment samples were analyzed by ASTM Method D422. Results for all events were summarized into percent fines (< 0.075 mm), sand (0.075 – 4.75 mm) and gravel (> 4.75 mm). Vertical gradients were qualitatively investigated between the monitoring stations and sampling events to help inform the extent of top-down and bottom-up mixing occurring in the cap footprint.

Moisture Content

The moisture content of sediment samples were analyzed by ASTM Method D2216.

Concentrations of DDX

Sediment samples were analyzed for DDX congeners following EPA method 8081A. Concentrations of DDX were compared among the 7 sample depth layers within each sampling event to understand surface versus depth effects on chemical data.

Data Treatment and Interpretation

The analytical results for each of the events (Baseline 2, Baseline 3, 2-, 14-, and 25-Month) were compiled. Primary and duplicated sample concentrations were averaged, with this value being used in data evaluation. Total DDX was calculated for each sample as the sum of detected DDX congeners.

The composition of DDX congeners for bulk sediment samples measured in native sediment and the cap is dominated by 4,4'-DDE and 4,4'-DDD, which represent > 75% of the total DDX concentration (Figure 30 and Figure 31). Additionally, similar congener compositions are seen in both the in-cap and native sediment samples. Since the congener composition is similar in these comparisons, a congener specific evaluation (e.g., 4,4'-DDE or 4,4'-DDD) would provide similar conclusions as total DDX. Therefore, individual congener data has not been evaluated further.

Total DDX concentrations were reported on both a dry weight and organic carbon normalized basis. Organic carbon normalized concentrations were not calculated for samples that had low TOC (i.e., < 0.2%), as these low TOC values can artificially inflate chemical concentration values (Michelsen 1988). For these samples, concentrations were only evaluated on a dry weight basis. Due to unforeseen changes in analytical methods for TOC between the 2-month and 14-month sampling events, as well as unexplained variability and patterns between events, temporal comparisons of TOC normalized DDX concentrations was not possible. It appears that the baseline 2 and 2-month event have comparable TOC results based on concentrations in the native sediment, so comparisons between these events was possible.

Given the pause in sample collection between Baseline 2 (2009) and cap placement (2014), an additional set of grab sediment samples were collected in 2012 to evaluate the potential of DDX reductions prior to cap placement (i.e., establishment of a new baseline). These grab samples were compared to grab samples collected during the baseline 3 and indicated no substantial differences in total DDX concentrations between these events. Therefore, the use of baseline 2 core samples for temporal comparisons was representative of site conditions.

Percent reductions from baseline for on cap sediments in each post-placement event for each surface sediment interval (0-2, 2-5 and 5-7 cm) at stations 2, 3 and 5 were calculated. Percent reductions from baseline for off cap sediment samples (0-10 cm) from station 6 in each post-placement event were also calculated. In addition to comparing surface sediment reductions compared to baseline, reductions of total DDX concentrations in cap material was compared to underlying native sediment for each on cap station from post-placement events.

Trends in total DDX were evaluated statistically utilizing pre- and post-TLC placement at stations 2, 3, and 5. These are the only stations with co-located baseline and post placement samples collected. Total DDX results from the three in cap depth intervals (0-2, 2-5 and 5-7 cm) and the four events (Baseline 2, 2-, 14-, and 25-Month) were compared with a Randomized Block One-Way Analysis of Variance (ANOVA). The ANOVA was blocked by station ID (2, 3 and 5) to control for differences in sediment concentrations between these locations. A significant blocking factor indicates that the total DDX concentrations are different between stations, when ignoring event. If the blocking factor was not significant, then it would be acceptable to include post-TLC stations 1 and 4 into the model and re-analyze all data, since total DDX did not vary by station. If the blocking factor was significant, the interaction between Station and Event was investigated using a 2-way ANOVA to check for potential confounding factors in the data. An interaction would be present if, for example, the total DDX trends between stations changed between events. Unless major interactions occurred, it was safe to assume the results of the initial one-way ANOVA were valid. Normality of model residuals was evaluated using Shapiro-Wilk and a normal probability plot, and equality of variances was checked by plotting model residuals against fitted values. If these assumptions were not satisfied, the dependent variable (total DDX) was log transformed and the analysis was re-run.

Initial data evaluation indicated that the residuals were not normally distributed and the variances were not homogenous in the Randomized-Block ANOVA model comparing pre- and post- total DDX concentrations at stations 2, 3 and 5. Total DDX was log transformed and the assumptions were met. Results of the Randomized-Block ANOVA on the log transformed data indicated that there was a significant difference in total DDX concentrations between the stations ($p < 0.0001$), therefore the interactions between station and event were checked. This analysis showed that there was a significant interaction ($p < 0.05$), but this interaction was being driven by one elevated data point, Total DDX at station 5 during the 2-Month event, and therefore could be ignored. A post-hoc pairwise comparison (Tukey's HSD) was implemented on the randomized-block ANOVA results to determine differences between events and stations.

To investigate potential mixing of cap material and native sediment, concentrations of total DDX in the sediment interval above (0-2 AI) and below (0-2 BI) the cap-native sediment interface were evaluated. Initial comparisons were completed looking at differences between above and below cap-native sediment interface samples for the five on-cap stations on an event by event basis utilizing paired-t tests. Additionally, a 2-way ANOVA was completed, comparing: 1) interface (0-2 Above Interface and 0-2 Below Interface) and 2) Event (2-, 14 and 25-Month). Concentrations of total DDX were log transformed due to violations of ANOVA assumptions with the raw data. The differences between total DDX concentrations above and below the interface were constant across the three events (i.e., no significant interaction between event and interface). There were significant differences between events and intervals ($p < 0.05$), so a Tukey's HSD was implemented.

The potential that the cap material was recontaminated to pre-TLC placement concentrations due to top-down contaminant mixing was evaluated. Concentrations of total DDX in the cap sediment (0-2, 2-5 and 5-7 cm below SWI) were compared to native sediment (0-2 BI, 2-5 BI and 5-7 BI) utilizing Randomized Block ANOVAs for each post-placement event. The ANOVA

was blocked by station ID (1, 2, 3, 4 and 5) to control for differences in sediment concentrations between these locations. A significant blocking factor indicates that the total DDX concentrations are different between stations, when ignoring position relative to cap-native sediment interface. Concentrations of total DDX were log transformed due to violations of ANOVA assumptions with the raw data. This analysis showed that there were a significant ($p < 0.05$) differences in each event between DDX concentrations in cap material compared to native sediment. A post-hoc pairwise comparison (Tukey's HSD) was implemented to determine differences between the two layers.

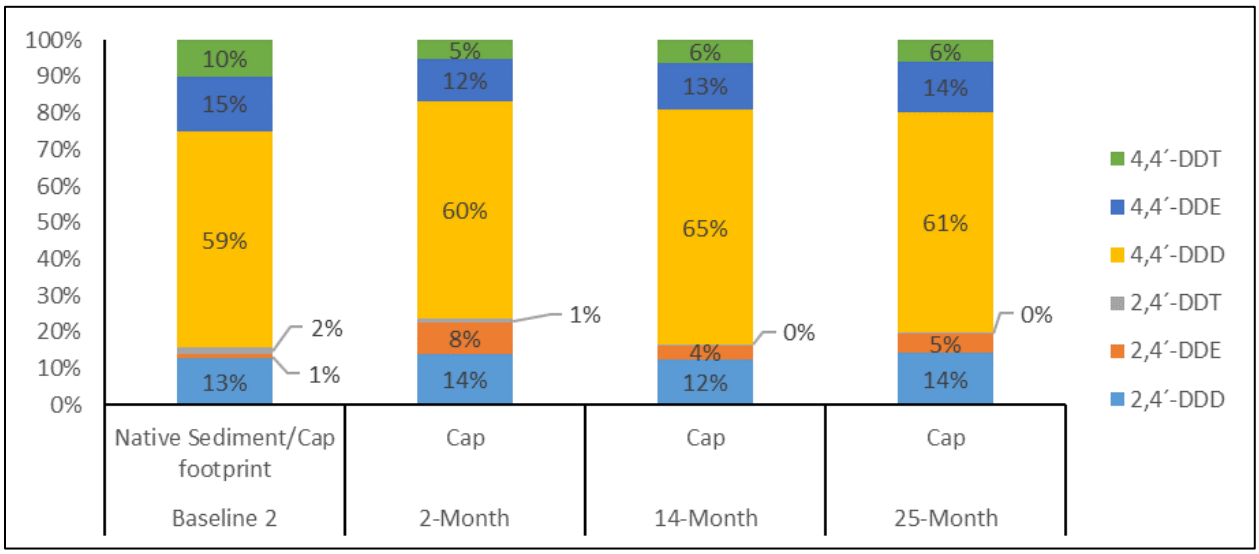


Figure 30. Mean congener composition in surface sediment (0-7 cm below SWI and 0-2 AI) during baseline and post-cap placement events. Note: Baseline is the average of all depths and locations sampled in the cap footprint in 2009. Post-remedy compositions contain locations in the cap footprint (QT1 – 5) and depth intervals within the cap material (0-2, 2-5, 5-7 and 0-2AI).

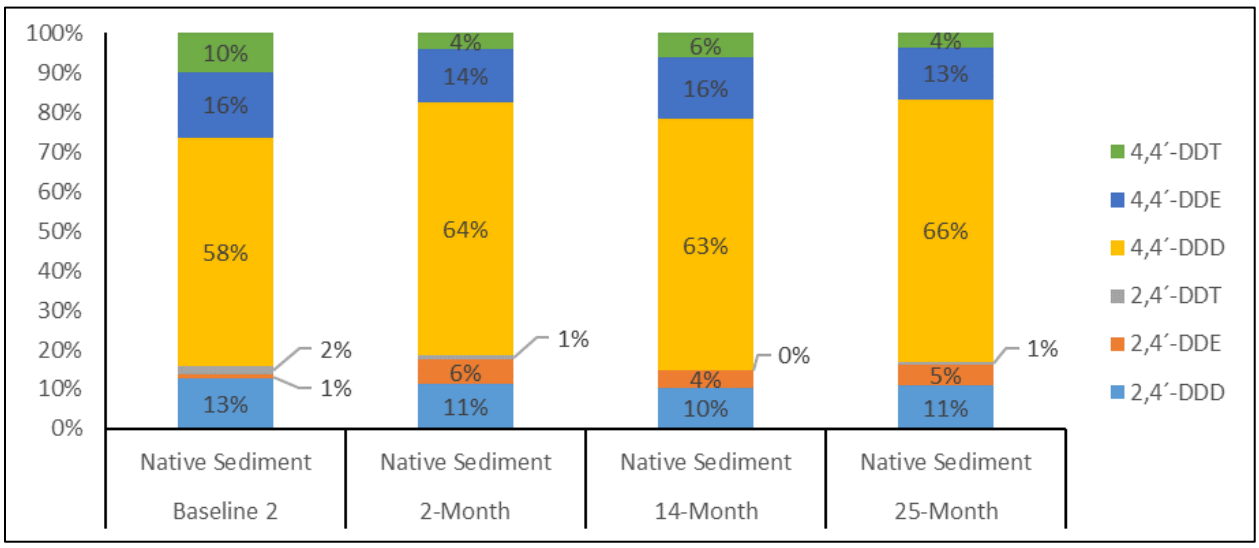


Figure 31. Mean congener composition in native sediment (0-7 cm below cap-native sediment interface) during baseline and post-cap placement events. Note: Baseline is the average of all depths and locations sampled in 2009. Post-remedy compositions contain all site locations (QT1 – 7) and depth intervals below the cap-native sediment interface (0-2 BI, 2-5 BI, 5-7 BI, 0-10cm).

5.6.6. *In Situ* Bioaccumulation

5.6.6.1. Sample Collection and Analysis

Evaluation of the reduction of DDX uptake utilized *in situ* bioaccumulation experiments (Rosen et al 2012, Greenberg et al., 2002). Two species of laboratory-reared organisms, *Lumbriculus variegatus* (oligochaete worms) and *Corbicula fluminea* (freshwater clams), were deployed by US EPA ERT divers using Sediment Ecotoxicity Ring (SEA Ring) for 14 days at multi-metric stations on and off cap in pre-(baseline 2 and baseline 3) and post-placement events (2-, 14-, and 25-month post-placement). The SEA Ring is a patented (U.S. Patent No. 8,011,239, Figure 32), autonomous multi-chamber sampler used primarily for toxicity and bioaccumulation testing (Burton et al., 2013) and has successfully completed USEPA's Environmental Technology Verification (ETV) Program (McKernan et al., 2014). The approach followed methods outlined in the McKernan et al., 2014.

For the SEA Ring deployment, field crew loaded SEA Rings into 17 gallon plastic containers with site seawater, and transferred to dive boat. SEA Rings were loaded one at a time to minimize stress on organisms and adversely impact passive samplers. Containers were lowered from the boat one at a time to divers in water over marked station locations. Divers submerged containers at surface and performed a manual purge of air from pump lines (as directed by field crew). Divers descended to sea floor with SEA Ring in container, identified appropriate deployment locations, and pushed the SEA Ring firmly into sediment so that the lower 5 inches of the exposure chambers were exposed to sediment. This was roughly in line with the white plastic SEA Ring base plate. Divers observed approximate depth of sediment cores (in relation to base plate) and successful trigger of core catcher rings, if possible. The deeper the platform was submerged into surficial sediment the better, for maximum core depth. Divers depressed plastic syringes that released pre-loaded organisms (worms) into designated chambers. Divers made general observations that the SEA Ring was secure and that organisms were in contact with the sediment. They also confirmed the pump was operational based on two blinking lights on the control module. Divers observed slight opening of duck bill valves indicating water was pumping through chambers. Divers secured a small surface buoy to the SEA Ring for easy identification. If deemed necessary, divers secured two sand/screw anchors on opposite sides of the SEA Ring to ensure it did not come out of the sediment. Divers returned to the boat and continued deployment procedure until all SEA Rings were secured at the appropriate stations.

Following a 14 day exposure, organisms were recovered, enumerated, depurated in clean seawater, weighed, and transferred to vials for shipment and chemical analysis. On day 14, divers returned to the site with empty plastic containers and plastic core tube end caps provided by SPAWAR field crew. Divers descended to location with 17 gallon containers and placed them on the sea floor next to the SEA Ring to be recovered. Divers noted condition of SEA Ring, sediment core integrity, and potential organism mortalities. Divers clamped the two white plastic hose clamps down firmly. With end caps ready for secondary capping of core catcher covered chambers, divers carefully pulled SEA Ring directly upward out of sediment, and applied caps to prevent potential loss of sediment from chambers. Documentation of any substantial amount of sediment loss from individual chambers during the removal process were made, if possible. Once caps were secured, divers transferred SEA Ring into plastic container, and brought to the surface. SPAWAR field crew processed samples either on the boat or

pierside using 1 mm sieves, a 110V submersible pump, and various other equipment prior to an overnight purge in clean seawater. Following overnight purging, organisms were weighed, composited as necessary, and frozen for analysis for DDX congeners following EPA 8081B and lipids.



Figure 32. Second Generation SEA Ring Device utilized for assessment of *in situ* bioaccumulation.

During baseline 2, an earlier version of the SEA Ring was deployed. This version of the SEA Ring did not have built in pumps to circulate water and therefore represented more of a static exposure scenario. *Lumbriculus variegatus*, a burrowing oligochaete, was the only organism deployed in this event, therefore the static nature of the overlying water was likely not a driving factor in DDX uptake. The remainder of the events included an updated SEA Ring with water circulation as well as inclusion of both *L variegatus* and *C. fluminea*. *Corbicula fluminea* were obtained from an uncontaminated location in the Strawberry River (Ozark foothills) by Dr. Jennifer Bouldin (Arkansas State Unverity) for all events except for Baseline 3, where clams were obtained from an uncontaminated source on the Upper Potomac River by Dr. Harriette Phelps University of the District of Columbia). *Lumbriculus variegatus* were obtained from California Blackworm Company for all events (Fresno, CA; http://www.aquaticfoods.com/LiveBlackwormsM.html).

After 14 day field deployments, organisms from each of the replicate SEA Ring chambers were collected and composited into a single sample per station. Initial studies from the 2012 baseline 3 event indicated that analyzing SEA Ring chambers separately and as a composite resulted in

similar tissue concentrations (Rosen et al. 2017), therefore composite samples were used for all data analyses with the exception of baseline 3, station 1. Select replicate data from this SEA Ring were averaged and treated as a composite sample. Replicate SEA Ring data from the 2012 baseline 3 event is reported in Appendix E as well as in the Appendices in Rosen et al. (2017).

Tissues in non-field deployed organisms (time 0 samples) were analyzed from each initial batch and are representative of tissue samples before exposure to sediment. This procedure was not done for the 2009 baseline event.

5.6.6.2. Data Treatment and Statistical Methods

Statistical analysis focused on concentrations of total DDX. The composition of DDX congeners for Lumbriculus and Corbicula tissue was dominated by 4,4'-DDE and 4,4'-DDD, which typically represents > 82% of the total DDX concentration (with the exception of 25-month on cap Corbicula tissue, which is at 67%) as shown in Figure 33 and Figure 36. Additionally, similar congener compositions were observed in both the on-cap and off-cap samples through time. Since the congener composition was similar in these comparisons, a congener specific evaluation (e.g., 4,4'-DDE or 4,4'-DDD) would provide similar conclusions as total DDX. Therefore, individual congener data has not been evaluated further.

Baseline 3 results are the sum of 4,4' substituted DDX congeners, as the 2,4' congeners were not analyzed. On average, 4,4' congeners represent 91% (82 – 100%) of total DDX tissue concentrations in the other events, therefore baseline 3 is comparable to these other events without correcting for the differences.

Overall, concentrations in time 0 samples were low for the 2-, 14- and 25-Month events (<4 µg/kg ww), resulting in variability of congener compositions (Figure 37 and Figure 38). The time 0 organisms (*L variegatus* and *C. fluminea*) from baseline 3 (2012) contained appreciable concentrations of total DDX (results summarized in Appendix E) and the composition was similar to that of the field deployed organisms (Figure 37 and Figure 38). Initial concentrations in the three replicates for *L. variegatus* were 13, 20 and 51 µg/kg ww. Initial concentrations in the three replicates for *C. fluminea* were 2, 14 and 31 µg/kg ww. It is apparent when comparing the time 0 *L. variegatus* and *C. fluminea* to the off cap station in 2012 that depuration exceeded uptake during the exposure period. Therefore, it is likely that a majority of the total DDX concentrations observed in exposed organisms is due to exposure to the site and not from contamination of time 0 organisms. It should also be noted that DDX tissue concentrations at the on cap stations (prior to the remedy) were an order of magnitude higher than those at off cap stations, indicating that time 0 concentrations were relatively inconsequential to the baseline 2012 assessment.

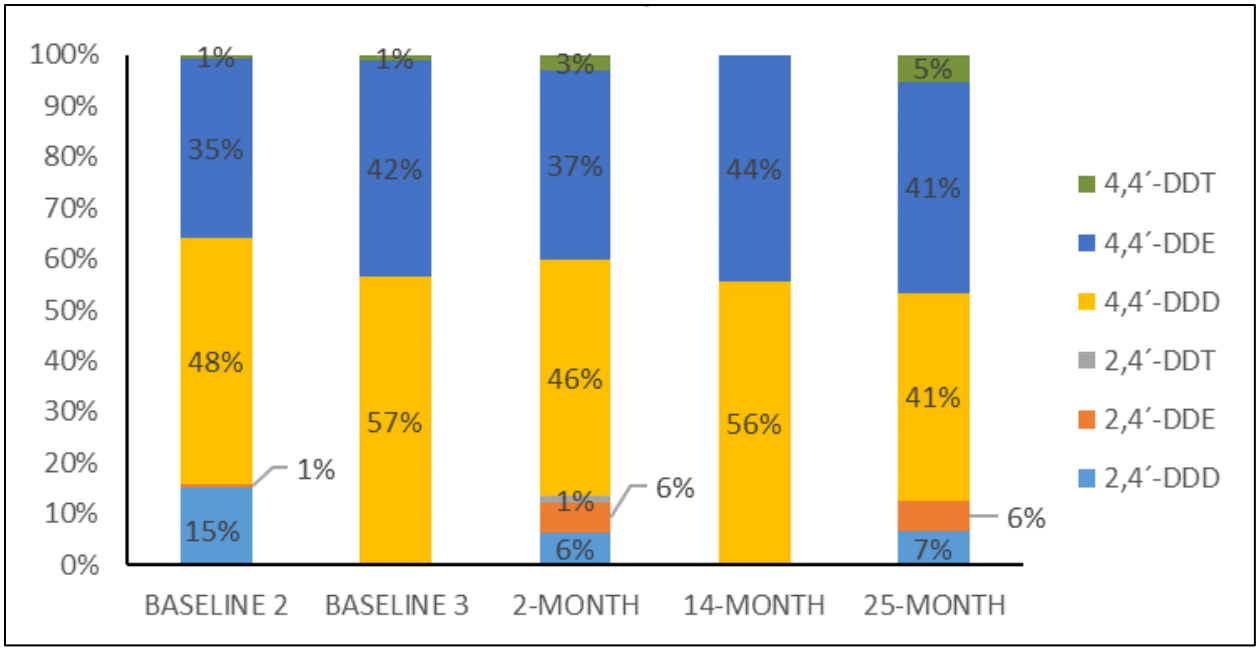


Figure 33. Average Congener Composition in *Lumbriculus* Tissue from On Cap Stations. Note: Baseline 3 was only analyzed for 4,4' substituted congeners.

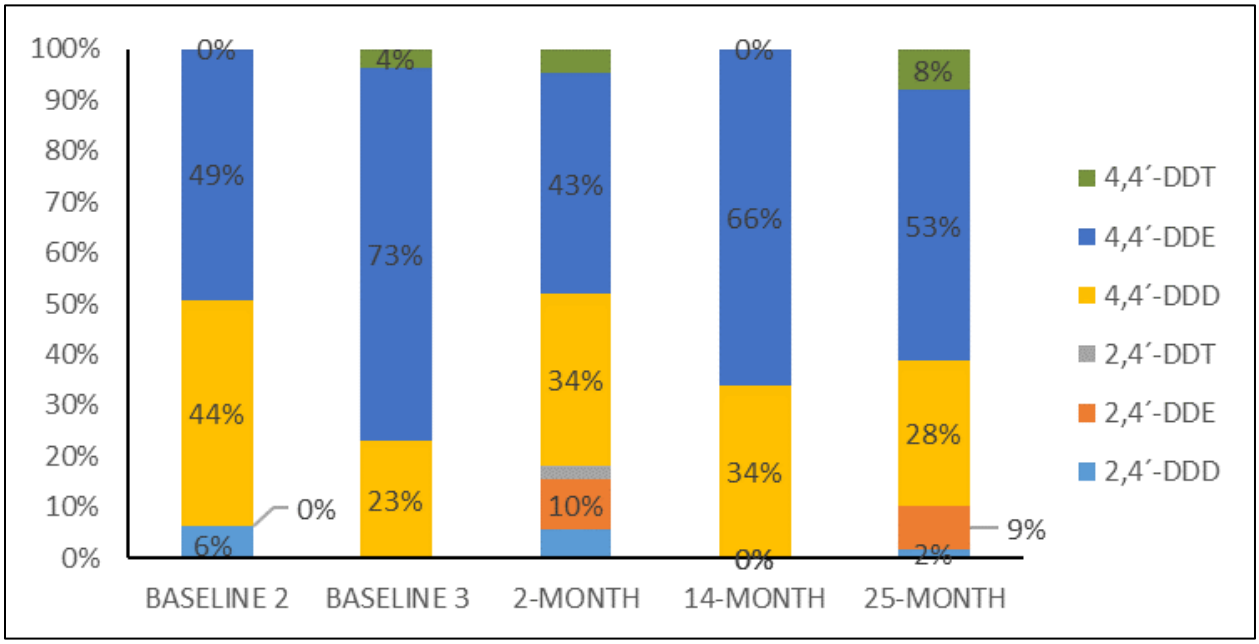


Figure 34. Average Congener Composition in *Lumbriculus* Tissue from Off Cap Stations. Note: Baseline 3 was only analyzed for 4,4' substituted congeners.

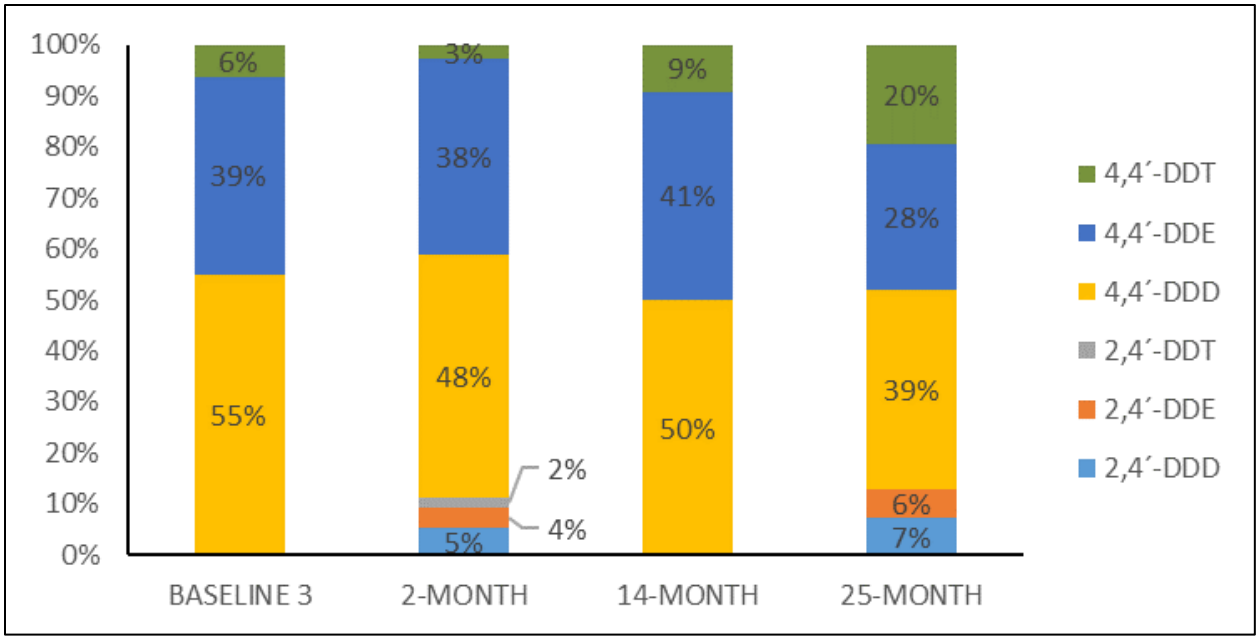


Figure 35. Average congener composition in *Corbicula* Tissue from on-cap stations. Note: Baseline 3 was only analyzed for 4,4' substituted congeners.

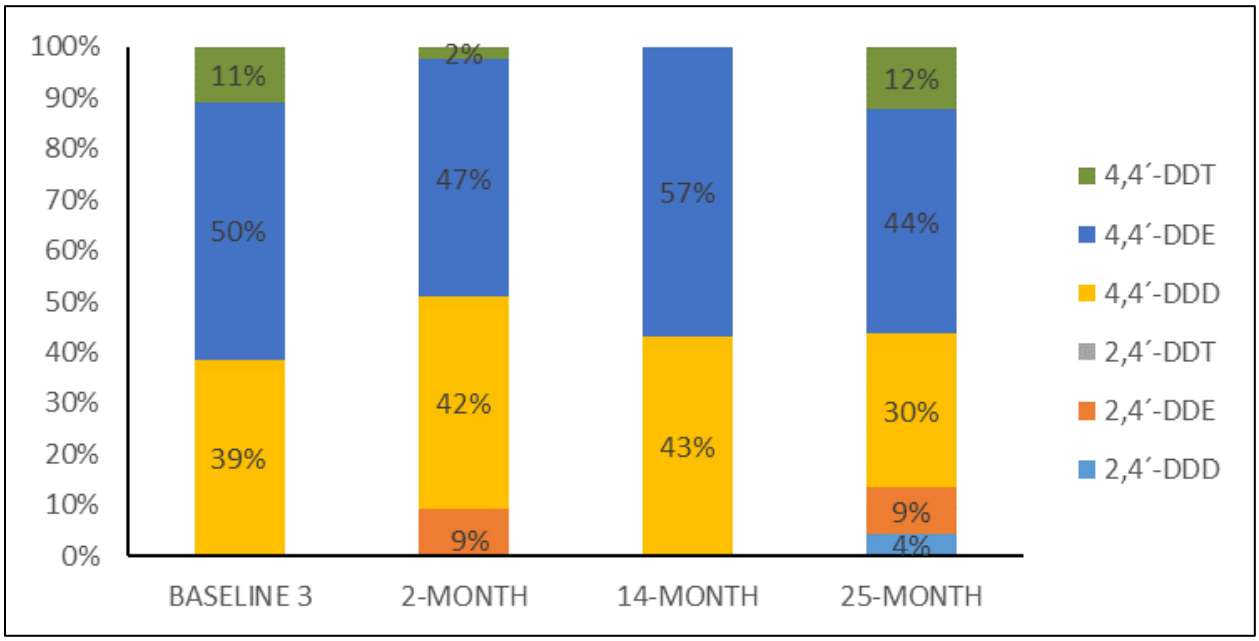


Figure 36. Average congener composition in *Corbicula* Tissue from off-cap stations. Note: Baseline 3 was only analyzed for 4,4' substituted congeners.

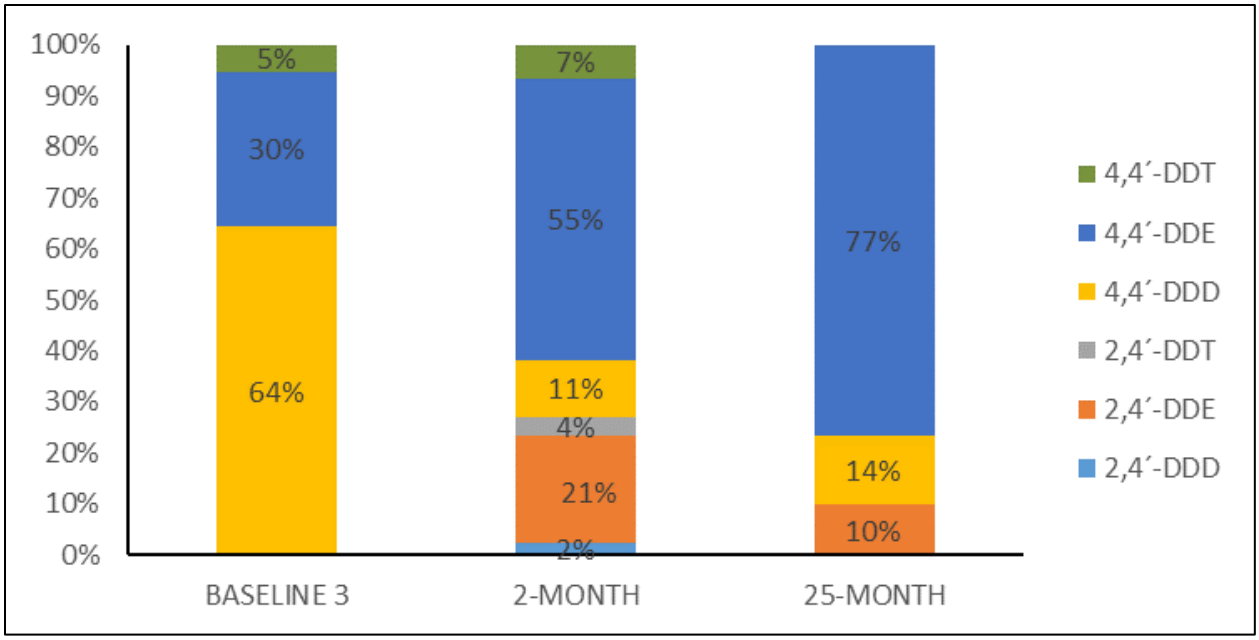


Figure 37. Average congener composition in Time-0 *Lumbriculus* tissue. Note: Baseline 3 was only analyzed for 4,4' substituted congeners.

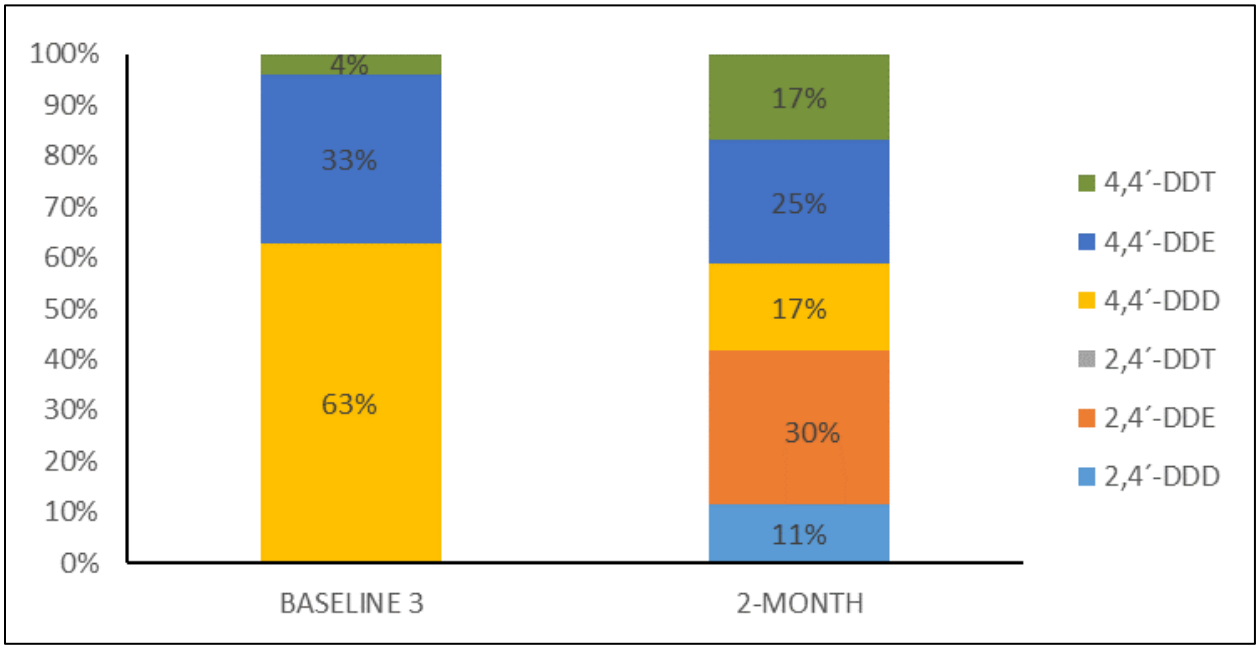


Figure 38. Average congener composition in Time-0 *Corbicula* tissue. Note: Baseline 3 was only analyzed for 4,4' substituted congeners.

Statistical analyses were completed on lipid normalized total DDX concentrations, as lipid content is a major factor in determining hydrophobic organic contaminant concentrations. Assumptions of parametric statistical tests were tested, including: normality of model residuals evaluated using Shapiro-Wilk and a normal probability plot, and equality of variances checked by plotting model residuals against fitted values. If these assumptions were not satisfied, the dependent variable (total DDX) was log transformed and the analyses were re-run.

Given that only two monitoring station from the cap footprint (Stations 1 and 4) had data for a baseline event and all 3 post-cap monitoring events for *L.variegatus*, it was not possible to include station as a blocking variable to control for total DDX spatial heterogeneity for this species. The baseline 3, 2- and 14-Month events had a balanced design for stations 1, 2, 4 and 5, and a blocked one-way ANOVA was run on the data to determine if there were differences among stations. This model did not satisfy the equal variances assumptions so log transformed DDX concentrations were used. This preliminary analysis indicated that there were not significant differences between stations 1, 2, 4 and 5 ($p > 0.05$), indicating that a one-way ANOVA would not be higher skewed by spatial concentration gradients. A one-way ANOVA comparing means across all available data for on-cap stations across the events was completed. This analysis included both baselines (baseline 2 and baseline 3) as separate events. Log transformed DDX concentrations were used due to unequal variances in model. Results from the one-way ANOVA on *L. variegatus* tissue concentrations indicated that there was a significant difference between the five sampling events ($p < 0.01$). A post-hoc pairwise comparison (Tukey's HSD) was run on the ANOVA results.

The *C. fluminea* dataset was more robust, therefor it was possible to control for this spatial DDX variability. Total tissue DDX concentrations on a lipid basis at stations 1, 2, 3, 4 and 5 from the four events (Baseline 3, 2-, 14-, and 25-Month) were compared with a Randomized Block One-Way Analysis of Variance (ANOVA). The ANOVA was blocked by station ID (1, 2, 3, 4 and 5) to control for differences in tissue concentrations between these locations. If the blocking factor was not significant, it was safe to assume that tissue concentrations did not vary by location and a one-way ANOVA could be utilized. Results from the randomized block one-way ANOVA on *C. fluminea* tissue concentrations indicated that there were not differences in tissue concentrations between the stations based on the blocking variable. Therefore, a one way ANOVA was completed utilizing all available on cap data. The one-way ANOVA indicated slight significant differences between the four sampling events ($p = 0.02$). A post-hoc pairwise comparison (Tukey's HSD) was run on the ANOVA results.

5.6.7. Native Pelagic Invertebrate Tissue

5.6.7.1. Sample Collection

Activity traps intended to be used for the collection of pelagic invertebrate did not function. In baseline 2, pelagic invertebrate were collected by hand for sufficient tissue mass for DDX analysis. This was found to be a labor intensive process which was not possible to execute in the planned duration of the field sampling for the post-placement monitoring events. Therefore, collection was not conducted in the post-placement monitoring events.

5.6.8. Porewater (*ex situ* passive sampling)

DDX in sediment pore water was assessed through application of *ex situ* Solid Phase Micro-Extraction (SPME). Diffusion of DDX in sediment pore water was used to estimate bioavailability of DDX within the cap layer and native sediment. Data were used in investigating changes in bioavailability as a result of TLC and sediment mixing. Procedures followed methods outlined in You et al., (2007) and Yang et al., (2008), as described in Appendix D.

Briefly, *ex situ* sediments were adjusted to 60% water content using distilled water (typically 10 – 20 mL), followed by the addition of 600 µL of a mercuric chloride solution, which served as a microbial growth inhibitor. Each sample jar received one SPME sampler, which consisted of 10 3-cm pieces (30 cm total) of SPME fiber (10-µm thickness polydimethylsiloxane (PDMS) coating, 210-µm silica core diameter, (Fiber-guide Industries, Stirling, New Jersey). The fibers were contained within a 110-µm stainless steel mesh envelope, and cleaned with a 50:50 solution of acetonitrile:water and water rinse. The sample jars containing SPME samplers were constantly rotated for two weeks on a sediment roller at approximately 30 rpms. Following two week equilibration, the samplers were retrieved from the sediment slurry, the fibers were cleaned with damp laboratory wipes, placed in pre-weighed 2 mL vials, re-weighed and 1.8 mL of hexane was added to each vial. The vials were then shipped to ERDC where they were then stored at 4°C, spiked with an internal recovery standards, evaporated to a volume of approximately 100 or 200 µL with pure nitrogen, and analyzed following EPA 8081A.

The estimation of a concentration of DDXs in sediment porewater requires the concentration of DDXs in the fiber coating be at equilibrium. Experiments by You et al., (2007) have confirmed that the agitation method we have used is sufficient to reach approximate equilibrium (approximately 90% of steady state or more) for DDXs in the fiber coating. Steady state concentrations of DDXs in the fiber coating were assumed.

5.6.8.1. Data Treatment and Interpretation

The composition of DDX congeners for porewater measured by *ex situ* passive samplers in native sediment and the cap is dominated by 4,4'-DDE and 4,4'-DDD, which represent > 75% of the total DDX concentration (Figure 39 and Figure 40). Additionally, similar congener compositions are seen in both the in-cap and native sediment samples. Since the congener composition is the similar in these comparisons, a congener specific evaluation (e.g., 4,4'-DDE or 4,4'-DDD) would provide similar conclusions as total DDX. Therefore, individual congener data has not been evaluated further.

Percent reductions from baseline for on cap porewater samples for each surface interval (0-2, 2-5 and 5-7 cm) at stations 2, 3 and 5 were calculated. Percent reductions from baseline for off cap sediment samples (0-10 cm) from station 6 was also calculated. In addition to comparing surface porewater reductions compared to baseline, reductions of total DDX concentrations in cap material was compared to underlying native porewater for each on cap.

Trends in total DDX were evaluated statistically utilizing pre- and post-TLC, at stations 2, 3, and 5. Total Porewater DDX results from the three depth intervals (0-2, 2-5 and 5-7 cm below

SWI) and the four events (Baseline 2, 2-, 14-, and 25-Month) were compared with a Randomized Block One-Way Analysis of Variance (ANOVA). The ANOVA was blocked by station ID (2, 3 and 5) to control for differences in sediment concentrations between these locations. Normality of model residuals was evaluated using Shapiro-Wilk and a normal probability plot, and equality of variances was checked by plotting model residuals against fitted values. If these assumptions were not satisfied, the dependent variable (total DDX) was log transformed and the analyses were re-run. If the blocking factor was significant, the interaction between Station and Event was investigated using a 2-way ANOVA to check for any potential confounding factors in the data. A significant blocking factor indicates that the total DDX concentrations are different between stations, when ignoring event. An interaction would be present if, for example, the total DDX trends between stations changed between events. Unless major interactions occurred, it was safe to assume the results of the initial one-way ANOVA are valid. If the blocking factor was not significant, then it would be acceptable to include post-TLC stations 1 and 4 into the model and re-analyze all data, since total DDX did not vary by station.

Initial data evaluation from the randomized-block ANOVA indicated that the residuals were not normally distributed, therefor log transformed DDX concentrations were used. Results of the ANOVA indicated that the blocking factor (Station) was significant, indicating a significant difference between the stations ($p < 0.001$). Due to this, stations 1 and 4 data could not be included in the model because of spatial heterogeneity in porewater DDX. The interaction between station and event was checked and showed that there was not a significant interaction ($p > 0.05$) indicating results of the randomized-block ANOVA were valid. The randomized-block ANOVA indicated there was a significant difference between events and stations ($p < 0.001$), therefore a post-hoc pairwise comparison (Tukey's HSD) of the ANOVA results was implemented to determine differences between events and stations.

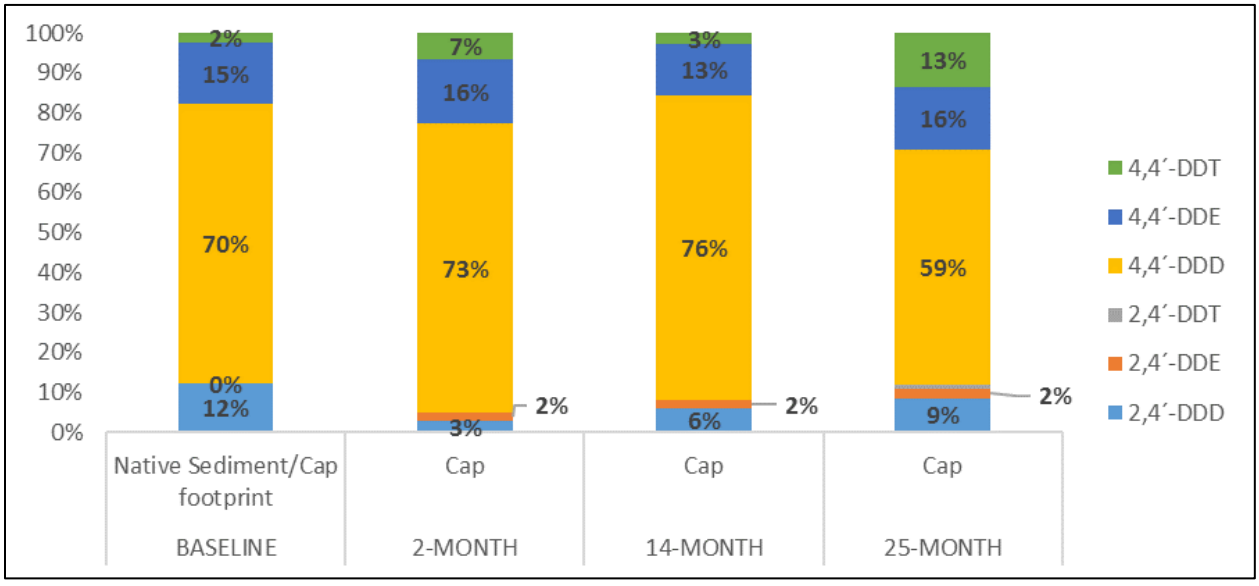


Figure 39. Average Porewater (*Ex Situ*) Congener Composition in Cap Sediment. Note: Baseline is the average of all depths and locations sampled in 2009. Post-remedy

compositions contain locations in the cap footprint (QT1 – 5) and depth intervals within the cap material (0-2, 2-5, 5-7 and 0-2AI).

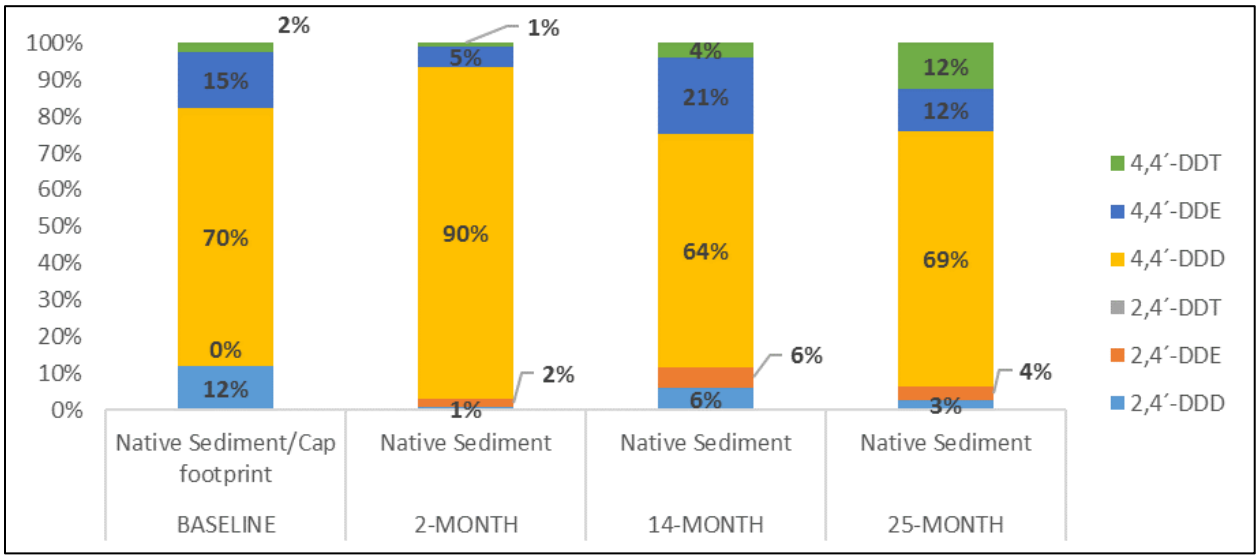


Figure 40. Average Porewater (*Ex Situ*) Congener Composition in Native Sediment. Note: Baseline is the average of all depths and locations sampled in 2009. Post-remedy compositions contain all site locations (QT1 – 7) and depth intervals below the cap-native sediment interface (0-2 BI, 2-5 BI, 5-7 BI, 0-10cm).

5.6.9. Sediment Profile Imagery

Sediment profile imaging is a benthic sampling technique in which a specialized camera is used to obtain vertical cross-section photographs of the upper 15 cm to 20 cm of the sediment column. This is a reconnaissance survey technique used for rapid collection, interpretation and mapping of data on physical and biological sediment characteristics. Measurements obtained from SPI are using to characterize surface sediment types and layering, evaluate benthic habitat quality, and follow ecosystem recovery after emplacement of a cap remedy or abatement of natural or manmade disturbances.

SPI images were acquired with a sediment profile camera consisting of a wedge-shaped prism with a Plexiglas face plate and an internal strobe for lighting. The back of the prism contains a mirror mounted at an angle to reflect the profile of the sediment-water interface toward the camera. The camera was mounted horizontally on the top of the prism. The prism was filled with distilled water, through which the photographs were obtained. If the water was sufficiently deep that deployment occurred from the deck of a sampling platform such as a Jon boat or pontoon boat, the camera prism was mounted on an assembly that was moved vertically by creating tension (or slack) on a deployment wire. Under this scenario, the rate of prism penetration into the sediment was controlled by an adjustable hydraulic piston. If the SPI camera was deployed in sufficiently shallow water that remote deployment was not required, the prism assembly was advanced into the sediment by hand. The extent of prism penetration into the sediment was influenced by site

factors including sediment grain size and physical obstructions to penetration. SPI camera data was processed and reported by Germano & Associates for the baseline 2 event and RJ Diaz and Daughters for the 2-, 14-, and 25-month events (note that the 25-month report was not available at the time of publication for this report).

SPI was used to visualize processes at the cap-water interface. SPI stations for the Quantico surveys are shown in Figure 41 – Figure 43. Positions are listed in Appendix E. A total of 51, 32, and 21 stations were surveyed during the baseline, 2-month and 14-month events respectively. The visualization of the sediment-cap interface was limited by the depth of penetration of the SPI camera, which did not reach the native sediment at all stations, reducing the utility of this tool in monitoring of cap thickness. SPI surveys were conducted both pre- and post-placement. Sediment Profile Imagery survey will provide additional information on sediment characteristics including mixing information and variations in sediment grain size. Also, information from SPI images were interpreted to provide a qualitative examination of the benthic community successional stage. Successional stages were evaluated prior to TLC placement and ranged from stage 1 to stage 3 (Rhoads and Germano 1986).

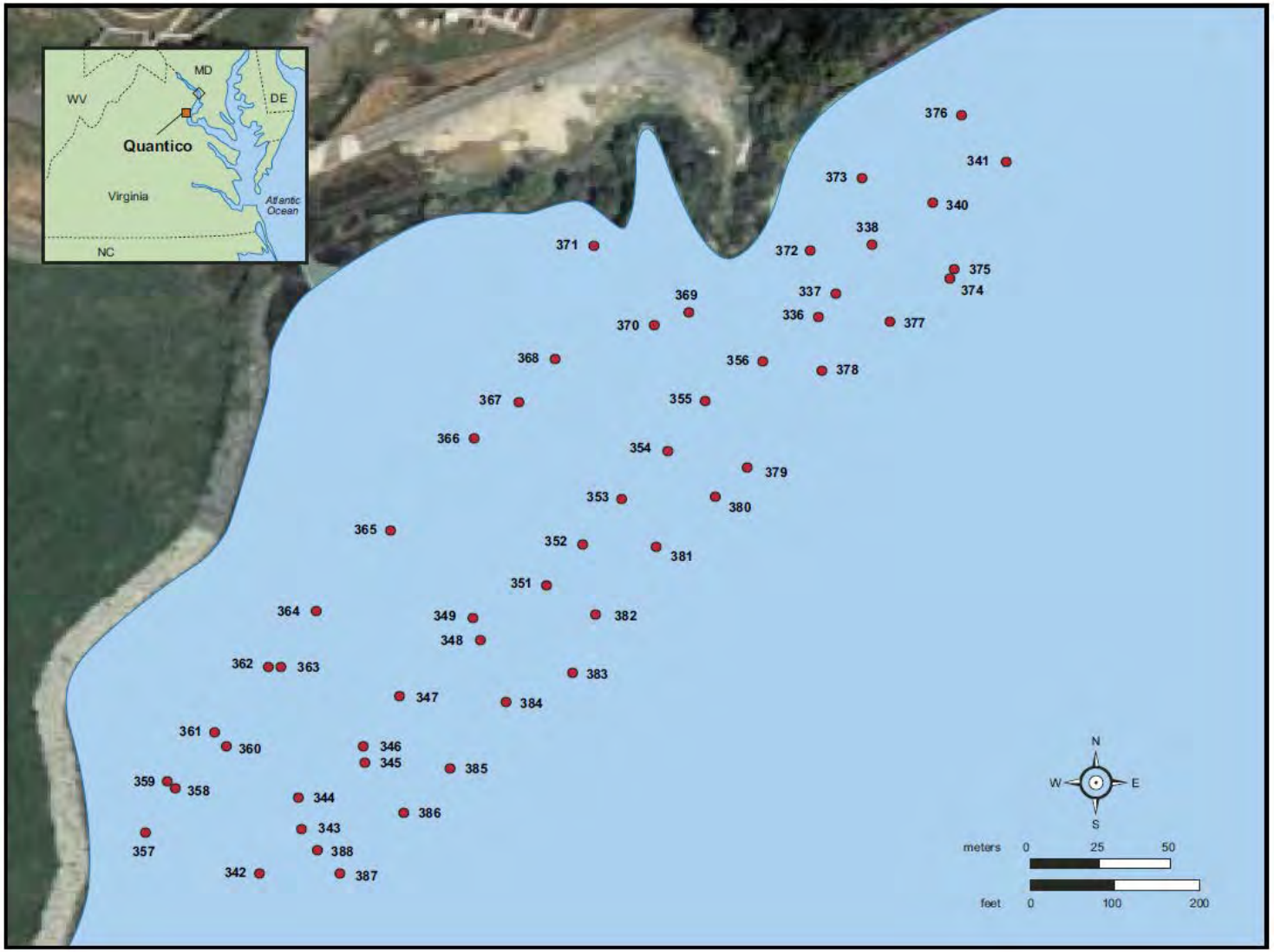


Figure 41. SPI stations for the 2009 baseline survey.

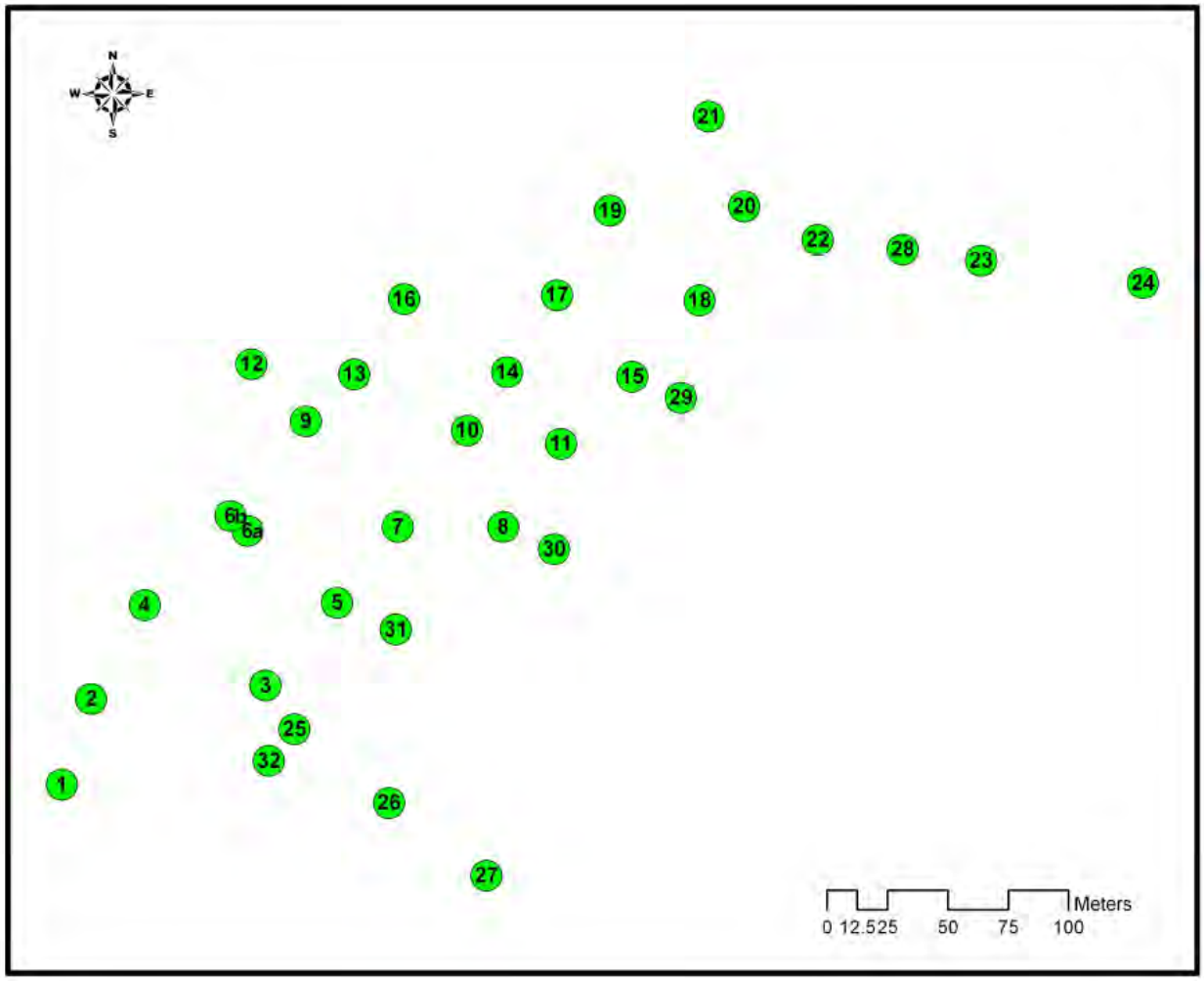


Figure 42. SPI stations for the 2014 2-month post construction survey.

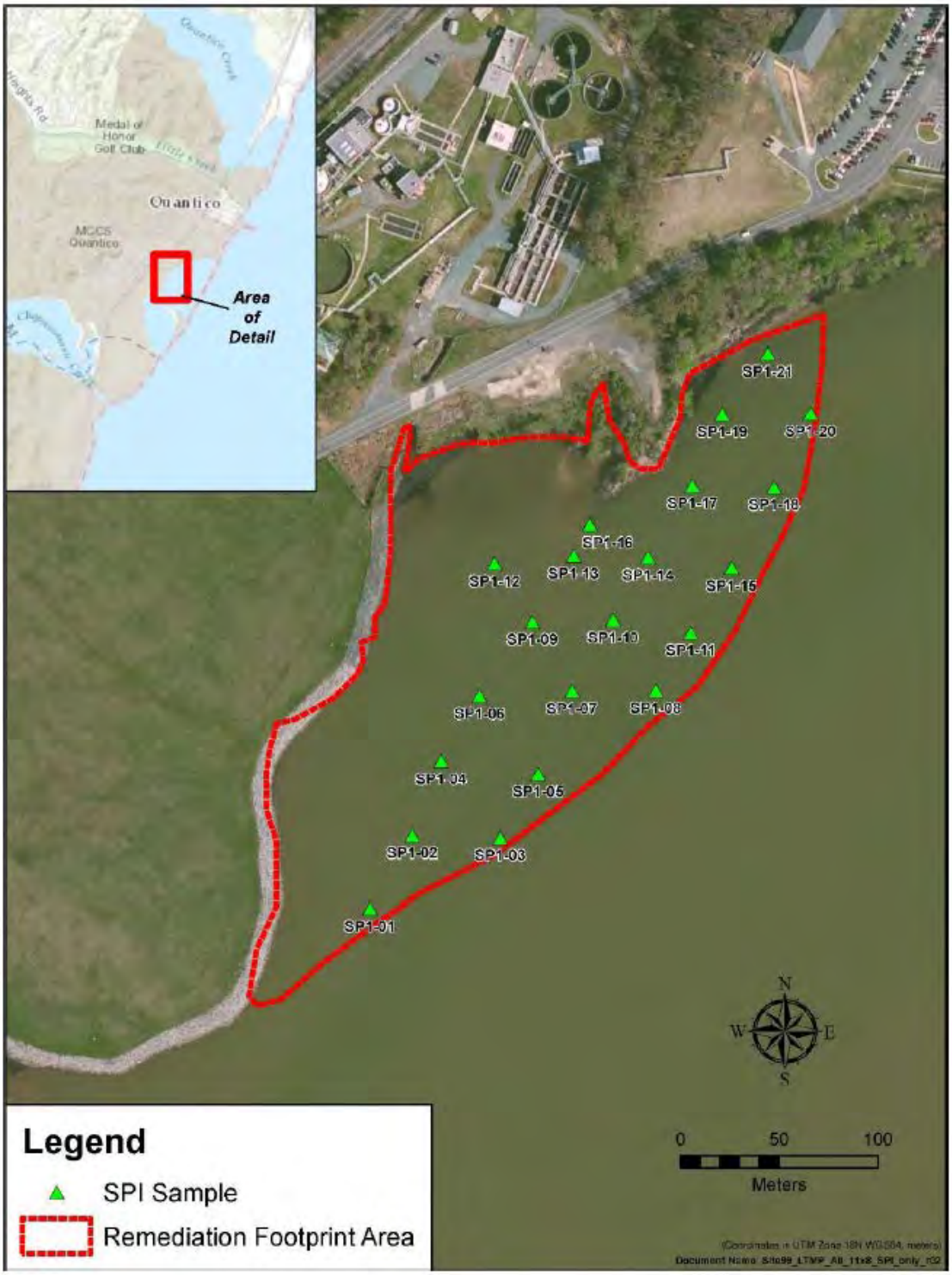


Figure 43. SPI stations for the 2015 14-month post-construction survey.

5.6.10. Benthic Community Census

5.6.10.1. Collection, Processing, and Analysis Methods

During each sampling event, triplicate grab samples at each of the stations was collected using a petite Ponar grab sampler. Petite Ponar sample collection is discussed above in Section 5.6.5. Following collection, the content of each grab sample was sieved through a 500 micrometer (μm) mesh opening sieve (USEPA 2007). Samples were rinsed with Quantico Embayment water and invertebrates and other materials (e.g., sediment and debris) retained on the sieves were collected and immediately preserved by formalin (in Baseline 1 and 3, isopropyl alcohol was used). Samples were immediately shipped to Ecoanalysts (formerly Ramboll Environ) for taxonomic evaluation (Baseline 1 and 3 events were sent to Normandeau Associates).

5.6.10.2. Calculation of Metrics and Statistical Evaluation

Invertebrates were identified to the lowest possible taxonomic level and enumerated. Benthic community census data were provided as counts per sample (by taxa) by EcoAnalysts (or Normandeau Associates). Prior to data analysis and interpretation, the taxa names were synonymized by rolling up taxa names to higher levels between datasets to account for differences in ID level between multiple years of data. Synonymizing taxa IDs between multiyear datasets is a critical first step to allow for direct comparison between the events without artefacts of differences in ID level. Additionally, separate life stages (pupae, larvae, etc.) of an individual taxa were combined into a single taxa to avoid double counting. The result of this exercise was comparable datasets between the 5 events with benthic community census data. Variability between multiyear datasets is inevitable given changes in taxonomists as well as updates the taxonomic ID guides.

Four biological indices commonly used to assess benthic community health were used to evaluate the data. This includes:

- Total abundance
- Taxa richness
- Species diversity, as measured by Shannon-Wiener Diversity Index (H')
- Species evenness, as measured by the Pielou's Evenness Index (J', Pielou 1966)

Total abundance was calculated as the numbers of individuals divided by the sampling area in square meters (m^2). Area sampled at each station was 0.069 m^2. Taxa richness is the number of different taxa collected in each composite sample. H' is calculated as the sum of the proportion of individuals in each species to the total number of individuals in each sample (p_i) multiplied by the natural logarithm (ln) of p_i for each sample. J' is calculated as H' divided by the ln number of taxa.

These four metrics were evaluated separately using a one-way ANOVA to compare differences between the two baseline events, and the 2-, 14-, and 25- month monitoring events for the on cap stations. Before analyzing the data, standard assumptions were checked with the Shapiro-Wilk normality test, and diagnostic plots (residuals versus fitted values and normal Q-Q plots) were used to check normality and equal variance. If there were significant differences between events, a Tukey's HSD post hoc test was used to determine differences between individual events. The

off cap stations were qualitatively compared to on cap stations due to limited sample size (n = 1 to 3, depending on event) to determine if potential adverse effects were due to presence of the cap.

The methodology used by Llansó (2002) to derive the Chesapeake Bay benthic index of biotic integrity (B-IBI) to assess benthic community health and environmental quality in Chesapeake Bay, was followed for determination of the health of the benthic community at Quantico Embayment during the various phases of this demonstration. This B-IBI integrates a number of individual metrics, including abundance, abundance of pollution-indicative taxa, abundance of pollution sensitive taxa, abundance of carnivores and omnivores, tolerance score and Tanypodinae to Chironomidae abundance ratio, into an integrative community score (Llanso 2002). This method, described by Weisberg et al., (1997), evaluates the ecological condition of a sample by comparing values of key benthic community attributes (metrics) to reference values expected under non-degraded conditions in similar habitat types. It is therefore a measure of deviation from reference conditions. Based on a series of statistical and simulation studies, Alden et al., (2002) concluded that the B-IBI was a sensitive, stable, robust and statistically sound method.

These comparative parameters allowed for an evaluation of the short-term responses of the community to cap placement. Possible community responses may include long-term recovery of the extant community following cap placement or re-colonization of the cap area by organisms from outside of the cap area footprint.

5.7. Sampling Results

5.7.1. Bathymetry

Results for the baseline and post-cap bathymetric surveys are summarized below.

5.7.1.1. 2014 Baseline Survey

The 2014 baseline bathymetry is shown in Figure 44. The primary features of the bottom elevation across the overall survey area included an offshore gradient in elevation sloping from about +0.06 m NAVD88 near the shoreline to about -1.73 m NAVD88 in the area offshore of the cap (Table 14). The slope was generally strongest between the shore and about a third of the distance offshore and then flattens out further offshore. There was a shallow zone in the small cove at the mouth of the drainage that enters the embayment at about the midpoint of the north-south extent of the capping area. The mean elevation in the survey area was -1.01 m NAVD88, while the mean elevation within the target cap area was about 10 cm shallower at -0.91 m NAVD88.

5.7.1.2. 2015 Post-Cap Survey

The 2015 post-cap bathymetry is shown in Figure 45. The primary features of the bottom elevation across the overall survey area were qualitatively similar to the 2014 survey except that the offshore area appeared slightly shallower. The maximum elevation near the shore was about -0.22 m NAVD88 and the lowest elevation offshore was about -1.61 m NAVD88 (Table 14). The mean elevation in the survey area was -0.89 m NAVD88, while the mean elevation within the target cap area was about 15 cm shallower at -0.74 m NAVD88.

5.7.1.3. 2016 Post-Cap Survey

The 2016 post-cap bathymetry is shown in Figure 46. As with 2015, the primary features of the bottom elevation across the overall survey area were qualitatively similar to the 2014 survey except that the offshore area appeared slightly shallower. The maximum elevation near the shore was about -0.20 m NAVD88 and the lowest elevation offshore was about -1.63 m NAVD88 (Table 14). The mean elevation in the survey area was -0.91 m NAVD88, while the mean elevation within the target cap area was about 14 cm shallower at -0.77 m NAVD88.

5.7.1.4. Differences

Difference maps were developed from the bathymetric grids to evaluate changes between the pre- and post-cap condition as well as to evaluate stability of the cap following the cap placement. The difference map for subtraction of the 2014 elevation from the 2015 elevation is shown in Figure 47. This map reflects the general characteristics of the cap one year after placement, with positive changes in elevation throughout the majority (>94%) of the target cap area of up to about 50 cm (Table 14). The mean difference in the target cap area was 17 cm which exceeds the minimum target thickness of 15 cm (6 inches).

The difference map for subtraction of the 2014 elevation from the 2016 elevation is shown in Figure 48. This map reflects the general characteristics of the cap two years after placement,

with positive changes in elevation throughout the majority (>82%) of the target cap area of up to about 37 cm (Table 14). The mean difference in the target cap area was 14 cm which is still comparable to the minimum target thickness of 15 cm (6 inches).

The difference map for subtraction of the 2015 elevation from the 2016 elevation is shown in Figure 49. This map reflects the general stability of the cap over the two years following placement, with generally very little change between the two post-cap surveys. The mean difference across the cap area was -3 cm (Table 14) and the map indicates that most changes were very localized.

Elevations changes from the 2015 and 2016 bathymetric surveys are compared to the estimated cap thickness from the on-cap coring stations in Table 15. The results are qualitatively comparable with the exception of station QT-3 where the bathymetry consistently showed a smaller change in elevation than was reflected in the cores. Average values for change in elevation showed a bias toward lower values than the coring which was expected due to compaction and mixing of the cap material with the native sediment.

5.7.1.5. Summary

Overall, the bathymetric surveys clearly show the changes in elevation related to the cap placement, and these measured changes were consistent with the target thickness for the cap. Annual surveys for the two years following the cap placement showed only very small changes in elevation, indicating that the cap appears to be relatively stable in elevation.

Table 14. Grid statistics for the three bathymetric surveys for the overall survey area, the cap area, and the survey differences within the cap area.

Condition		Min	Max	Mean	Stdev
Survey Area	2014 Elevation (m NAVD88)	-1.73	0.06	-1.01	0.35
	2015 Elevation (m NAVD88)	-1.61	-0.22	-0.89	0.40
	2016 Elevation (m NAVD88)	-1.63	-0.20	-0.91	0.40
Cap Area	2014 Elevation (m NAVD88)	-1.48	0.06	-0.91	0.31
	2015 Elevation (m NAVD88)	-1.45	-0.22	-0.74	0.32
	2016 Elevation (m NAVD88)	-1.49	-0.20	-0.77	0.33
Difference	2015-2014 Diff (m)	-0.66	0.50	0.17	0.12
	2016-2014 Diff (m)	-0.84	0.37	0.14	0.11
	2016-2016 Diff (m)	-0.33	0.37	-0.03	0.07

Table 15. Comparison of cap thickness based on coring with change in elevation based on bathymetry difference from the pre-construction 2014 baseline (inches) at the five on-cap stations.

Station	2015		2016	
	Coring	Bathy	Coring	Bathy
QT-1	5.9	4.1	5.9	5.6
QT-2	6.7	12.6	6.7	7.3
QT-3	9.1	3.3	9.8	1.6
QT-4	15.4	10.0	9.4	10.4
QT-5	16.3	12.6	17.5	12.2
Average	10.7	8.5	9.9	7.4

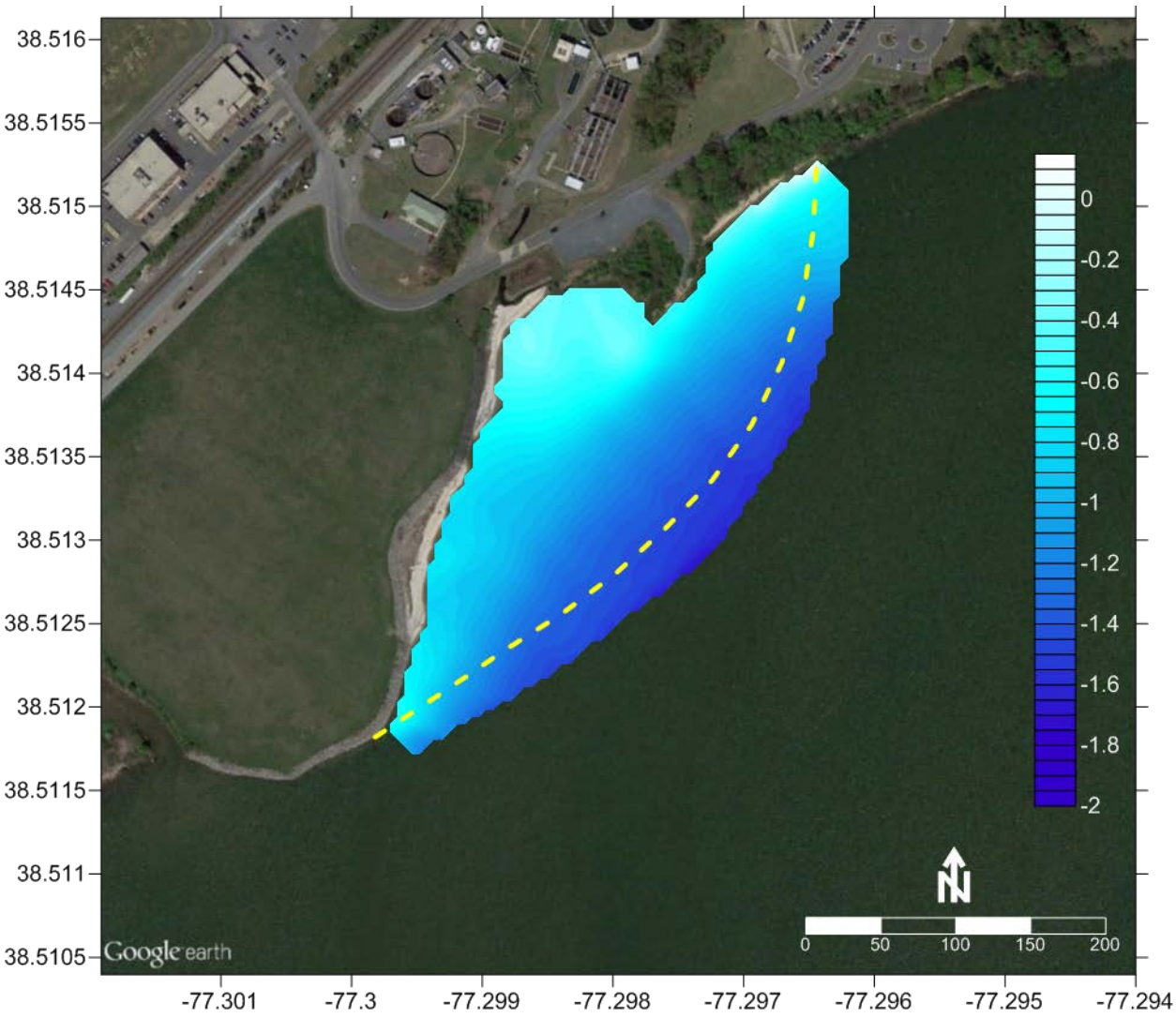


Figure 44. Baseline bathymetry from the 2014 pre-capping survey. The yellow dashed line indicates the offshore boundary of the area targeted for the thin-layer cap. Bathymetry is reported in meters relative to the NAVD88 vertical datum.

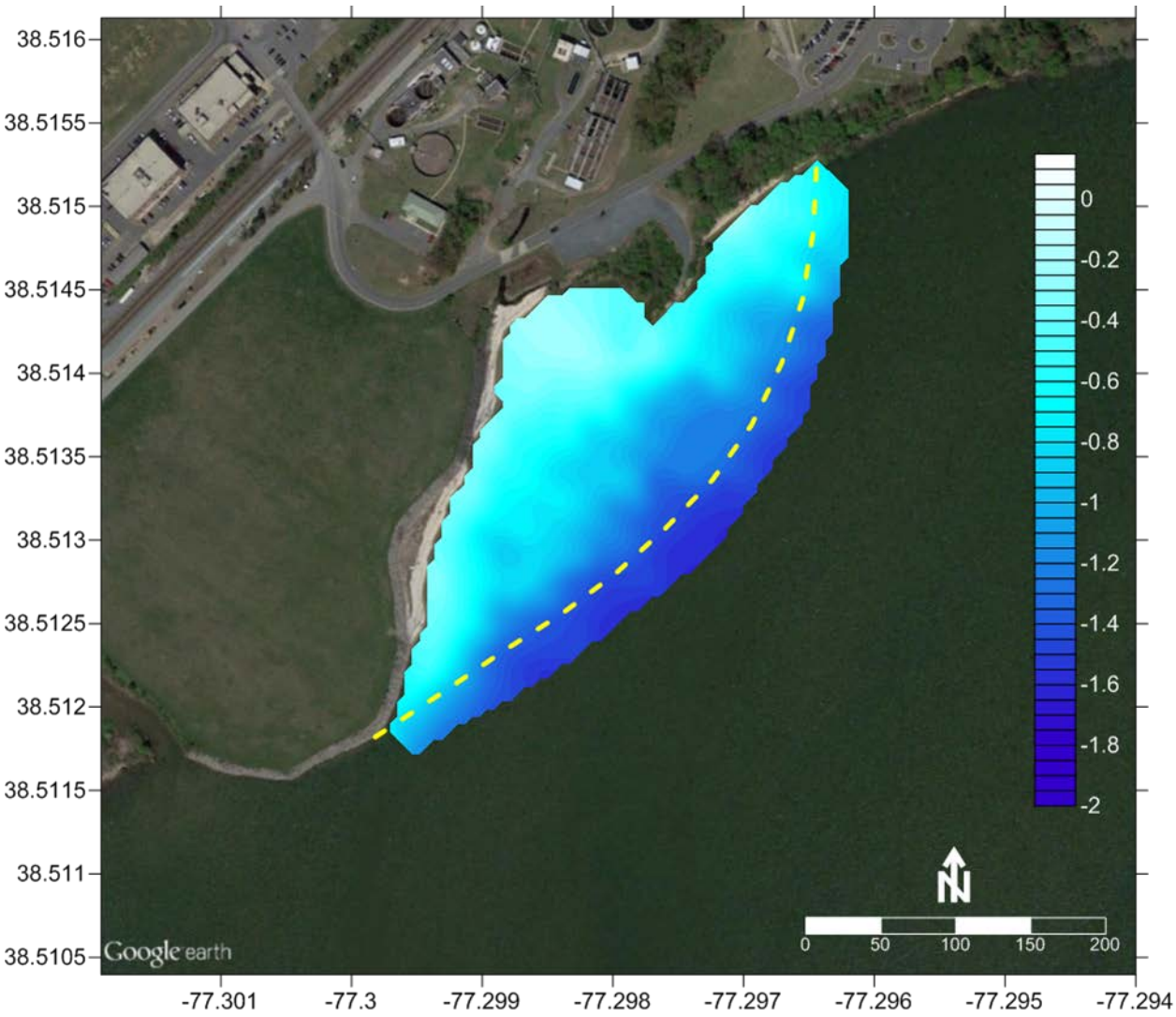


Figure 45. Bathymetry from the 2015 post-capping survey. The yellow dashed line indicates the offshore boundary of the area targeted for the thin-layer cap. Bathymetry is reported in meters relative to the NAVD88 vertical datum.

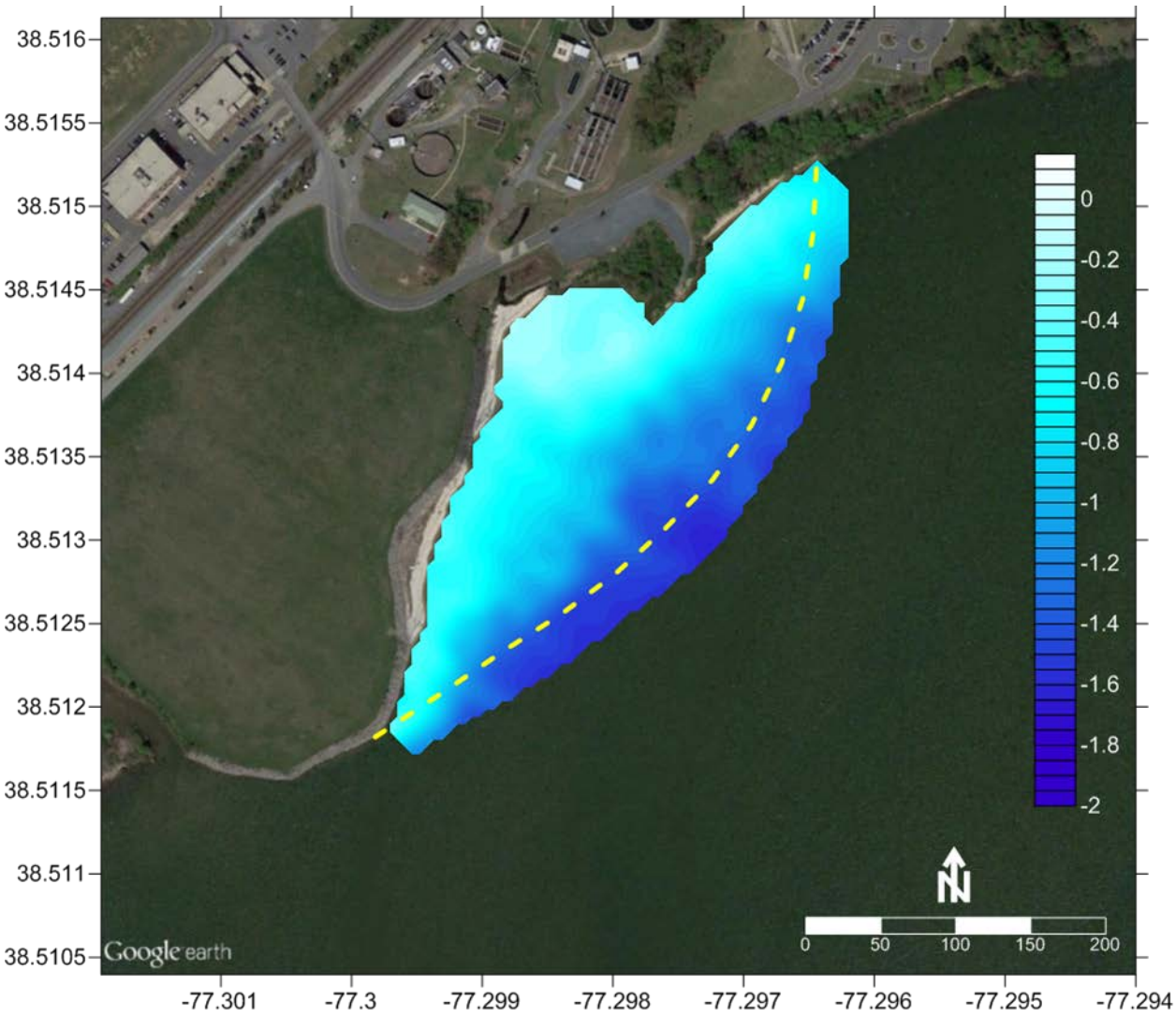


Figure 46. Bathymetry from the 2016 post-capping survey. The yellow dashed line indicates the offshore boundary of the area targeted for the thin-layer cap. Bathymetry is reported in meters relative to the NAVD88 vertical datum.

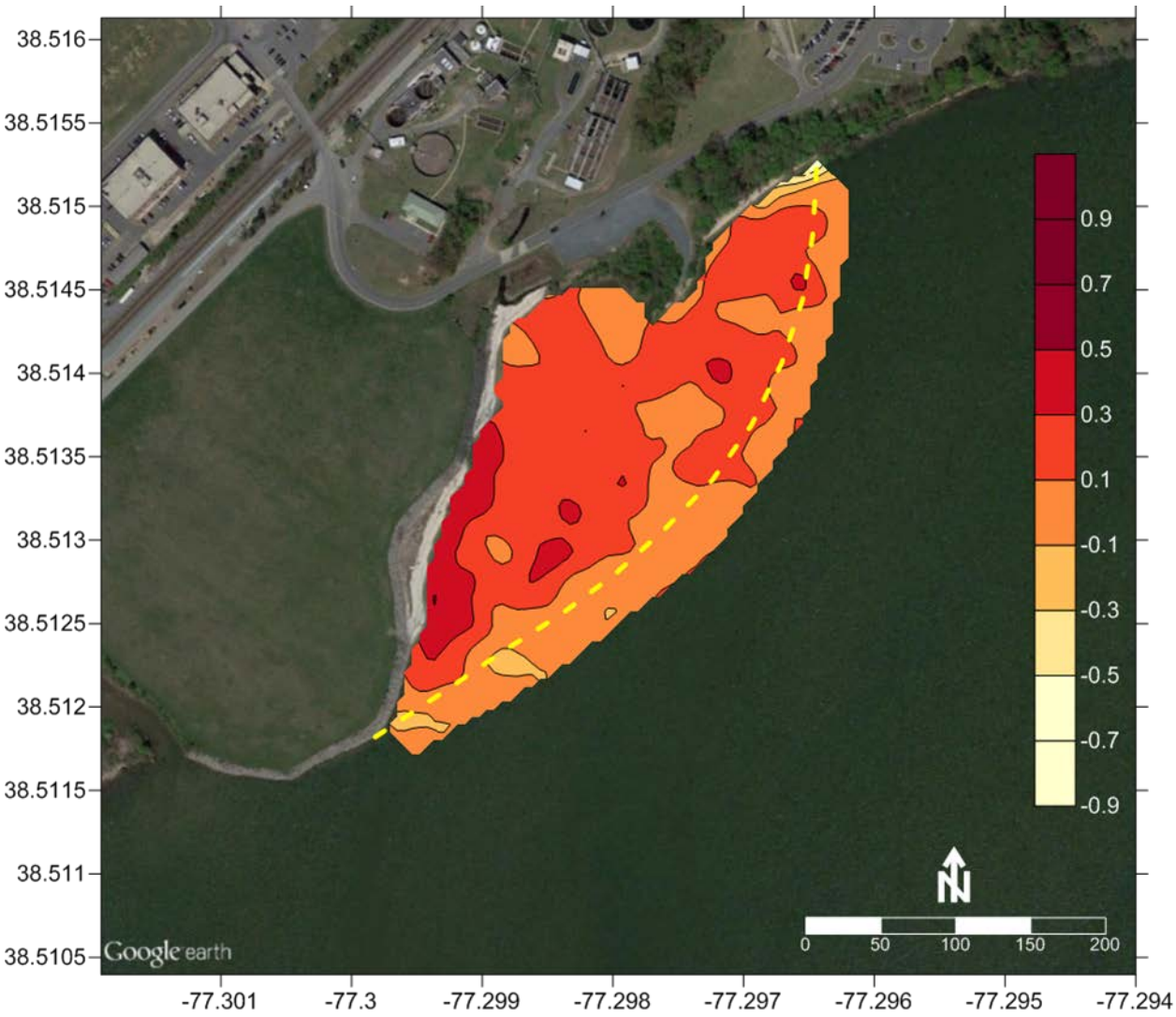


Figure 47. Difference map for the 2014 pre-cap baseline compared to the 2015 post-cap survey. The yellow dashed line indicates the offshore boundary of the area targeted for the thin-layer cap. Positive differences indicate 2015 elevations that are higher than 2014 elevations. Units are meters.

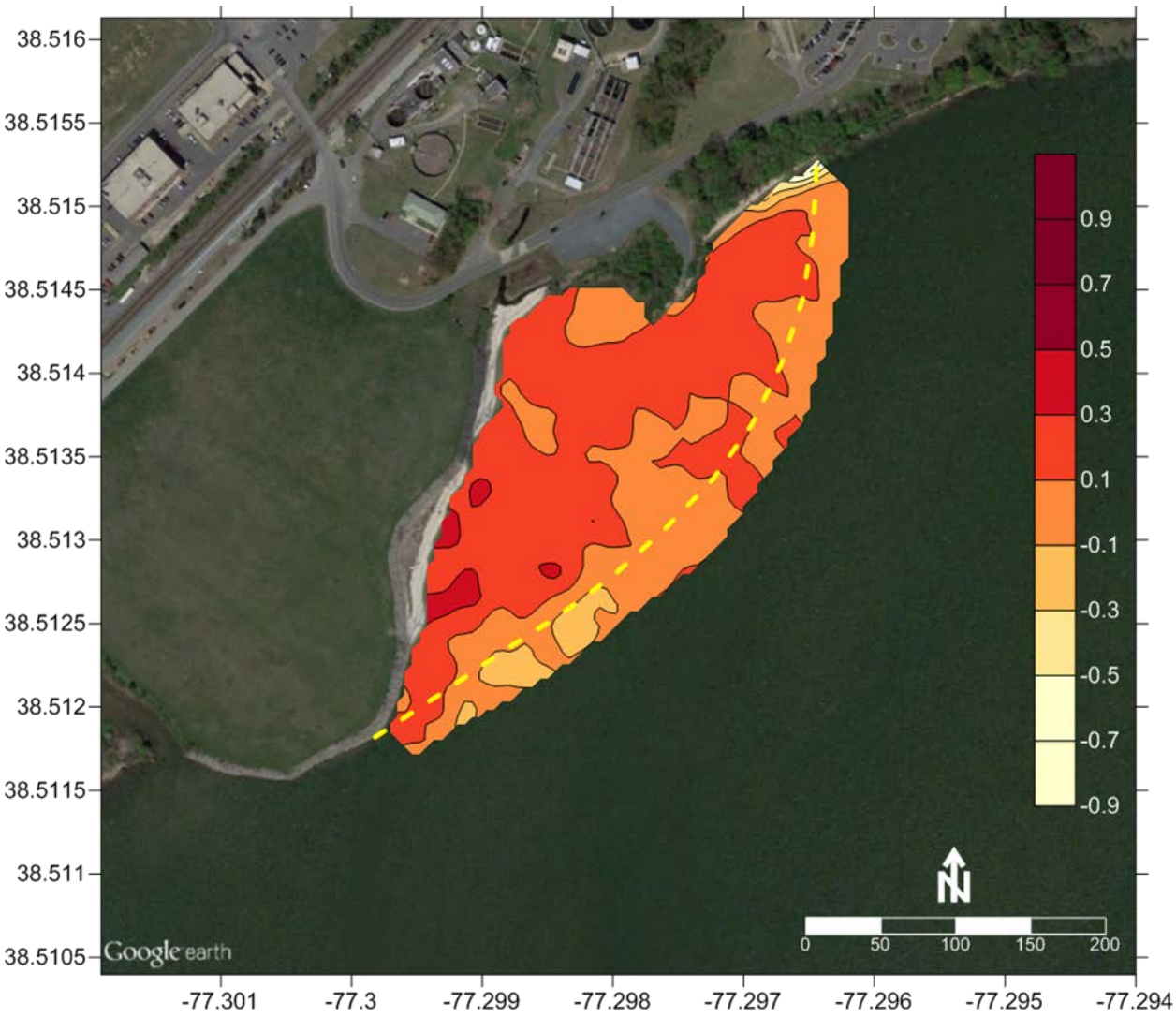


Figure 48. Difference map for the 2014 pre-cap baseline compared to the 2016 post-cap survey. The yellow dashed line indicates the offshore boundary of the area targeted for the thin-layer cap. Positive differences indicate 2016 elevations that are higher than 2014 elevations. Units are meters.

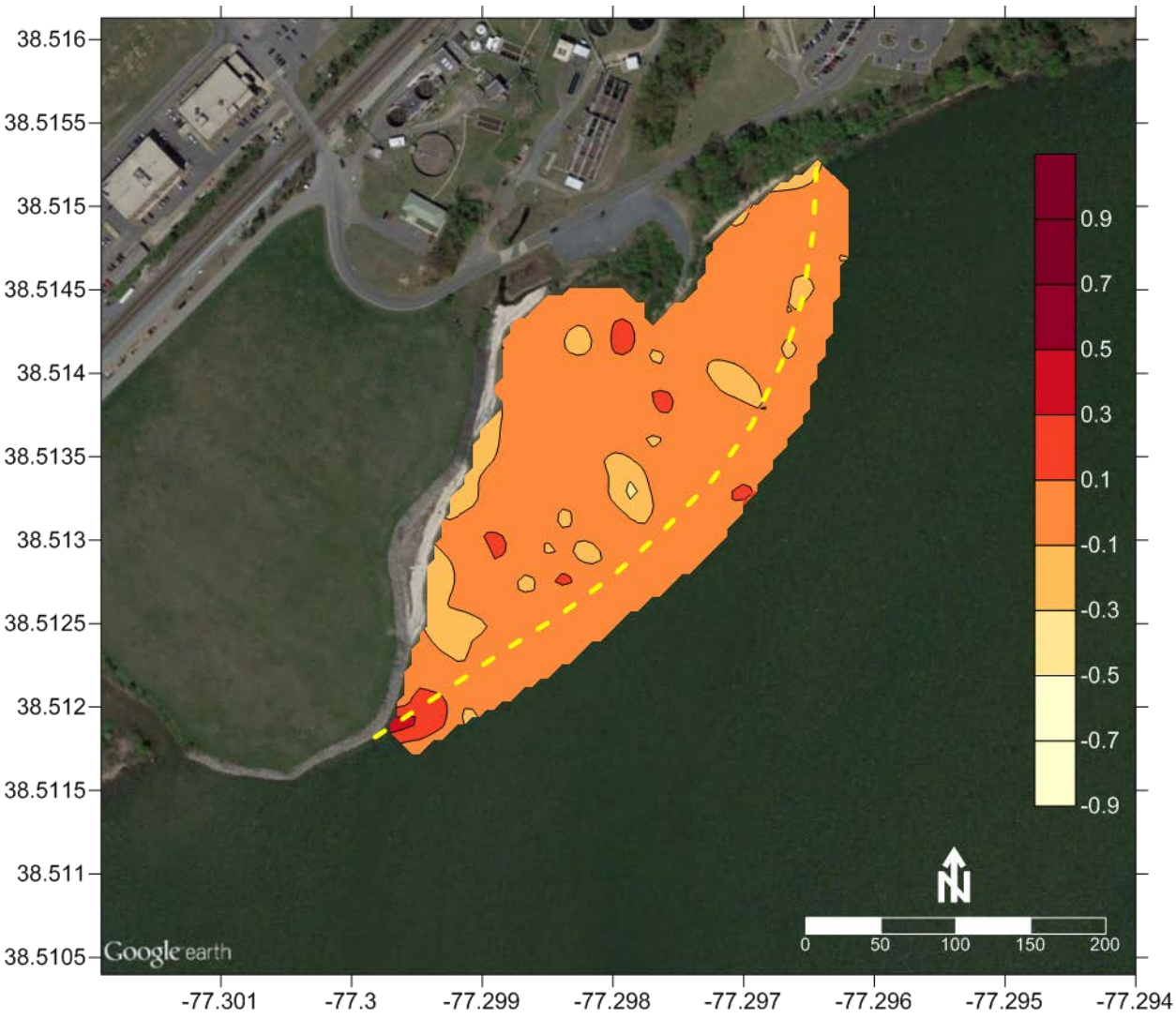


Figure 49. Difference map for the 2015 post-cap survey compared to the 2016 post-cap survey. The yellow dashed line indicates the offshore boundary of the area targeted for the thin-layer cap. Positive differences indicate 2016 elevations that are higher than 2015 elevations. Units are meters.

5.7.2. Hydrodynamic Monitoring (Current Meter Measurements)

Time-series results for the current meter measurements are shown in Figure 50 – Figure 51 for the spring period, and Figure 52 – Figure 53 for the fall period. During the spring, the tidally-averaged east-west component of velocity at the southern station (Q1-S4) was generally westerly in the range of 1-5 cm/s with higher velocities during the earlier portion of the deployment (Figure 50). This component showed weak tidal fluctuations in the range of 2 cm/s. The north-south component of velocity had a tidal average that was close to zero with tidal fluctuations also in the range of 2 cm/s. Water speed at this station was strongest during the early portion of the deployment (4-6 cm/s) then decreased to about 1-2 cm/s by the mid-deployment period and beyond. At the northern station (Q2-S4) during the spring, the tidally-averaged east-west velocity was directed more easterly in the range of 1-4 cm/s with relatively strong tidal fluctuations of up to 5 cm/s especially during the early portion of the deployment (Figure 51). The north-south velocity at this station was directed to the south in the range of about 1-3 cm/s with tidal fluctuations in the range of 3-4 cm/s during the early portion of the deployment that decreased to 1-2 cm/s during the second half of the deployment. Water speed during this period was fairly stable at about 5 cm/s.

During the fall, the tidally-averaged east-west component of velocity at the southern station (Q1-S4) was generally in the range of 1 cm/s with more easterly direction during the early portion of the deployment and more westerly during the later portion (Figure 52). This component showed weak tidal fluctuations in the range of 1 cm/s. The north-south component of velocity had a tidal average that was in the range of 3-4 cm/s in the northerly direction with tidal fluctuations in the range of 2 cm/s. Water speed at this station was generally in the range of 3-4 cm/s. At the northern station (Q2-S4) during the fall, the tidally-averaged east-west velocity was directed more westerly at about 4 cm/s with tidal fluctuations of up to 3 cm/s (Figure 53). The north-south velocity at this station was directed to the north in the range of about 4-5 cm/s with tidal fluctuations in the range of 2-4 cm/s. Water speed during this period was fairly stable at about 6 cm/s.

Current rose diagrams for the stations in Quantico Embayment are shown in Figure 54. For the spring deployment, the results indicate currents generally in the north and northeast quadrants at mean speeds in the range of 3-5 cm/s. These results suggest a weak counter flow (to the southerly river flow) eddy within the embayment during this period. For the fall deployment, the results indicate currents more generally in the southern quadrants (both east and west) suggesting flow more directly aligned with the river flow during this period.

To evaluate stability of the cap, measured currents from the 2009 surveys were compared to critical threshold velocities for particle motion and suspension as described in the methods section above. These thresholds differ for the two stations primarily due to the differences in water depth, with the southern station (Q1-S4) being shallower, and thus having slightly lower velocity thresholds (Table 12). Comparisons for each station under the spring and fall flow conditions are shown in Figure 55. These results indicate that currents at the site are generally low relative to critical threshold velocities at both sites and under both flow conditions. Thus it is unexpected that the cap would be disturbed by normal spring and summer currents. It is still possible that the cap could be disturbed under storm conditions, especially storm associated waves due to the shallow nature of the site.

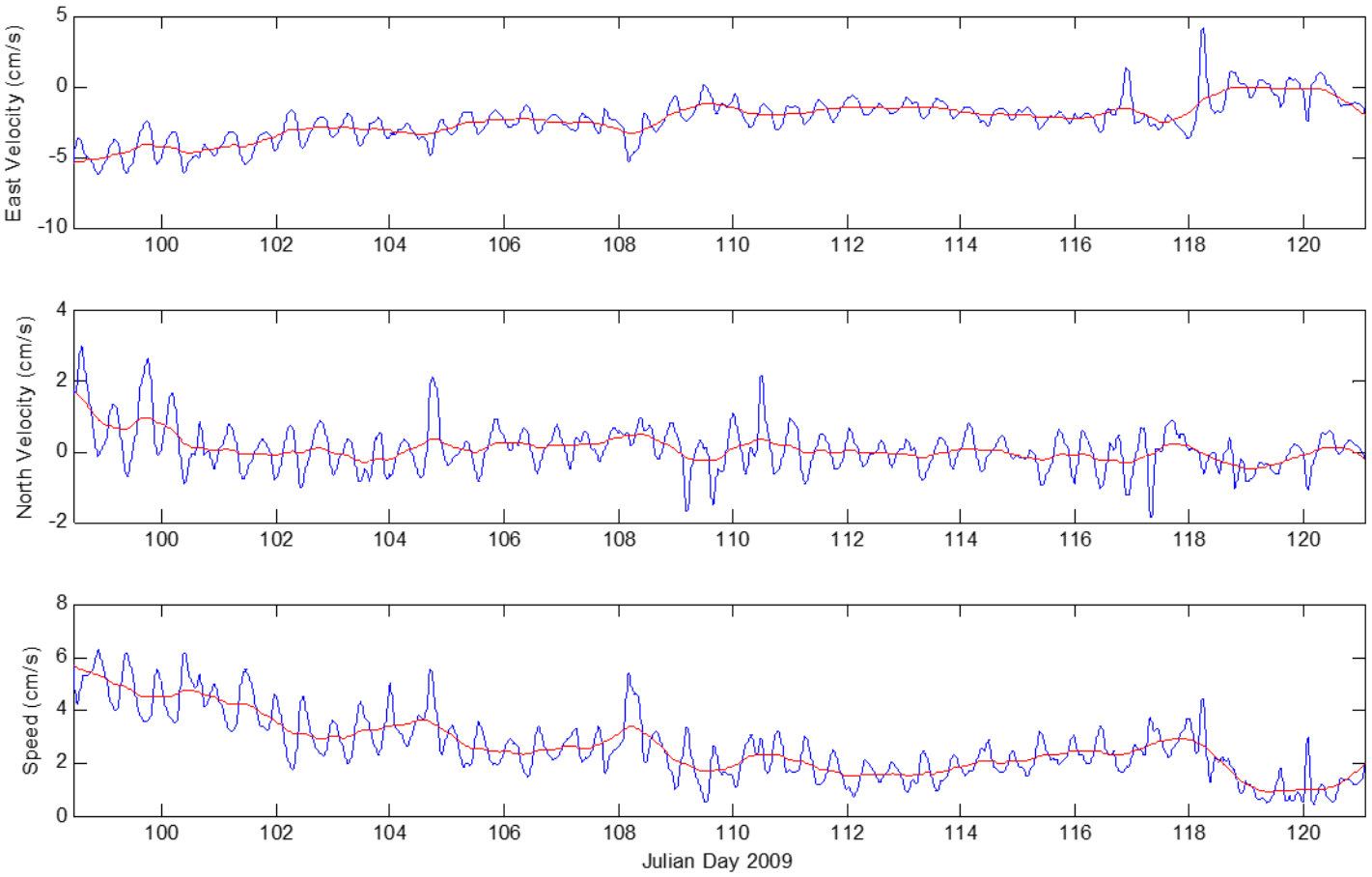


Figure 50. Water velocity and speed for the S4 deployed at Q1-S4 during the spring sampling event.

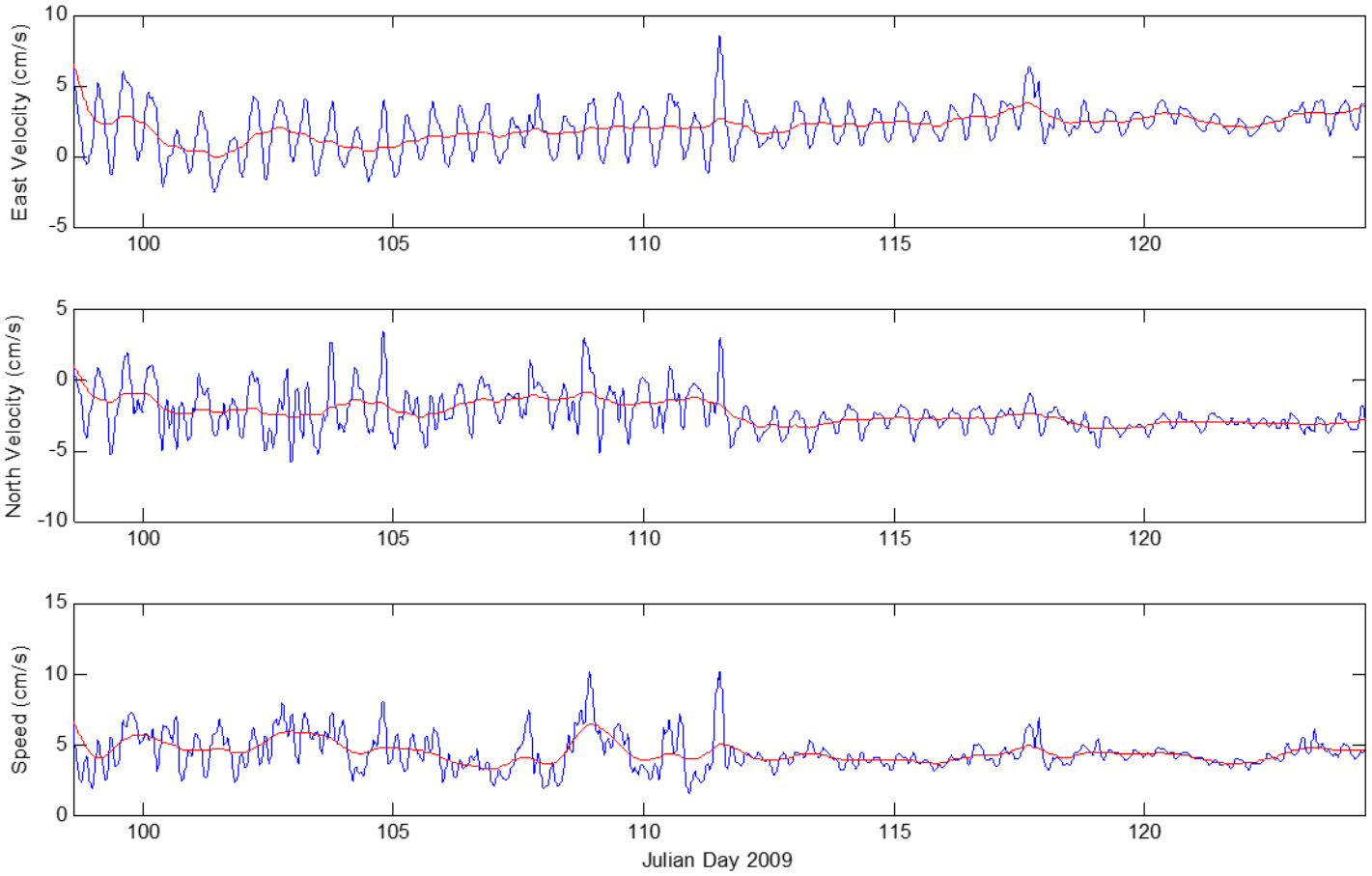


Figure 51. Water velocity and speed for the S4 deployed at Q2-S4 during the spring sampling event.

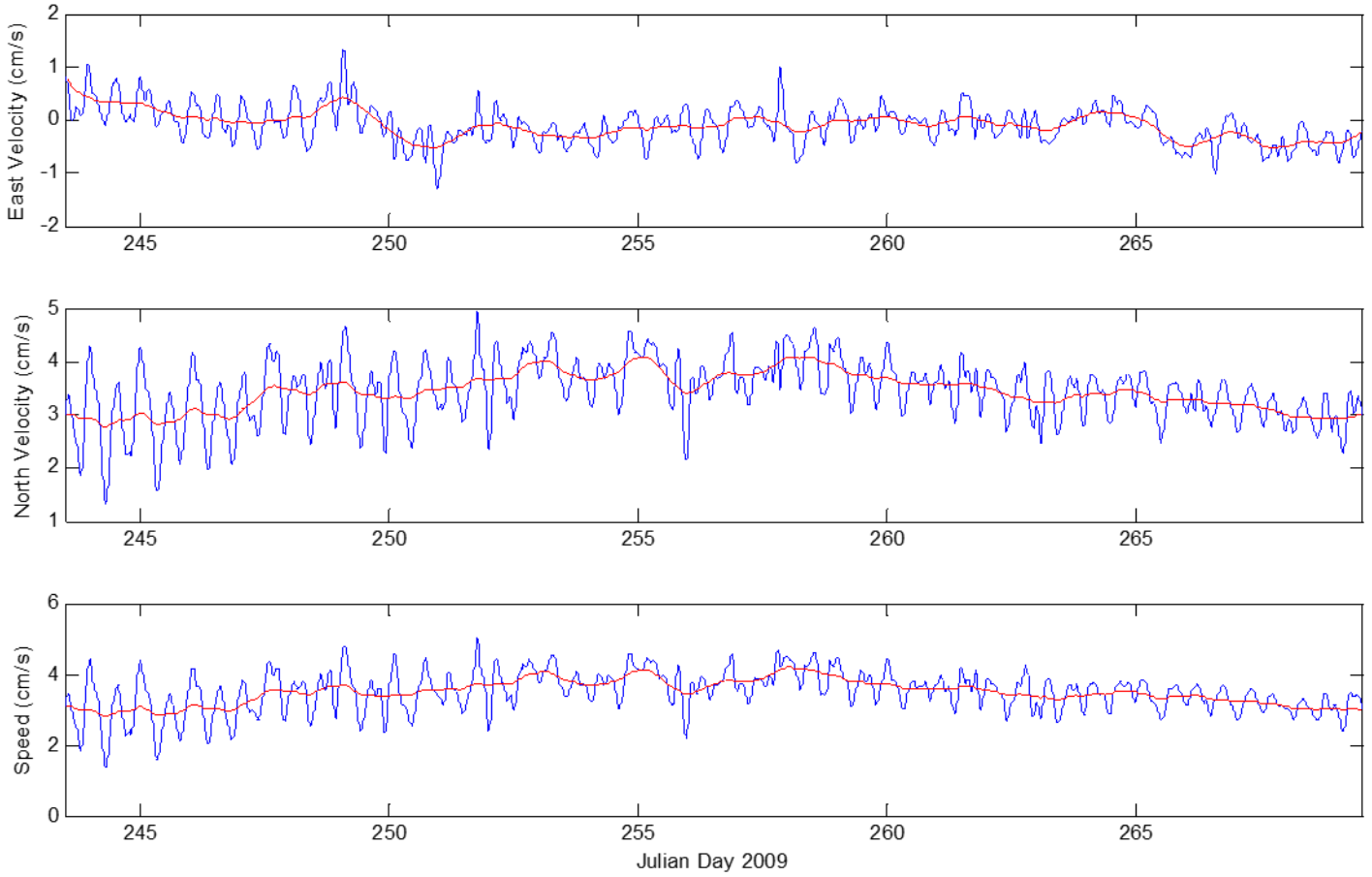


Figure 52. Water velocity and speed for the S4 deployed at Q1-S4 during the fall sampling event.

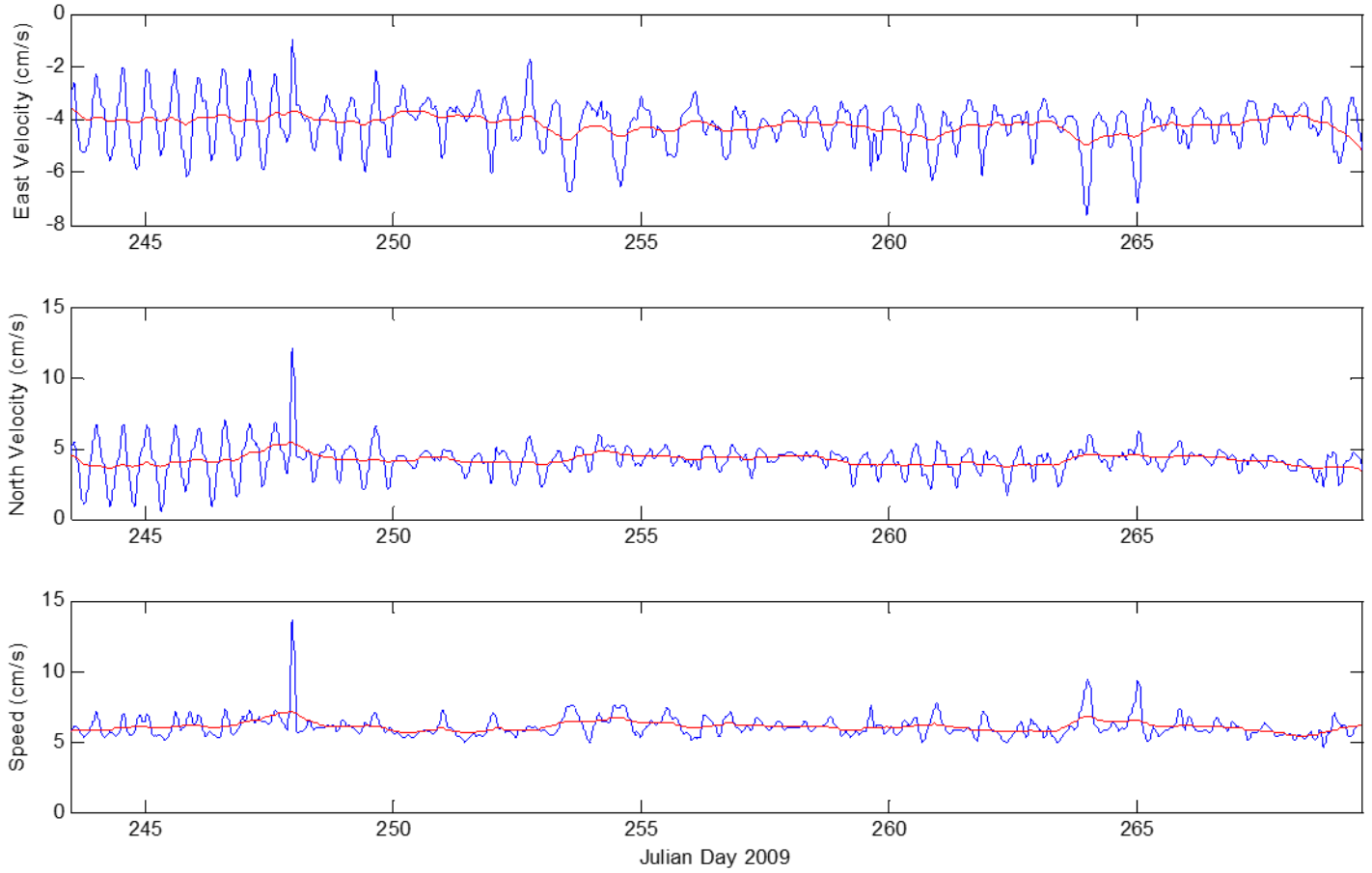


Figure 53. Water velocity and speed for the S4 deployed at Q2-S4 during the fall sampling event.

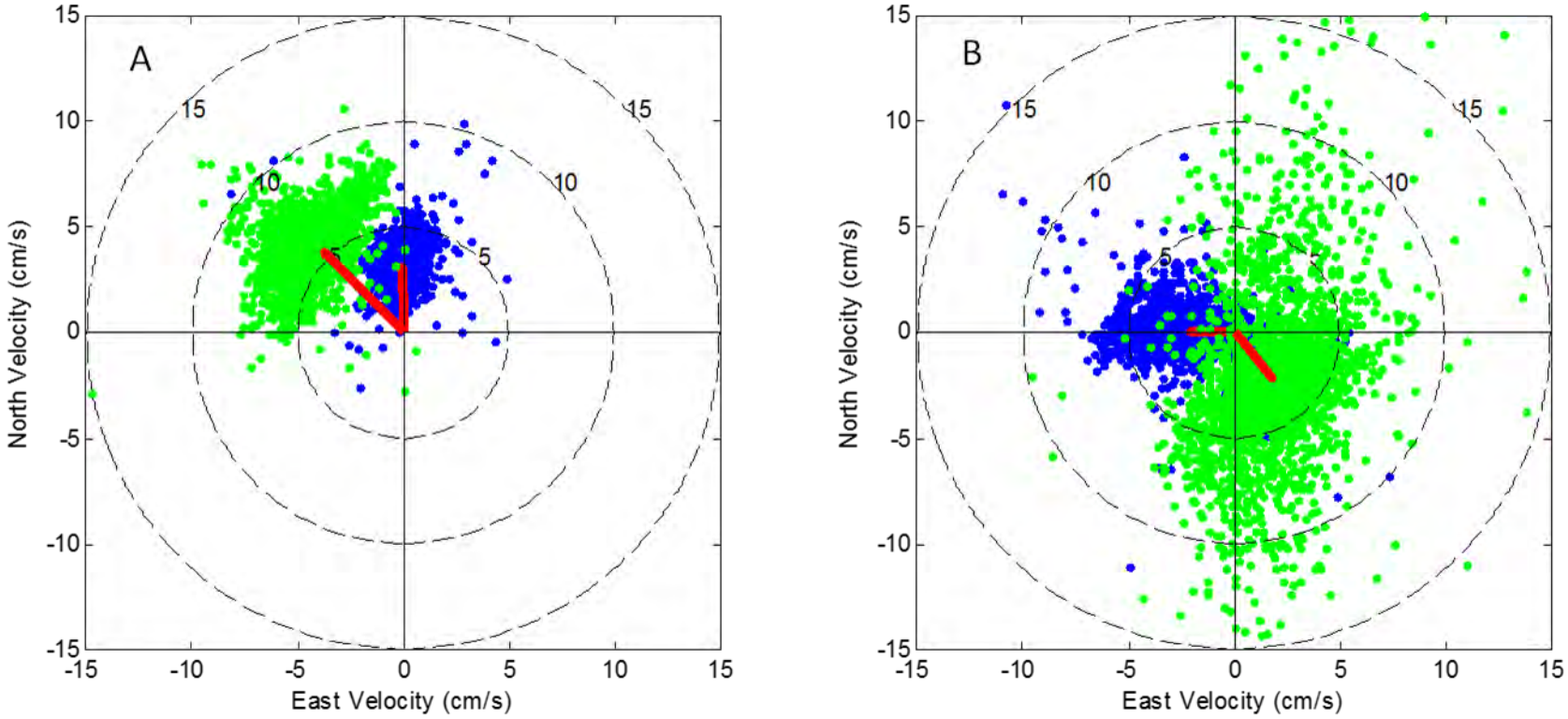


Figure 54. Current rose for Quantico Embayment stations Q1-S4 (blue) and Q2-S4 (green) during the spring (A) and fall (B) of 2009. The red lines indicate the mean speed and direction over the deployment period.

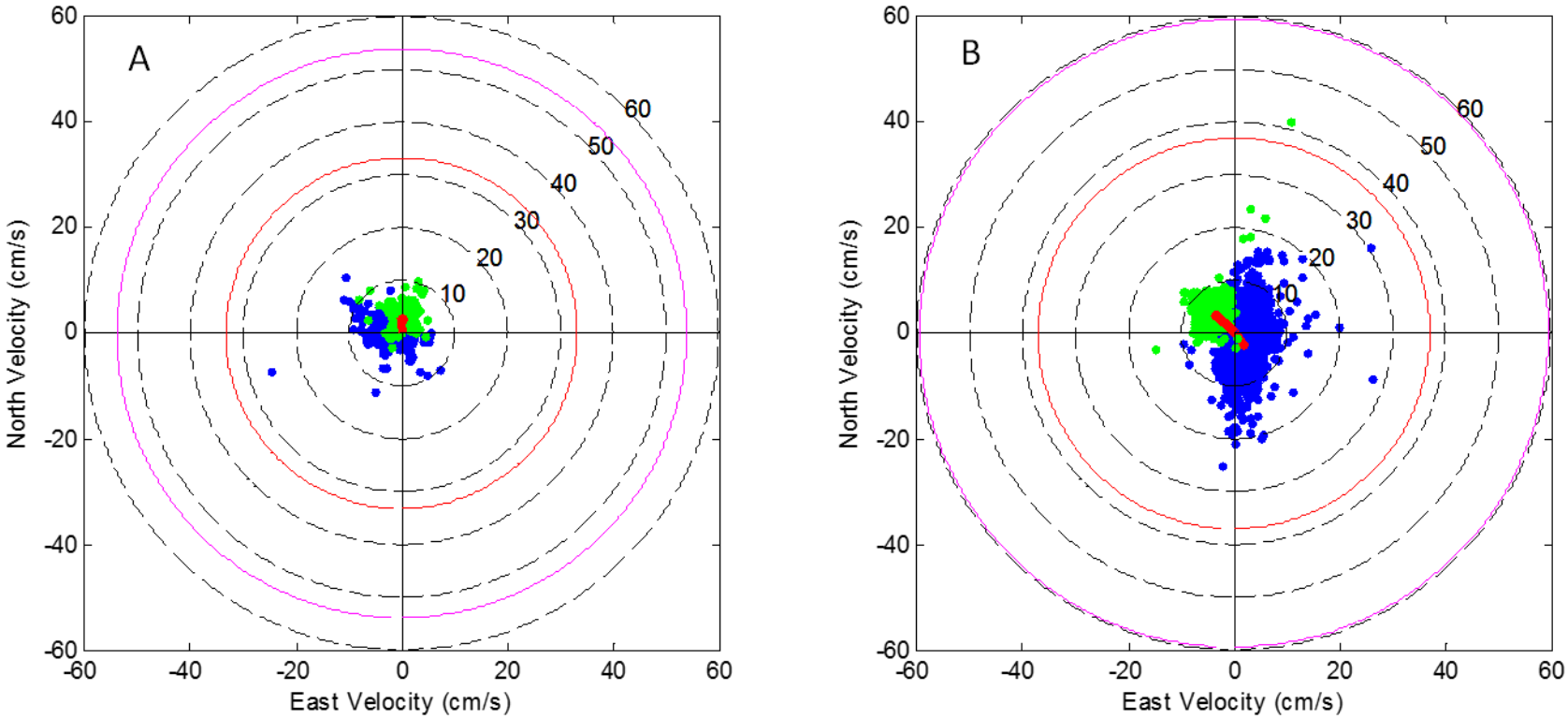


Figure 55. Current rose for Quantico Embayment stations Q1-S4 (A) and Q2-S4 (B) during the spring (blue) and fall (green) of 2009 compared to velocity thresholds for particle motion (red circle) and particle suspension (magenta circle).

5.7.3. Friction Sound Probe

Cores were collected at a total of 83 stations during the post construction verification survey that was conducted by the site contractor during the period 5/28/2014 - 6/9/2014 (Figure 22). Thickness at three stations failed the 15 cm threshold and they were touched up, but no additional verification data for these three stations was available. Results for the 80 stations where data were available are shown in Table 16 and Figure 56. The results are binned with the lower bin indicating stations with thickness below the 15 cm threshold, and then in increments of 15 cm thickness above that. Cap thickness ranged from a low of 15.2 cm to a high of 58.4 cm with an average thickness of 22.5 cm and a standard deviation across the cap stations of 8.9 cm. The spatial distribution in Figure 56 shows that the majority of the stations had thicknesses in the range of 15-30 cm (84%). Areas with cap thicknesses above 30 cm were generally observed near the shoreline along the southwestern portion of the cap, and both near the shoreline and near the outer cap boundary in the northeastern portion of the cap. There were no measurements (except those noted as being re-worked) with thicknesses less than 15 cm. There were limited thickness measurements in the central-offshore portion of the cap.

Cap thickness was re-surveyed on August 9, 2016 using the SED-FSP system at 21 on-cap and 6 off-cap locations (Figure 23). The SED-FSP differs from the coring in that it provides a full profile of estimated mean grain size (D50) to a depth of about 60 cm below the sediment-water interface. Figure 57 shows the SED-FSP results for the five multi-metric on-cap stations where sediment cores were also collected. Results from the grain size analysis results from the co-located cores are plotted with the SED-FSP results. Note that the core results are based on the average of five replicates, and samples were only collected at specified depths below the sediment-water interface, and around the visually observed lower boundary of the cap, so this comparison should only be considered qualitatively. In general, the SED-FSP and cores at these stations show reasonable agreement, both with respect to the cap thickness and with respect to the magnitude of the mean particle size in the cap.

To estimate the vertical extent of the cap, the SED-FSP results were separated into qualitative bins as follows:

- Predominantly Native Sediment/New Deposition: $D50 \leq 100$ μm
- Mixed Native Sediment/Sand Cap Material: $100 < D50 \leq 300$ μm
- Predominantly Sand Cap Material: $300 < D50$ μm

Using these definitions, cap thickness was determined from the SED-FSP profiles, along with estimated thicknesses for deposition layers on top of the cap, and mixing layers between new deposition and cap material, and underlying native sediment and cap material. For purposes of defining the overall cap thickness, the mixed and predominantly sand cap material layers were summed. The results are shown in Table 17.

The SED-FSP results indicated an average thickness for cap material of about 17.1 cm, and an average combined thickness of cap and mixed material of about 32.6 cm at the on-cap stations. The cap material thickness at the on-cap stations ranged from 0.0 – 44.5 cm with a standard deviation of 12.8 cm. For the combined cap and mixed material, the thickness at the on-cap

stations ranged from 16.5 – 59.1 cm with a standard deviation of 13.5 cm. These average values and ranges are generally consistent with the values observed during the 2014 post-construction survey taking into consideration that the cap material has been mixing with both underlying native sediment and new sediment deposits over time. These ranges are also quite consistent with the values measured directly (by observation) from the cores collected at the multi-metric stations (Table 18).

Figure 58 and Figure 59 show maps of the cap thickness results for the predominantly cap material thickness and the mixed plus cap material thickness, respectively. The spatial distribution for the cap material shows that undisturbed layers of the original cap material are still present at about half of the cap area at thicknesses exceeding 15 cm. When the mixed and cap material are considered, the results indicate thicknesses exceeding 15 cm throughout the capping area. Because mixing with native sediment and new deposits are expected over time at an EMNR site, these results indicate that the cap is behaving in a manner consistent with the EMNR concept. The maps also indicate no obvious movement of significant amounts of capping material into off cap areas, at least along the two transects that were surveyed to the east of the cap area.

SED-FSP data were also used to evaluate the thickness of deposition layers on top of the cap, and mixing zones on the top and at the base of the cap based on the qualitative mean grain size bins described above. The results are summarized in Table 19. The analysis was considered qualitative because the SED-FSP is a screening tool for particle size, the SED-FSP could not distinguish between sand associated with the cap and native sand, and data were only available for the 25-month event. The SED-FSP camera did provide a broader spatial evaluation of mixing relative to the limited locations for the coring survey.

Results from the 25-month event showed that depositional layers and mixing were clearly evident in the SED-FSP mean grain size profiles. Out of the 24 on-cap stations evaluated in the survey, all 24 (100%) had at least a trace layer of new deposition, 23 (96%) showed evidence of top-down mixing, 22 (92%) showed evidence of bottom-up mixing, and 7 (29%) showed evidence of interleaved layering. Consistent with the other measures of mixing, top-down mixing was generally more significant with an average extent over the on-cap stations of 8.3 cm, compared to an average of 4.5 cm for bottom-up mixing. The average depth of the new deposition layer at the on-cap stations was 3.7 cm. Overall, the SED-FSP provided a rapid means of assessing the spatial distribution of mixing and new deposition and its potential influence on the TLC.

In summary, cap thickness measurements provided from multiple sources and methods show reasonable agreement at the site. While cap thickness is varying over time, it appears that this is primarily as a result of mixing processes, both with native sediments below the cap and with new deposition on top of the cap. The SED-FSP survey data from 2016 provide a means of estimating the amount of mixing that is taking place over time. In general, the results indicate that the cap materials are staying in the cap area, but mixing vertically in time in a manner consistent with expectations for an EMNR remedy.

Table 16. Cap thickness results from the 2014 post construction survey.

Station	Latitude	Longitude	Thickness (cm)	Station	Latitude	Longitude	Thickness (cm)
2E	38.51231	-77.29921	43.2	8E	38.51368	-77.29758	17.8
2E	38.51224	-77.29922	17.8	8F	38.51358	-77.29738	22.9
2E	38.51216	-77.29936	16.5	9C	38.51389	-77.29800	24.1
3D	38.51284	-77.29916	58.4	9D	38.51392	-77.29763	20.3
3D	38.51268	-77.29898	27.9	9D	38.51390	-77.29743	21.6
3D	38.51248	-77.29909	33.0	9E	38.51365	-77.29738	17.8
3E	38.51236	-77.29909	16.5	9E	38.51378	-77.29725	27.9
3E	38.51253	-77.29917	38.1	9F	38.51347	-77.29847	20.3
3E	38.51252	-77.29904	15.2	9F	38.51363	-77.29723	27.9
3F	38.51236	-77.29902	17.8	10D	38.51402	-77.29762	20.3
4C	38.51294	-77.29911	17.8	10D	38.51423	-77.29753	35.6
4D	38.51305	-77.29900	27.9	10D	38.51425	-77.29746	33.0
4D	38.51273	-77.29913	20.3	10E	38.51408	-77.29723	25.4
4E	38.51278	-77.29893	48.3	10E	38.51407	-77.29732	19.1
4E	38.51254	-77.29899	20.3	10F	38.51378	-77.29705	17.8
4E	38.51262	-77.29874	15.2	10F	38.51388	-77.29697	16.5
4F	38.51239	-77.29891	22.9	10F	38.51373	-77.29693	17.8
5D	38.51321	-77.29863	40.6	10F	38.51398	-77.29708	15.2
5D	38.51287	-77.29848	25.4	11D	38.51441	-77.29732	17.8
5D	38.51325	-77.29873	15.2	11D	38.51435	-77.29718	21.6
5E	38.51303	-77.29878	15.2	11D	38.51443	-77.29730	15.9
5E	38.51287	-77.29862	27.9	11E	38.51417	-77.29698	17.8
5F	38.51273	-77.29833	20.3	11F	38.51408	-77.29678	16.5
6C	38.51338	-77.29877	17.8	12C	38.51480	-77.29715	30.5
6D	38.51330	-77.29828	15.2	12D	38.51450	-77.29705	24.1
6D	38.51300	-77.29835	17.8	12D	38.51446	-77.29732	16.5
6D	38.51328	-77.29857	20.3	12D	38.51437	-77.29705	15.2
6E	38.51335	-77.29858	19.1	12E	38.51432	-77.29680	25.4
6E	38.51292	-77.29812	17.8	12E	38.51417	-77.29672	16.5
6E	38.51294	-77.29846	27.9	12E	38.51452	-77.29677	15.2
6F	38.51288	-77.29798	15.2	12F	38.51420	-77.29662	33.0
7B	38.51366	-77.29870	17.8	13C	38.51467	-77.29697	38.1
7C	38.51368	-77.29832	17.8	13D	38.51463	-77.29673	15.2
7D	38.51348	-77.29833	22.9	13D	38.51485	-77.29668	15.2
7E	38.51323	-77.29815	17.8	13E	38.51437	-77.29663	45.7
7E	38.51322	-77.29815	21.6	13E	38.51473	-77.29660	15.2
8A	38.51436	-77.29877	38.1	14D	38.51490	-77.29645	15.2
8C	38.51372	-77.29818	17.8	14D	38.51467	-77.29678	15.9
8C	38.51372	-77.29835	15.2	14D	38.51490	-77.29643	15.2
8D	38.51372	-77.29781	20.3	14E	38.51452	-77.29655	17.8

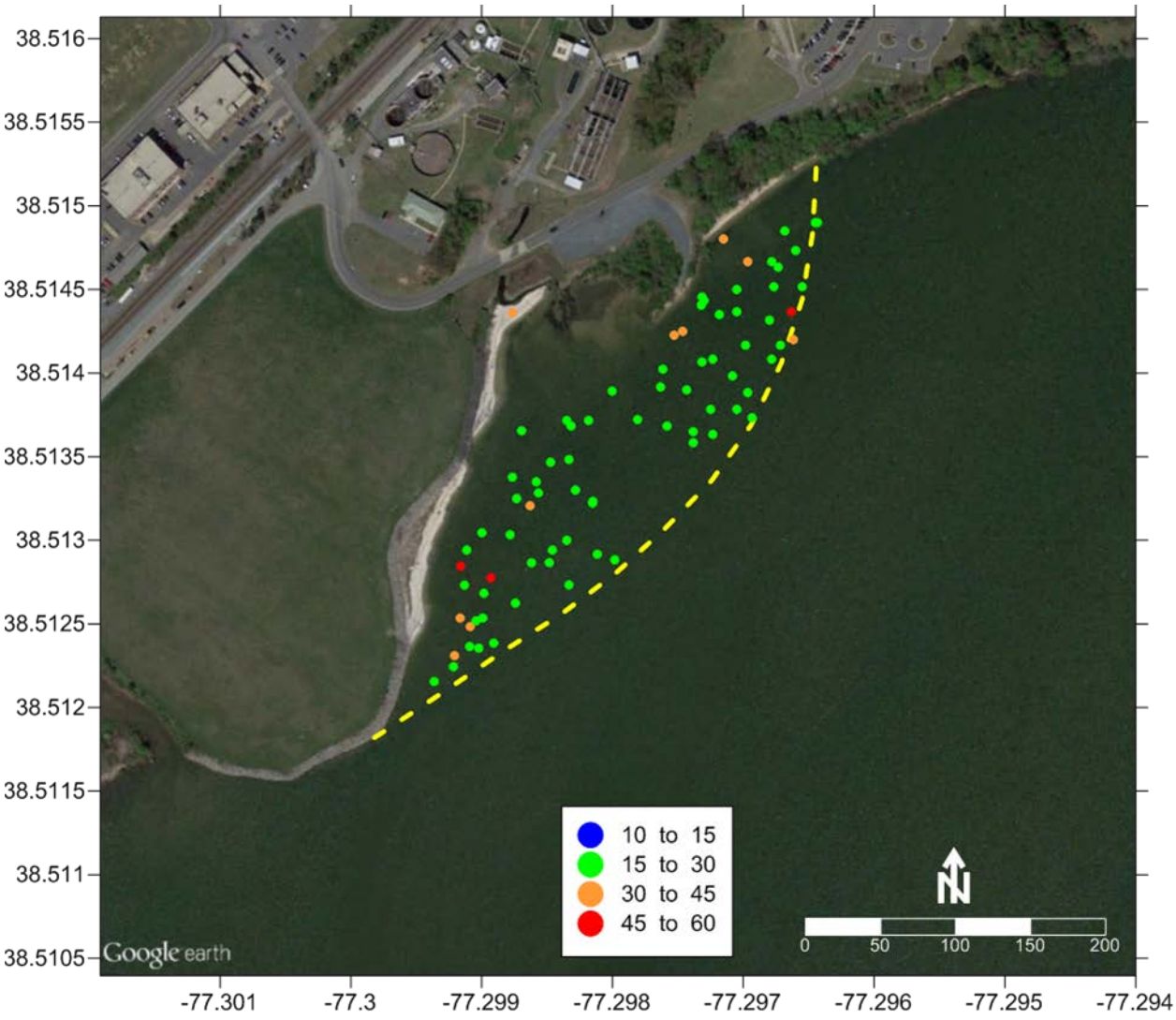


Figure 56. Results for cap thickness measurements collected by the site contractor immediately following construction of the cap in 2014.

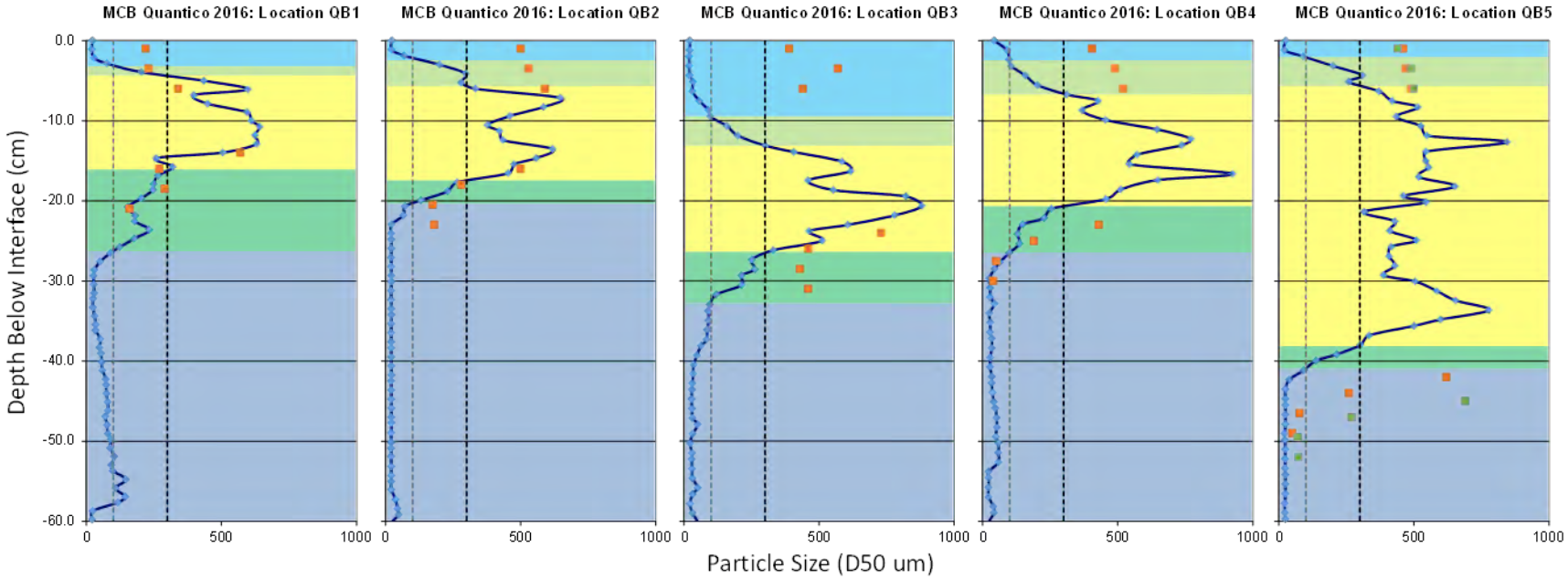


Figure 57. Examples of SED-FSP profiles for the multi-metric stations QE1-QE5 (left to right) during the 2016 post-cap survey. Blue lines and diamonds are the SED-FSP data, orange square symbols (and green for QE5 station duplicate) are measured D50s from the cores collected at these stations. Blue colors indicate native material, green tones indicate mixed zones, and yellow color indicates predominant sand.

Table 17. SED-FSP results for the post-cap survey performed in 2016. Grey shaded cells are for off-cap stations.

Station	Latitude	Longitude	Native Material (cm)	Mixed Material (cm)	Cap Material (cm)	Cap + Mixed Material (cm)
FSP-01	38.512419	-77.298964	28.9	16.1	15.0	31.1
FSP-02	38.512718	-77.298944	13.5	12.6	33.9	46.5
FSP-03	38.512452	-77.298333	60.0	0.0	0.0	0.0
FSP-04	38.513067	-77.298754	37.6	16.3	6.1	22.4
FSP-05	38.513036	-77.298107	43.3	15.7	1.0	16.7
FSP-06	38.513360	-77.298413	26.9	20.7	12.4	33.1
FSP-07	38.513324	-77.297864	17.6	12.4	30.0	42.4
FSP-08	38.513340	-77.297400	42.2	17.8	0.0	17.8
FSP-09	38.513709	-77.298160	3.1	24.8	32.1	56.9
FSP-10	38.513661	-77.297611	41.1	7.4	11.6	18.9
FSP-11	38.513646	-77.297203	26.3	28.1	5.6	33.8
FSP-12	38.513928	-77.298393	7.2	24.8	27.9	52.8
FSP-13	38.513918	-77.297950	23.0	31.0	6.0	37.0
FSP-14	38.513917	-77.297365	6.2	9.3	44.5	53.8
FSP-15	38.513853	-77.296987	27.5	26.6	5.9	32.5
FSP-16	38.514154	-77.297845	0.9	20.6	38.4	59.1
FSP-17	38.514210	-77.297198	43.5	9.7	6.8	16.5
FSP-18	38.514197	-77.296787	40.6	14.8	4.6	19.4
FSP-19	38.514526	-77.297058	24.4	11.3	24.4	35.6
FSP-20	38.514508	-77.296469	46.2	13.8	0.0	13.8
FSP-21	38.514880	-77.296657	29.1	8.4	22.5	30.9
FSP-22	38.514415	-77.296265	53.5	6.5	0.0	6.5
FSP-23	38.514326	-77.295592	57.2	2.8	0.0	2.8
FSP-24	38.514250	-77.295034	60.0	0.0	0.0	0.0
FSP-25	38.512611	-77.298154	60.0	0.0	0.0	0.0
FSP-26	38.512314	-77.297859	60.0	0.0	0.0	0.0
FSP-27	38.512071	-77.297429	60.0	0.0	0.0	0.0
QB-01	38.514467	-77.296907	33.3	16.2	10.5	26.7
QB-02	38.514037	-77.297267	42.7	6.1	11.2	17.3
QB-03	38.513667	-77.297777	38.6	7.5	13.9	21.4
QB-04	38.513073	-77.298061	37.5	8.6	13.9	22.5
QB-05	38.512875	-77.298557	23.2	4.2	32.6	36.8
QB-06	38.514215	-77.294443	57.9	2.1	0.0	2.1
QB-07	38.511933	-77.297516	58.9	1.1	0.0	1.1

Table 18. Comparison of the cap thickness estimated from coring and SED-FSP, and the change in elevation from the bathymetry measurements (inches).

Station	2016		
	Coring	Bathy	FSP
QT-1	5.9	5.6	10.5
QT-2	6.7	7.3	6.8
QT-3	9.8	1.6	8.4
QT-4	9.4	10.4	8.9
QT-5	17.5	12.2	14.5
Average	9.9	7.4	9.8

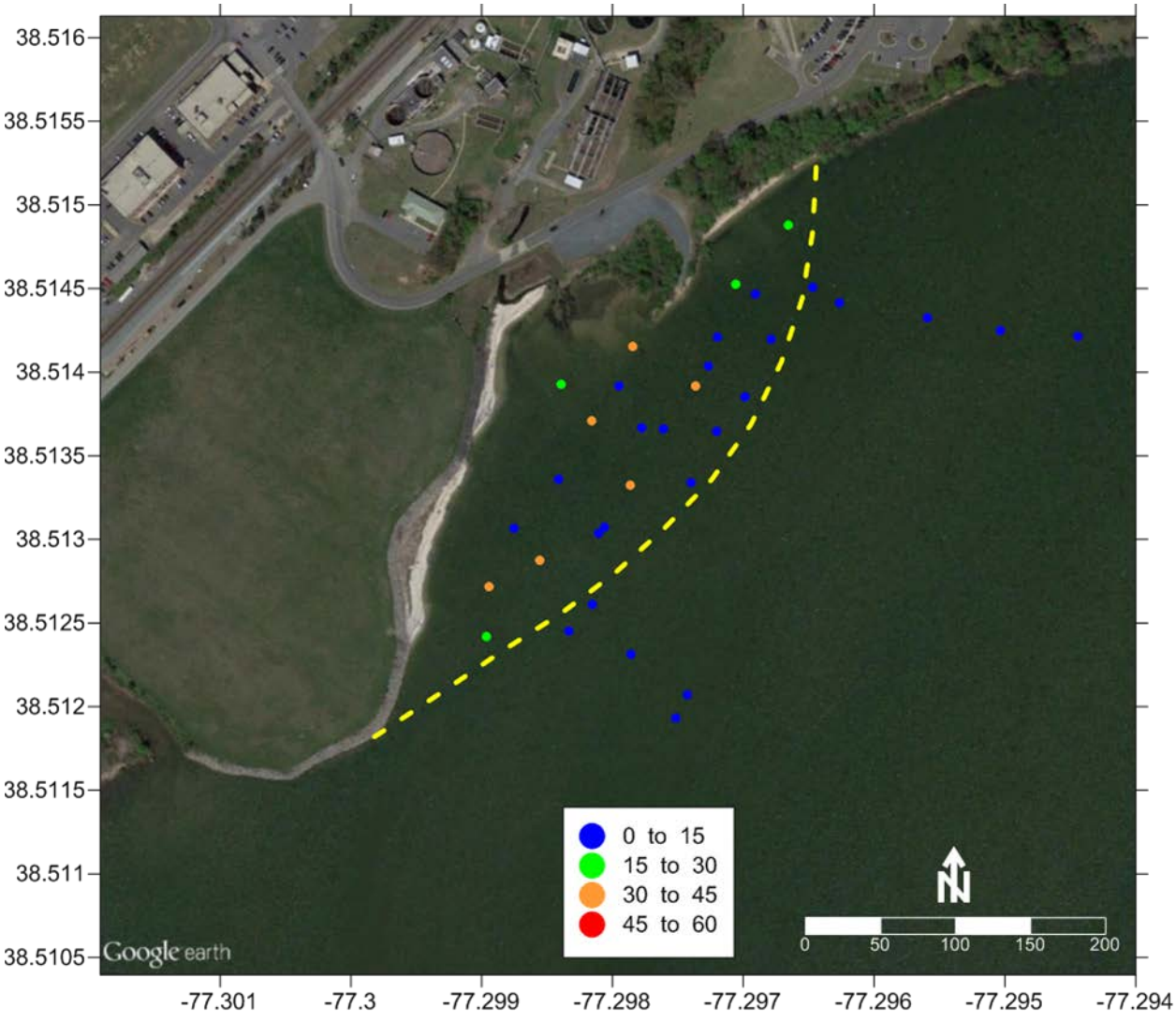


Figure 58. Cap thickness results from the SED-FSP post-cap survey in 2016 for predominantly cap material.

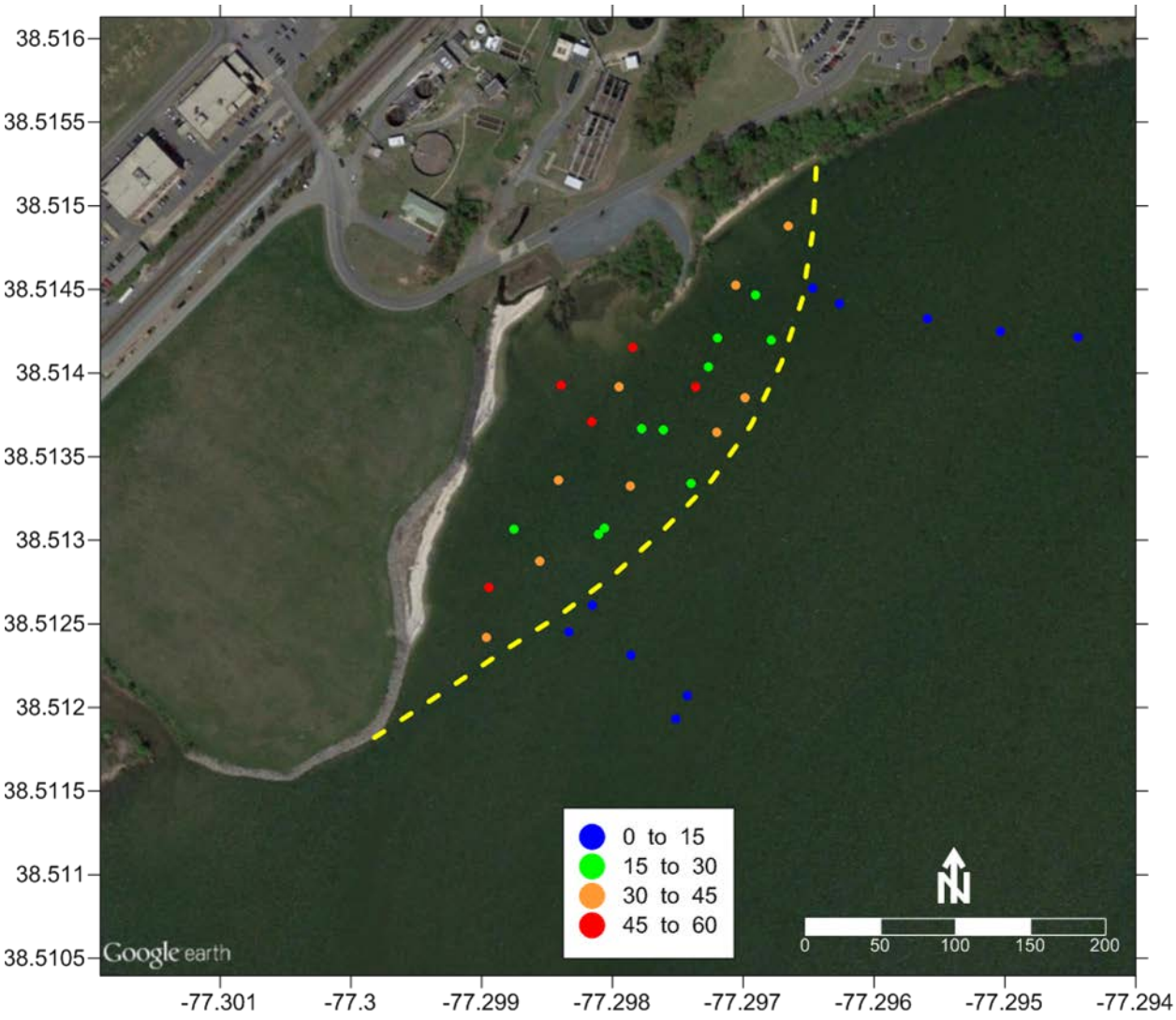


Figure 59. Cap thickness results from the SED-FSP post-cap survey in 2016 for mixed plus cap material.

Table 19. Deposition and mixing analysis results from the 2016 SED-FSP survey.

Station	Top of Cap Deposit Thickness (cm)	Upper Cap Mixing Layer (cm)	Interleaved Layers (cm)	Lower Cap Mixing Layer (cm)
FSP-01	1.1	10.7	0.0	5.4
FSP-02	1.9	10.6	0.0	1.9
FSP-03	0.0	0.0	0.0	0.0
FSP-04	3.1	8.1	0.0	5.1
FSP-05	5.9	16.7	0.0	0.0
FSP-06	3.1	9.3	0.0	3.1
FSP-07	2.1	5.2	1.0	6.2
FSP-08	2.8	17.8	0.0	5.6
FSP-09	3.1	7.2	14.5	4.1
FSP-10	7.4	9.5	0.0	2.1
FSP-11	2.8	3.8	15.9	9.4
FSP-12	2.1	12.4	7.2	4.1
FSP-13	2.0	16.0	0.0	6.0
FSP-14	2.1	6.2	0.0	3.1
FSP-15	2.0	37.4	0.0	0.0
FSP-16	0.9	0.9	17.8	1.9
FSP-17	3.9	0.0	0.0	9.7
FSP-18	10.2	6.5	0.9	7.4
FSP-19	7.5	4.7	0.0	2.8
FSP-20	1.8	13.8	0.0	0.0
FSP-21	0.9	3.8	0.0	4.7
FSP-22	16.6	6.5	0.0	0.0
FSP-23	12.9	2.8	0.0	0.0
FSP-24	0.0	0.0	0.0	0.0
FSP-25	0.0	0.0	0.0	0.0
FSP-26	0.0	0.0	0.0	0.0
FSP-27	0.0	0.0	0.0	0.0
QB-01	3.8	1.0	1.0	9.5
QB-02	3.1	3.1	0.0	3.1
QB-03	10.7	2.1	0.0	5.4
QB-04	3.2	3.2	0.0	5.4
QB-05	3.2	3.2	0.0	2.1
QB-06	8.4	2.1	0.0	0.0
QB-07	13.7	1.1	0.0	0.0

5.7.4. Sediment Traps

Samples from the sediment traps were analyzed to determine deposition rates, particle physical characteristics, chemical concentrations, and chemical mass flux to the cap area at Quantico Embayment. Results for deposition rates are shown in Table 20. Deposition rates ranged from 5.6 – 14 g/cm^2/y across the stations and the events. Average rates for each event were relatively consistent ranging from 7.3 – 10.0 g/cm^2/y (Figure 60). A consistent spatial trend was observed across the events with highest deposition rates at the North station, while the deposition rates at the Mid and South stations were generally comparable (Figure 61). Assuming a sediment density of 2.66 g/cm^3, these rates translate to deposition thicknesses in the range of 4.3 – 9.0 cm/y. These are relatively high rates and likely represent a combination of both new deposition and local resuspension.

Particle size and TOC characteristics for the sediment trap samples are summarized in Table 21. The results indicate that deposited sediments were dominated by fines (silts and clays) with sand fractions generally in the range of 10% with the exception of the post-capping events at the North station where the sand fraction was in the range of 50% (Figure 62). The results suggest that the physical characteristics of the sediments depositing in the cap area did not change substantially between the baseline and post-capping conditions except at the North station. At the North station, the increase in sand content in the sediment traps during the post-capping events is an indication that there may be more physical disturbance in this area with sufficient energy to either transport or resuspend sand sized particles. Because the elevated sand content was not present in the baseline traps, it is more likely that the sand is associated with local resuspension of cap material, an indication of potential physical disturbance of the cap. TOC content in the trap samples generally decreased following the capping, especially in the 2016 event (Figure 63). Post capping TOC levels are generally consistent with off-cap TOC levels from the surface sediments at the reference stations which were typically in the range of 2-3%. As with the particle size, the North station was notably different than the Mid and South stations during the post capping events, with lower TOC levels consistent with the higher sand content.

Chemical concentrations for DDX compounds found in the traps sediments are summarized in Table 22. The results show a clear trend with reduced concentrations of total DDX following the cap placement as reflected in the low concentrations in trap materials from the 2014 and 2016 events (Figure 64). Averaged across the cap stations the reductions in trap sediment concentrations for the 2014 and 2016 events were about 70% and 65%, respectively. Congener ratios were similar across the sampling events although the post capping events both showed a general reduction in the fraction of 4,4'-DDT relative to other congeners suggesting a more weathered source associated with these particles. The total DDX and TOC concentrations observed in the post capping trap samples were consistent with levels found in the off-cap reference stations to the east of the cap, suggesting that deposition onto the cap is likely coming from off cap sediments rather than from disturbance of the cap sediments themselves with the possible exception of the North station area as discussed previously.

The depositional flux to the sediment bed is a function of the deposition rate and the chemical concentrations associated with the depositing particles. Flux estimates are shown in Table 23. As with the trap concentrations, the depositional fluxes showed a marked decrease following the installation of the cap (Figure 65). The reduction was consistent across both sampling events

with reductions in mass flux of total DDX of about 63% for 2014 and 72% for 2016. Reductions in mass flux for the post capping events were driven primarily by changes in DDX concentrations, as the deposition rates were relatively constant across the baseline and post capping events. The North station was an exception especially during the 2014 event when both the deposition rate and higher concentrations led to a relatively high deposition flux compared to other stations.

Overall, the sediment trap results indicate relatively high deposition (or re-deposition) rates, with rates consistent between pre- and post-capping conditions. While deposition rates remained relatively constant, the DDX concentrations in the depositing sediments was substantially lower in both of the post capping sampling events. This was reflected in reductions of 65-70% in the depositional mass flux of DDX to the capping area. Grain size, TOC and DDX content of the post capping trap sediments are consistent with the characteristics of off-cap sediments to the east of the capping area.

Table 20. Deposition results from the sediment trap deployments at Quantico Embayment.

Sampling Event	Station	Deployment Date/Time	Retrieval Date/Time	Duration (days)	Sediment Mass (g)	Trap Area (cm^2)	Deposition Rate ($g/cm^2/y$)	Soilds (%)	Bulk Density (g/cm^3)	Depostion Rate (cm/y)
Baseline Sept 2009	South	9/4/2009 9:47	9/27/2009 11:05	23.05	97.32	186.39	8.27	30.77	1.51	5.47
	Mid	9/4/2009 9:40	9/27/2009 10:42	23.04	75.21	186.39	6.39	30.19	1.50	4.26
	North	9/4/2009 9:34	9/27/2009 10:25	23.04	140.67	186.39	11.96	31.09	1.52	7.89
Post-Cap Sept 2014	South	9/8/2014 12:26	9/24/2014 15:20	16.12	89.65	276.02	7.35	20.1	1.33	5.51
	Mid	9/8/2014 12:50	9/24/2014 16:25	16.15	103.10	276.02	8.44	17.2	1.29	6.57
	North	9/8/2014 13:20	9/24/2014 14:45	16.06	170.80	276.02	14.06	33.9	1.56	9.00
Post-Cap Aug 2016	South	8/10/2016 12:41	8/24/2016 10:15	13.90	69.24	276.02	6.59	20.1	1.33	4.94
	Mid	8/10/2016 12:38	8/24/2016 9:05	13.85	58.45	276.02	5.58	17.2	1.29	4.34
	North	8/10/2016 12:34	8/24/2016 8:10	13.82	101.80	276.02	9.74	33.9	1.56	6.23

Table 21. Grain size distribution and TOC for sediment trap samples.

Sampling Event	Station	%gravel	%sand	%silt	%clay	%fines	%TOC
Baseline Sept 2009	South	0.0	11.8	48.6	39.6	88.2	4.6
	Mid	0.0	15.8	53.0	31.2	84.2	5.7
	North	0.0	4.6	54.2	41.2	95.4	4.7
Post-Cap Sept 2014	South	0.0	7.4	75.9	16.7	92.6	4.5
	Mid	0.0	10.4	72.4	17.2	89.6	3.9
	North	0.0	56.2	33.8	10.0	43.8	2.2
Post-Cap Aug 2016	South	0.0	11.7	59.1	29.2	88.3	1.2
	Mid	0.0	11.9	58.4	29.7	88.1	1.2
	North	0.0	45.5	34.6	19.9	54.5	0.8

Table 22. Chemistry results for the sediment trap samples. Grey shaded cells indicate non-detects listed at ½ the reporting limit. Units are µg/kg dry weight.

Sampling Event	Station	2,4'-DDE	4,4'-DDE	2,4'-DDD	4,4'-DDD	2,4'-DDT	4,4'-DDT	Sum DDx
Baseline Sept 2009	South	0.04	32.43	10.71	45.15	2.38	15.12	105.83
	Mid	0.04	24.19	10.86	68.22	1.91	33.32	138.54
	North	0.04	35.59	20.85	72.20	2.12	32.93	163.73
Post-Cap Sept 2014	South	0.20	8.69	3.29	15.20	0.20	4.38	31.95
	Mid	0.23	7.30	3.92	8.43	0.23	4.24	24.35
	North	0.26	10.70	6.56	34.20	1.32	13.60	66.64
Post-Cap Aug 2016	South	0.19	14.00	5.60	27.30	0.19	2.39	49.67
	Mid	0.21	12.80	5.17	29.40	0.21	1.85	49.64
	North	0.20	9.74	5.22	24.10	0.20	5.55	45.01

Table 23 Mass flux results for the sediment trap stations. Grey shaded cells indicate flux rates based on non-detects listed at ½ the reporting limit. Units are ng/cm²/y.

Sampling Event	Station	2,4'-DDE	4,4'-DDE	2,4'-DDD	4,4'-DDD	2,4'-DDT	4,4'-DDT	Sum DDx
Baseline Sept 2009	South	0.33	268	88.5	373	19.7	125	875
	Mid	0.26	155	69.4	436	12.2	213	885
	North	0.48	425	249	863	25.3	394	1957
Post-Cap Sept 2014	South	1.43	63.9	24.2	112	1.43	32.2	235
	Mid	1.94	61.6	33.1	71.2	1.94	35.8	206
	North	3.66	150	92.3	481	18.6	191	937
Post-Cap Aug 2016	South	1.25	92.2	36.9	180	1.25	15.7	327
	Mid	1.17	71.4	28.8	164	1.17	10.3	277
	North	1.95	94.9	50.9	235	1.95	54.1	439

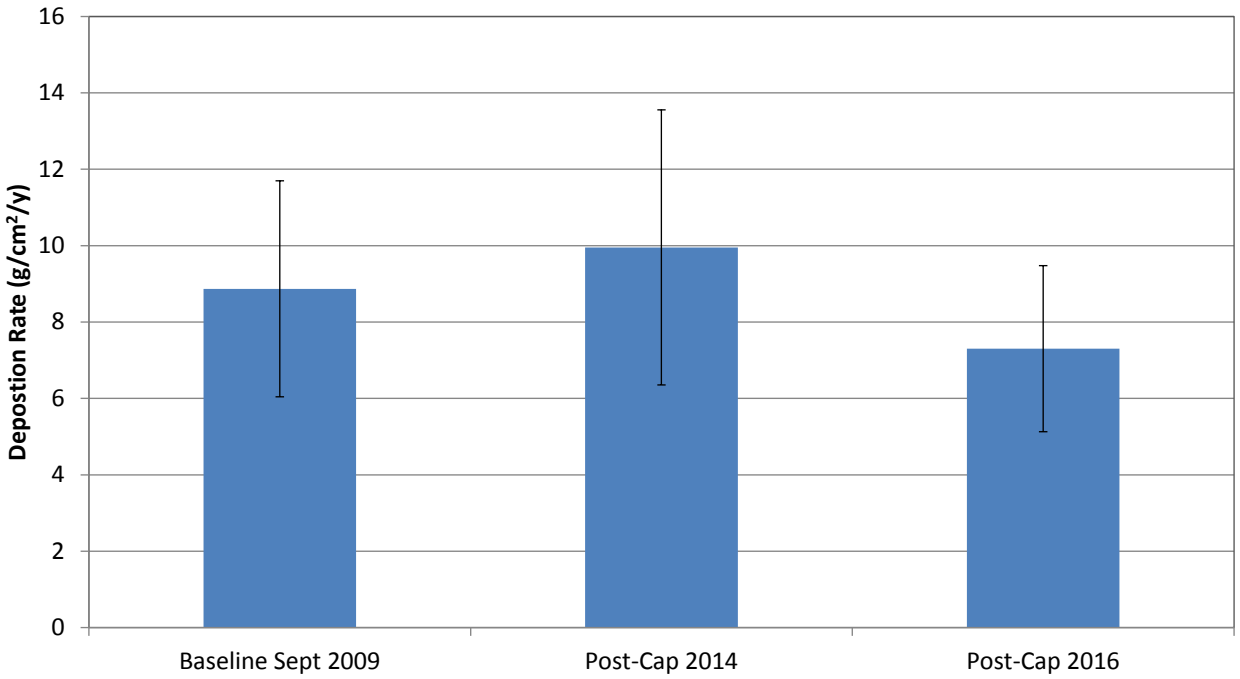


Figure 60. Average deposition rates for the three sampling events. Error bars are standard deviations across the three stations.

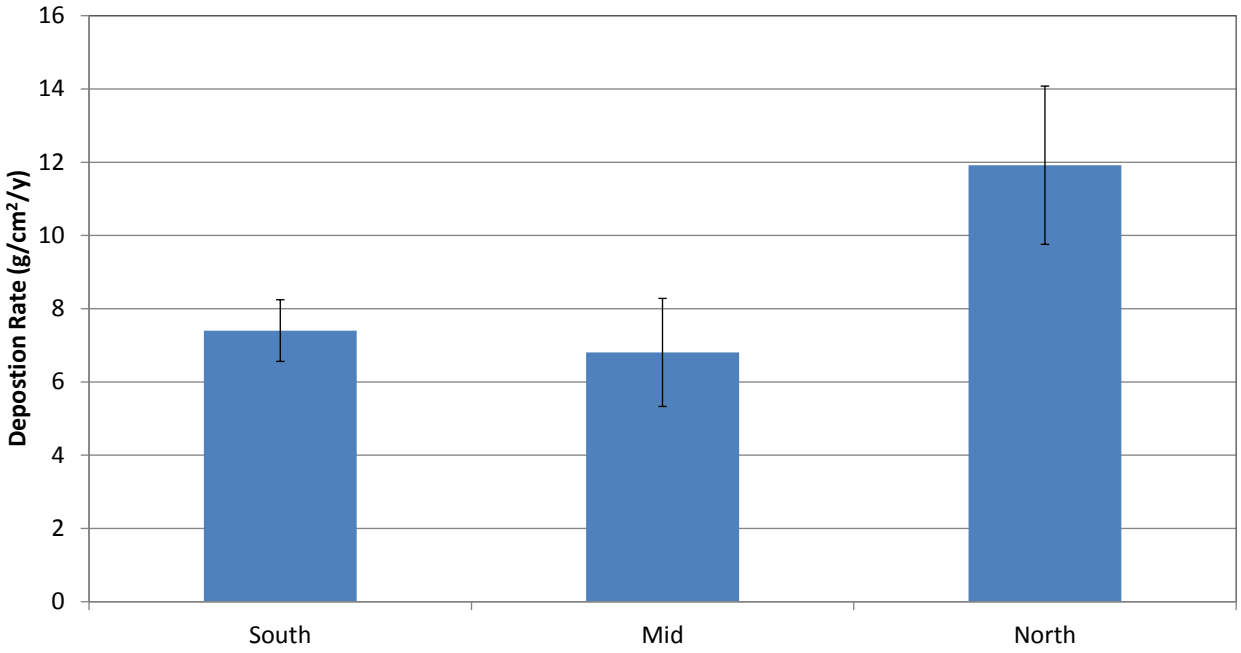


Figure 61. Average deposition rates for the three capping stations. Error bars are standard deviations across the three sampling events.

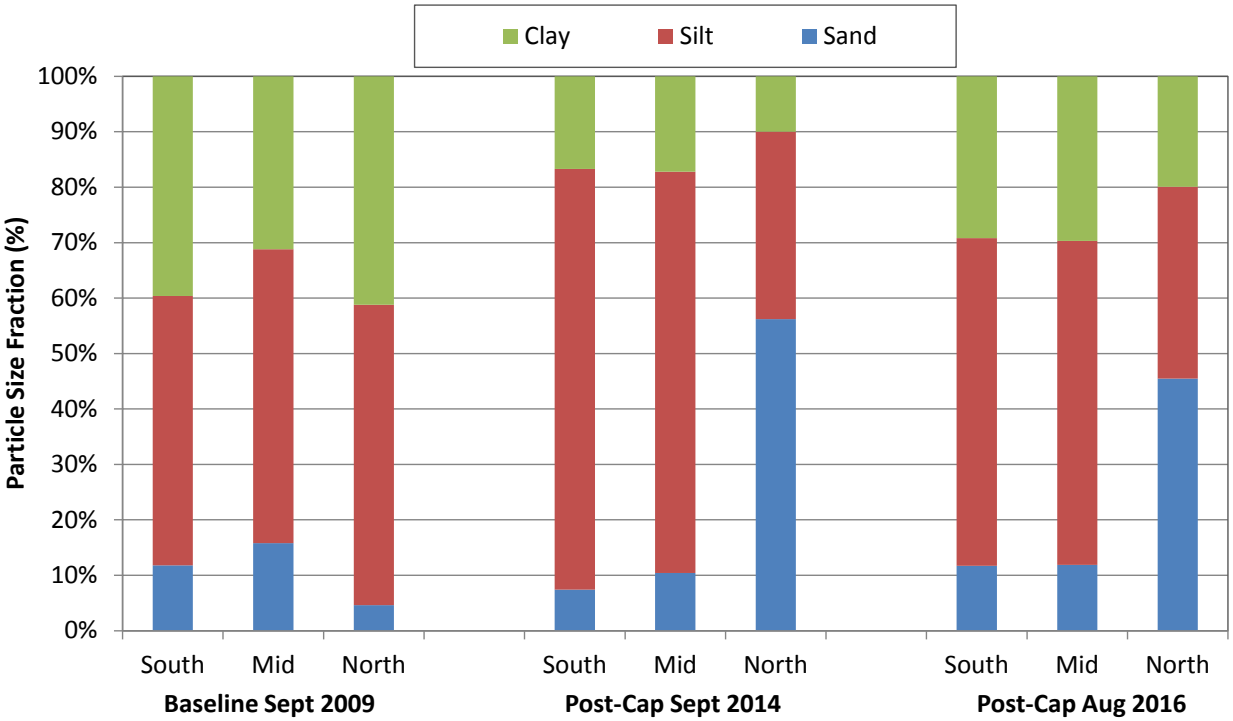


Figure 62. Particle size distribution for the three sediment trap events and three stations at Quantico Embayment.

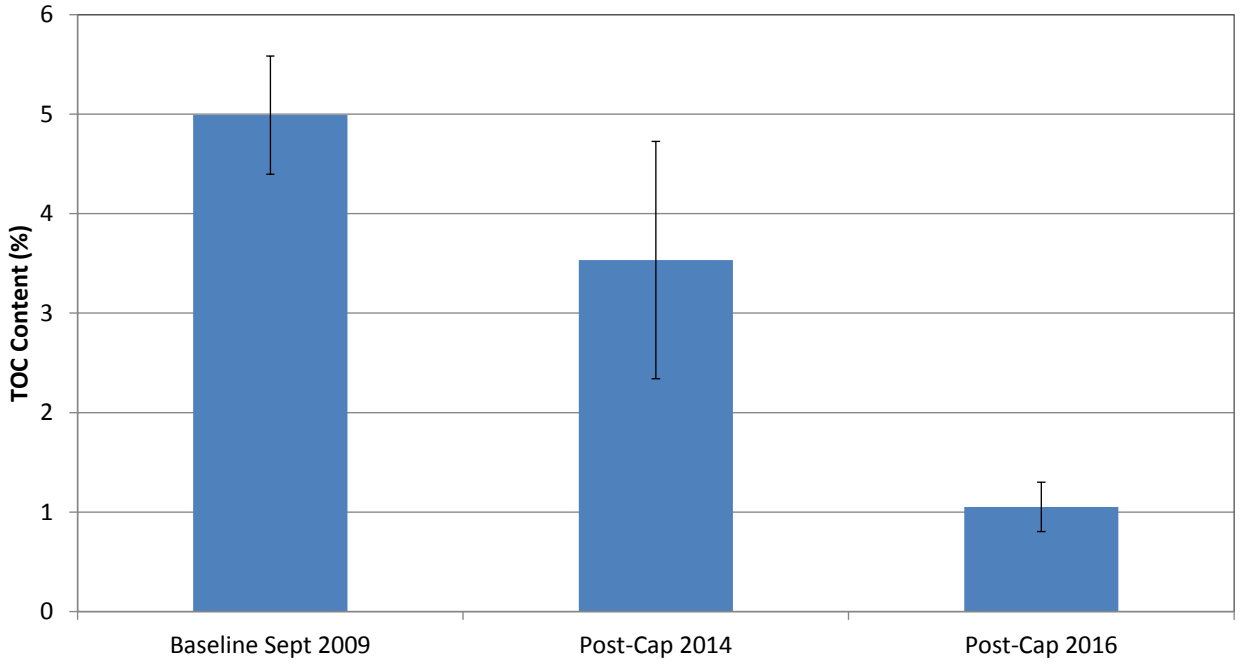


Figure 63. TOC content in sediment trap samples.

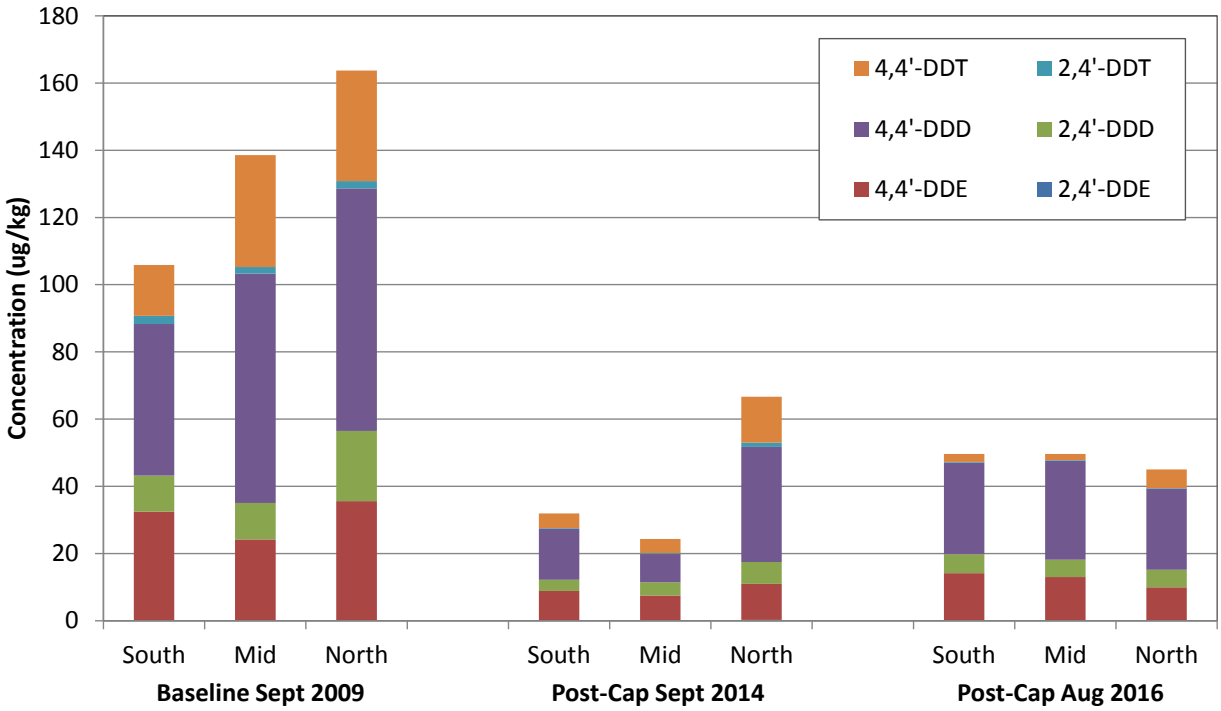


Figure 64. DDX concentrations in trap sediments.

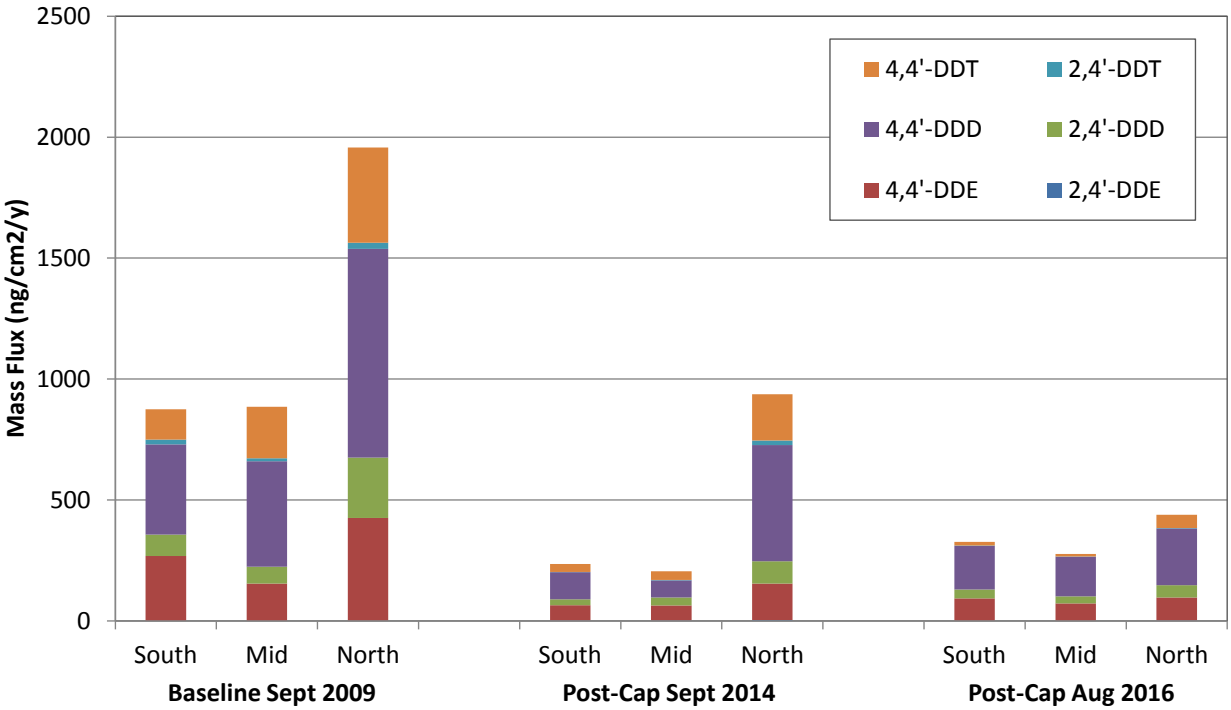


Figure 65. Depositional mass flux of DDX compounds.

5.7.5. Bulk Sediment

5.7.5.1. Cap Thickness

The results of the cap thickness based on visual observations from sediment core profiling are summarized in Table 24. The detailed results are provided in Appendix E. In the 2-month event, the TLC was 18 cm to 40 cm as measured by sediment core profiling at the multimeric stations. The TLC thickness decreased at the northernmost stations in the 14-month event, and increased at the southernmost stations. In the 25-month event, cap thicknesses at the northernmost stations was consistent with the previous annual event; however, station 4 decreased in thickness while the southernmost station remained relatively consistent with the previous annual event. There appears to have been a slight shifting of the cap material from the northern end to the southern end; however, overall, the average thickness observed 2-month post-placement (30 cm), decreased slightly in the first annual event (25 cm) and remained constant in the second annual event (25 cm).

Table 24. Comparison of depth (cm) to cap-native sediment interface, represented as mean ± standard deviation (minimum - maximum), for 2, 14, and 25-month monitoring events.

Station	2-Month	14-Month	Change from 2-Month (cm)	25-Month	Change from 2-Month (cm)
1	18 ± 1 (16 - 18)	15 ± 1.2 (13 - 16)	-3	15 ± 8.6 (4 - 26)	-3
2	40 ± 5 (35.5 - 47.5)	17 ± 1.8 (15 - 19)	-23	17 ± 1.3 (15 - 18)	-23
3	28 ± 4 (22 - 32)	23 ± 1.3 (21 - 24)	-5	25 ± 8.2 (21 - 40)	-3
4	32 ± 1 (31.5 - 34)	39 ± 0.9 (38 - 40)	7	24 ± 3.9 (18 - 28)	-8
5	33 ± 2 (31 - 35.5)	41 ± 2.3 (39 - 45)	8	43 ± 1.5 (42 - 46)	10
5DUP	33 ± 1 (30.5 - 34)	42 ± 1.3 (41 - 44)	9	46 ± 1.5 (44 - 48)	13

5.7.5.2. Grain Size

The grain size distribution at Quantico Embayment was characterized prior to cap placement, and was, on average, 59% sand in the cap footprint (Table 25). Prior to cap placement, the fraction of sand in the surface sediment remained similar throughout the three post-cap monitoring events, at around 93%. This consistency indicates that the cap was successfully placed and also indicates the overall stability of the material over 2 years post-capping. There are station by station differences in grain size distributions that are further explored below.

Table 25. Mean percent sand in sample intervals on- and off-cap collected during each event.

Interval (cm)	Location	Baseline 2	2-Month	14-Month	25-Month
0-2	On Cap	62%	95%	97%	89%
2-5	On Cap	58%	93%	93%	92%
5-7	On Cap	57%	87%	96%	92%
0-2 AI	On Cap	--[a]	95%	97%	97%
0-2 BI	On Cap	62%	73%	73%	77%
2-5 BI	On Cap	58%	64%	69%	68%
5-7 BI	On Cap	57%	60%	75%	54%
0-10	Off Cap	37%	48%	44%	22%

a. 0-2 AI interval did not exist prior to cap placement

During the Baseline 2 event, sand was the major grain size in surface sediment (0-7 cm below SWI) in the northern half of the cap footprint (monitoring stations 2 and 3), while fines were more prevalent on the southern end of the footprint (monitoring station 5), indicating this area was lower energy (Figure 66). In general, the top 7 cm of sediment appeared to be well mixed with no strong depth gradients. The northern off cap location (station 6) contained an equal mix of sand and fines, while the southern off cap location (station 7) was 77% fines and 23% sand. Overall, during the baseline event there is a gradient of increasing percent fines as you move south along the cap footprint.

During the short-term monitoring event, 2-months post-placement, the upper 7 cm was dominated by sand (92% on average, Figure 67). Stations in the southern end of the cap footprint (Stations 3, 4 and 5) had a layer of depositional material mixed in the 5-7 cm below SWI interval, which aligns with visual observations in the core photolog (Appendix E). The 0-2 cm above the cap native sediment interface (0-2 AI) remained sand-dominated, indicating the mixing was likely top down, rather than bottom up. Additionally, it appears the cap material is mixing with the native sediment, causing increases in percent sand of the 0-2 BI samples compared to baselines distributions.

During the one year monitoring event, the upper 7 cm was composed of a higher average sand content compared to the 2-month event (> 96% on average, Figure 68). Stations 4 and 5 had a net gain of approximately 8 cm of compared to the 2-month event (Table 24), with this material potentially coming from the northern portion of the cap footprint, which had losses of cap material over the same timeframe. Based on the grain size profile and photolog, finer grained sediments appear to be mixing with cap material at Station 3.

During the two year monitoring event, additional top down mixing of fine grained material occurred in the surface sediment (0-7 cm below SWI) at Stations 1 and 3 (Figure 69). The sample above the cap-native sediment interface (0-2 AI) remained predominately sand, indicating that top-down mixing was the likely mechanism occurring. Additionally, sand continued to mix from the cap material with the 0-2 BI sample, which was especially prevalent at stations 4 and 5.

Based on the consistency of percent sand across the stations and events, it seems that the cap material is exhibiting overall stability. It appears that the 0-2 cm above interface sample is remaining predominately sand (> 95%), indicating that bottom up mixing is not likely occurring at these five monitoring locations. It appears more likely that the sand is mixing with native sediment, mostly in the 0-2 cm just below the cap-native sediment interface. There is slight variability in the percent fines in the surface sediments over the events, indicating that natural deposition, resuspension and burial processes are occurring.

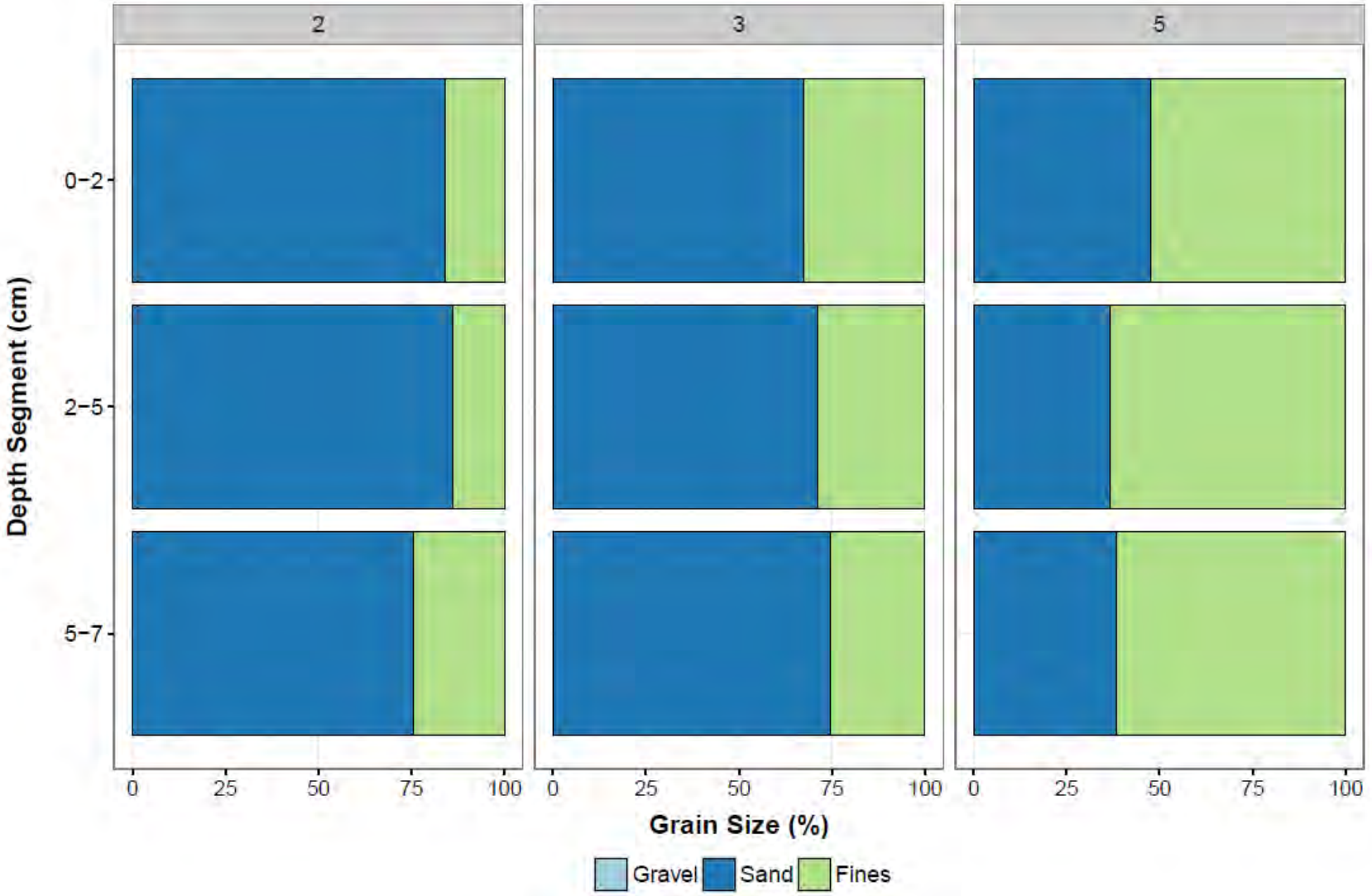


Figure 66. Baseline 2 station-by-station comparison of grain size distribution depth profiles of on-cap sediment (0-2, 2-5, 5-7 cm below SWI). Note: Stations 1 and 4 do not have baseline results.

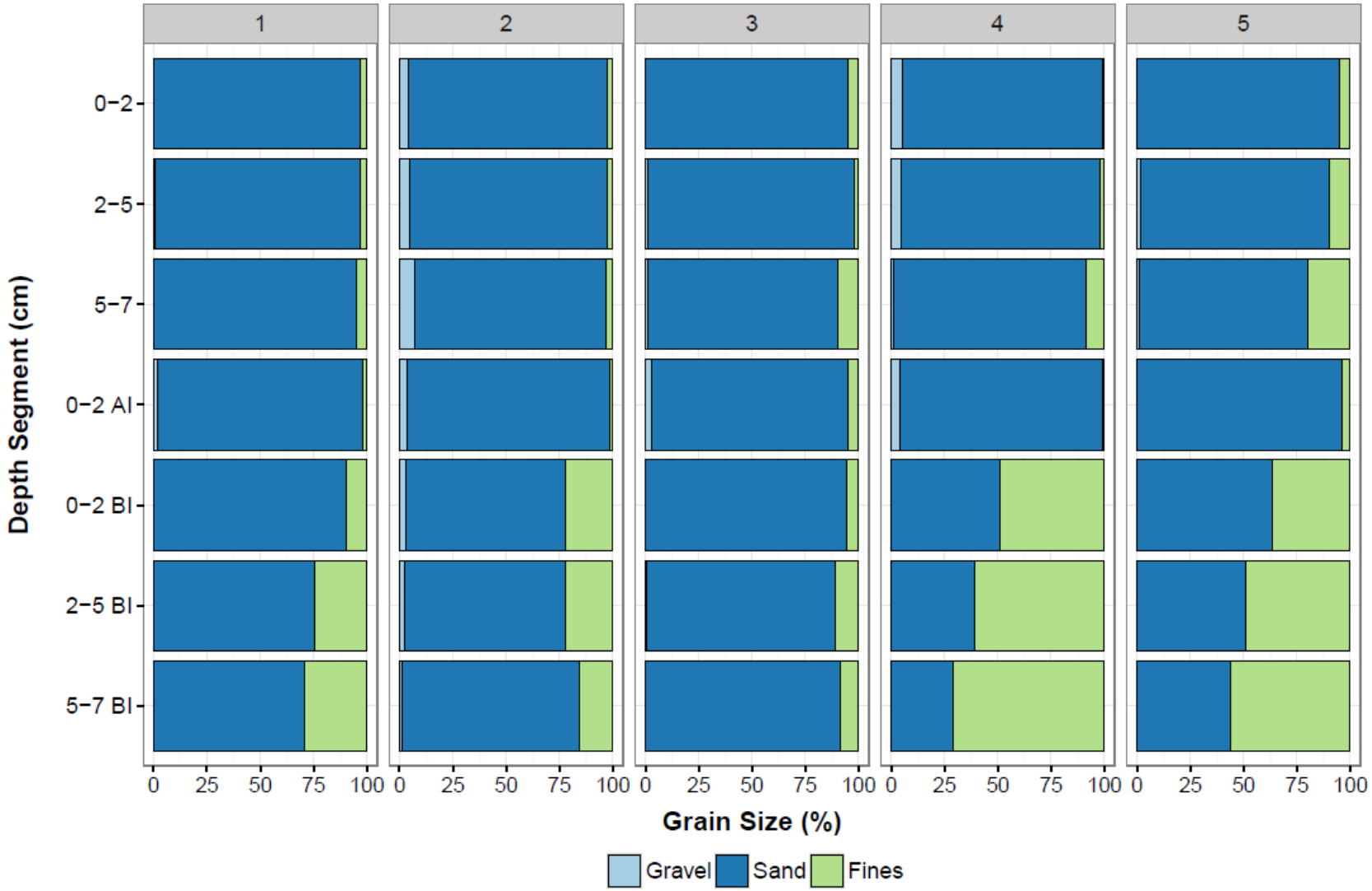


Figure 67. 2-Month event station-by-station comparison of grain size distribution depth profiles of on-cap sediment.

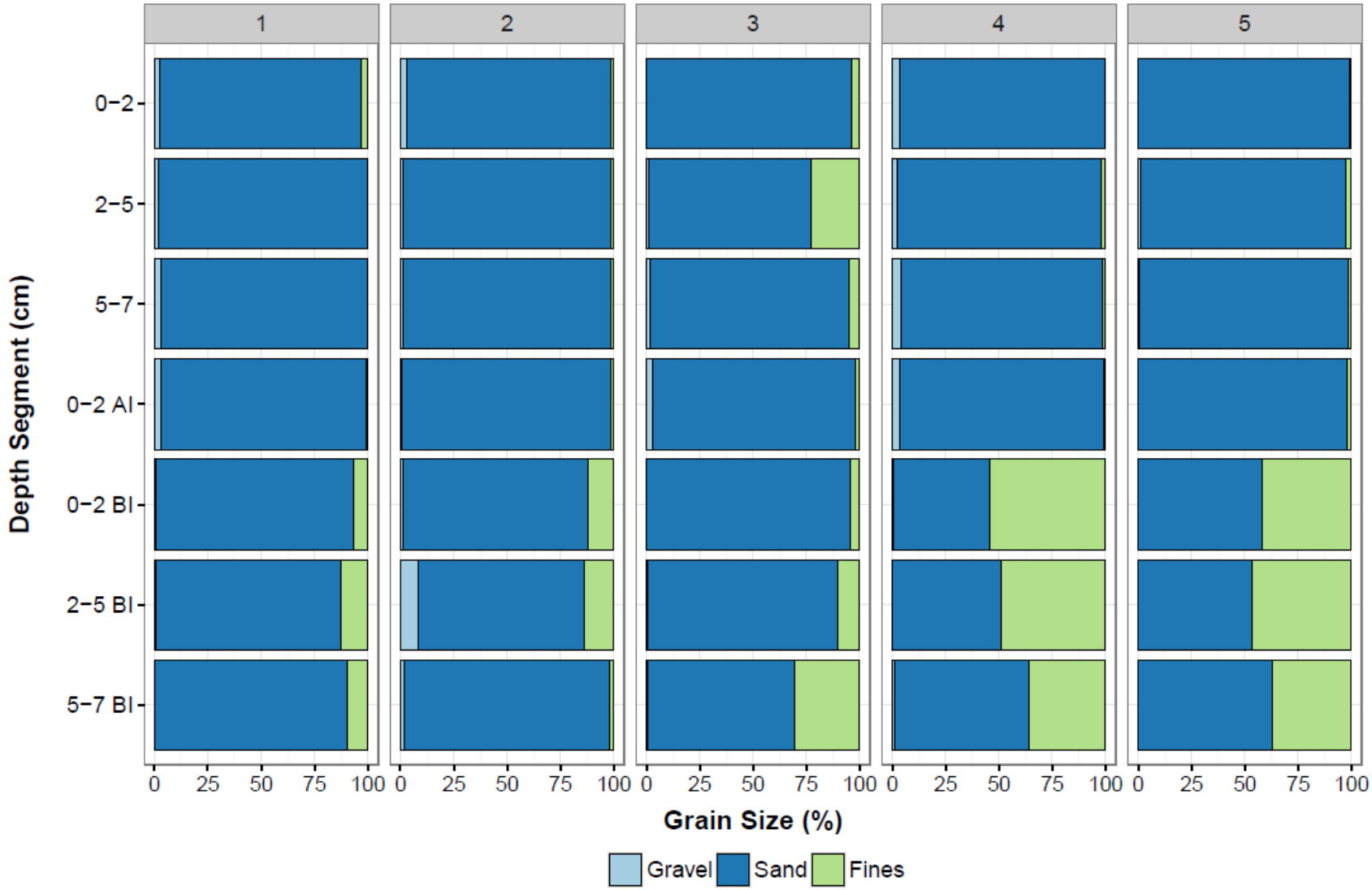


Figure 68. 14-Month event station-by-station comparison of grain size distribution depth profiles of on-cap sediment (0-2, 2-5, 5-7 cm below SWI).

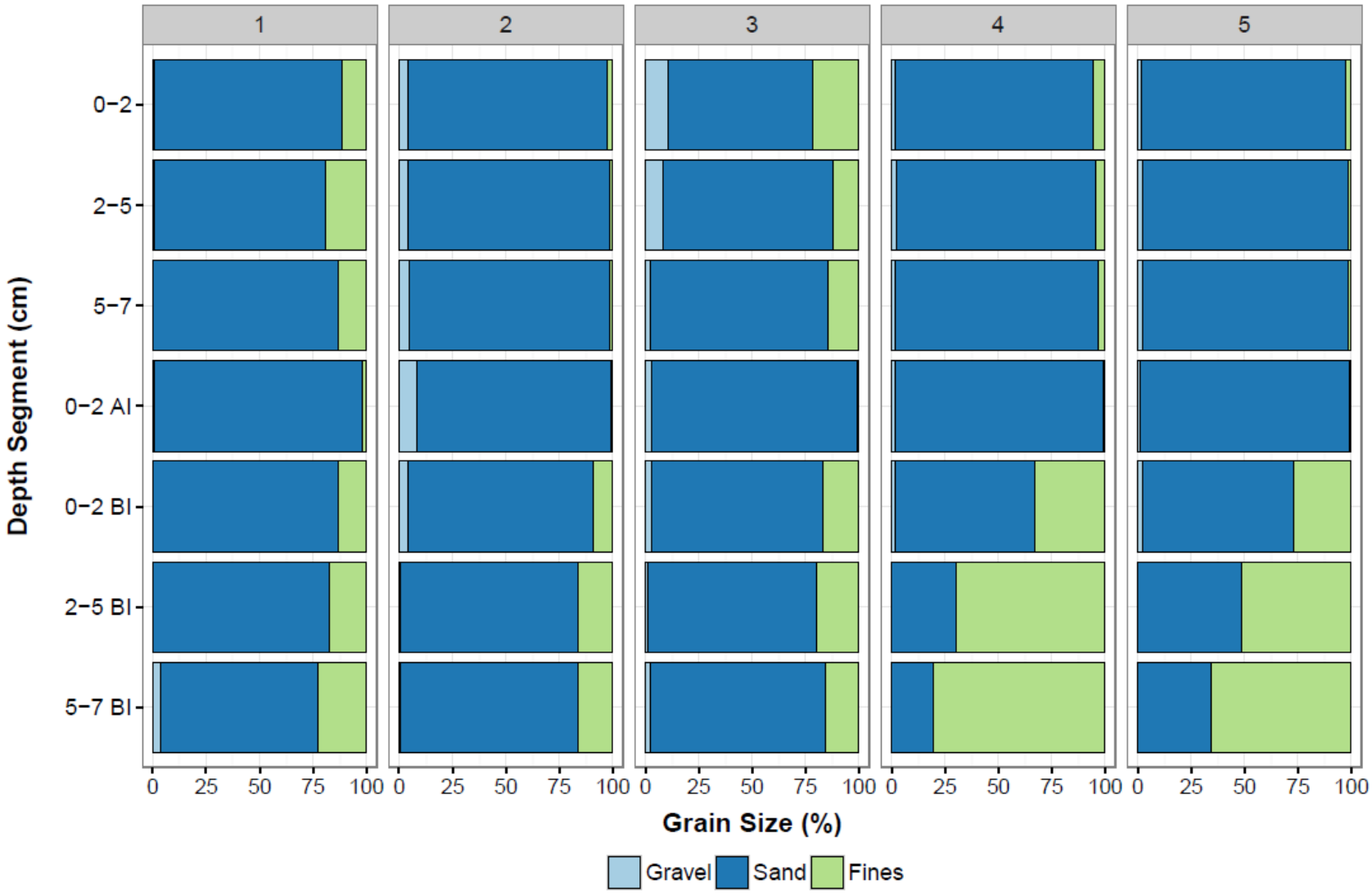


Figure 69. 25-Month event station-by-station comparison of grain size distribution depth profiles of on-cap sediment (0-2, 2-5, 5-7 cm below SWI).

5.7.5.3. Total Organic Carbon

Total organic carbon (TOC) content results are summarized in Table 26. Event specific TOC depth profiles are presented in Figure 70, Figure 71, Figure 72, and Figure 73. TOC was reduced in the 2-month post-placement event surface sediment (0-7 cm below SWI) compared to baseline, indicating placement of clean sand. TOC content in underlying sediment was similar in the baseline 2 and 2-month events, indicating a lack of mixing of cap material and native sediment. TOC content in the 14-month and 25-month events was lower in all samples (cap material and native sediment) compared to baseline 2 and 2-month events. This was unexpected since the cap material was observed to have native sediment layers mixed within the sand, particularly in the 25-month. These discrepancies are likely due to unexpected deviations in sample analysis methods as well as unexplained analytical artefacts during, as discussed in Section 5.6.5.

Despite uncertainties in event to event results, useful information could be obtained by comparing intra-event and -station patterns. TOC results tracked well with patterns observed in grain size profiles. Native sediment in the southern half of the cap footprint contained more TOC compared to northern stations.

TOC content was reduced in surface sediment (0-7 cm below SWI) from the 2-month post-placement event compared to baseline sediment, indicating successful placement of clean sand. In the 2-month event, elevated TOC content within the top 7 cm below the SWI, relative to the 0-2 cm above the cap-native sediment interface, likely indicates deposition and mixing of native sediment, especially at the southern half of the cap footprint (stations 3, 4 and 5). It also appeared that cap material was mixing with native, underlying sediment at stations 1 and 3, given that the 0-2 cm interval below the cap-native sediment interface had reduced TOC content compared to deeper intervals.

In the 14-month event, deposited native sediment was likely mixed in the top 7 cm at station 3, which had relatively higher TOC content, compared to surface sediment at other stations. Mixing of TLC material into native sediment occurred at stations 2 and 4, in addition to stations 1 and 3, as was noted during the 2-month event.

In the 25-month event, TOC content was nearly uniform in the top 7 cm of the TLC, indicating mixing within the surface cap materials. Stations 2, 4 and 5 maintained lower surface sediment TOC content relative to underlying sediment, indicating neither bottom up nor top down mixing of organic rich sediments were occurring at in these areas. After 25-months, stations 1 and 3 exhibited the highest organic enrichment relative to native sediments. Stations 1 and 3 may have had deposition of organic-rich material on the surface or mixing with native sediments. The interval 0-2 cm above the cap-native sediment interface remained lower in TOC content through 25 months, indicating the relative stability of at least a portion of the cap material. This potentially indicates that top down mixing is the more likely mechanism leading to the observed patterns.

Table 26. Mean[a] (± standard deviation, minimum – maximum) concentrations of total organic carbon content (%, dw).

Depth Interval Below SWI (cm)	Location	Baseline 2	Baseline 3	2-Month Post-Placement	14-Month Post-Placement	25-Month Post-Placement
0-2	On Cap	5.0 ± 2.2 (2.4 - 6.7)	NS[b]	0.5 ± 0.2 (0.3 - 0.7)	0.14 ± 0.12 (0.06 - 0.36)	0.15 ± 0.13 (0.05 - 0.34)
2-5	On Cap	3.3 ± 2.1 (0.9 - 4.9)	NS	0.4 ± 0.3 (0.1 - 0.7)	0.1 ± 0.08 (0.0 - 0.2)	0.13 ± 0.1 (0.03 - 0.26)
5-7	On Cap	4.0 ± 2.2 (1.5 - 6)	NS	0.9 ± 0.7 (0.1 - 1.7)	0.07 ± 0.08 (0.0 - 0.19)	0.11 ± 0.11 (0.02 - 0.24)
0-10	On Cap	5.5 ± 3.7 (1.7 - 9)	5.3 ± 3.0 (1.2 - 8.2)	NS	NS	NS
0-2 AI[c]	On Cap	--[d]	NS	0.2 ± 0.1 (0.1 - 0.4)	0.02 ± 0.02 (0.0 - 0.05)	0.02 ± 0.01 (0.01 - 0.03)
0-2 BI[e]	On Cap	5.0 ± 2.2 (2.4 - 6.7)[f]	NS	3.3 ± 1.6 (1.8 - 6)	0.7 ± 0.55 (0.17 - 1.32)	0.22 ± 0.14 (0.07 - 0.42)
2-5 BI	On Cap	3.3 ± 2.1 (0.9 - 4.9)	NS	4.5 ± 2.9 (1.8 - 8.7)	1.14 ± 0.55 (0.64 - 2)	0.37 ± 0.26 (0.09 - 0.76)
5-7 BI	On Cap	4.0 ± 2.2 (1.5 - 6)	NS	5.3 ± 3.4 (1.6 - 10)	1.13 ± 0.46 (0.57 - 1.7)	0.4 ± 0.28 (0.22 - 0.87)
0-10	Off Cap	2.6 ± 0.8 (2.1 - 3.2)	0.9	3.0 ± 0.8 (2.4 - 3.5)	2.15 ± 0.28 (1.95 - 2.34)	1 ± 0.43 (0.7 - 1.31)

a. Sample size: 2 for off cap samples, 3 for on cap baseline 2, and 5 for remainder
b. NS: Not sampled during event
c. AI collected from 0 – 2 cm above cap-native sediment interface
d. Interval did not exist for baseline event
e. BI collected from 0 – 2, 2 – 5 and 5 – 7 cm below cap-native sediment interface
f. Baseline BI sample concentrations are repeated from standard intervals (0 – 2, 2 – 5, and 5 – 7) for comparison purposes

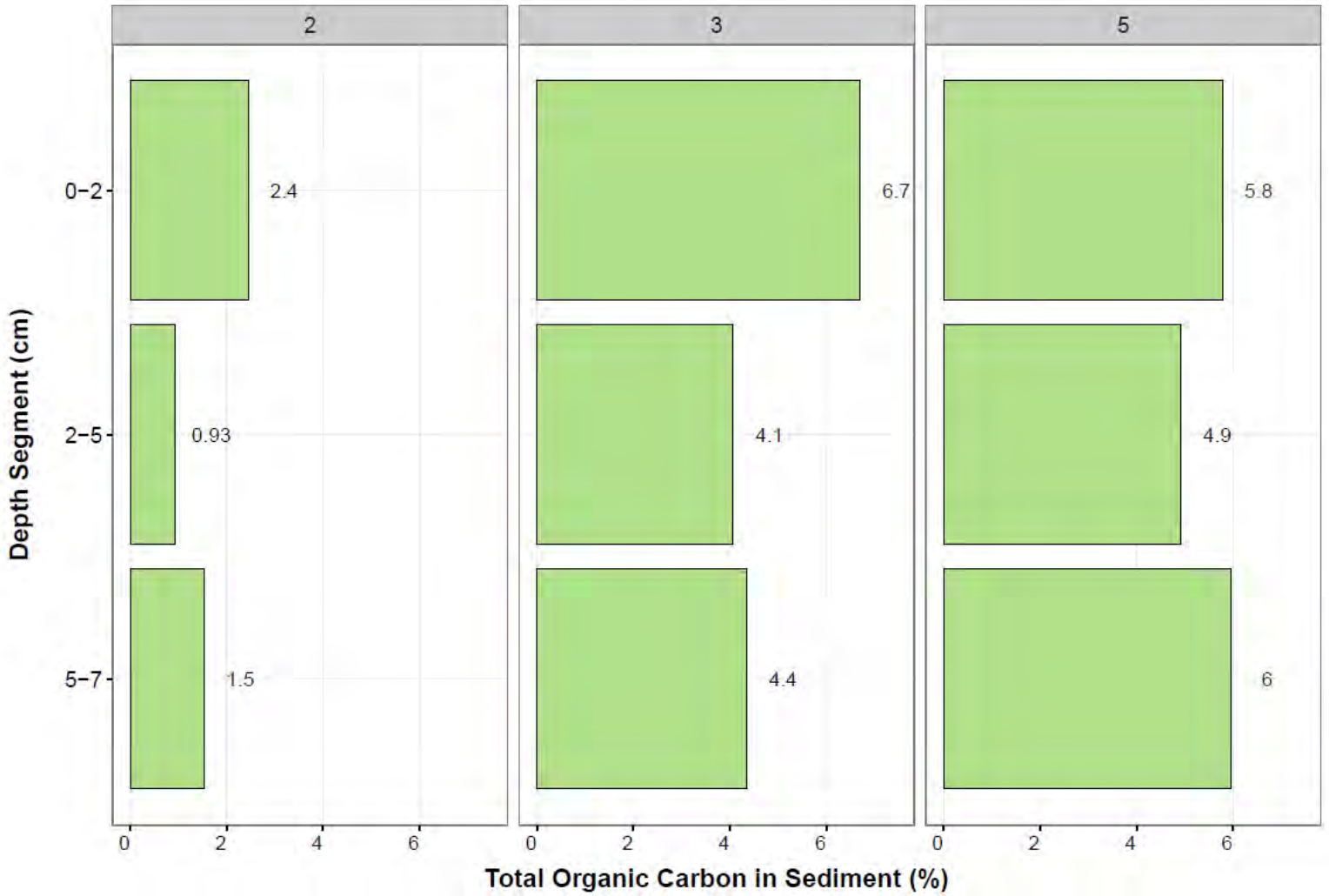


Figure 70. Baseline 2 station-by-station comparison of total organic carbon of on-cap sediment (0-2, 2-5, 5-7 cm below SWI). Note: No samples collected from stations 1 and 4 during the baseline 2 event.

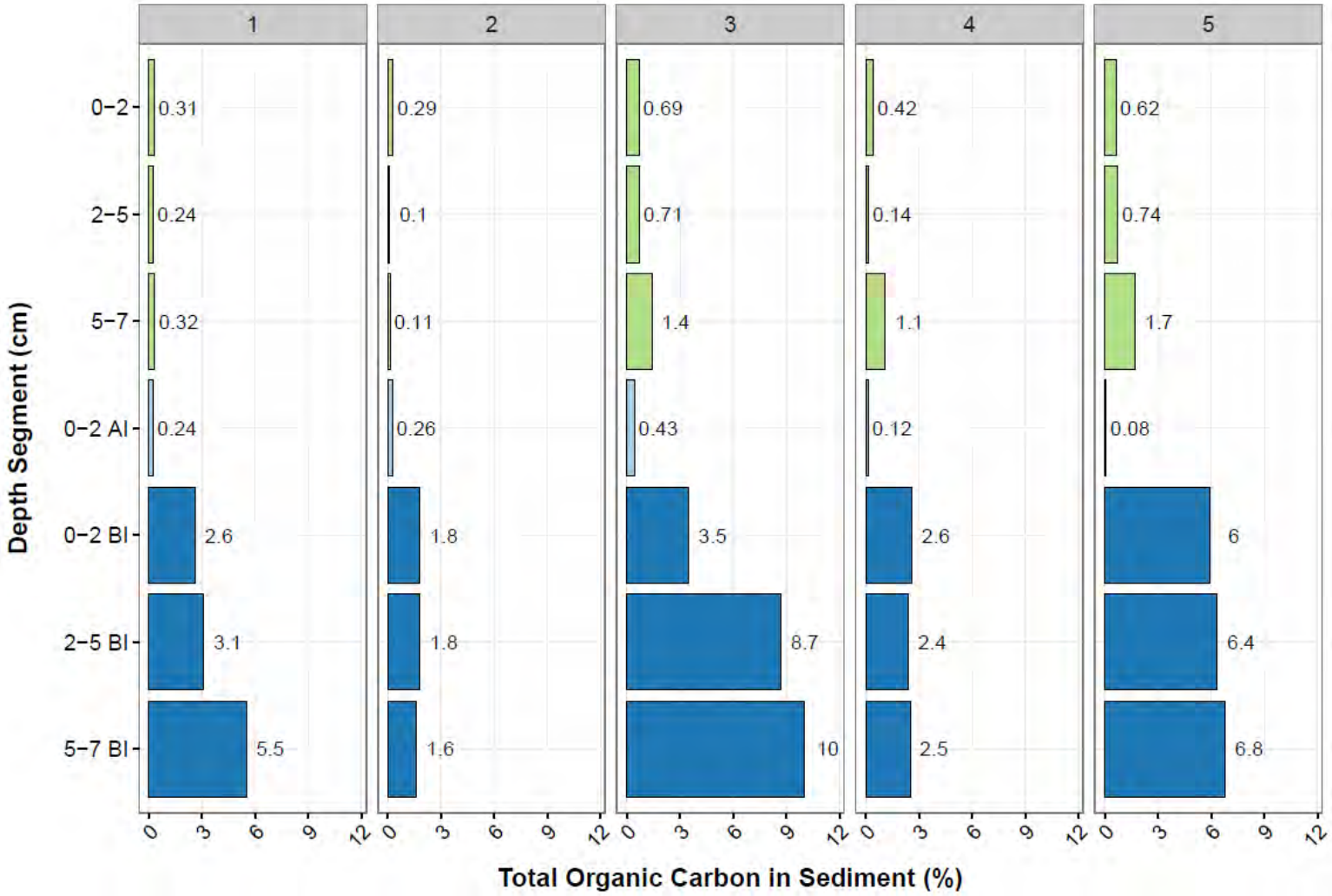


Figure 71. 2-Month event station-by-station comparison of total organic carbon of on-cap sediment. Note: Green bars represent samples taken from within cap material, light blue represent the sample 0-2 cm above the cap-native sediment interface and dark blue represent samples below the cap-native sediment interface.

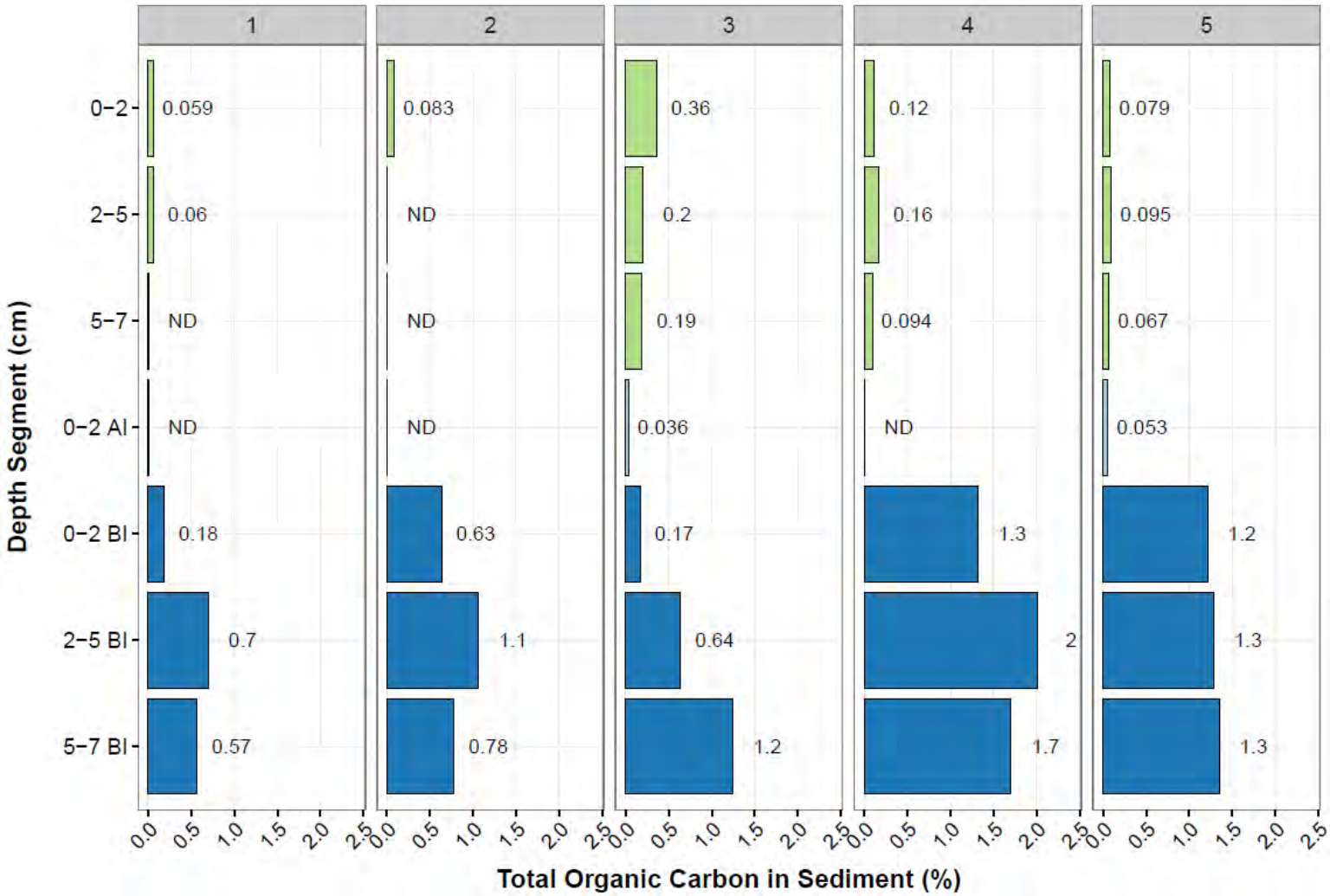


Figure 72. 14-Month event station-by-station comparison of total organic carbon of on-cap sediment. Note: ND are not detected samples, represented as ½ the detection limit. Green bars represent samples taken from within cap material, light blue represent the sample 0-2 cm above the cap-native sediment interface and dark blue represent samples below the cap-native sediment interface.

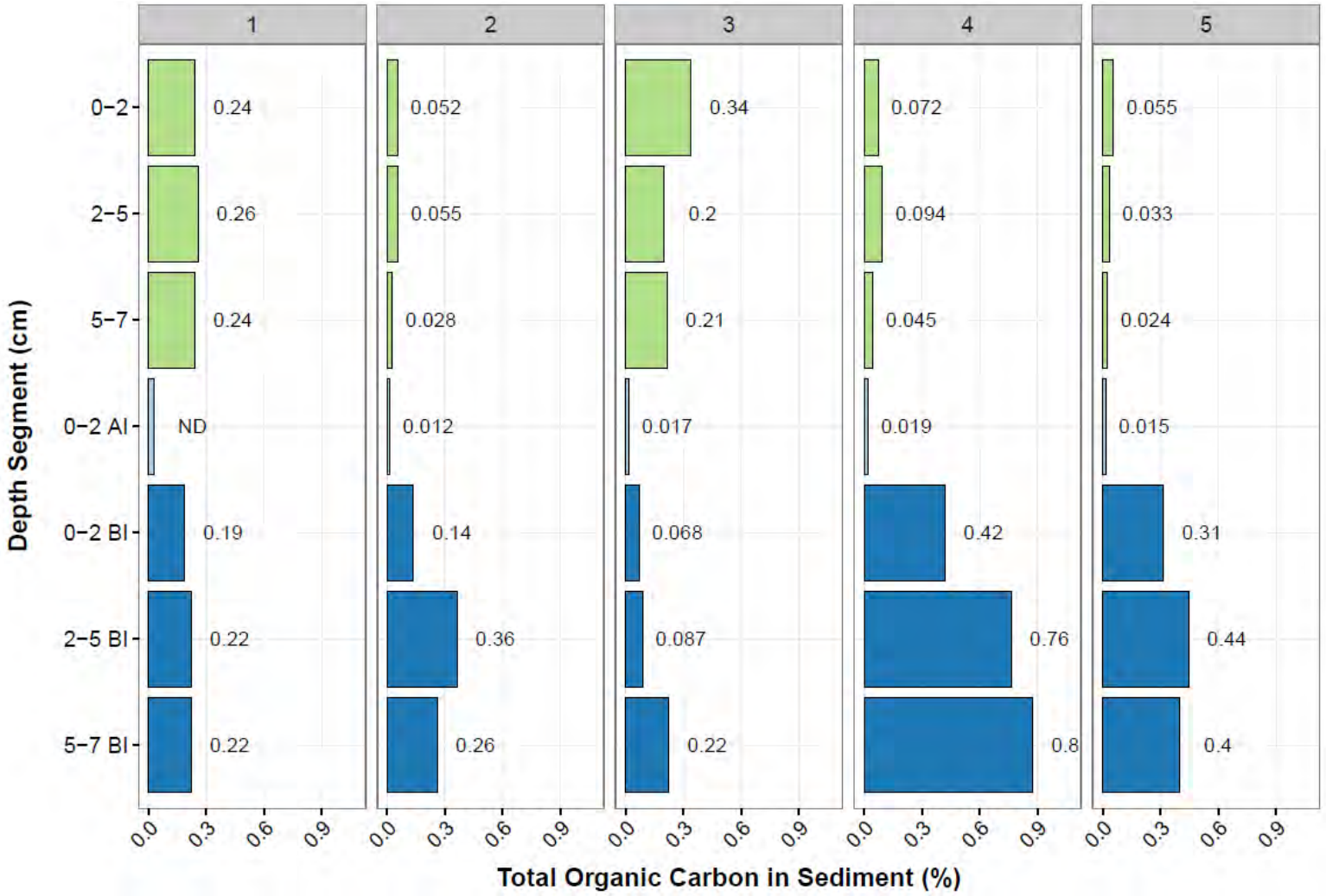


Figure 73. 25-Month **event station-by-station comparison of total organic carbon of on-cap sediment. Note: ND are not detected samples, represented as ½ the detection limit. Green bars represent samples taken from within cap material, light blue represent the sample 0-2 cm above the cap-native sediment interface and dark blue represent samples below the cap-native sediment interface.**

5.7.5.4. Bulk Sediment Chemistry

Concentrations of total DDX in sediment are summarized in Table 27. In all post-placement events, concentrations of total DDX in surface sediments (0-2 cm, 2-5 cm, and 5-7 cm below the SWI) were below the most stringent preliminary remedial goal for Site 99 Quantico Embayment of 650 µg/kg, dw (NAVFAC 2011), with the exception of one sample in the 2-month event (Station 1 0-2 cm below SWI, northern end of TLC). Concentrations of total DDX in surface sediment for the on cap stations is shown in Figure 75 and all intervals in Figure 76.

Concentrations of total DDX in surface sediment (0-10 cm) of stations 2, 3 and 5 were similar between the two baseline events (2009 and 2012). Concentrations were on average 21% higher in baseline 3 than baseline 2, indicating conclusions made regarding the reduction of concentrations based on comparison of results from post-placement events to the baseline 2 would be similar to those based on baseline 3. Therefore, a separate comparison of concentrations from baseline 3 have not been conducted.

Concentrations of total DDX in surface sediment (top 7 cm below SWI) were an average of 973 µg/kg, dw in the baseline 2 event, decreased in the short-term monitoring (210 µg/kg, dw) and continued to decrease in the first and second annual long-term post-placement events (104 µg/kg, dw in the 14-month event and 51 µg/kg, dw in the 25-month).

Concentrations of DDX were highest at station 3 in the baseline (Figure 77). Concentrations of DDX in 2-month show potential surface deposition of contaminated material at station 1 (Figure 78). In the 14-month, top down mixing was observed at station 3 as was observed for grain size and TOC. Additionally, potential surface deposition of contaminated materials was observed at stations 1 and 2 (Figure 79). Concentrations in the top 7 cm were most well mixed in 25-month event (Figure 80).

Significant reductions in log transformed concentrations of total DDX in surface sediment (top 7 cm below SWI) between the baseline and 2-month ($p = 0.02$, 77% decrease), 14-month ($p = 0.002$, 48% decrease) and 25-month ($p < 0.0001$, 91% decrease) events were observed (Table 28, Figure 81). At Station 2, an increase in concentrations was observed in the 0-2 cm interval below SWI in the first annual post-placement event; however, in the second annual event, the reductions were greater than had been observed in the short-term event (97% decrease from baseline in the 25-month post-placement event, dry weight basis). Similarly, short-term reductions at station 3 in the 2-5 cm interval below SWI (64% decrease) were observed to continue in the 25-month event (57% decrease) following an increase in the 14-month event (15% increase). While monitoring stations 1 and 4 were not included in the percent reductions due to lack of co-located baseline stations, it can be seen from Figure 75, concentrations of total DDX in surface sediment at these stations were well below the PRG (with the exception of one sample, at station 1 [northern end of cap] in 0-2 cm interval below SWI in the 2-month event).

Greater reductions were observed on cap than off cap stations for each event, on average in the top 7cm below SWI. In the short term, Reductions off cap in the 2-month event were 52% at the off cap stations compared to 77% decrease observed at the on cap stations. Over the long term, reductions of 39% and 41% were found at the off cap station while decreases of 48% and 91% were observed at the on cap stations for 14- and 25-month events, respectively (Table 28).

Additionally, comparisons of DDX reductions were made between the TLC material (average of 0-2 cm, 2-5 cm, and 5-7 cm below SWI) and the underlying native sediment (0-2 cm, 2-5 cm, and 5-7 cm below cap-native sediment) for each monitoring event (Table 29). Significant reductions in log DDX concentrations were observed in the short-term event ($p < 0.001$, 55% decrease), the first annual post-placement event ($p=0.02$, 17% decrease), and the last long-term post-placement monitoring event ($p <0.001$, 81% decrease, Figure 83). In the 2-month event, station 1 had greater concentrations of total DDX in surface sediment compared to underlying sediment due to elevated concentrations in the 0-2 cm interval below SWI; however, reductions in the subsequent long-term monitoring events (14- and 25-month events) were 14% and 65% at this station, respectively. Also, due to elevated concentrations in the 0-2cm interval below SWI at station 2 in the 14-month post-placement event, greater concentrations were observed in the surface sediment than underlying native sediment; however, a 99% decrease was observed in the subsequent second annual long-term event at this station. This analysis indicates that the TLC surface sediment is remaining below pre-TLC placement levels and that recontamination from either top-down or bottom up mixing has not occurred.

A finer scale analysis was completed to evaluate the potential for bottom up mixing by comparing DDX concentrations in the 0-2 cm above the cap native sediment interface to 0-2 cm below the interface. Concentrations in the sediment interval 0-2 cm above the cap-native sediment interface was significantly less than concentrations 0-2 cm below the interface when combining data from all events ($p < 0.001$, Figure 82). An exception was observed at station 3 during the 2-month event, where the 0-2 cm AI sample contained elevated DDX (590 µg/kg dw, Figure 78 and Figure 82). This analysis was compared to observations in co-located porewater measurements in the sections below. Overall, DDX concentrations in the 0-2 AI interval remained low and these results indicate the cap material successfully prevented bottom up mixing, contributing to an acceleration of contaminant burial.

Overall, these results indicate the thin-layer cap effectively reduced concentrations of total DDX in surface sediment after placement, and these significant reductions were sustained and were greatest in the second annual monitoring event as natural deposition continued to sequester contaminated sediments.

5.7.5.5. Carbon Normalized Sediment DDX

Concentrations of total DDX in surface sediment (top 7 cm below SWI) were evaluated on an organic carbon normalized basis as toxicity in sediments is expected to better correlate with these concentrations, compared to dry weight basis. Significant reductions from baseline to 2-months post capping were not observed ($p > 0.05$) when comparing concentrations of total DDX in surface sediment (average of 0-2 cm, 2-5 cm, 5-7 cm below SWI) on an organic carbon normalized basis (Figure 84). This differs from trends observed on with dry weight concentrations (Figure 81), and observations in porewater as measured by ex situ approach in the 2-month (significant decrease). Concentrations on an organic carbon basis in the 14- and 25-month were not statistically evaluated due to the low organic carbon contents observed in these events which are not expected to reflect field conditions, but rather artefacts of TOC analysis methods and changes in those methods between sampling events (discussed further in TOC results section).

Table 27. Mean[a] (± standard deviation, minimum – maximum) concentrations of total DDX in sediment (µg/kg dw).

Depth Interval Below SWI (cm)	Location	Baseline 2	Baseline 3	2-Month Post-Placement	14-Month Post-Placement	25-Month Post-Placement
0-2	On Cap	607 ± 559 (169 - 1236)	NS[b]	535 ± 947 (13 - 2219)	210 ± 230 (7 - 509)	52 ± 55 (2 - 118)
2-5	On Cap	164 ± 65 (90 - 210)	NS	31 ± 27 (6 - 70)	50 ± 96 (3 - 221)	46 ± 40 (3 - 91)
5-7	On Cap	2147 ± 3397 (89 - 6068)	NS	64 ± 50 (5 - 127)	52 ± 106 (2 - 240)	56 ± 64 (2 - 145)
0-10	On Cap	172 ± 79 (98 - 255)	264 ± 174 (153 - 563)	NS	NS	NS
0-2 AI[b]	On Cap	--[c]	264 ± 174 (153 - 563)	148 ± 254 (1 - 593)	2 ± 2 (0 - 5)	9 ± 8 (1 - 23)
0-2 BI[d]	On Cap	607 ± 559[e] (169 - 1236)	NS	183 ± 129 (41 - 391)	117 ± 98 (0 - 270)	362 ± 264 (132 - 743)
2-5 BI	On Cap	164 ± 65 (90 - 210)	NS	1143 ± 1975 (123 - 4667)	173 ± 156 (21 - 399)	245 ± 152 (85 - 439)
5-7 BI	On Cap	2147 ± 3397 (89 - 6068)	NS	494 ± 429 (96 - 1080)	319 ± 324 (103 - 865)	679 ± 1131 (47 - 2693)
0-10	Off Cap	36 ± 10 (29 - 43)	NS	18 ± 6 (14 - 22)	22 ± 6 (18 - 27)	21 ± 3 (19 - 22)

a. Sample size: 2 for off cap samples, 3 for on cap baseline, 5 for remainder
b. NS: Not sampled during event
c. AI collected from 0 – 2 cm above cap-native sediment interface
d. Interval did not exist for baseline event
e. BI collected from 0 – 2, 2 – 5 and 5 – 7 cm below cap-native sediment interface
f. Baseline BI sample concentrations are repeated from standard intervals (0 – 2, 2 – 5, and 5 – 7) for comparison purposes

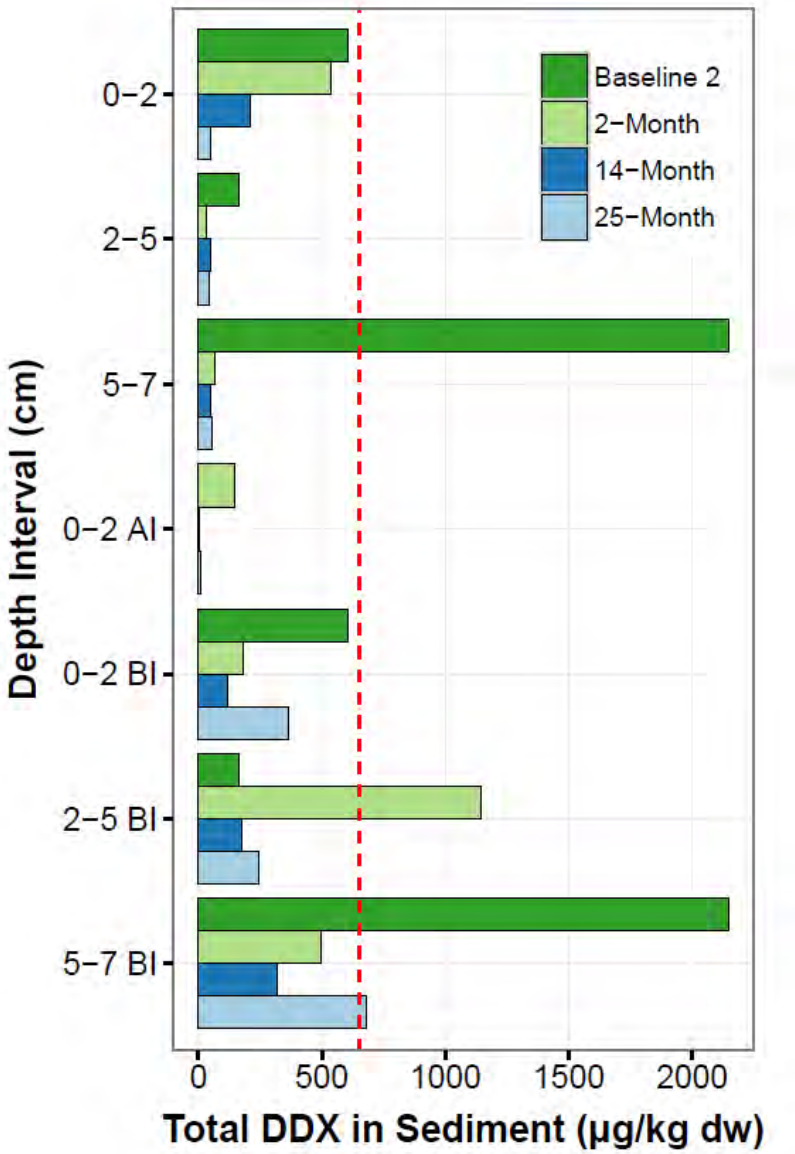


Figure 74. Mean Total DDX concentrations for on-cap sediment by event and depth interval. Red line indicates the site specific PRG of 650 µg/kg dw.

Table 28. Change in concentrations of Total DDX in surface sediment compared to baseline for five stations with baseline monitoring data.

Station	Location	Interval	Percent Change from Baseline		
			2-Month	14-Month	25-Month
2	On Cap	0-2	-78%	+202%	-97%
2	On Cap	2-5	-89%	-89%	-88%
2	On Cap	5-7	-94%	-95%	-94%
3	On Cap	0-2	-89%	-68%	-92%
3	On Cap	2-5	-64%	+15%	-57%
3	On Cap	5-7	-98%	-96%	-98%
5	On Cap	0-2	-35%	-98%	-100%
5	On Cap	2-5	-77%	-98%	-99%
5	On Cap	5-7	-68%	-99%	-99%
6	Off Cap	0-10	-54%	-39%	-24%
7	Off Cap	0-10	-49%	-38%	-57%
Overall Reduction by Event On Cap			-77%	-48%	-91%
Overall Reduction by Event Off Cap			-52%	-39%	-41%

a. Negative numbers indicate a reduction, positive numbers are increases.

Table 29. Change in concentrations of Total DDX in surface sediment (average of 0–2, 2–5 and 5–7 cm below SWI) compared to native sediment underlying the cap (average of 0 – 2 BI, 2 – 5 BI and 5 – 7 BI cm below cap-native sediment interface).

Station	Percent Change from Underlying Native Sediment		
	2-Month	14-Month	25-Month
1	+52%	-14%[a]	-65%
2	-88%	+139%	-99%
3	-94%	-18%	-64%
4	-78%	-94%	-75%
5	-68%	-99%	-99%
Overall Reduction by Event[b]	-55%	-17%	-81%

a. Negative numbers indicate a reduction, positive numbers are increases.

b. Overall reduction by event includes on cap stations only

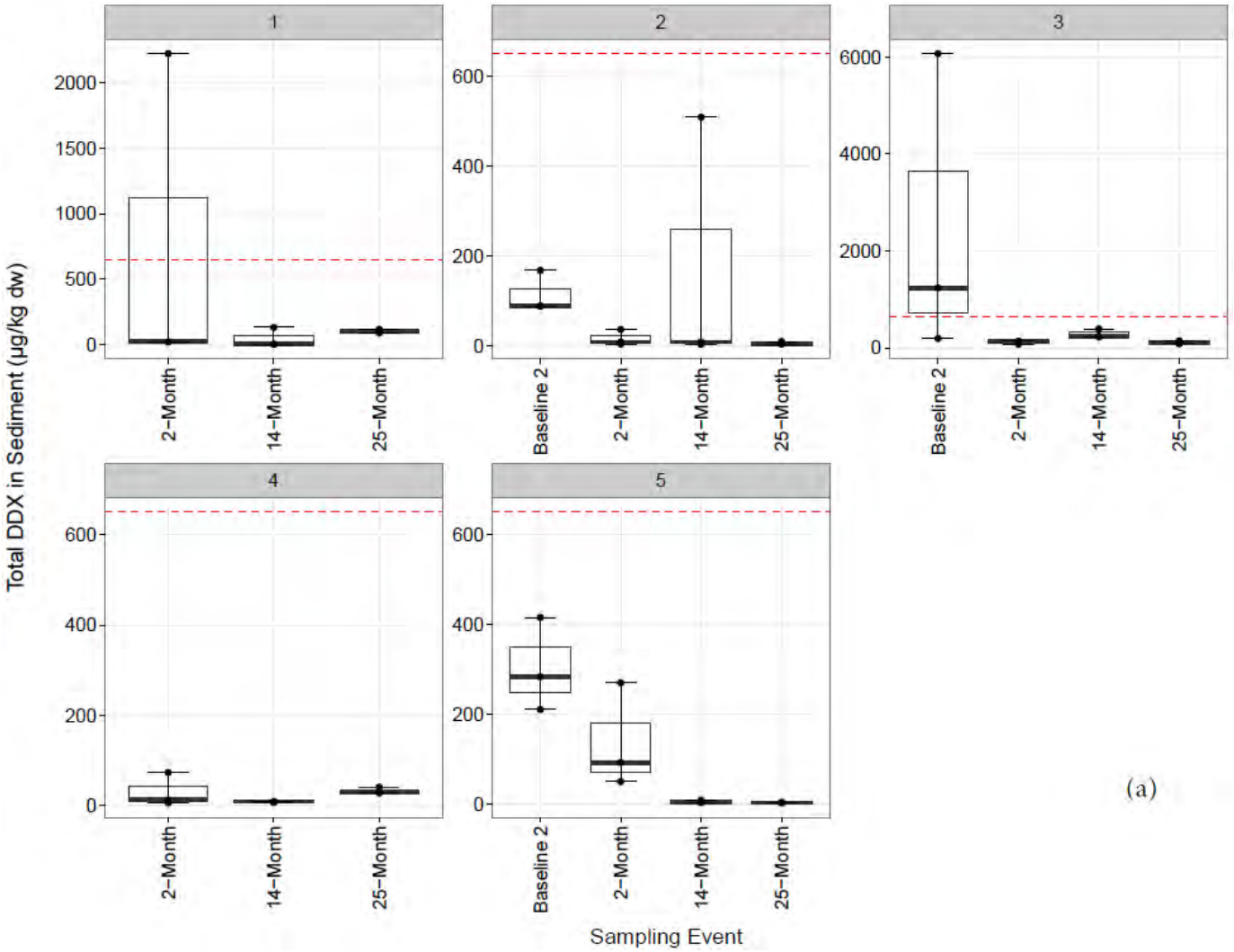


Figure 75a. Station by station comparison of Total DDX concentrations in on cap surface sediment (0-2, 2-5, 5-7 cm). Results are plotted as the median (horizontal bar), IQR (limits of boxes are 25th and 75th percentiles), and error bars extend from the IQR to the lowest value within 1.5 * IQR. Data beyond the end of the whiskers are outliers and plotted as red points (as specified by Tukey). Notes: Red line indicates site specific PRG. Different scales on each graph pane. Stations 1 and 4 do not have baseline results. Note figure (a) has each chart with a different y-axis scale and (b) has same scale for y-axis.

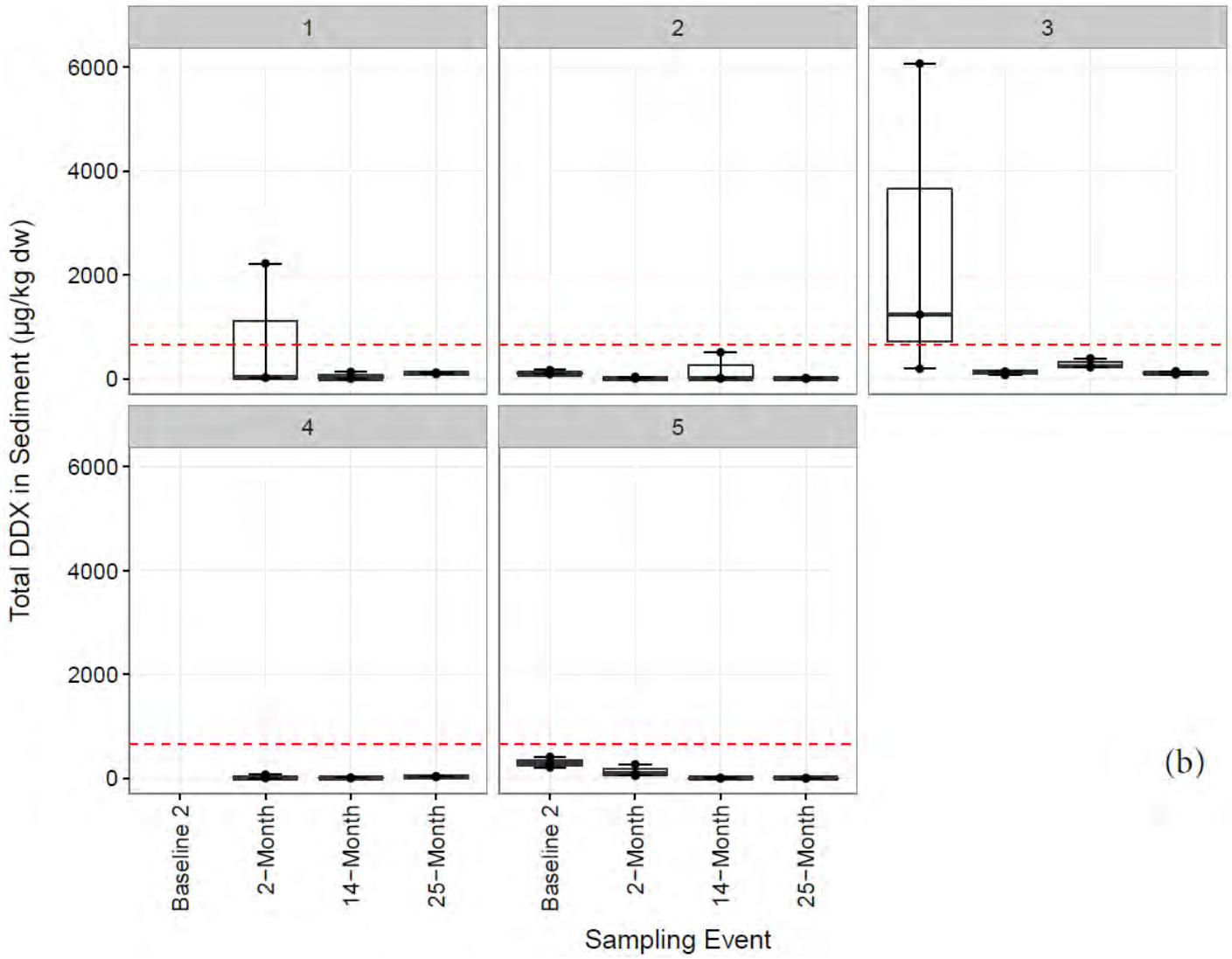
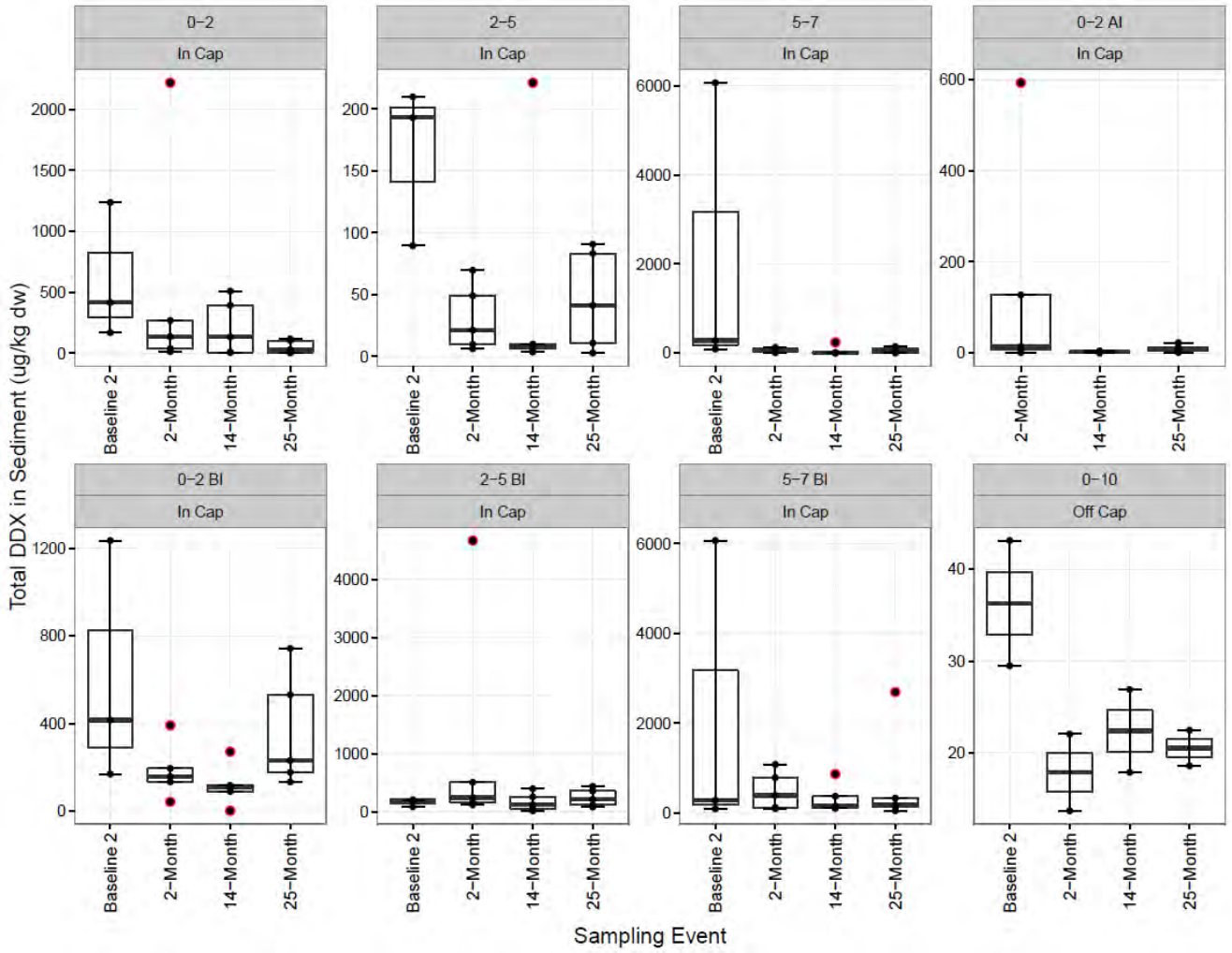
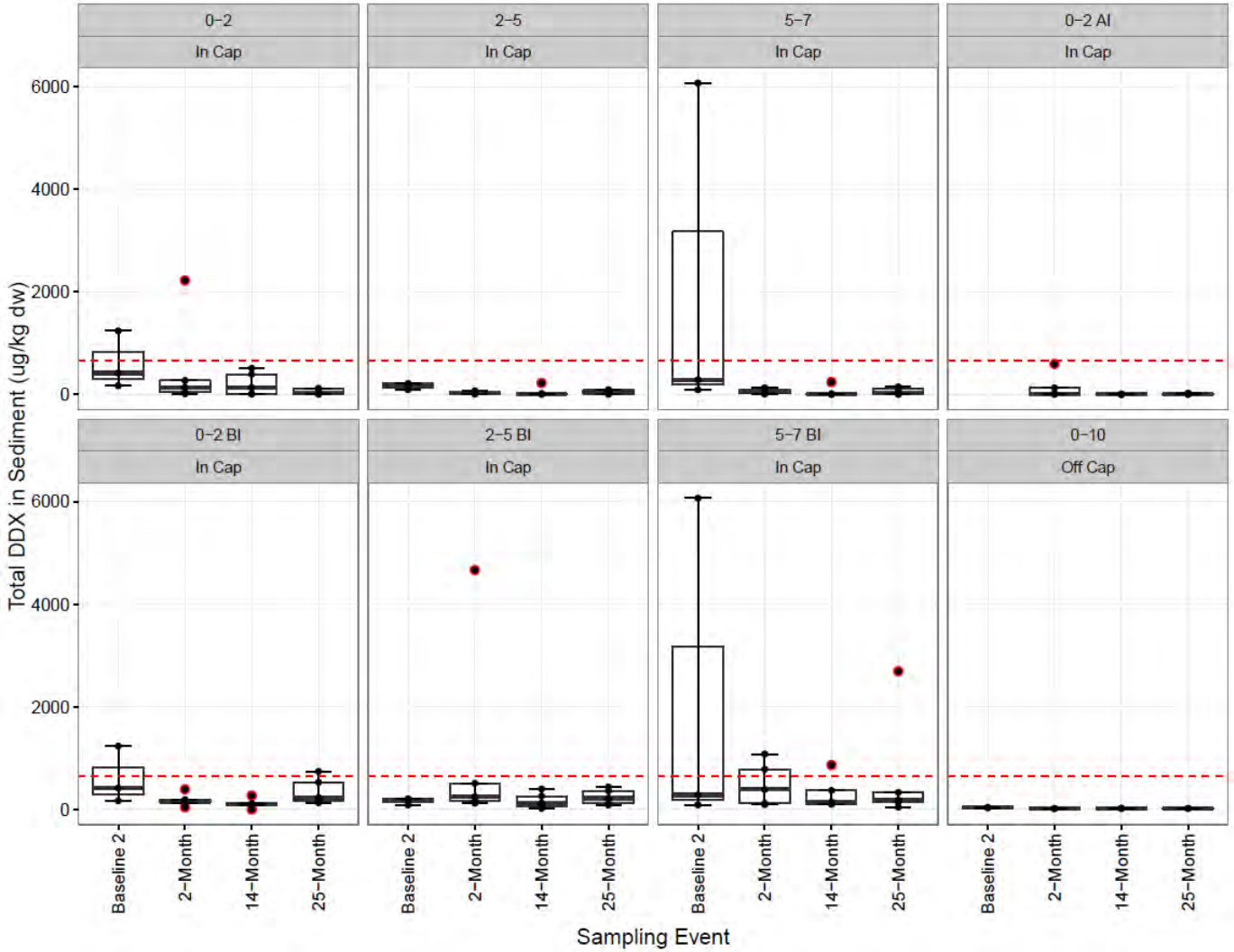

1
2
3
4
5
6000
4000
2000
0
Total DDX in Sediment (µg/kg dw)
Baseline 2
2−Month
14−Month
25−Month
Sampling Event
(b)

Figure 75b.



(a)

Figure 76a. Site-wide comparison of Total DDX concentrations, by sample interval (i.e., each on-cap boxplot comprised of data from all 5 LTM stations). Results are plotted as the median (horizontal bar), IQR (limits of boxes are 25th and 75th percentiles), and error bars extend from the IQR to the lowest value within 1.5 * IQR. Data beyond the end of the whiskers are outliers and plotted as red points (as specified by Tukey). Note different scales on each graph pane. For on-cap stations, n = 3 for Baseline 2 and n=5 for post-cap monitoring. Red line indicates the site specific PRG of 650 µg/kg dw. Note figure (a) has each chart with a different y-axis scale and (b) has same scale for y-axis.


0–2
In Cap
2–5
In Cap
5–7
In Cap
0–2 AI
In Cap
0–2 BI
In Cap
2–5 BI
In Cap
5–7 BI
In Cap
0–10
Off Cap
Total DDX in Sediment (ug/kg dw)
6000
4000
2000
0
Baseline 2
2–Month
14–Month
25–Month
Sampling Event

(b)

Figure 76b.

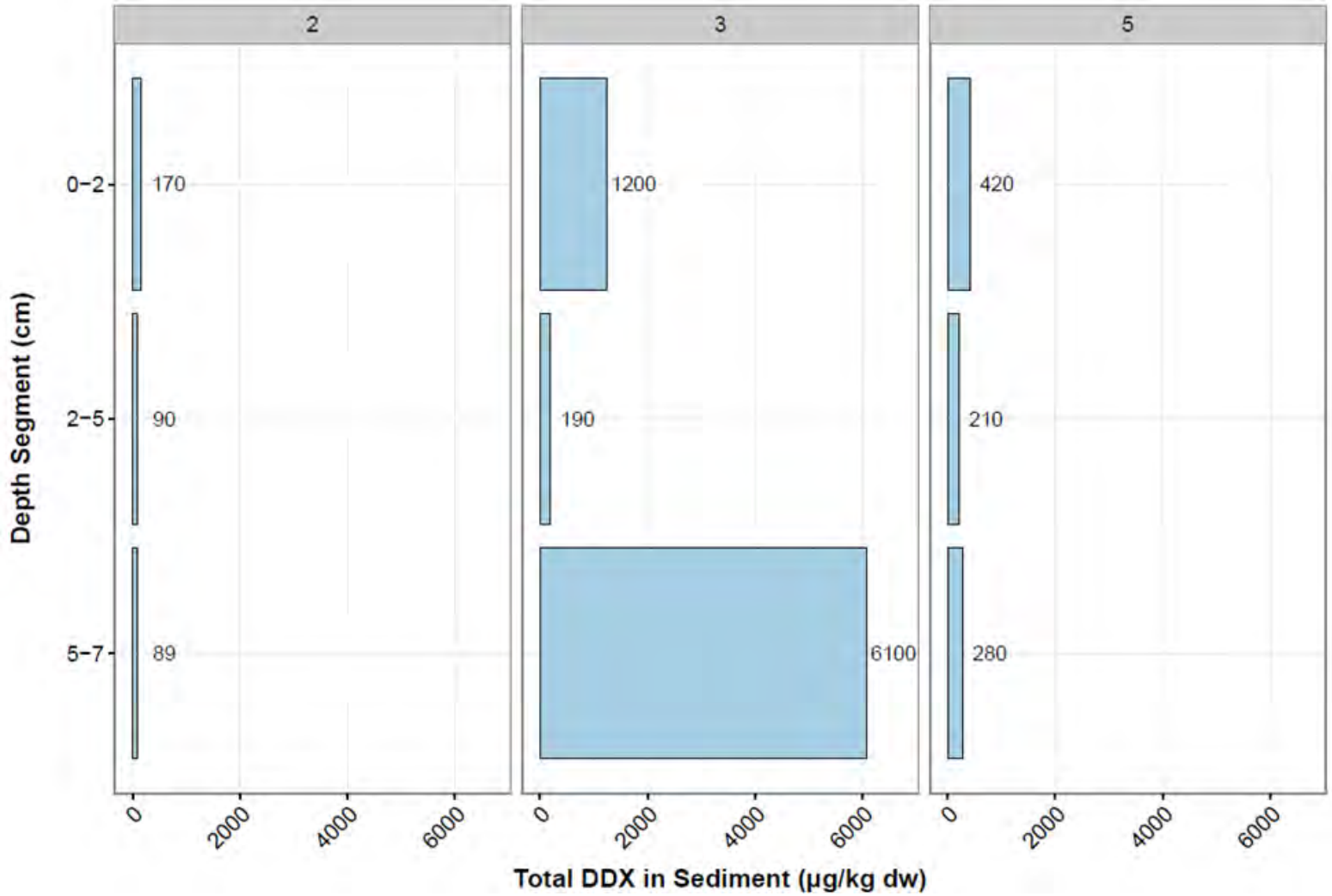


Figure 77. Baseline station-by-station comparison of total sediment DDX concentrations (µg/kg dw) by depth segment for on-cap locations.

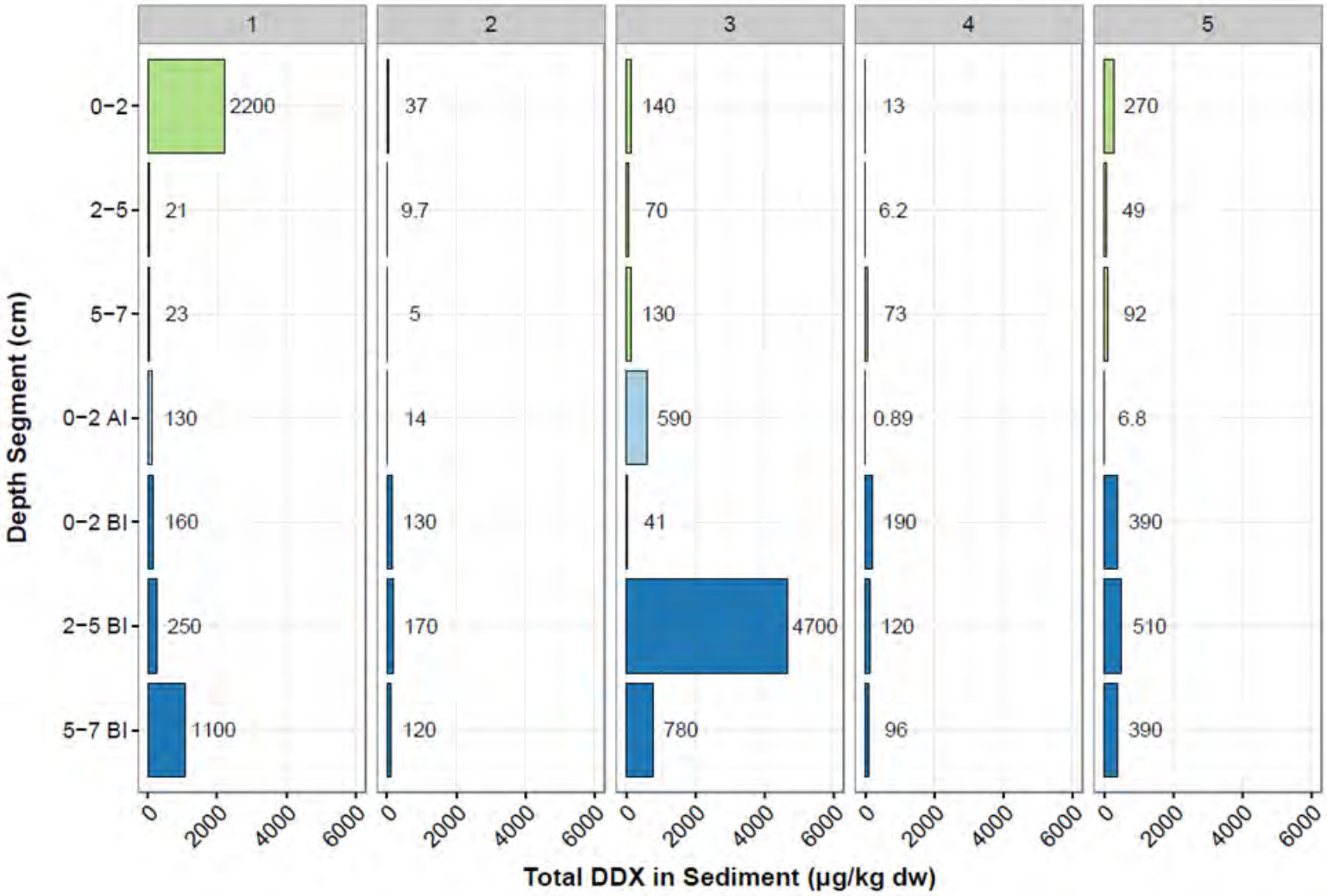


Figure 78. 2-Month station-by-station comparison of total sediment DDX concentrations (µg/kg dw) by depth segment for on-cap locations. Note: Green bars represent samples taken from within cap material, light blue represent the sample 0-2 cm above the cap-native sediment interface and dark blue represent samples below the cap-native sediment interface.

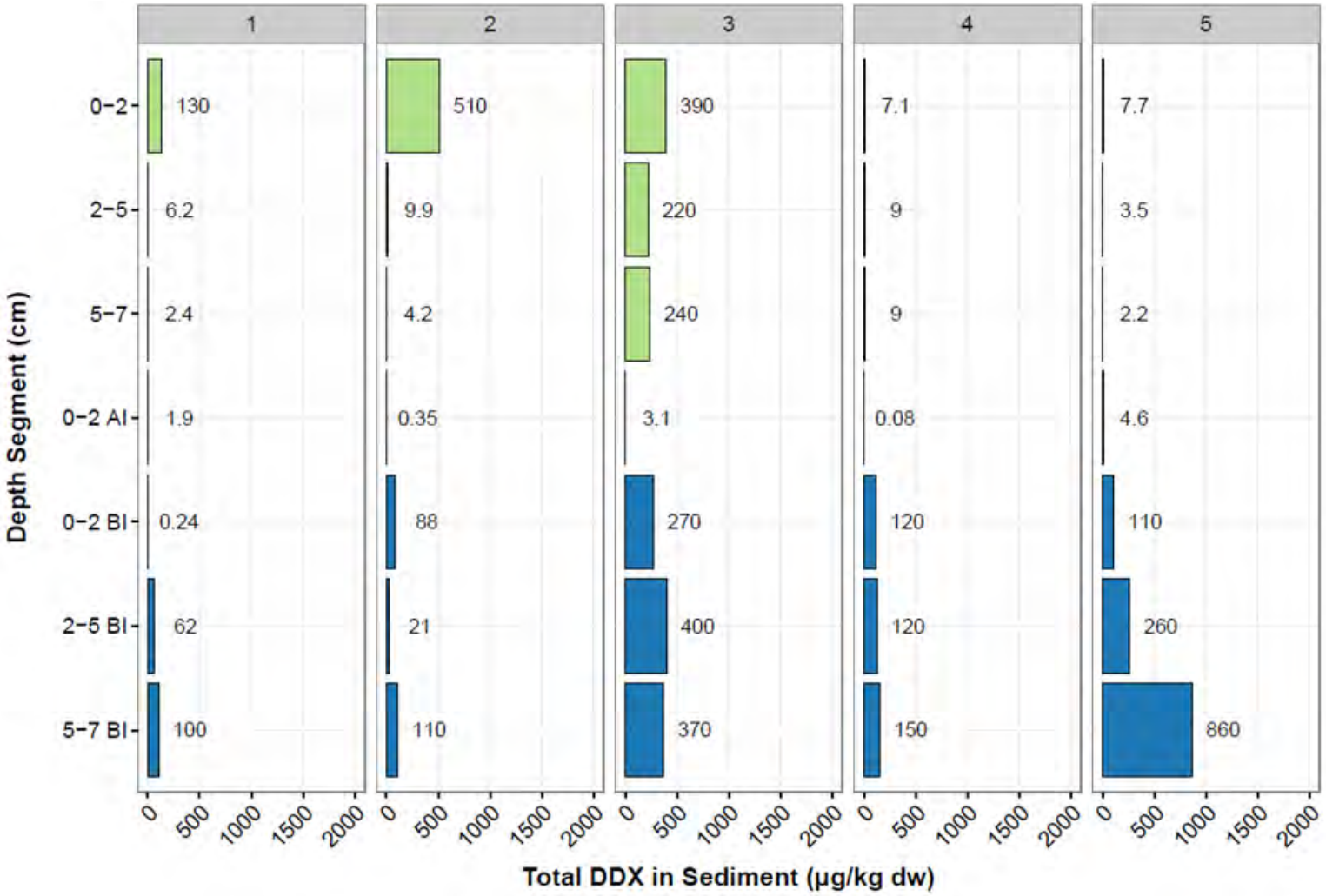


Figure 79. 14-Month station-by-station comparison of total sediment DDX concentrations (µg/kg dw) by depth segment for on-cap locations. Note: Green bars represent samples taken from within cap material, light blue represent the sample 0-2 cm above the cap-native sediment interface and dark blue represent samples below the cap-native sediment interface.

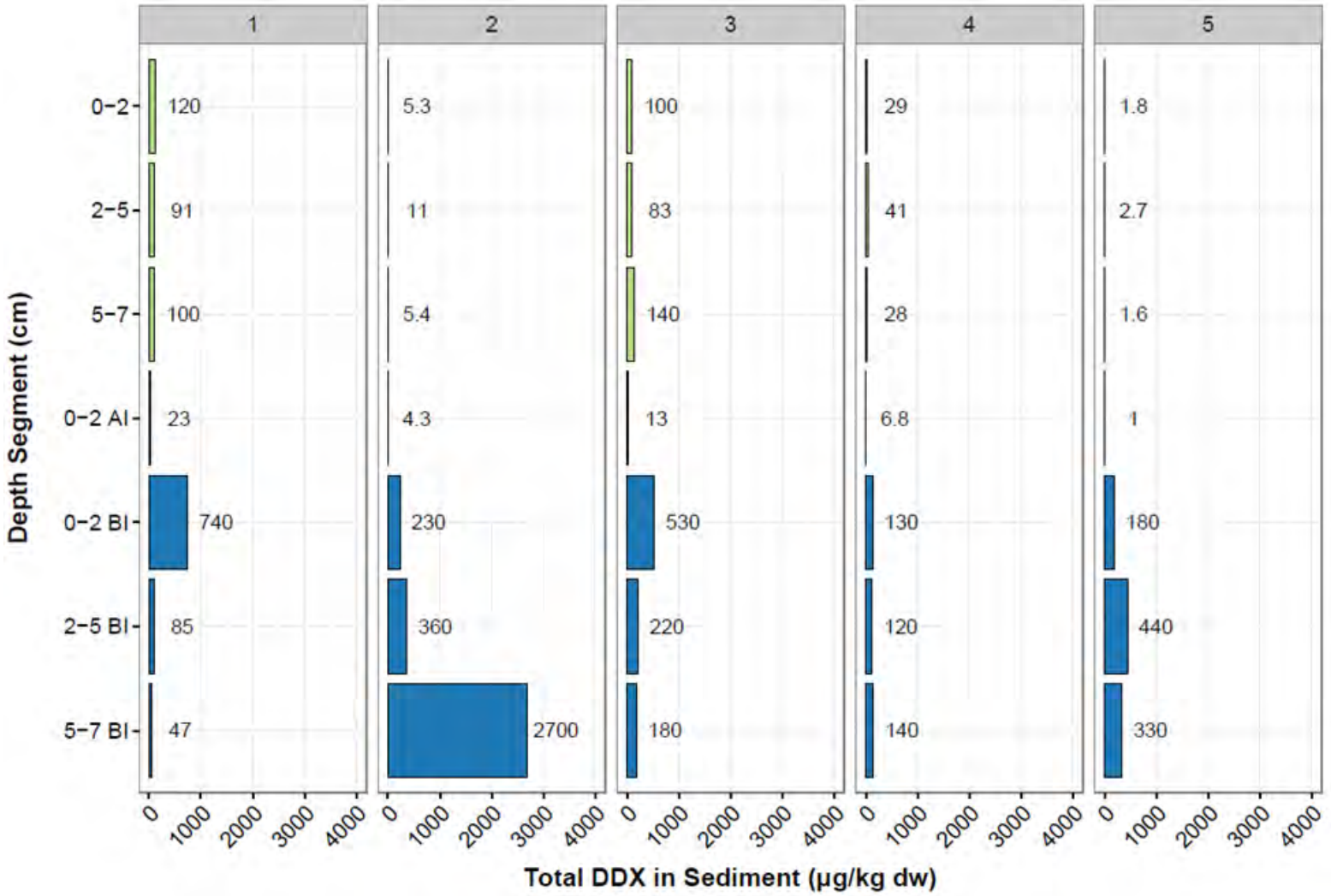


Figure 80. 25-Month station-by-station comparison of total sediment DDX concentrations (µg/kg dw) by depth segment for on-cap locations. Note: Green bars represent samples taken from within cap material, light blue represent the sample 0-2 cm above the cap-native sediment interface and dark blue represent samples below the cap-native sediment interface.

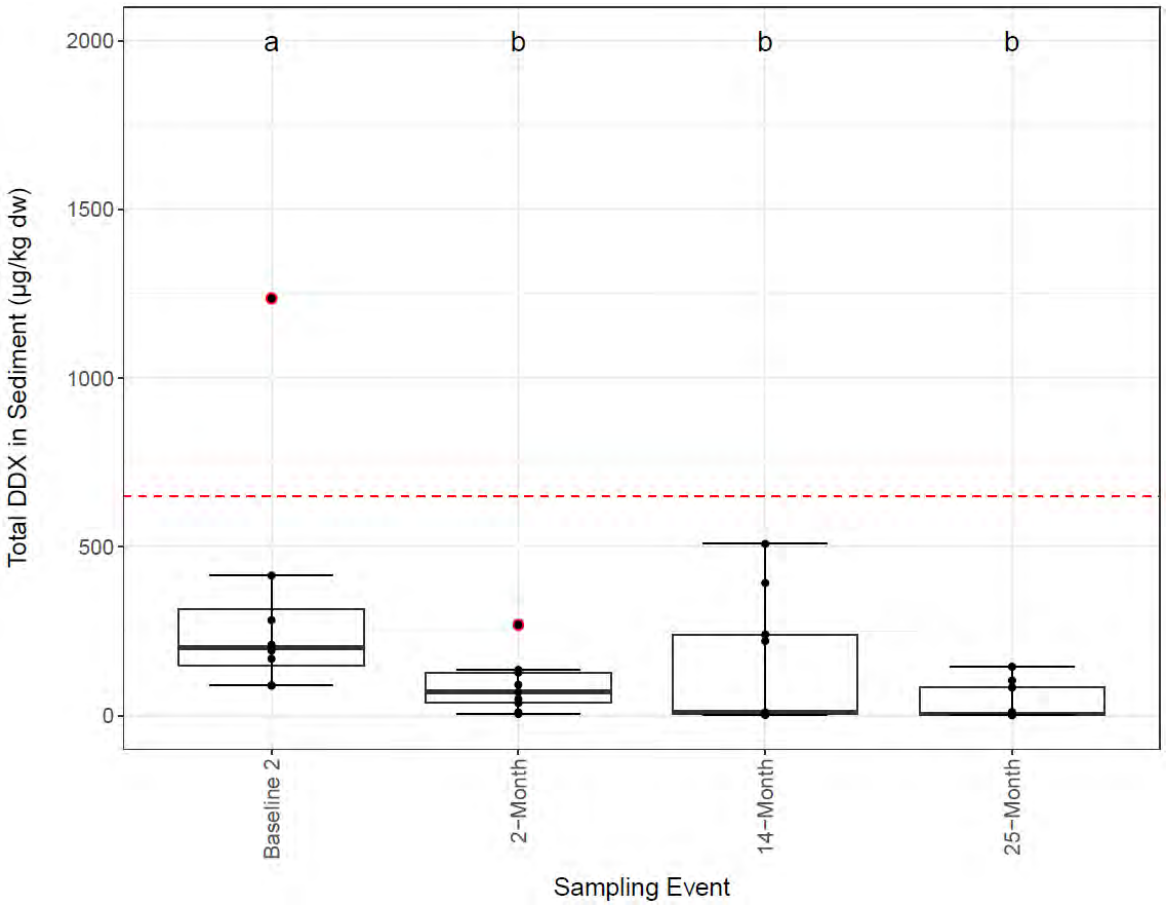


Figure 81. Comparison of Total DDX concentrations in surface sediment (0-2, 2-5, 5-7) for on-cap stations (2, 3 and 5). Significant differences ($p < 0.05$) represented as different letters above boxes. Results are plotted as the median (horizontal bar), IQR (limits of boxes are 25th and 75th percentiles), and error bars extend from the IQR to the lowest value within 1.5 * IQR. Data beyond the end of the whiskers are outliers and plotted as red points (as specified by Tukey). Notes: Red line indicates site specific PRG (650 ppb). Stations 1 and 4 do not have baseline results and were excluded from this graph. An outlier data point at 6,000 µg/kg dw is excluded from the plot for graphical purposes.

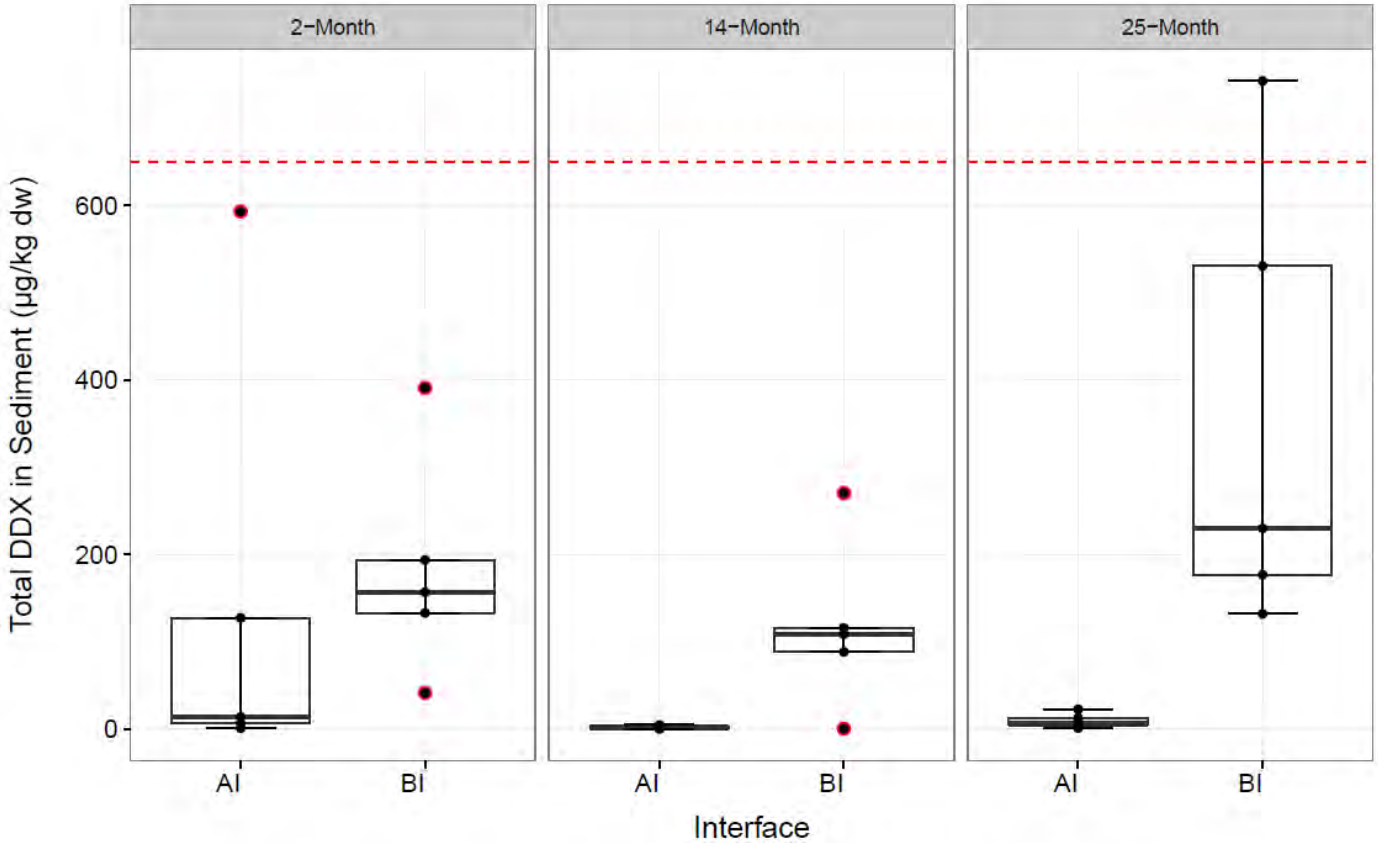


Figure 82. Concentrations of total DDX concentrations above (0-2 cm AI) and below (0-2 cm BI) the cap-native sediment interface by event for the 5 on cap stations. Results are plotted as the median (horizontal bar), IQR (limits of boxes are 25th and 75th percentiles), and error bars extend from the IQR to the lowest value within 1.5 * IQR. Data beyond the end of the whiskers are outliers and plotted as red points (as specified by Tukey). Notes: Red line indicates site specific PRG (650 ppb).

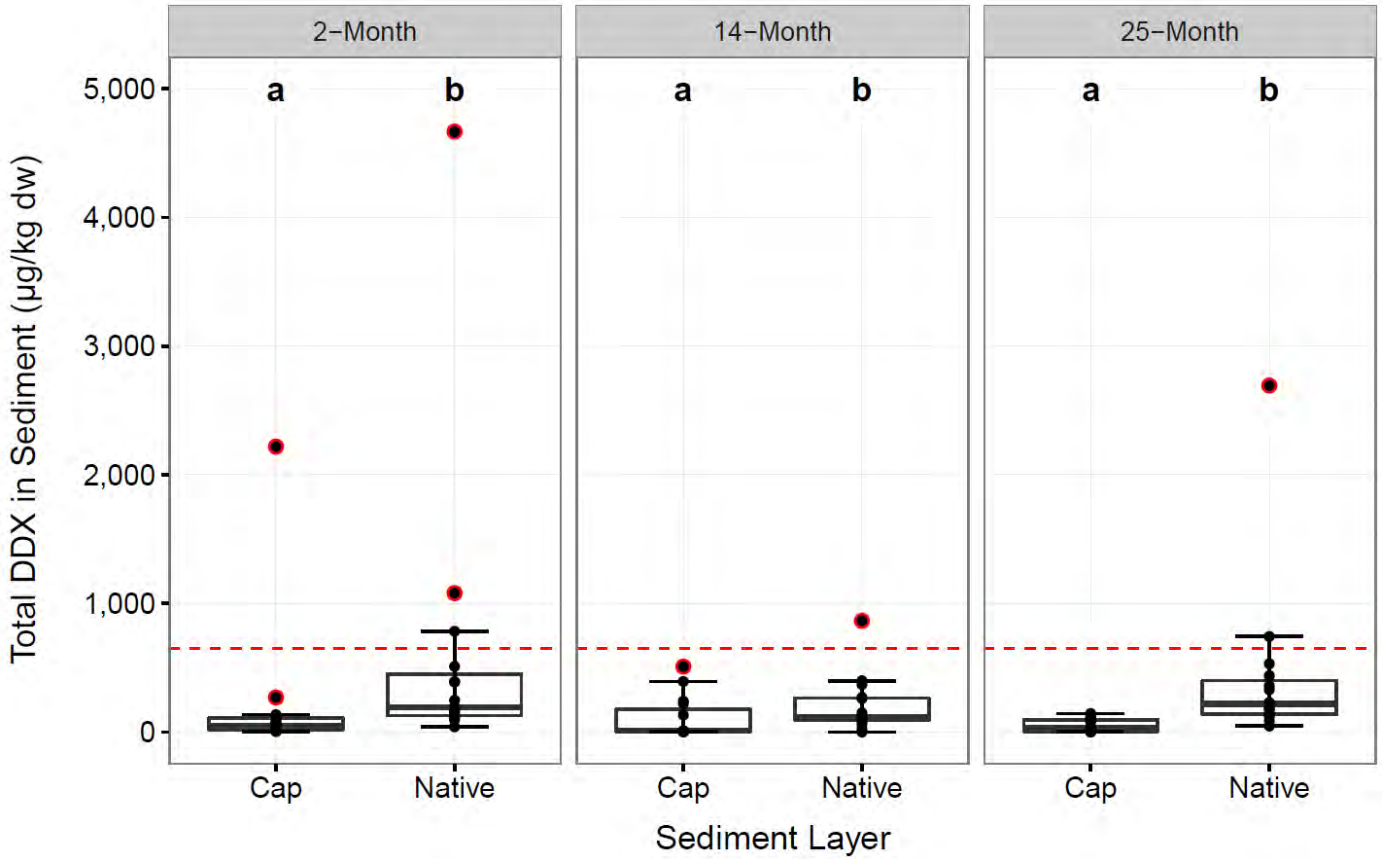


Figure 83. Concentrations of total DDX concentrations in cap sediment (0-2 cm, 2-5 and 5-7 cm below SWI) and native sediment (0-2 cm BI, 2-5 cm BI and 5-7 cm BI) by event for the 5 on cap stations. Significant differences ($p < 0.05$) indicated by different letters above boxes. Results are plotted as the median (horizontal bar), IQR (limits of boxes are 25th and 75th percentiles), and error bars extend from the IQR to the lowest value within 1.5 * IQR. Data beyond the end of the whiskers are outliers and plotted as red points (as specified by Tukey). Notes: Red line indicates site specific PRG (650 ppb).

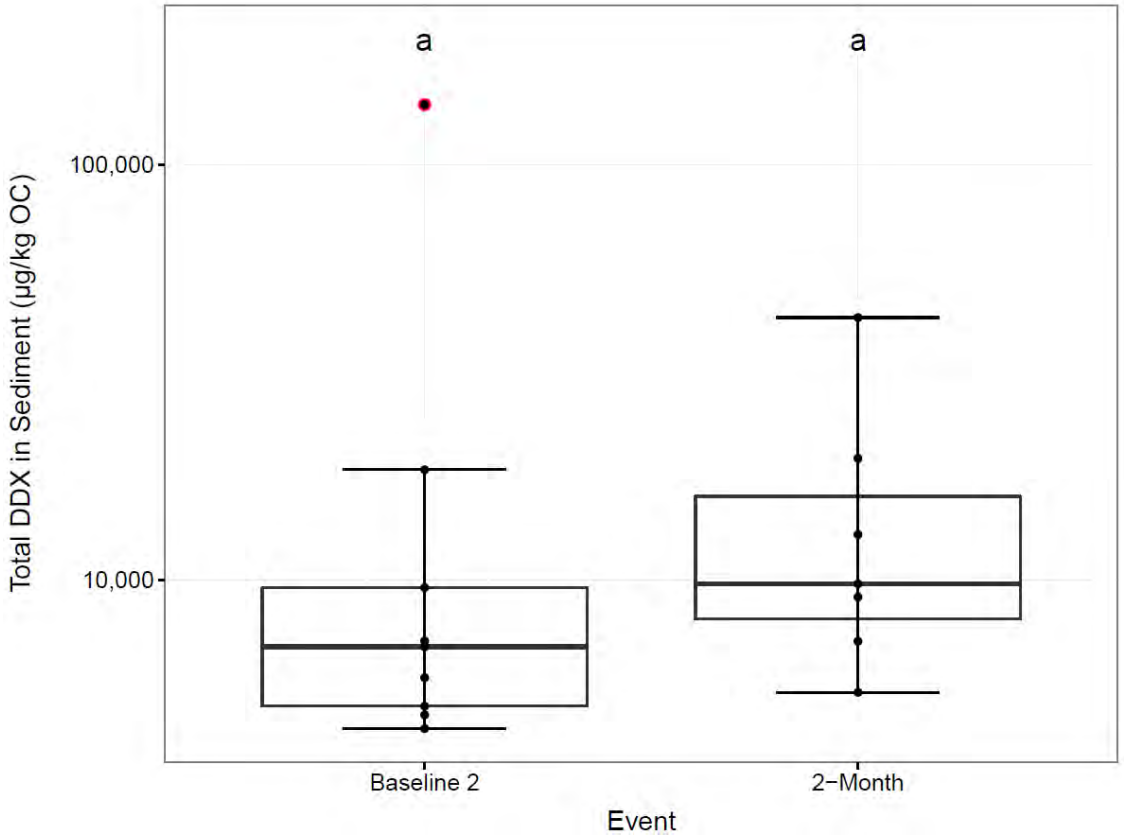


Figure 84. Comparison of organic carbon normalized total DDX (µg/kg OC) concentrations during baseline and 2-month events for stations 2, 3 and 5, representing 0-2, 2-5 and 5-7 cm depth intervals. Significant differences ($p < 0.05$) represented as different letters above boxes. Results are plotted as the median (horizontal bar), IQR (limits of boxes are 25th and 75th percentiles), and error bars extend from the IQR to the lowest value within 1.5 * IQR. Data beyond the end of the whiskers are outliers and plotted as red points (as specified by Tukey).

5.7.6. *In situ* Bioaccumulation

Concentrations of total DDX in *Lumbriculus variegatus* tissue on a wet weight basis are summarized in Table 30. Concentrations of total DDX in *L. variegatus* tissue on a lipid weight basis are summarized in Table 31. Concentrations of total DDX in *Corbicula fluminea* tissue on a wet weight basis are summarized in Table 32. Concentrations of total DDX in *C. fluminea* tissue on a lipid weight basis are summarized in Table 33. Detailed results are provided in Appendix E.

Concentrations of total DDX in *L. variegatus* tissue were not significantly different between baseline 2 and baseline 3 ($p = 0.7$, Figure 85). In baseline 3, the multi-metric station locations and SEA Ring design were more similar to post-placement events; therefore, statistical evaluation has been completed with comparison of the baseline 3 to post-placement events.

Uptake of total DDX in *L. variegatus* tissue was reduced in the 2-, 14- and 25-month post remedy events at the on cap stations by an average of 72%, 67% and 86%, respectively, compared to baseline 3 (lipid weight basis, Table 34). Concentrations in the short- and long-term post-placement events were significantly ($p < 0.05$) lower than baseline 3 (Figure 85). There was no difference between on cap stations during the three post-cap monitoring events ($p > 0.05$). Uptake was also reduced for the off cap station, 32%, 41%, 71% reductions for the 2-, 14-, and 25-month post-placement events compared to baseline 3, respectively. It should be noted that the baseline bioaccumulation levels were already quite low, so while the percent reductions in the off-cap stations are substantial, the levels themselves are generally just remaining in an already low range of values.

Uptake of total DDX in *C. fluminea* tissue was reduced in the 2-, 14- and 25-month post remedy events at the on cap stations by an average of 55%, 25% and 33%, respectively, compared to baseline 3 (lipid weight basis, Table 35). At station 3, a short-term reduction in uptake of 25% was observed in the 2-month event; however, uptake increased in the 14- and 25-month events (74% and 57%, respectively) compared to the baseline 3 event. At the off cap station, the greatest reductions were observed in the short-term (83%), followed by increase in uptake in the 14-month event, then a reduction of 58% in the 25-month event. Concentrations in the 2-month event were significantly less than the baseline 3 ($p < 0.05$), but there were no differences between the baseline, 14-, and 25-Month events ($p > 0.05$, Figure 86). Results from the off-cap stations show variable total DDX tissue concentrations over time, with the lowest concentrations observed in the 2- and 25-month events.

Table 30. Concentrations of Total DDX (µg/kg ww) in *Lumbriculus variegatus* tissue.

Monitoring Station	Location	Baseline 2 (2009)	Baseline 3 (2012)	2-Month	14-Month	25-Month
1	On Cap	--	78	23	29	54
2	On Cap	61	31	27	19	--
3	On Cap	186	71	--	47	37
4	On Cap	--	31	20	34	14
5	On Cap	80	32	121	38	--
6	Off Cap	15	12	26	16	10
7	Off Cap	--	--	19	9	9
Time 0 Average[b]	NA	--	28 ± 20	1.2 ± 0.5	< 0.2	4 ± 0.3

a. "--" indicates SEA Ring not deployed or no sample recovery
b. Represents an average (± standard deviation) of 3 to 6 separate subsamples randomly selected from the test batch and were not field deployed.
c. Non-detects reported as < the detection limit

Table 31. Concentrations of Total DDX (µg/kg lipid) in *Lumbriculus variegatus* tissue.

Monitoring Station	Location	Baseline 2 (2009)	Baseline 3 (2012)	2-Month	14-Month	25-Month
1	On Cap	--	22,168	791	1,690	2,541
2	On Cap	6,534	3,050	978	1,357	--
3	On Cap	9,076	7,858	--	3,225	1,399
4	On Cap	--	3,893	871	1,646	450
5	On Cap	4,965	6,413	3,553	1,904	--
6	Off Cap	1,385	1,460	996	865	429
7	Off Cap	--	--	819	955	449
Time 0 Average[b]	NA	--	2,111 ± 1,615	27 ± 16	< 5.6	113 ± 25

a. "--" indicates SEA Ring not deployed or no sample recovery
b. Represents an average (± standard deviation) of 3 to 6 separate subsamples randomly selected from the test batch and were not field deployed.
c. Non-detects reported as < the detection limit

Table 32. Concentrations of Total DDX (µg/kg ww) in *Corbicula fluminea* tissue.

Monitoring Station	Location	Baseline 2 (2009)	Baseline 3 (2012)	2-Month	14-Month	25-Month
1	On Cap	--	21	19	60	41
2	On Cap	--	30	19	16	20
3	On Cap	--	13	15	66	35
4	On Cap	--	20	15	20	19
5	On Cap	--	31	16	59	26
6	Off Cap	--	14	3	32	9
7	Off Cap	--	--	6	26	12
Time 0 Average[b]	NA	--	16 ± 20	1.3 ± 0.3	1.8 ± 0.3	< 0.2

a. "--" indicates SEA Ring not deployed or no sample recovery
b. Represents an average (± standard deviation) of 3 to 6 separate subsamples randomly selected from the test batch and were not field deployed.
c. Non-detects reported as < the detection limit

Table 33. Concentrations of Total DDX (µg/kg lipid) in *Corbicula fluminea* tissue.

Monitoring Station	Location	Baseline 2 (2009)	Baseline 3 (2012)	2-Month	14-Month	25-Month
1	On Cap	--	2,473	1,241	2,366	1,795
2	On Cap	--	3,035	1,296	480	924
3	On Cap	--	1,332	993	2,313	2,085
4	On Cap	--	2,207	600	761	895
5	On Cap	--	3,480	1,002	2,010	1,156
6	Off Cap	--	1,260	215	1,357	529
7	Off Cap	--	--	439	970	701
Time 0 Average[b]	NA	--	3,353 ± 2,917	75 ± 9	191 ± 314	< 20

a. "--" indicates SEA Ring not deployed or no sample recovery
b. Represents an average (± standard deviation) of 3 to 6 separate subsamples randomly selected from the test batch and were not field deployed.
c. Non-detects reported as < the detection limit

Table 34. Percent change in concentrations of Total DDX in *Lumbriculus variegatus* tissue (lipid normalized).

Monitoring Station [a]	Location	Baseline 2 - Baseline 3 Reduction	Percent Change from Baseline 3		
			2-Month	14-Month	25-Month
1	On Cap	--	-96%	-92%	-89%
2	On Cap	-53%	-68%	-56%	--
3	On Cap	-13%	--	-59%	-82%
4	On Cap	--	-78%	-58%	-88%
5	On Cap	29%	-45%	-70%	--
6	Off Cap	5%	-32%	-41%	-71%
Average Reduction On-Cap		-13%	-72%	-67%	-86%

a. Baseline 2 sampling event did not include stations 1, 4 and 7. Baseline 3 sampling event did not include station 7.

b. "--" indicates SEA Ring not deployed or no sample recovery

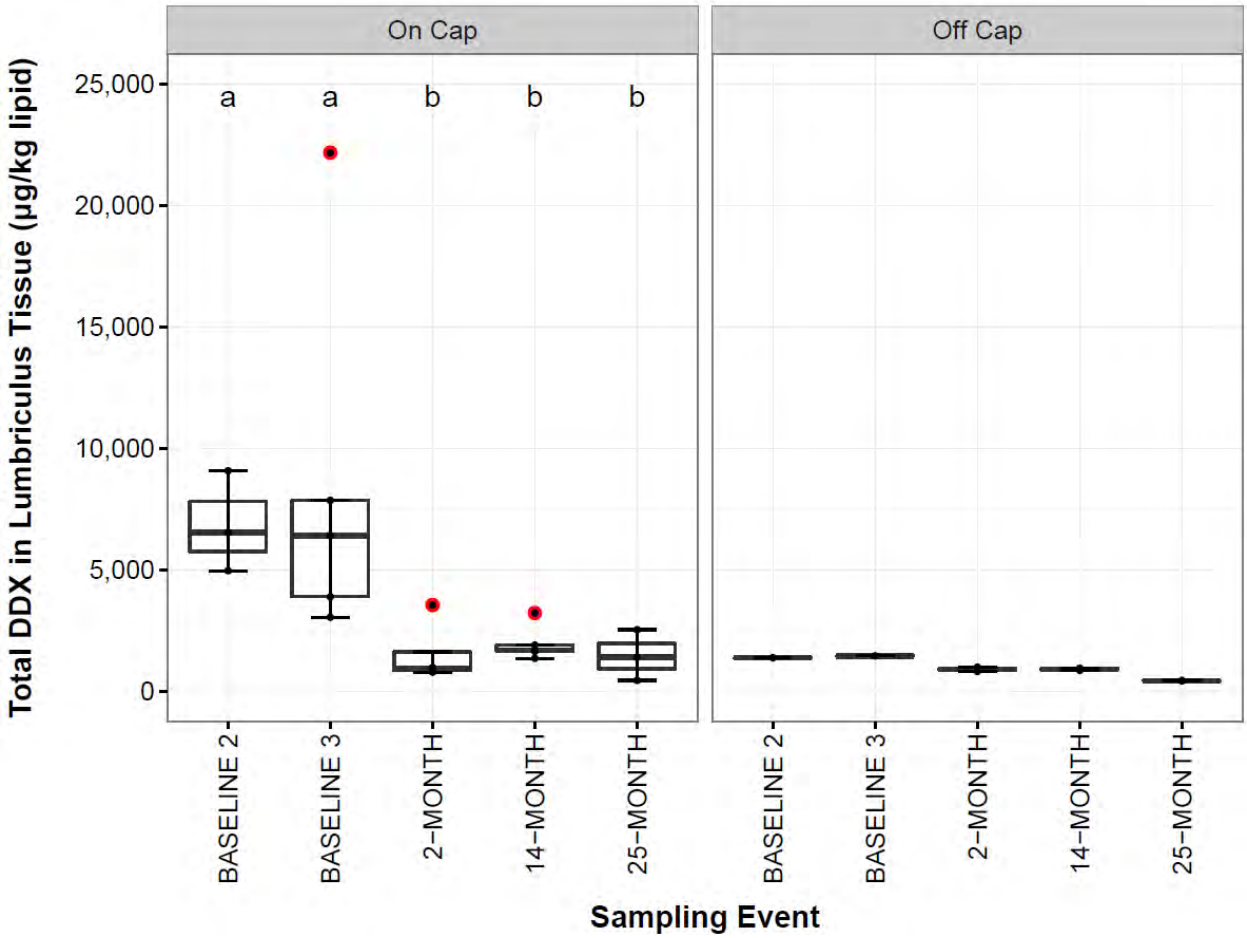


Figure 85. Concentration of total DDX in *Lumbriculus variegatus* tissue (µg/kg lipid) for all available on- and off cap stations. Significant differences ($p < 0.05$) represented as different letters above boxes. Results are plotted as the median (horizontal bar), IQR (limits of boxes are 25th and 75th percentiles), and error bars extend from the IQR to the lowest value within 1.5 * IQR. Data beyond the end of the whiskers are outliers and plotted as red points (as specified by Tukey).

Table 35. Percent change in concentrations of Total DDX in *Corbicula fluminea* tissue (lipid normalized).

Monitoring Station [a]	Location	Baseline 2 - Baseline 3 Reduction	Percent Change from Baseline 3		
			2-Month	14-Month	25-Month
1	On Cap	--	-50%	-4%	-27%
2	On Cap	--	-57%	-84%	-70%
3	On Cap	--	-25%	+74%	+57%
4	On Cap	--	-73%	-66%	-59%
5	On Cap	--	-71%	-42%	-67%
6	Off Cap	--	-83%	+8%	-58%
Average Reduction On Cap		--	-55%	-25%	-33%

a. Baseline 2 sampling event did not include *Corbicula fluminea.* Baseline 3 sampling event did not include station 7.

b. "--" indicates SEA Ring not deployed or no sample recovery

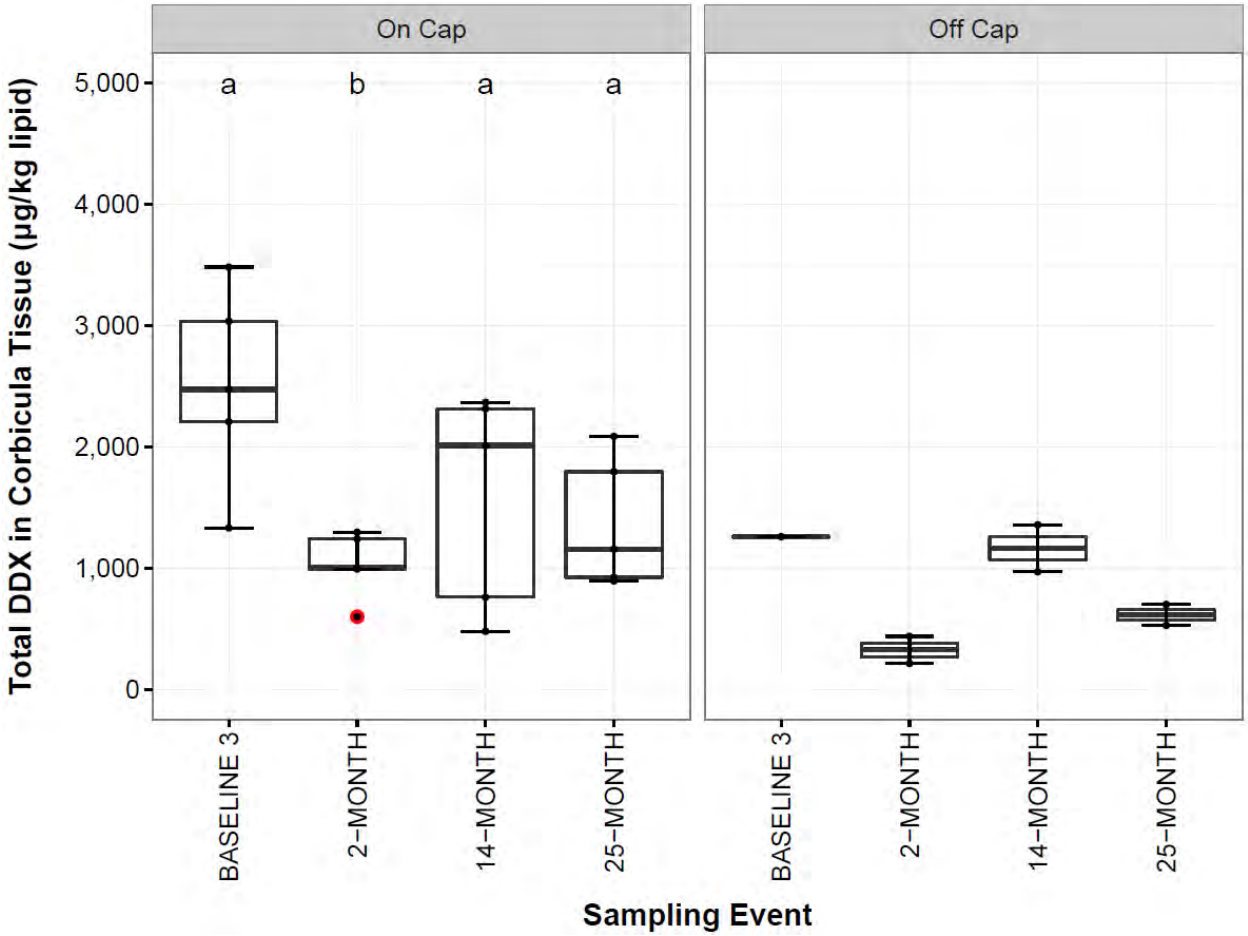


Figure 86. Concentrations of total DDX in *Corbicula fluminea* tissue (µg/kg lipid) for all available on- and off cap stations. Significant differences ($p < 0.05$) represented as different letters above boxes. Results are plotted as the median (horizontal bar), IQR (limits of boxes are 25th and 75th percentiles), and error bars extend from the IQR to the lowest value within 1.5 * IQR. Data beyond the end of the whiskers are outliers and plotted as red points (as specified by Tukey).

5.7.7. Native Pelagic Invertebrate Tissue

Due to issues with sample collection, pelagic invertebrates were sampled in Baseline 2 only and not in the post-placement monitoring events. Concentrations of total DDX in pelagic invertebrate tissue were greater in the proposed on-cap stations (1,482 ± 1,074 µg/kg ww) compared to the off-cap stations (523 ± 46 µg/kg ww, Table 36). This observation is consistent with sediment and bioaccumulation tissue observations.

Table 36. Concentrations of Total DDX in pelagic invertebrate tissues on a wet weight (µg/kg ww) and lipid weight (µg/kg lipid) basis.

Monitoring Station	Baseline 2 (2009)	
	Wet weight (µg/kg ww)	Lipid Weight (µg/kg ww)
2	9	745
3	11	988
5	25	2,714
6	5	490
7	5	556

5.7.8. Porewater (*Ex Situ* Passive Sampling)

Concentrations of total DDX in surface porewater for on cap sediments were on average 7.1 ng/L in the baseline 2 event, decreased in the short-term monitoring (2.9 ng/L) and remained below baseline concentrations in the first and second annual long-term post-placement events (3.7 ng/L in the 14-month event and 3.0 ng/L in the 25-month, average top 7 cm below SWI, Table 37). Results from all sample intervals and events are presented in Figure 87.

Significant reduction in Total DDX concentrations in the upper 7 cm were observed between the baseline event, the 2-month ($p < 0.001$, 61% reduction), and the 25-Month ($p < 0.01$, 48% reduction) events (Table 38, Figure 88). The 14-Month porewater DDX was reduced compared to baseline, but the difference was only marginally significant ($p=0.1$, 30% reduction, Table 38, Figure 88). This analysis indicated that station 5 had significantly lower Total DDX porewater concentrations ($p < 0.01$) during all the events compared to both stations 2 and 3. Results of this analysis indicate that cap placement resulted in slight but significant reductions in porewater total DDX concentrations in surface sediments (0-7 cm), and reductions were sustained through 25-months.

A comparison was made between the porewater directly above (0-2 AI) and below (0-2 BI) the cap-native sediment interface utilizing a 2-way ANOVA, comparing: 1) interface (0-2 Above Interface and 0-2 Below Interface) and 2) Event (2-, 14 and 25-Month). Prior to analysis, a 2-Month 0-2 AI sample from station 4 was removed from the analysis because of an elevated detection limit (31 ng/L) caused by low SPME fiber recovery. The analysis indicated that there were no differences in porewater concentrations between samples collected above- and below the cap-native sediment interface and there were also no differences in porewater concentrations between the 3 events (both $p > 0.05$, Figure 89).

This analysis contrasted that of sediment, which showed significantly lower DDX concentrations above compared to below the interface, indicating that porewater has mixed across this interface. Median concentrations in above interface samples have remained relativity consistent through the three events, typically < 5 ng/L, but overall there is a large degree of variability among all samples.

Table 37. Mean[a] (± standard deviation, minimum – maximum) detected total DDX concentrations (ng/L) in sediment porewater collected by *ex situ* passive samplers from various events and depth intervals on and off the cap footprint.

Depth Interval (cm)	Location	Baseline 2	2-Month	14-Month	25-Month
0-2	On Cap	5.3 ± 2.2 (3 - 7.4)	4.8 ± 6.2 (0.1 - 15.4)	2.9 ± 2.2 (1.2 - 6.2)	2.1 ± 1.2 (1 - 3.5)
2-5	On Cap	9 ± 7.1 (2.6 - 16.6)	2.6 ± 2.3 (0.7 - 5.1)	4.4 ± 2.4 (1.6 - 6.2)	2.5 ± 1.3 (1.2 - 4.5)
5-7	On Cap	6.8 ± 3.9 (3 - 10.8)	0.9 ± 0.3 (0.6 - 1.3)	3.8 ± 2.2 (2 - 6.9)	4.3 ± 1 (3 - 5.6)
0-2 AI[b]	On Cap	--[c]	3.5 ± 2.7 (1.2 - 6.5)	4.5 ± 3.2 (1.4 - 8.1)	15.2 ± 25.9 (0.8 - 61.3)
0-2 BI[d]	On Cap	5.3 ± 2.2 (3 - 7.4)[e]	3.7 ± 5 (0.6 - 11.1)	7.6 ± 7.3 (1.5 - 19.8)	27.2 ± 45.3 (1.9 - 107.8)
2-5 BI	On Cap	9 ± 7.1 (2.6 - 16.6)	3.3 ± 5 (0.8 - 10.8)	8.5 ± 12.9 (0.1 - 31.3)	29.4 ± 51.5 (1.1 - 121)
5-7 BI	On Cap	6.8 ± 3.9 (3 - 10.8)	2 ± 0.5 (1.2 - 2.5)	8.3 ± 5.9 (2.2 - 15.4)	4 ± 1.8 (2 - 6)
0-10	On Cap	4.8 ± 2.2 (3.5 - 7.3)	--	--	--
0-10	Off Cap	<1.5[f]	0.8[g]	0.1 ± 0.1 (0.1 - 0.2)	0.1[g]

a. Sample size: 1 for off cap baseline, 2 for off cap post-TLC events, 3 for on cap baseline, 5 on cap post-TLC events
b. AI collected from 0 – 2 cm above cap-native sediment interface
c. Interval did not exist or not collected
d. BI collected from 0 – 2, 2 – 5 and 5 – 7 cm below cap-native sediment interface
e. Baseline BI sample concentrations are repeated from standard intervals (0 – 2, 2 – 5, and 5 – 7) for comparison purposes
f. Both off cap samples were ND, reported as < detection limit.
g. Station 7 sample was ND (<0.4), thus only detected value reported.

Table 38. Average percent reduction in surface sediment porewater Total DDX concentrations compared to baseline for five stations with baseline monitoring data.

Station	Location	Interval	Percent Change from Baseline			
			2-Month	14-Month	25-Month	Overall Reduction by Station
2	On Cap	0-2	-36%[a]	+12%	-73%	-32%
2	On Cap	2-5	--[b]	-64%	-90%	-77%
2	On Cap	5-7	-87%	-36%	-48%	-57%
3	On Cap	0-2	-38%	-42%	-52%	-44%
3	On Cap	2-5	-35%	-21%	-43%	-33%
3	On Cap	5-7	-90%	-18%	-28%	-46%
5	On Cap	0-2	-85%	-56%	-68%	-69%
5	On Cap	2-5	-72%	-20%	-53%	-48%
5	On Cap	5-7	-47%	-22%	+21%	-16%
6	Off Cap	0-10	+11%	-90%	-79%	-53%
7	Off Cap	0-10	-71%	-78%	-75%	-75%
Overall Reduction by Event[c]			-61%	-30%	-48%	

a. Negative numbers indicate a reduction, positive numbers are increases.
b. No sample recovered during 2-month event.
c. Overall reduction by event includes on cap stations only
d. When concentration was below the detection limit (ND), it was assumed to be equal to ½ of the detection limit (DL).
e. Concentrations at Station 7 were ND for the baseline, 2- and 25-Month events, and was detected on the 14-Month event. Therefore the apparent decline reflects reductions in DLs from the baseline event.
f. Concentrations at Station 6 were ND for Baseline.

Table 39. Average percent reduction in surface sediment porewater Total DDX concentrations (average of 0–2, 2–5 and 5–7 cm below SWI) compared to native sediment underlying the cap (average of 0 – 2 BI, 2 – 5 BI and 5 – 7 BI cm below cap-native sediment interface).

Station	Percent Change from Underlying Native Sediment		
	2-Month	14-Month	25-Month
1	+598%	-75%	-92%
2	+63%	+62%	-74%
3	-23%	-71%	-89%
4	-31%	36%	+7%
5	-81%	-51%	-49%
Overall Reduction by Event	+105%	-20%	-59%

a. Negative numbers indicate a reduction, positive numbers are increases.

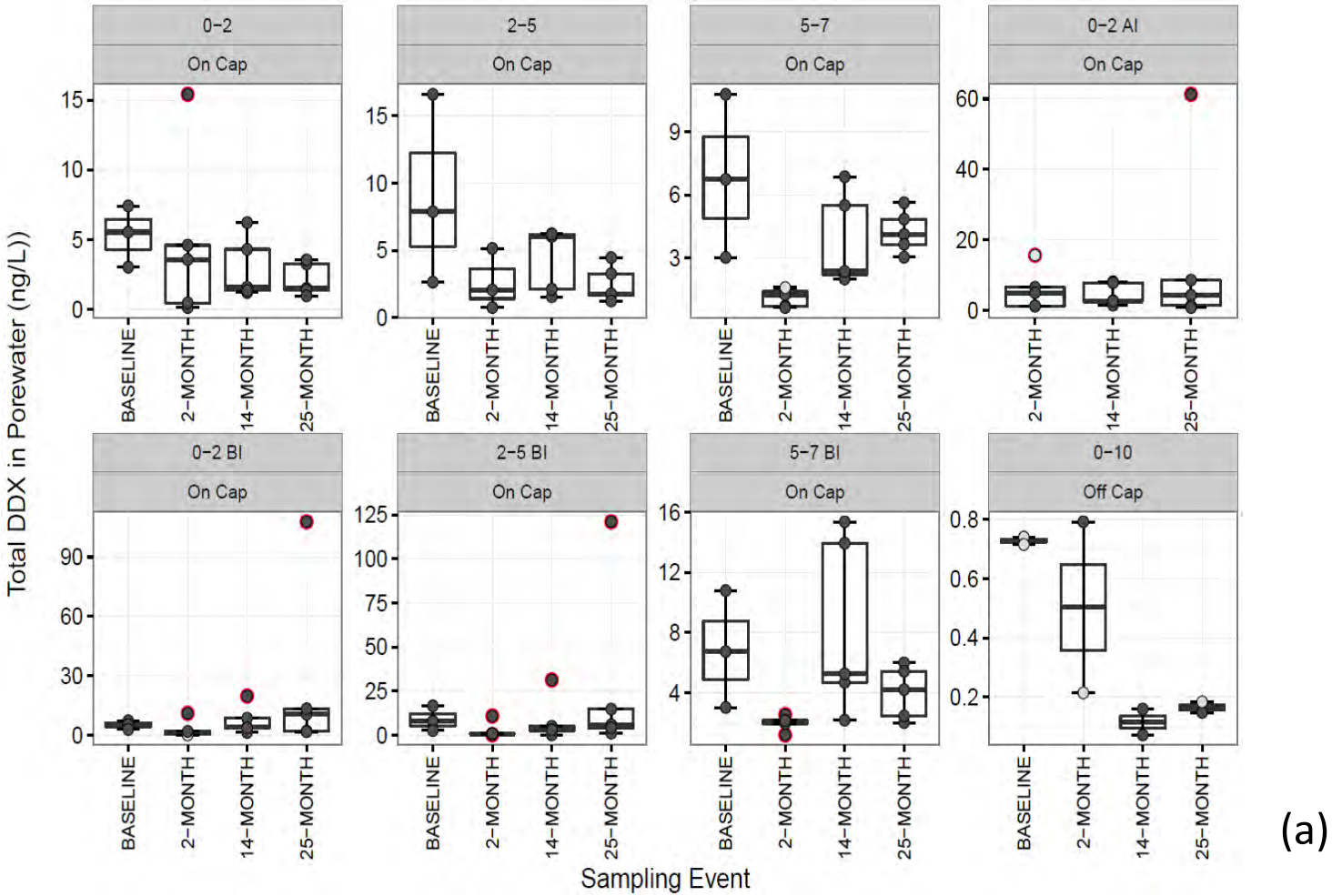
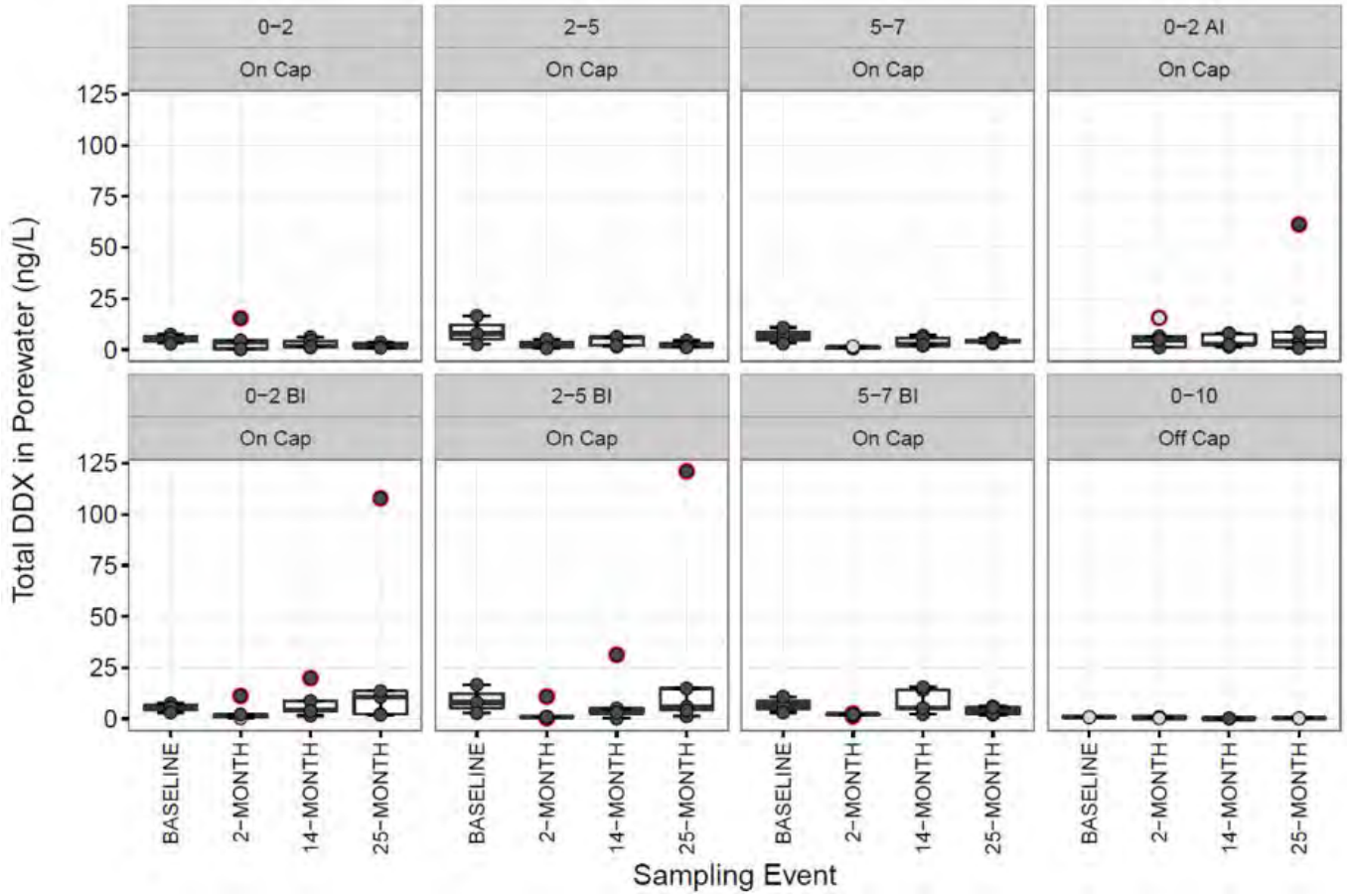


Figure 87. Site-wide comparison of Total DDX in porewater measured *ex situ*, separated by sample interval. Results are plotted as the median (horizontal bar), IQR (limits of boxes are 25th and 75th percentiles), and error bars extend from the IQR to the lowest value within 1.5 * IQR. Data beyond the end of the whiskers are outliers and points are outlined in red (as specified by Tukey). Note different scales on each graph pane. ND results are represented by grey points. For on-cap stations, n = 3 for Baseline 2 and n=5 for post-cap monitoring. Note, (a) has differing scales and (b) has same scale.


0−2
On Cap
2−5
On Cap
5−7
On Cap
0−2 AI
On Cap
0−2 BI
On Cap
2−5 BI
On Cap
5−7 BI
On Cap
0−10
Off Cap
Total DDX in Porewater (ng/L)
125
100
75
50
25
0
BASELINE
2−MONTH
14−MONTH
25−MONTH
Sampling Event

(b)

Figure 87b.

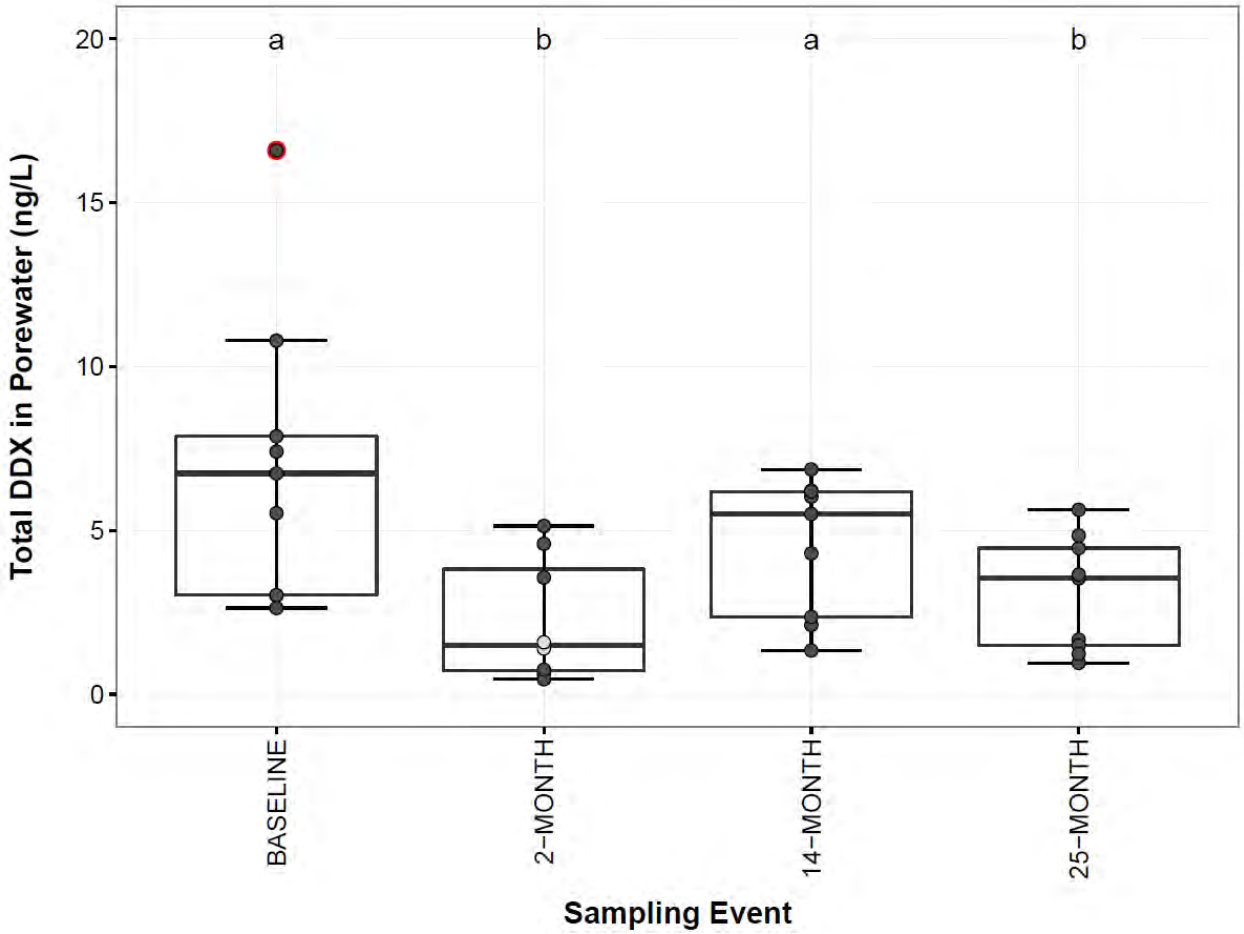


Figure 88. Comparison of Total DDX concentrations in surface porewater (0-2, 2-5, 5-7) for on-cap stations (2, 3 and 5). Significant differences ($p < 0.05$) represented as different letters above boxes. Results are plotted as the median (horizontal bar), IQR (limits of boxes are 25th and 75th percentiles), and error bars extend from the IQR to the lowest value within 1.5 * IQR. Data beyond the end of the whiskers are outliers and plotted with a red outline (as specified by Tukey). Notes: Stations 1 and 4 do not have baseline results and were excluded from this graph. Two samples were not detected during the 2-month event and were plotted as grey points.

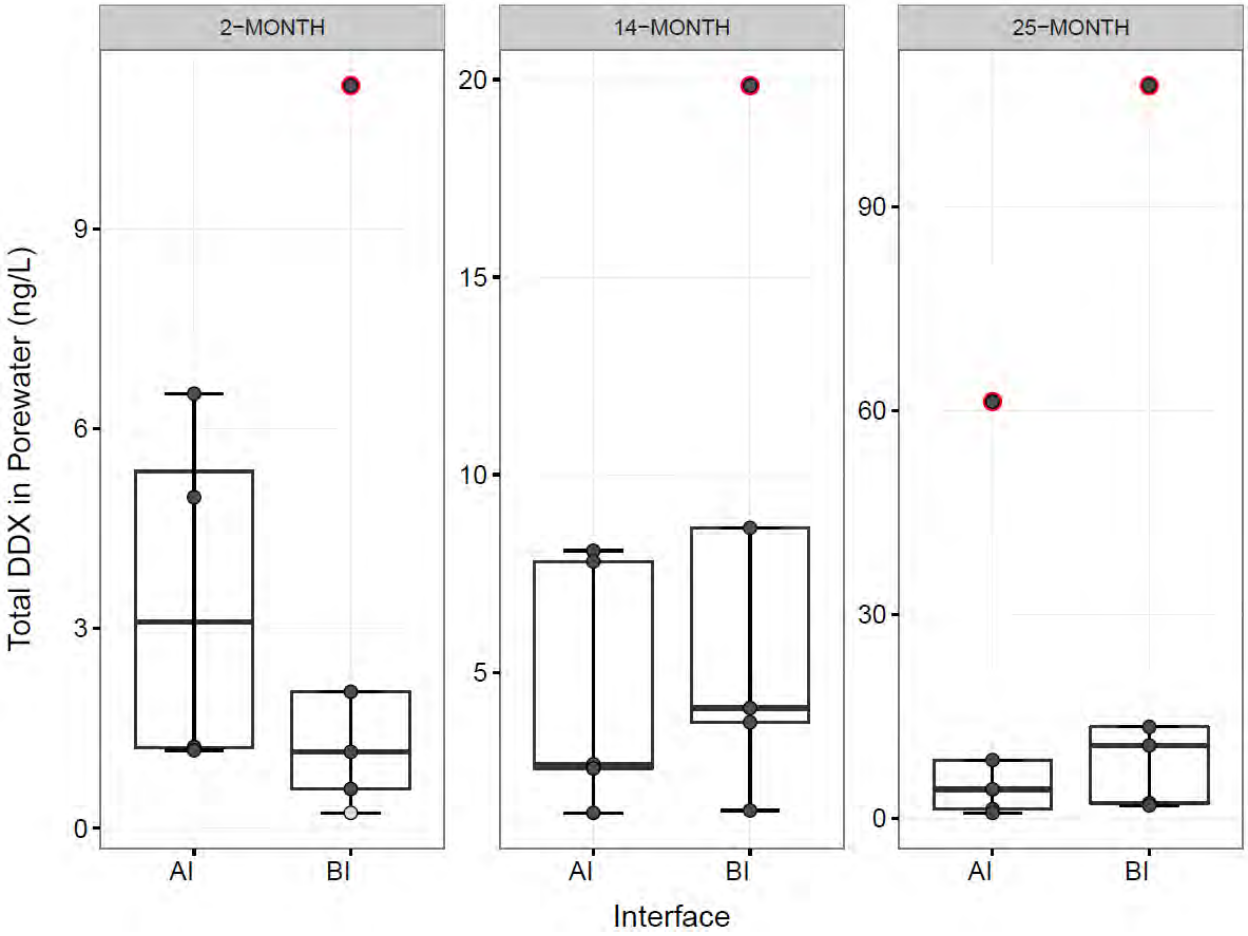


Figure 89. Comparison of Total DDX in Porewater measured *ex situ* above (AI) and below (BI) the cap-native sediment interface by event for the 5 on cap stations. Results are plotted as the median (horizontal bar), IQR (limits of boxes are 25th and 75th percentiles), and error bars extend from the IQR to the lowest value within 1.5 * IQR. Data beyond the end of the whiskers are outliers and plotted as red points (as specified by Tukey). Notes: Different scales on the three graph panes to allow reader to see patterns between events. ND samples were plotted as grey points.

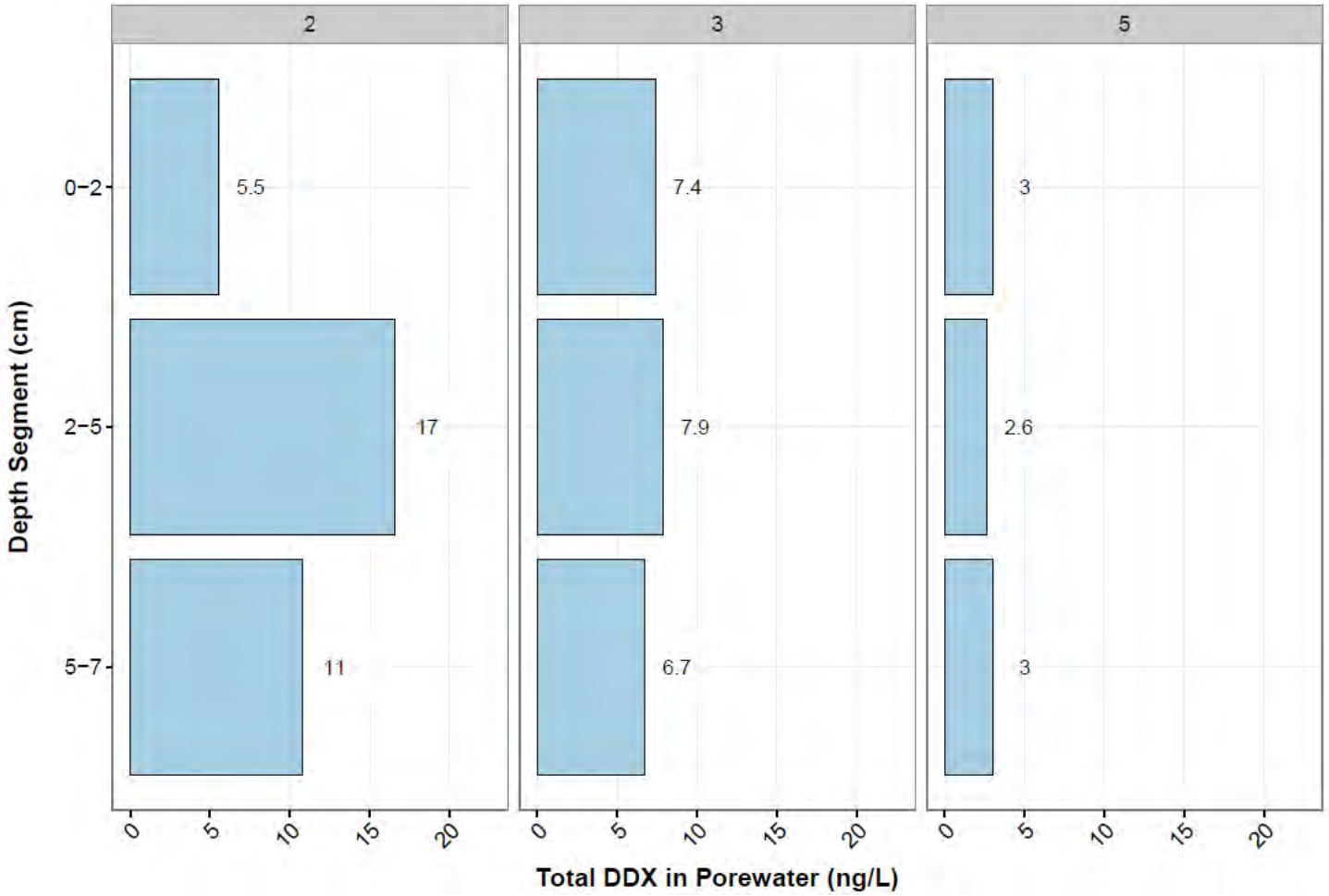


Figure 90. Baseline event station-by-station comparison of Total Porewater DDX concentrations of on-cap sediment. Note: ND are not detected samples, represented as ½ the detection limit. Green bars represent samples taken from within cap material, light blue represent the sample 0-2 cm above the cap-native sediment interface and dark blue represent samples below the cap-native sediment interface.

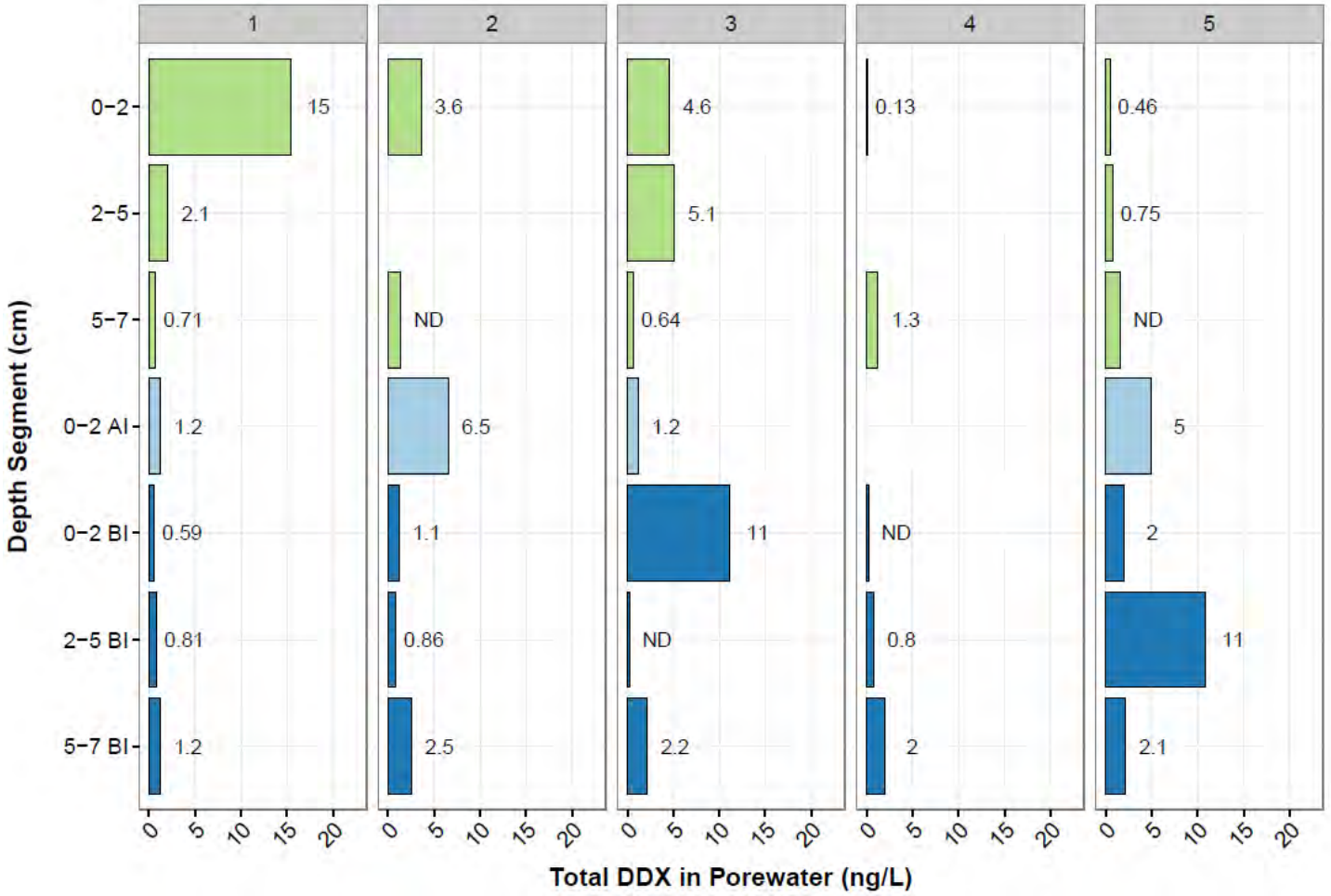


Figure 91. 2-Month event station-by-station comparison of Total Porewater DDX concentrations of on-cap sediment. Note: ND are not detected samples, represented as ½ the detection limit. Green bars represent samples taken from within cap material, light blue represent the sample 0-2 cm above the cap-native sediment interface and dark blue represent samples below the cap-native sediment interface.

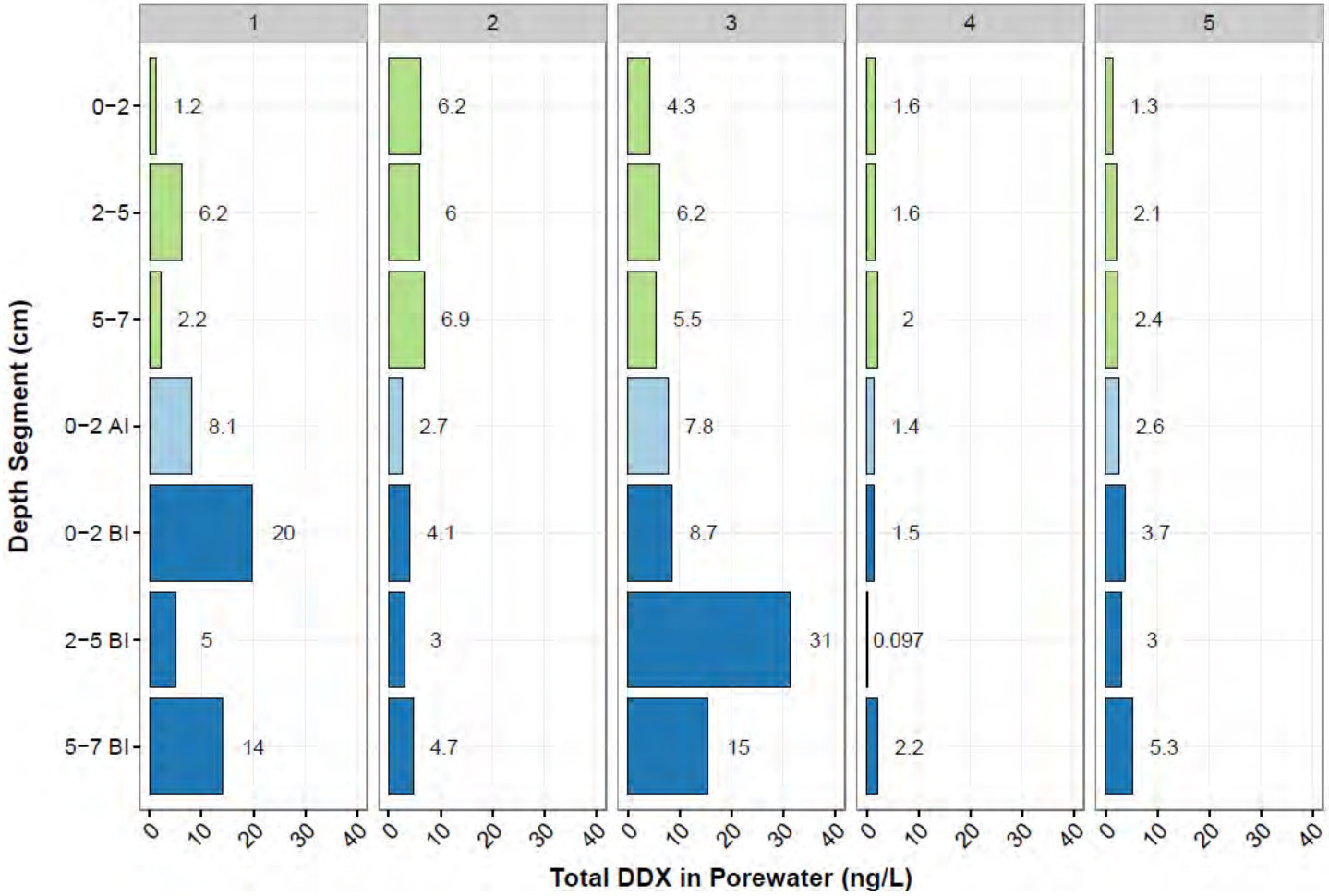


Figure 92. 14-Month event station-by-station comparison of Total Porewater DDX concentrations of on-cap sediment. Note: ND are not detected samples, represented as ½ the detection limit. Green bars represent samples taken from within cap material, light blue represent the sample 0-2 cm above the cap-native sediment interface and dark blue represent samples below the cap-native sediment interface.

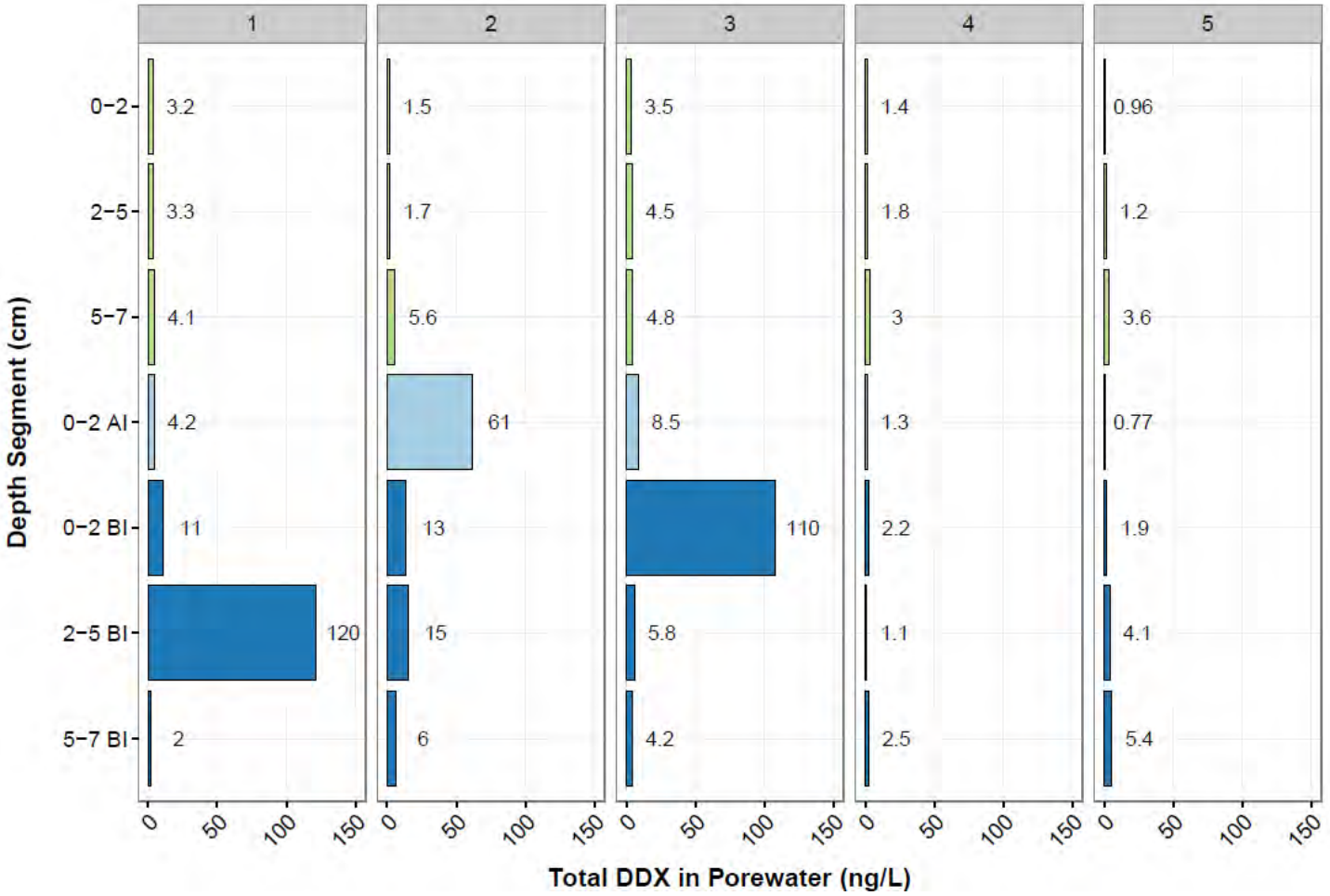


Figure 93. 25-Month event station-by-station comparison of Total Porewater DDX concentrations of on-cap sediment. Note: ND are not detected samples, represented as ½ the detection limit. Green bars represent samples taken from within cap material, light blue represent the sample 0-2 cm above the cap-native sediment interface and dark blue represent samples below the cap-native sediment interface.

5.7.9. Sediment Profile Imagery

5.7.9.1.2009 Baseline Event

Sediments at most of the stations in the north-northeast half of the site and closer to shore were primarily silty fine to very fine sand; as one moved away from land and into the southwest quadrant of the sampling area, the river bed graded into softer silt-clay sediments. Some of the nearshore stations, e.g., Station 357, 359, 372, showed evidence of distinct depositional intervals that were most likely due to land runoff following heavy rainfall (Figure 94). Surface boundary roughness ranged from 0.6 to 4.2 cm with an overall site average of 1.7 cm, principally due to surface irregularities from river currents or wind energy that was transferred to the sediment bed. Small-scale topographic roughness measured in the sediment bed appeared to be primarily due to physical forcing factors and not from infaunal burrowing or feeding activities.

The average station camera prism penetration depth ranged from 0 (no penetration) to 21.6 cm (overpenetration), with an overall site average penetration depth of 12.8 cm. The variation in prism penetration depth was inferred to be primarily an indication of sediment grain-size major mode; at those locations with a notable percentage (>20%) of particles in the sand sized range (0.125 mm or larger), prism penetration ranged between 2-15 cm (Figure 95). In the southwest quadrant of the site where methanogenic silt-clay sediments with a high water content were found, compromised images were collected at 12 stations where the camera prism over-penetrated the bottom (Figure 96).

The distribution of mean apparent RPD depths ranged from 0 to 3.7 cm, with an overall site average aRPD depth of 1.6 cm. The shallowest aRPD depths were found in a cluster of stations in the middle of the sampling area and extending to the southwest closest to shore; aRPD depths in the northeast section of the site (in the sandier, less-organically loaded areas) were generally higher. Subsurface methane was quite common throughout the area and found at 40 of the 51 stations sampled; in addition to the sedimentary organic carbon, the other major source of organic input to the sediments was the high inventory of macrophytes. Two main types of aquatic vegetation were evident in the profile images, both a flat bladed grass and a branched milfoil (it appears to be the invasive Eurasian milfoil Myriophillum; Figure 97). Submerged aquatic vegetation (SAV) was found at virtually every station sampled.

The freshwater successional model developed for lake bottoms was not a particularly useful paradigm for characterizing infauna in rivers. Biogenic subsurface structures (burrows, feeding pits, subsurface feeding voids) can be quickly destroyed in an extremely shallow area like this site by either river currents or wind-driven energy (affecting the bottom in the sandier areas), or deposition of additional sedimentary layers from land-based runoff at the nearshore stations. Apparent faunal densities were low, with only chironomids and oligochaetes visible as the dominant taxonomic groups, although one freshwater bivalve was seen at Station 381 (Figure 98). While the more mature successional assemblages were found in the northern half of the sampling area where aRPD depths were greatest, a somewhat incomplete picture of the infaunal community exists because successional stage could not be determined for over one-third of the images collected.



Figure 94. Evidence of recently deposited sedimentary intervals was detected at some of the nearshore stations as seen in these profile images from Station 357 (left) and Station 372 (right); the arrows in each image show the buried contact boundary that was the former sediment-water interface. Scale: width of each image = 14.5 cm.



Figure 95. These profile images from Station 336 (left) and 369 (right) both have a sediment grain-size major mode of fine sand but show a notable difference in penetration depth, mainly due to the presence of subsurface methane at Station 369 which reduces sediment shear strength. Scale: width of each image = 14.5 cm.

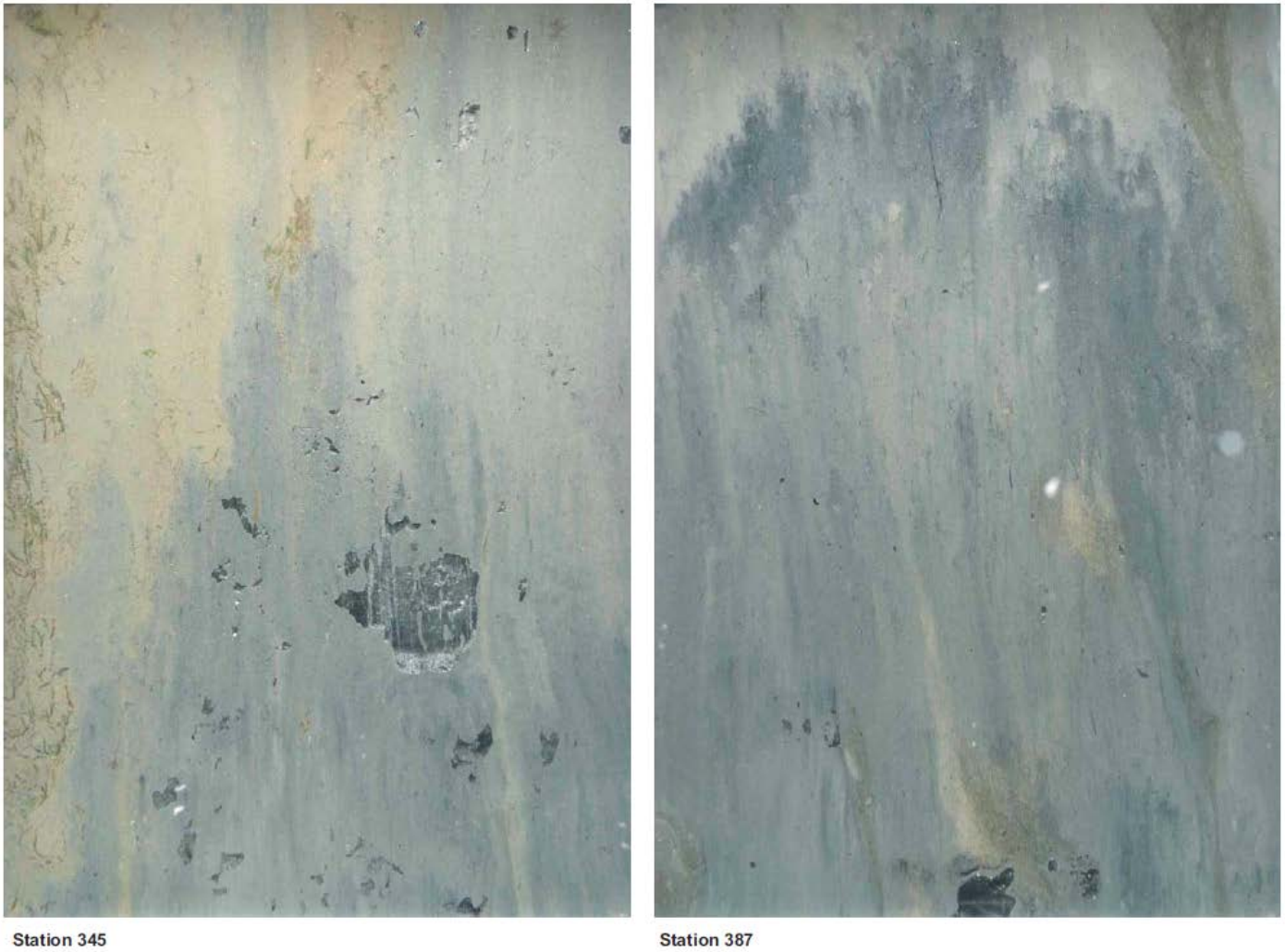


Figure 96. These profile images from Station 345 (left) and 387 (right) both show low shear-strength, highly fluid silt-clays with subsurface methane that could not support the weight of the camera prism. Scale: width of each image = 14.5 cm.



Figure 97. This profile image from Station 356 shows both types of the dominant submerged aquatic vegetation found at the site, both branched milfoil prominently displayed in the left part of the image and the single-frond grasses seen in the right half of the image. Scale: width of image = 14.5 cm.



Figure 98. The profile image from Station 344 (left) shows oligochaetes projecting above the sediment-water interface in the right half of the image (arrows), while the profile image from Station 381 (right) shows the only freshwater bivalve found in all the images collected at the site. Scale: width of each image = 14.5 cm.

5.7.9.2.2-Month Event

During the 2-month event, modal sediment grain-size at the Quantico Embayment Site 99 ranged from fine-sand-silt-clay to medium-coarse-sand. The coarsest sediments occurred at Station 03 being a mixture of medium-coarse-sand-gravel with some pebble sized grains. Stations 01, 06a, 08, 16 and 19 were all clean medium-coarse sand. About two-thirds of the stations (19 of 32 stations) were a mixture of fine-medium-coarse-sand some with silty sediments. An additional seven stations were a mixture of fine-sand-silt-clay (Figure 99 and Figure 100).

Sediment sampling prior to cap placement determined that native sediments were primarily silt-clay. Based on this it was concluded that the presence of sediments that were medium-sand and coarser were generally cap material. The cap was present at all stations except off-cap Stations 23, 24, 26, 27, and 28 that, as expected, appeared to be native silt-clay. Cap thickness exceeded prism penetration depth at 23 of 28 stations with cap material. At Stations 02, 11, 25, 29, and 32 what appeared to be native siltly and clayey sediments were under or mixed in with the cap sediments (Figure 99 - Figure 101). Over the two-months since cap placement, it did not appear that native sediments from the surrounding bottom were transported very far from the edge of the capped site. All stations with significant amounts of fine sediments mixed with surface cap material were along the edge of the site.

The sediment surface at all stations appeared to be dominated by physical processes with little indication of biological processes, such as bioturbation, being important. What appeared to be small tubes (<1 mm in diameter) occurred in low densities (1 to 9 per image) at about half the stations (15 of 32 stations) with Station 04 having 10 to 24 tube per image. These tubes could also have been small fecal pellets as there are not many tube building species in marine-freshwater transitional habitats. Tubes could also be from newly settled *Marenzelleria viridis*, *Streblospio benedicti*, or *Boccardiella ligerica* three small tube building polychaete species common in fine-grained sediments from tidal freshwater to about salinities of 3 psu, which seasonally can occur at Site 99. The fecal pellets are likely from the bivalves *Rangia cuneata* or *Corbicula fluminea*, both of which were found at the Quantico Embayment Site 99 during fieldwork. They are also known to be common in the low salinity and tidal freshwater Potomac. Oligochaetes were observed below the sediment surface at less than a third of all stations (9 of 32 stations). Infauna were all very small on the order 0.5 mm. There was no evidence of burrowing by any other infaunal species, such as Chironomid larvae that are common in tidal freshwater and low salinity habitats.

The dominance of surfical sediments by physical processes appeared to be the principal factor determining oxidation-reduction state of the sediments. There was no evidence of bioturbation by infauna or other benthic species at any of the Quantico Embayment stations. The shallowest depth of the aRPD occurred at Station 30 (0.5 cm) that was cap sand mixed with native silty sediment. At native sediment stations, four of the five had aRPD layer depths >1 cm. This indicated that resuspension-deposition events were likely responsible for the deeper aRPD layer at these four stations. In silt-clay sediments, physical diffusion limits oxygen penetration to <1 cm. At native sediment Station 27 the aRPD layer depth of 0.7 cm could have been due to physical diffusion. In sandy porous sediment, deep aRPD layers appeared primarily to be a

function of porewater circulation driven by current or wave action that pumps oxygenated water in the sediment. This appeared to be the factor responsible for the deep aRPDs at many of the cap stations. The most obvious signs of biogenic activity were gas voids produced by anaerobic methanogenic microbes. Gas voids occurred at half of stations (16 of 32 stations) with over 50 small gas voids in the images from Stations 01, 23, and 32 (Figure 99). Gas voids were primarily associated with silt-clay sediments but also occurred in what appeared to be clean cap sand, for example Stations 13 or 21 (Figure 100).

The general muddy nature of native sediments facilitated the determination of cap material which were primarily medium- to coarse-sand (Figure 99 - Figure 101). About two-months after cap placement the sediment surface at cap stations were primarily clean sands. Native sediments under cap material were observed at five of the Quantico Embayment Site 99 SPI stations along the outer perimeter of the cap (four on the southeast side of the capped site and one on the northwest side). Stations that were located 25 to 50 m away from the cap to the southeast appeared to be all native sediments with no cap sediment. This indicated that the cap material had not migrated far.

The cap appeared to completely cover the SPI stations located on the cap. Over the center of the capped area the cap was thicker then prism penetration and was at least about 10 to 20 cm thick. Cap sediments thinned to the southeast of the site and did not appear to be present 25 to 50 m away from the perimeter of the site. Native sediments at the Quantico Embayment Site 99 appeared to be typical of other marine-freshwater transitional zone within the Potomac River and other Chesapeake Bay tributaries. Native sediments in these tidal freshwater habitats are primarily silt-clays with sandy sediments being mostly fine-sand. There was no evidence in the sediment profile images that biological processes were involved in sediment mixing at the Site 99. Bioturbation, which is a primary mixing process in marine sediments, is not an important factor in transitional or tidal freshwater benthic habitats.

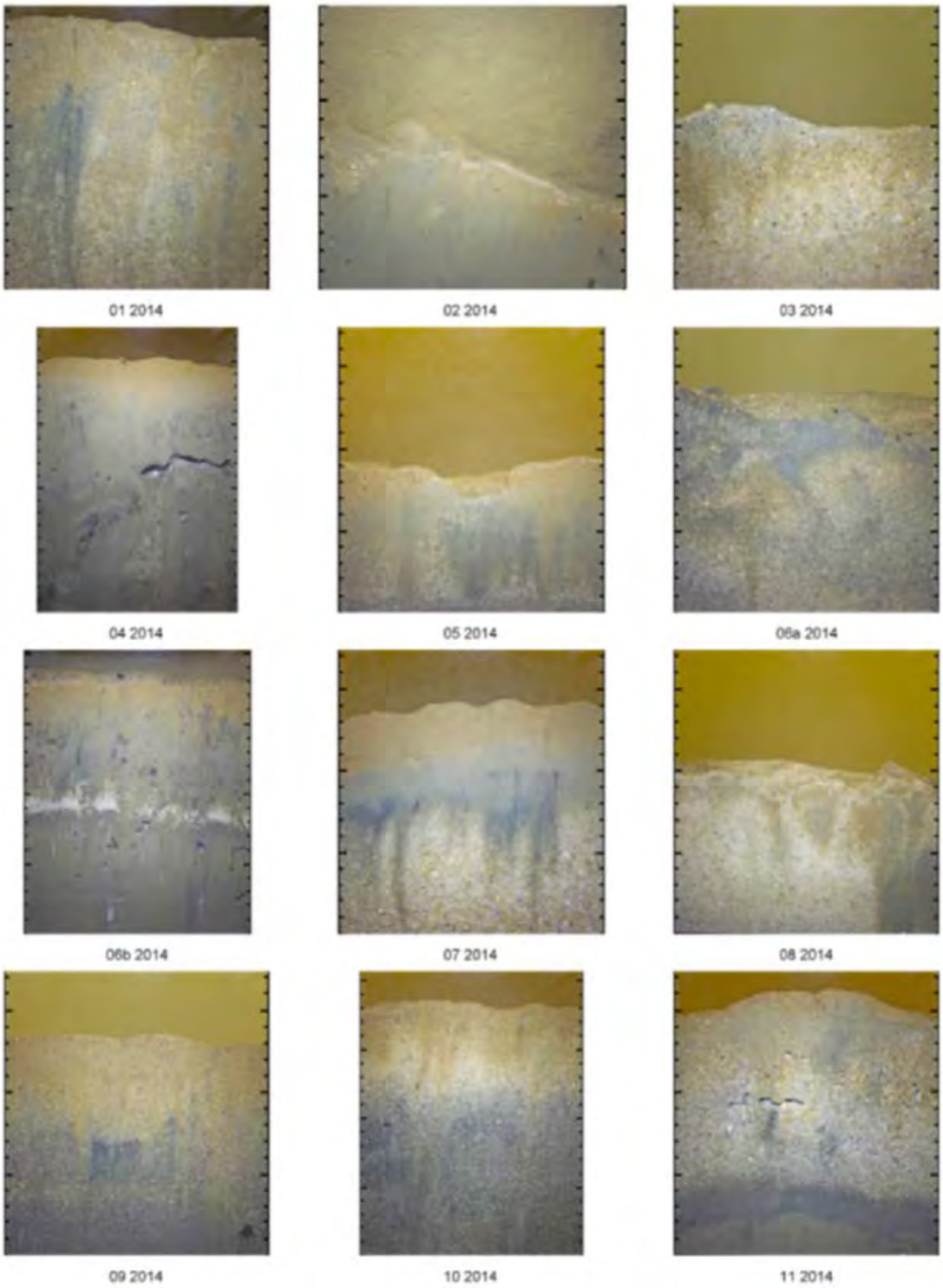


Figure 99. Mosaic of images from Quantico Embayment Site 99 stations 01 to 11 for 2-month post-cap SPI survey September 24, 2014. Scale on side of images is in cm.

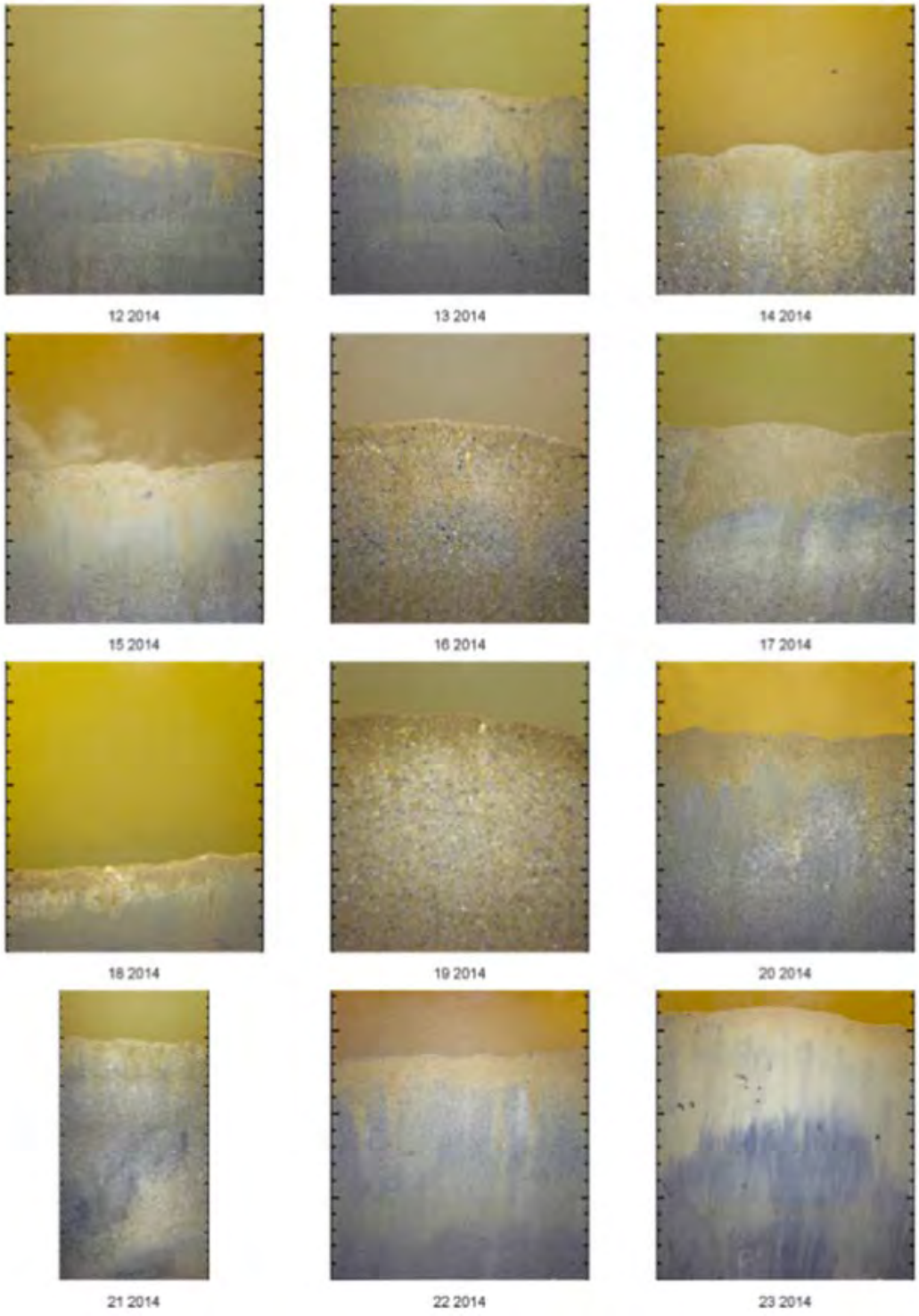


Figure 100. Mosaic of images from Quantico Embayment Site 99 stations 12 to 23 for 2-month post-cap SPI survey September 24, 2014. Scale on side of images is in cm.

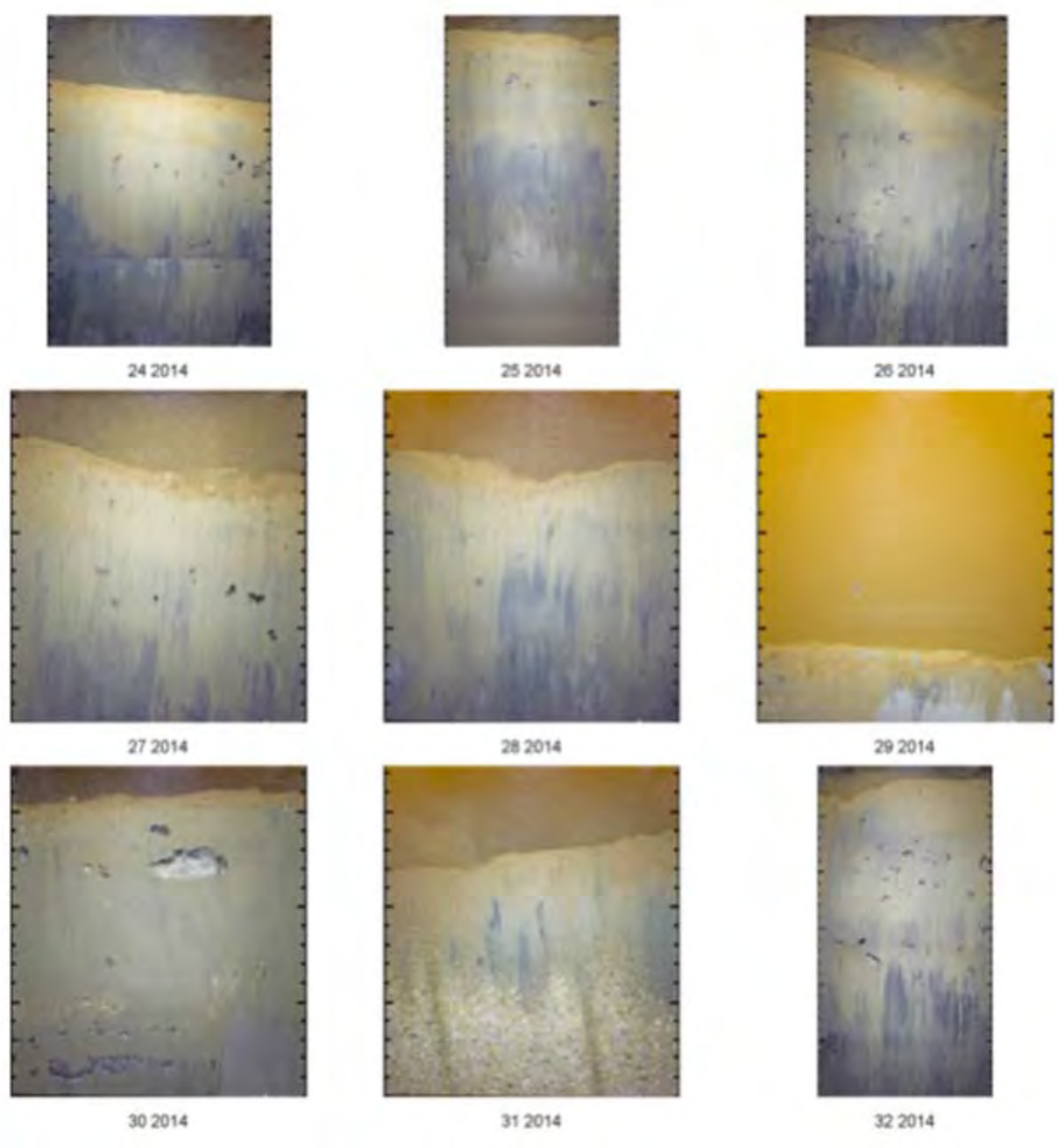


Figure 101. Mosaic of images from Quantico Embayment Site 99 stations 24 to 32 for 2-month post-cap SPI survey September 24, 2014. Scale on side of images is in cm.

5.7.9.3.14-Month Event

During the 14-month event, twenty-three SPI images were analyzed from the 21 SPI stations. Replicate images from Stations 05 and 07 indicated that there was some small scale spatial heterogeneity, on the order of 3 to 5 meters, within the Quantico Embayment site so both images were analyzed. All of the stations were targeted to the cap area. A mosaic of all SPI images analyzed is in Figure 102 and Figure 103. Modal sediment grain size at Quantico Embayment Site 99 ranged from silt-clay to medium-coarse sand. The coarsest sediments occurred at Station 05, which has a mixture of medium-coarse sand and gravel, and Station 16, which is composed of medium-coarse sand (Figure 102 and Figure 103). About half of the stations (11 of 21 stations) were a mixture of fine-medium coarse sand. An additional three stations were a mixture of silt-clay and fine-medium-coarse sand. The finest silt-clay sediments occurred at Station 03. Maximum grain size of pebbles was observed at Stations 05 and 08.

The sediment surface at all stations was dominated by physical processes. Appearances of current-generated asymmetric bedforms or ripples were observed at about half of the stations (11 of 21 stations). The boundary roughness associated with these bedforms could be measured when the profile prism cut the bedforms at nearly a right angle. This occurred at eight stations (7a, 13, 14, 15, 18, 19, 20, and 21) giving estimates of roughness that ranged from 1.3 cm at Stations 15 and 18 to 3.0 cm at Station 13. Spatially, stations toward the north-east end of the site tended to have bedforms.

Sediment sampling prior to cap placement determined that native sediments were primarily silt-clay. Therefore, based on the presence of sediments that were medium sand and coarser and layering of finer sediment over coarser sediments, it was concluded that grain sizes from medium sand to gravel were generally cap material. The cap was present at all stations except Station 03 which appeared to be native silt clay. Cap thickness exceeded prism penetration depth at all stations with cap material. At Stations 01, 02, 07, 10, and 17, appearances of silt clay native sediment layers were on top of or mixed into the cap sediments (Figure 102 and Figure 103). Over the year since cap placement, it appears that native sediments from the surrounding bottom were transported to the capped site and mixed with cap material.

Appearances of small tubes occurred in low densities (one to nine per image) at about half the stations (9 of 21 stations). These tubes could also have been small fecal pellets as there are not many tube-building species in marine-freshwater transitional habitats. Tubes could be from newly settled Marenzelleria viridis, Streblospio benedicti, or Boccardiella ligerica, which are three small tube-building polychaete species common in fine grained sediments from tidal freshwater to about salinities of 3 psu. The fecal pellets are likely from the bivalves Rangia cuneata or Corbicula fluminea, both of which were found at the Quantico Embayment Site 99 during fieldwork. They are also known to be common in the low salinity and tidal freshwater Potomac River.

Oligochaetes were observed below the sediment surface at one third (seven of 21 stations) stations. The largest oligochaetes were observed at Stations 06, 07, and 10 (Figure 104). There was no evidence of burrowing by any other infaunal species, such as Chironomid larvae.

The dominance of surficial sediments by physical processes appeared to be the principal factor determining oxidation-reduction state of the sediments. There was no evidence of bioturbation by infauna or other benthic species at any of the Quantico Embayment stations. The shallowest depth of the aRPD occurred at Station 03 (1.1 cm) which was native sediment with a flocculent surface sediment. In silt-clay sediments, physical diffusion limits oxygen penetration to <1 cm. This indicated that resuspension-deposition events were likely responsible for the shallower aRPD layer at Station 03. In sandy porous sediment, deep aRPD layers appeared primarily to be a function of porewater circulation driven by current or wave action that pumps oxygenated water into the sediment. This appeared to be the factor responsible for the deep aRPDs at many stations.

The most obvious signs of biogenic activity were gas voids produced by anaerobic methanogenic microbes. When sediment sulfate is depleted, methanogenesis becomes the dominating diagenetic process producing methane and carbon dioxide. Gas voids occurred at about half of the stations (10 of 21 stations) with over 50 small gas voids in the image from Station 10 (Figure 102). Gas voids were primarily associated with silt-clay sediments, but also occurred in what appeared to be clean sand, for example at Station 13 (Figure 103).

Overall, the Quantico Embayment Site 99 appeared to be typical of other marine-freshwater transitional zones within the Potomac River and other Chesapeake Bay tributaries. Native sediments in these tidal freshwater habitats are primarily silt-clays with sandy sediments composed mostly of fine sand. The general muddy nature of native sediments facilitated the identification of the cap material which was primarily medium- to coarse-sand (Figure 102 and Figure 103). Shortly after cap placement in 2014, the surface of cap stations was primarily clean sands. One year after cap placement, the surface sediments at most cap stations had significant amounts of fine silt-clay sediments on top of cap sands or mixed into the surface. For example, at Station 02, there was an approximate 4 cm layer of native silt clay sediment over a layer of about 8 cm of silty medium sand that was over clean medium-coarse sand cap sediments (Figure 6). It was likely that storm-related resuspension-deposition events were responsible for mixing native and cap sediments. Due to limited prism penetration, native sediments under cap material were not observed at any of the Quantico Embayment Site 99 SPI stations. Only Station 03 on the south-eastern edge of the cap site appeared to be without cap sediment.

There was no evidence in the sediment profile images that biological processes were involved in sediment mixing at the Site 99 HEC. Bioturbation, which is a primary mixing process in marine sediments, is not an important factor in transitional or tidal freshwater benthic habitats.

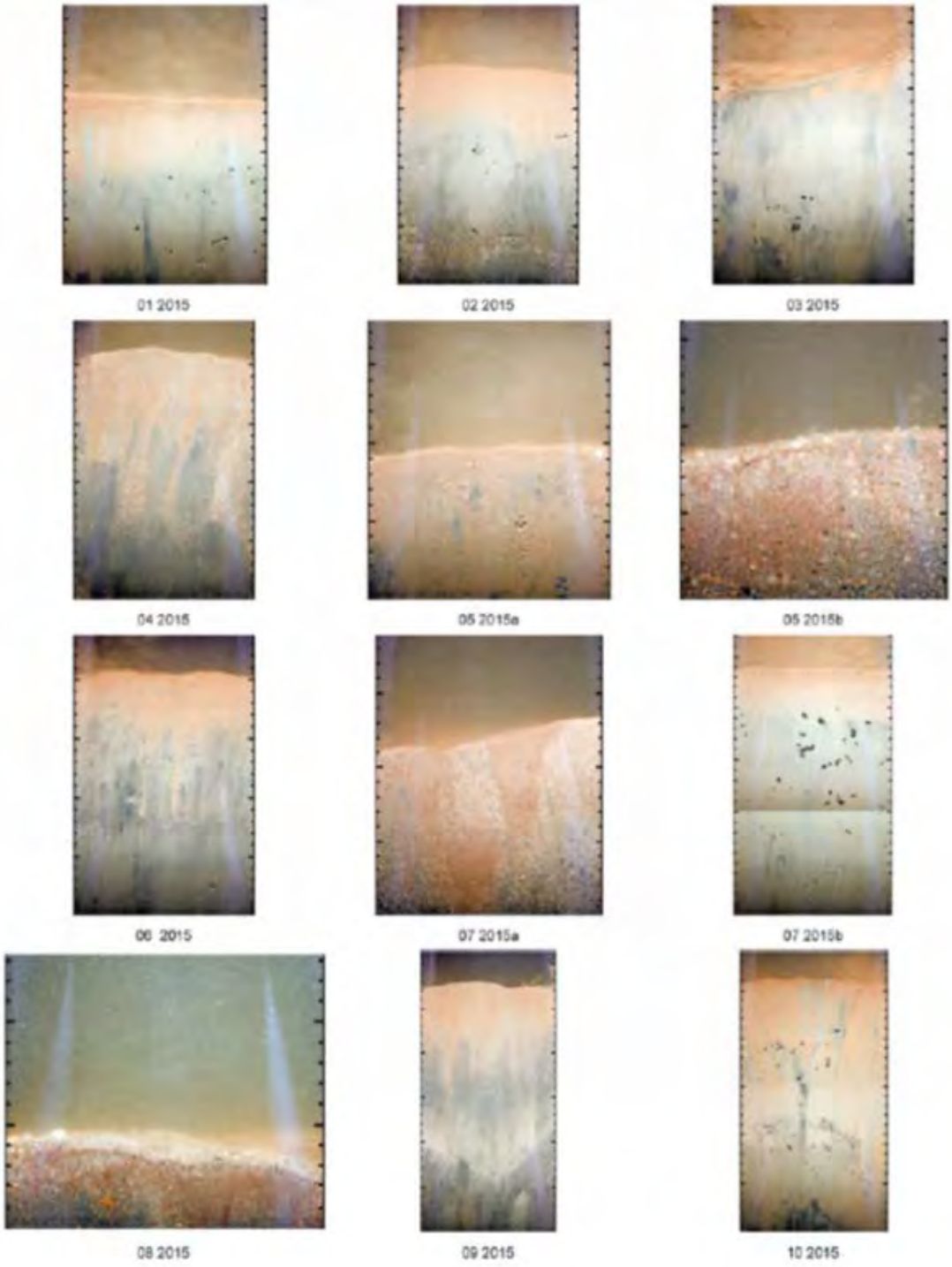


Figure 102. Mosaic of images from Quantico Embayment Site 99 Stations 01 to 10 for the 14-month post-cap SPI Survey June 9, 2015.

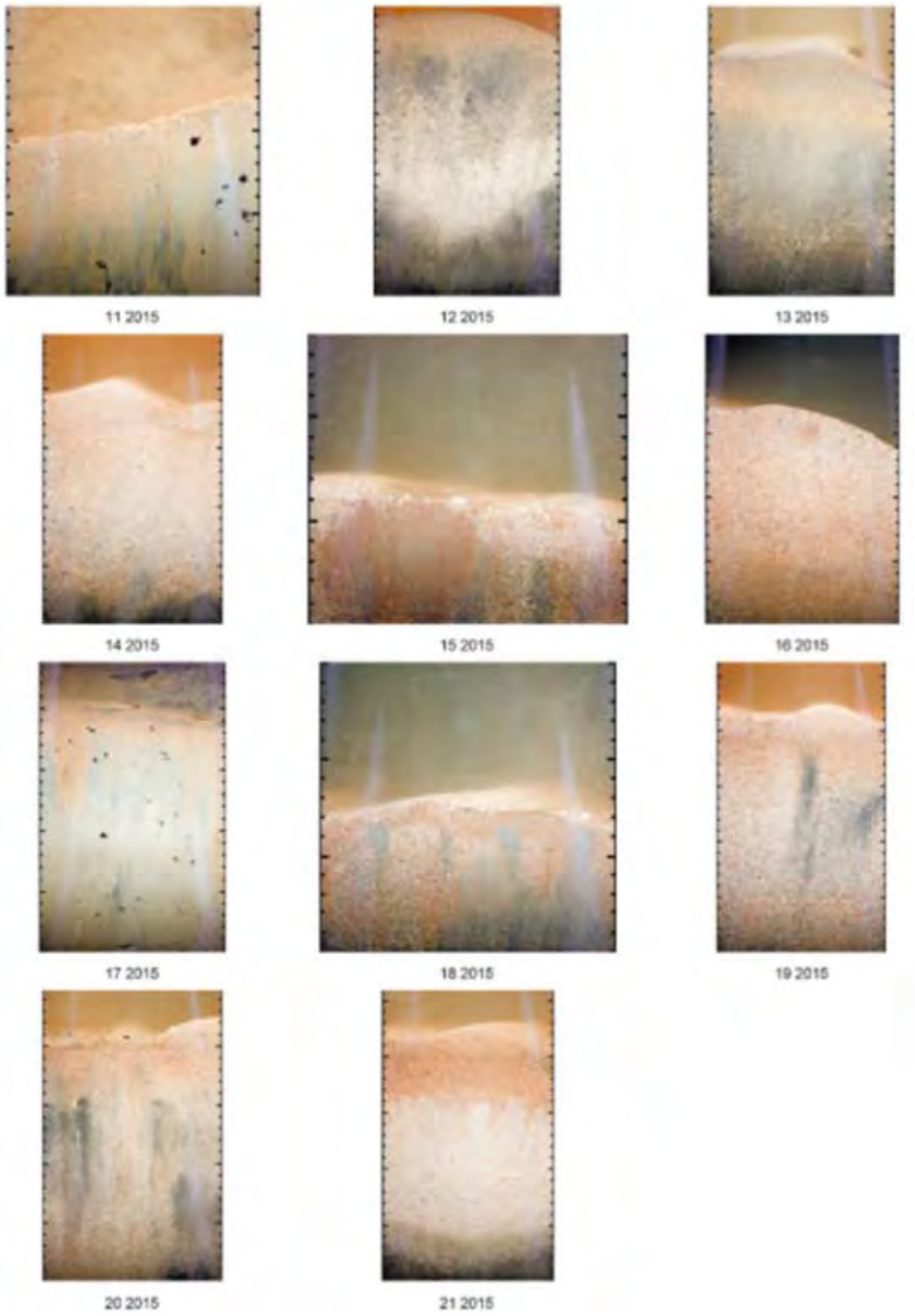


Figure 103. Mosaic of images from Quantico Embayment Site 99 Stations 11 to 21 for the 14-month post-cap SPI survey June 9, 2015.

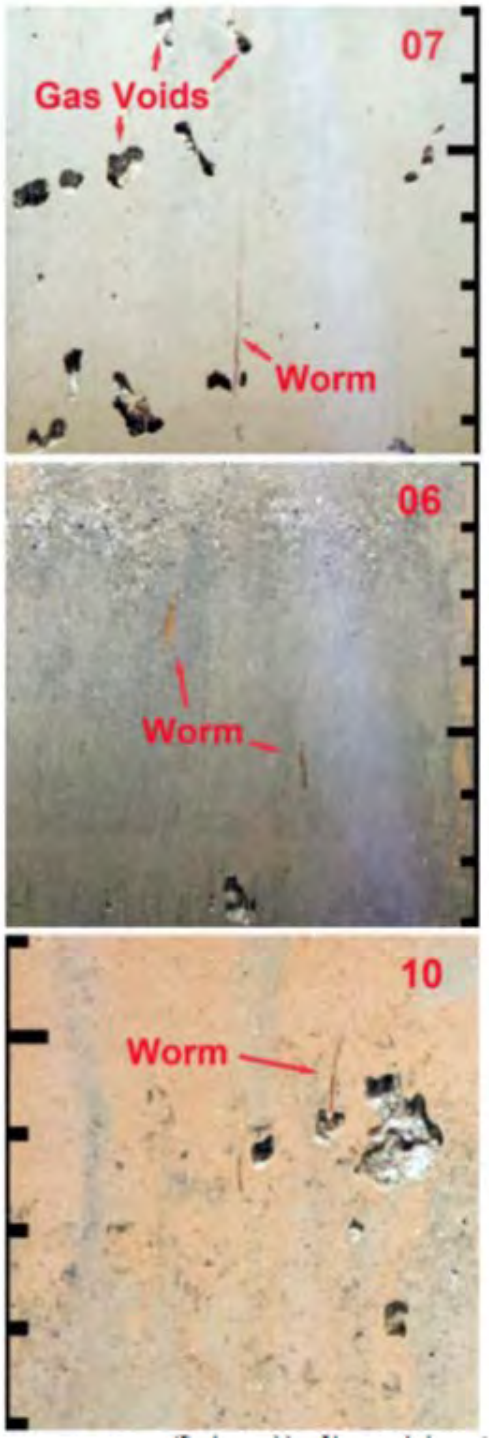


Figure 104. Oligochaetes observed at Quantico Embayment Site 99 SPI Station 06 at 14 and 16 cm below sediment surface, Station 07 at 12 cm below the surface, and Station 10 at 7 cm below the surface, June 9, 2015.

5.7.9.4. Cap Thickness Summary

In the 2-month post-placement event, the cap appeared to completely cover the stations with the target area. For the stations within the target area, the average thickness was 5 inches; however, it should be noted that 90% of the stations (19 out of 21 stations) did not achieve penetration into the native sediment (and therefore the thickness of the cap was not observed due to insufficient penetration). 19 of 21 stations had a cap thickness of at least 2 inches (one station with 1 inch thickness was on the edge of the TLC). Results are summarized in Table 40 and detailed in the report provided in Appendix E.

In the 14-month event, an average thickness of 6 inches was observed; however, it should be noted 90% of stations did not achieve sufficient penetration to observe the total thickness of the cap (17 of 19 stations). Stations had a cap thickness of at least 2 inches, with the exception of one station on the edge of the target area. Results are summarized in Table 41 and detailed in the report provided in Appendix E.

The SPI survey was conducted in the 25-month sampling event; however, the results are currently pending.

5.7.9.5. Infaunal Observations Summary

The freshwater successional model developed for lake bottoms was not a particularly useful paradigm for characterizing infauna in rivers because burrows, feeding pits, and subsurface voids can be quickly destroyed by either river currents or wind-driven energy or deposition of additional sedimentary layers. In the baseline 2 event, apparent faunal densities were low, with only chironomids and oligochaetes visible as the dominant taxonomic groups. One freshwater bivalve was observed. More mature infaunal successional stages were observed in the northern half of the sampling area; however, a somewhat incomplete evaluation was conducted due to indeterminate successional stage at over one-third of the stations. Results are detailed in Appendix E.

In the 2-month event, little to no evidence in the sediment profile images was found that biological processes were occurring, such as bioturbation. Small tubes were observed at half the stations and fecal pellets likely from bivalves were observed at several stations. Oligochaetes were dominant at less than one-third of stations. Gas voids occurred at half the stations and were the most obvious signs of biogenic activity.

In the 14-month event, small tubes were present at half of the stations, or these tubes could have also been fecal pellets. Oligochaetes were dominant at one-third of stations. Chironomids larvae was not evident. Gas voids were evident and a sign of biogenic activity at half the stations.

The SPI survey was conducted in the 25-month sampling event; however, the results are currently pending.

Table 40. Cap thickness based on SPI Survey in 2-month post-placement event.

Station	Cap Thickness within Target Area (inches)	Penetration within Target Area (inches)
1	>6.3	6.3
2	0.9	2.6
3	>4.2	4.2
4	>7.8	7.8
5	>3.3	3.3
06a	>4.8	4.8
06b	>7.2	7.2
7	>5.4	5.4
8	>3.8	3.8
9	>5.2	5.2
10	>7.2	7.2
11	4.7	6.0
12	>3.4	3.4
13	>4.8	4.8
14	>3.4	3.4
15	>3.7	3.7
16	>4.4	4.4
17	>4.6	4.6
18	>2.0	2.0
19	>5.3	5.3
20	>5.2	5.2
21	>9.7	9.7

Table 41. Cap thickness based on SPI survey in 14-month post-placement event.

Station	Cap Thickness within Target Area (inches)	Penetration within Target Area (inches)
1	4.6	5.5
2	4.9	7.1
3	0.0	6.4
4	>8.2	8.2
05a	>3.6	3.6
05b	>3.3	3.3
6	>8.1	8.1
07a	>4.8	4.8
07b	8.5	9.3
8	>1.4	1.4
9	>10.8	10.8
10	8.7	10.2
11	>4.2	4.2
12	>8.8	8.8
13	>7.4	7.4
14	>7.6	7.6
15	>2.1	2.1
16	>6.1	6.1
17	6.3	7.7
18	>2.8	2.8
19	>8.4	8.4
20	>8.3	8.3
21	>8.4	8.4

5.7.10. Benthic Community Census

Success of this performance objective is defined as no significant effects to benthic communities due to presence of the cap (Table 42). Based on this evaluation, TLC placement initially affected the benthic community but succession is occurring based on the increased observations of infauna between the 2- and 14-month events. Benthic community recovery will continue to progress as natural environmental gradients are re-established on the cap material.

Abundances for stations within the cap footprint were significantly different between the 5 sampling events ($p < 0.0001$). The two baseline events were not significantly different from one another ($p = 0.62$). The 2- and 14-Month events had significantly greater abundances compared to both baseline events, while the 25-month event was greater than baseline 1 ($p = 0.02$) but not different from baseline 3 ($p = 0.15$). On and off cap abundances were similar for the two baseline events and the 2-month event. During the 14- and 25-month events, abundances were greater for on-cap stations compared to off-cap stations.

Taxa Richness for stations within the cap footprint were significantly different between the 5 sampling events ($p < 0.001$). The two baseline events were not significantly different from one another ($p = 0.8$). The 2- and 14-Month events had significantly greater taxa richness compared to both baseline events, while the 25-month event was not different from either baseline event ($p > 0.09$). The 25-Month event had quite a bit of variability in taxa richness (7 to 29 taxa), resulting in difficulty in differentiating it from the baseline events. Overall, the 25-Month event had the greatest richness out of all of the project events. On cap stations had greater median taxa richness compared to their corresponding off cap medians, though there was variability between off cap stations through the events.

Diversity, as measured by the Shannon-Wiener Diversity Index, for stations within the cap footprint were significantly different between the 5 sampling events ($p = 0.026$). The two baseline events were not significantly different from one another ($p = 0.7$). The 2- and 14-Month events had significantly greater diversity compared to Baseline 1 ($p <0.05$), but were not different than Baseline 3 ($p > 0.2$). The 25-month event was not different from either baseline event ($p > 0.33$), likely due to the variability in diversity (1.1 to 2.6). Overall, the 25-Month event had the greatest richness out of all of the project events. Post TLC placement, the on cap stations had greater median diversity compared to their corresponding off cap medians.

Species evenness, as measured by Pielou's Evenness index, for stations within the cap footprint were not significantly different between the 5 sampling events ($p = 0.9$). There was large variability in the initial baseline event, which subsequently decreased until the 14-month event. In the off cap stations, evenness trended upward for each of the five events and reached a max in the 25-month event.

The benthic index of integrity for the two baseline events were not significantly different from one another ($p = 0.24$). The 25-month event had a significantly greater B-IBI score compared to Baseline 1 ($p <0.05$), but was not different than Baseline 3 ($p = 0.6$). Generally, it looks like the initial cap placement effected B-IBI scores, but these rebounded by the 25-month event. The off cap stations during baseline 1, 14- and 25-month events were very consistent, while the baseline 3 and 2-month B-IBI scores were elevated. The 14- and 25-Month events B-IBI scores were > 3,

indicating that the benthic community condition is meeting restoration goals (Llanso, 2002). These two time periods also had greater B-IBIs than the off cap stations, indicating the possibility that the cap did enhance benthic communities compared to the native sediment.

Table 42. Benthic community census results summary.

Event	Station Type	B-IBI Score	Pielou's Evenness	Shannon-Wiener Diversity Index	Taxa Richness	Total Abundance
Baseline 1	On Cap	2.7 ± 0.3 (2.3 - 3)	0.7 ± 0.3 (0.4 - 0.9)	1.4 ± 0.6 (0.7 - 1.9)	7.5 ± 1.3 (6 - 8.5)	476 ± 223 (239 - 681)
	Off Cap	2.8 ± 0.2 (2.7 - 3)	0.5 ± 0.1 (0.4 - 0.6)	1.3 ± 0.2 (1.1 - 1.5)	13.3 ± 3.1 (10 - 16)	2121 ± 1767 (884 - 4145)
Baseline 3	On Cap	3.3 ± 0.6 (2.7 - 4)	0.7 ± 0.1 (0.6 - 0.8)	1.7 ± 0.4 (1.3 - 2.1)	11.4 ± 4.1 (6 - 15)	1490 ± 871 (362 - 2478)
	Off Cap[a]	3.4	0.6	1.3	9.0	551
2-Month	On Cap	3 ± 0.4 (2.7 - 3.7)	0.7 ± 0.1 (0.6 - 0.8)	2.2 ± 0.3 (1.8 - 2.5)	21.8 ± 2.5 (20 - 25)	4307 ± 923 (3348 - 5638)
	Off Cap	3.3 ± 0 (3.3 - 3.3)	0.6 ± 0.1 (0.5 - 0.7)	1.8 ± 0.1 (1.7 - 1.8)	20 ± 7.1 (14 - 24)	4370 ± 2798 (2391 - 6348)
14-Month	On Cap	3.3 ± 0 (3.3 - 3.3)	0.7 ± 0.0 (0.7 - 0.7)	2.2 ± 0.1 (2.1 - 2.3)	22.6 ± 1.9 (20 - 25)	5519 ± 481 (5145 - 6333)
	Off Cap	2.8 ± 0.2 (2.7 - 3)	0.8 ± 0.1 (0.7 - 0.8)	2 ± 0.6 (1.6 - 2.4)	14 ± 7.1 (9 - 19)	1210 ± 912 (565 - 1855)
25-Month	On Cap	3.7 ± 0.4 (3.3 - 4.3)	0.7 ± 0.1 (0.6 - 0.8)	1.9 ± 0.5 (1.1 - 2.6)	17.2 ± 9 (7 - 29)	2988 ± 1518 (1000 - 5072)
	Off Cap	2.7 ± 0.5 (2.3 - 3)	0.8 ± 0.1 (0.7 - 0.9)	1.4 ± 0 (1.4 - 1.4)	6 ± 1.4 (5 - 7)	225 ± 113 (145 - 304)

Results shown as average ± SD (minimum – maximum)

a. Baseline 3 Off Cap consisted of 1 sample.

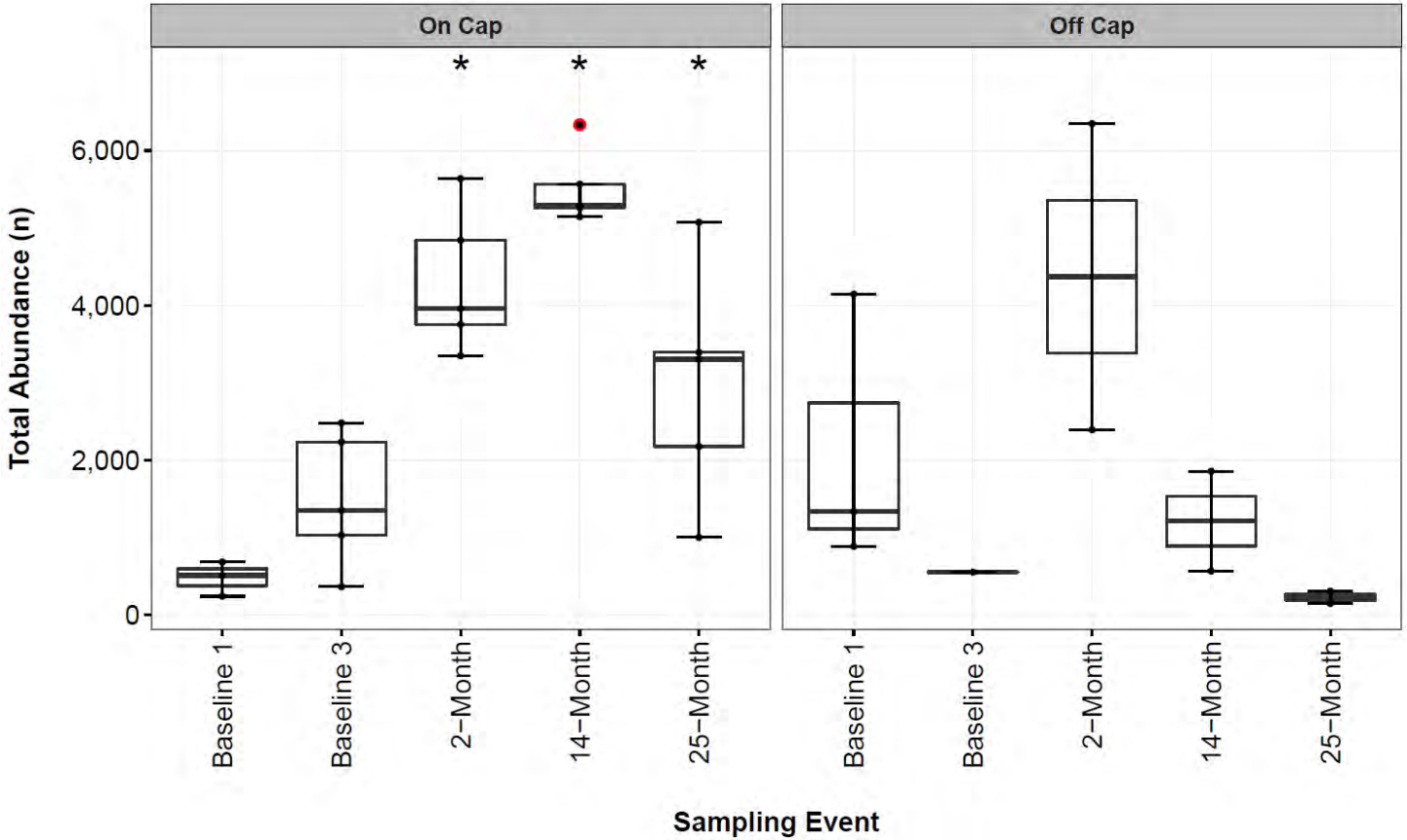


Figure 105. Total abundance from the benthic community census, separated by stations on and off the cap footprint. Significant differences ($p < 0.05$) from either baseline event represented as a star (*) above box. 25-Month event is significantly greater than baseline 1 but not baseline 3. Results are plotted as the median (horizontal bar), IQR (limits of boxes are 25th and 75th percentiles), and error bars extend from the IQR to the lowest value within 1.5 * IQR. Data beyond the end of the whiskers are outliers and plotted as red points (as specified by Tukey).

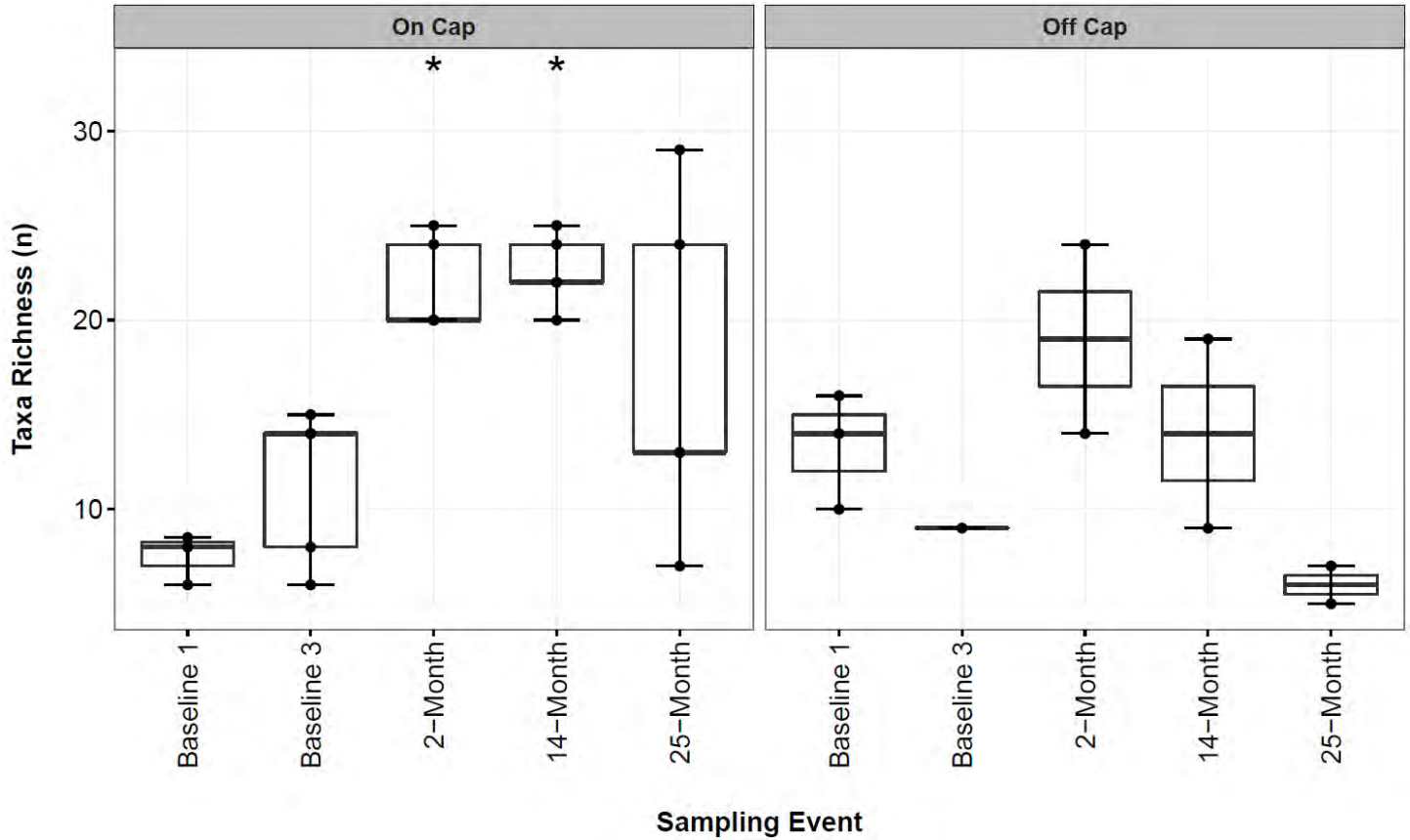


Figure 106. Taxa Richness from the benthic community census, separated by stations on and off the cap footprint. Significant differences ($p < 0.05$) from either baseline event represented as a star (*) above box. Results are plotted as the median (horizontal bar), IQR (limits of boxes are 25th and 75th percentiles), and error bars extend from the IQR to the lowest value within 1.5 * IQR. Data beyond the end of the whiskers are outliers and plotted as red points (as specified by Tukey).

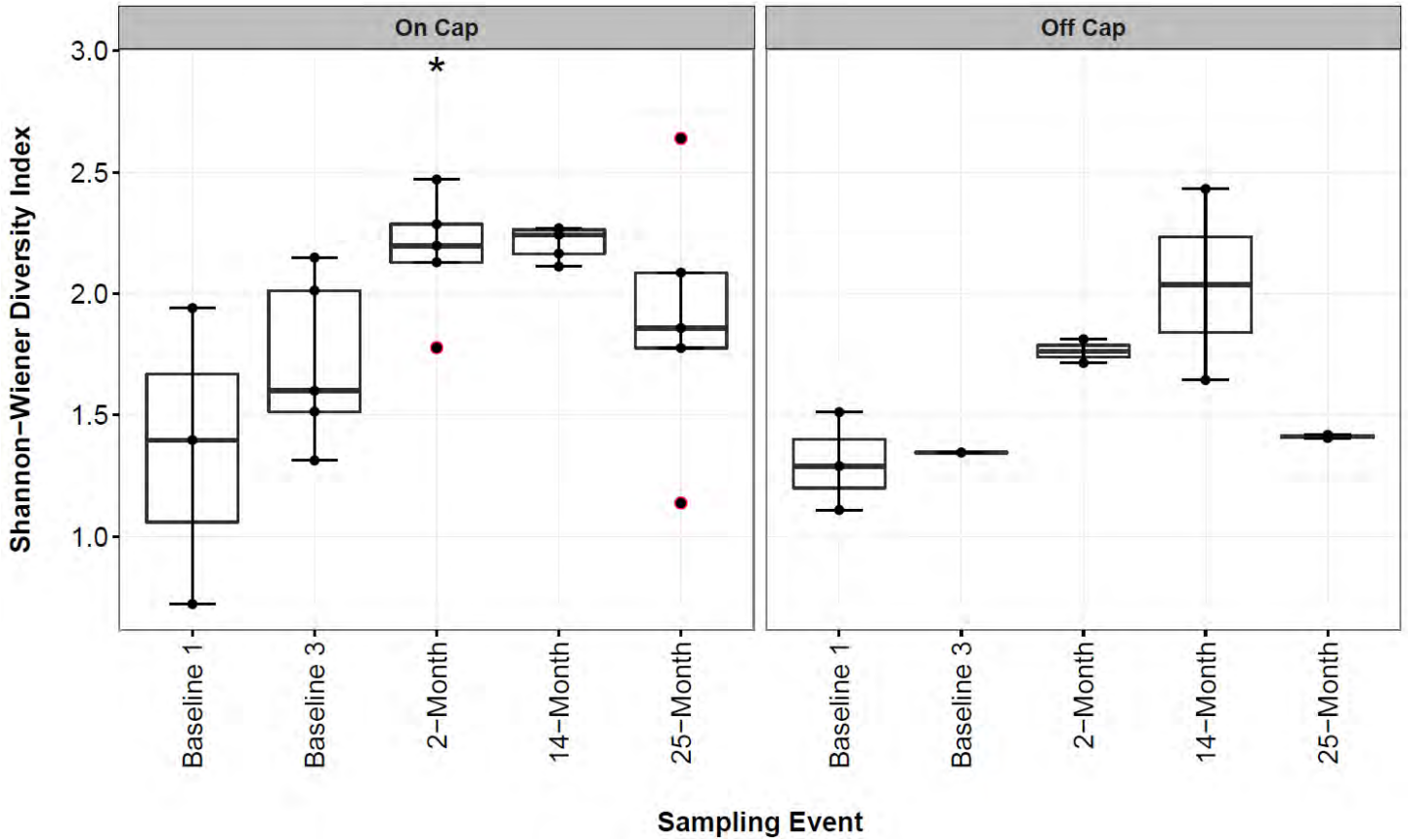


Figure 107. Shannon-Wiener Diversity Index from the benthic community census, separated by stations on and off the cap footprint. Significant differences ($p < 0.05$) from either baseline event represented as a star (*) above box. 2-Month event is significantly greater than baseline 1 but not baseline 3. Results are plotted as the median (horizontal bar), IQR (limits of boxes are 25th and 75th percentiles), and error bars extend from the IQR to the lowest value within 1.5 * IQR. Data beyond the end of the whiskers are outliers and plotted as red points (as specified by Tukey).

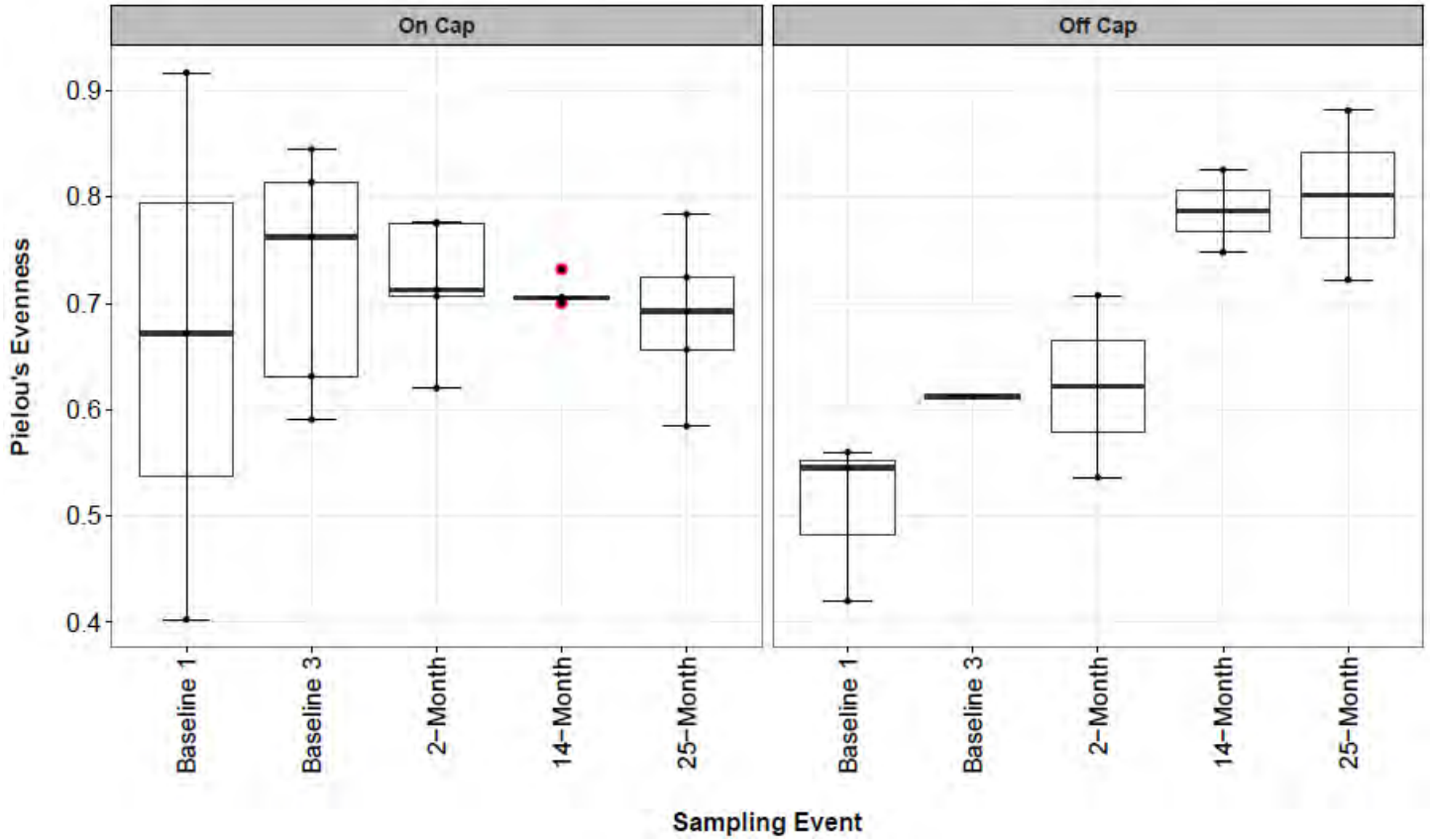


Figure 108 .Pielou's Evenness index from the benthic community census, separated by stations on and off the cap footprint. Results are plotted as the median (horizontal bar), IQR (limits of boxes are 25th and 75th percentiles), and error bars extend from the IQR to the lowest value within 1.5 * IQR. Data beyond the end of the whiskers are outliers and plotted as red points (as specified by Tukey).

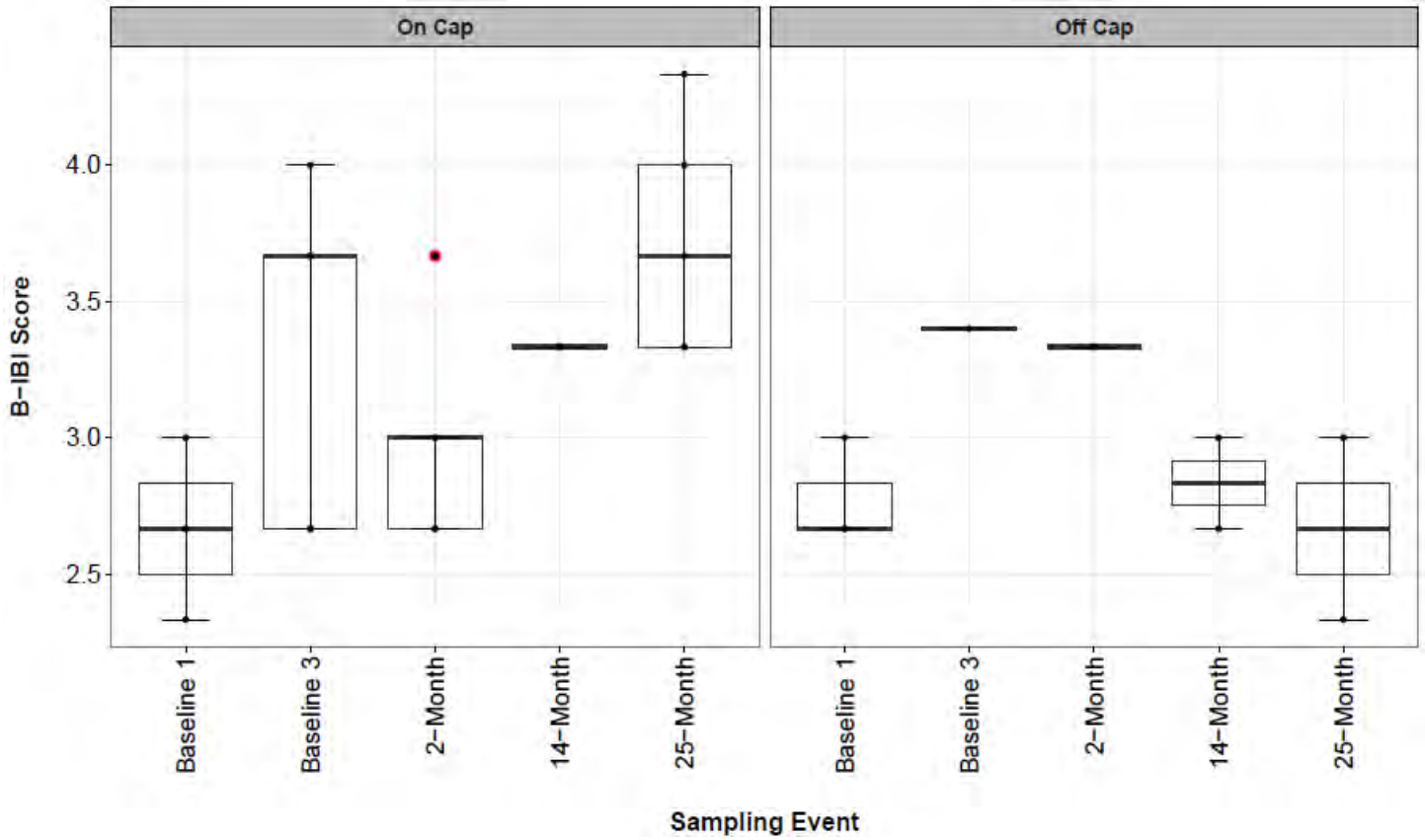


Figure 109. B-IBI Scores from the benthic community census, separated by stations on and off the cap footprint. Results are plotted as the median (horizontal bar), IQR (limits of boxes are 25th and 75th percentiles), and error bars extend from the IQR to the lowest value within 1.5 * IQR. Data beyond the end of the whiskers are outliers and plotted as red points (as specified by Tukey).

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6. Performance Assessment

A summary of the data collected and analysis performed in support of the assessment of performance objectives is summarized in Section 3 Performance Objectives. A summary of the data treatment in support of the assessment of performance objectives is summarized in Section 3 Performance Objectives and detailed in Section 5.6 Sampling Methods. A summary of the results and evaluation in support of the assessment of performance objectives is provided in Section 3 Performance Objectives and Section 5.7 Sampling Results.

Performance Objective 1 was the evaluation of cap placement and determination of physical stability of TLC. Success was measured based on cap thickness by differentiating the cap material from the underlying native sediment as measured using multiple methods including sediment core profiling, bathymetry, Sediment Profile Imagery (SPI), and Sediment Friction Sound Probe (SED-FSP). Success of this phase of the project was evaluated based on the overall stability in the thickness of the cap over time, as well as by the ability of the different measurement techniques to gage the stability. While the coring measurements provide the most direct measure of cap thickness, they were limited spatially, so other measurements such as the bathymetric mapping, SED-FSP and SPI provide additional information on the spatial stability of the TLC. Stability of the EMNR cap was a reflection of the cap design and of site-specific conditions including placement accuracy and distribution, hydrodynamics, cap material grain size, natural sedimentation rates, and benthic mixing processes. Results provided insight into cap placement and thickness and into mixing processes that may have occurred during or after cap placement.

Overall, the performance objectives for cap placement and stability were met. The sediment coring confirmed that the cap was remaining relatively stable over time, and the bathymetric mapping, SPI camera and SED-FSP system all provided confirmatory evidence for cap stability. These additional measures also provided much broader spatial coverage which enhanced the understanding of the overall stability of the cap. Sediment core profiling demonstrated the average cap depth was at least inches 6 inches at all stations (average of 10 inches in the most recent long-term monitoring event). The bathymetric surveys clearly show the changes in elevation related to the cap placement, and these measured changes were consistent with the target thickness for the cap. In the SPI survey, only Station 03 on the south-eastern edge of the cap site appeared to be without cap sediment. SED-FSP was in general agreement with other measurements of thickness and provided additional insight into vertical mixing of the cap with underlying and newly deposited sediments.

The stability of the TLC was further supported by the current meter results that indicated currents at the site were generally low relative to critical threshold velocities at both measurement stations and under flow conditions for two different seasons (spring and summer). Thus it is unexpected that the cap would be disturbed by normal spring and summer currents. It is still possible that the cap could be disturbed under storm conditions, especially storm associated waves due to the shallow nature of the site.

Performance Objective 2 was an evaluation of the extent of sediment and contaminant mixing. Data collected to support assessment of this performance objective included measures that elucidated the mixing and deposition of sediment, and measures that directly measured the

mixing and deposition of contaminants. In this project, we evaluated the use of sediment core visual analysis, sediment core TOC and grain size analysis, SPI camera, SED-FSP, and sediment trap mass collection as measures of sediment mixing and deposition. We also evaluated sediment core contaminant profiles for direct measurement of the influence of mixing and deposition on contaminant distributions within the TLC. Visual analysis of sediment cores was used to qualitatively evaluate evidence of mixing within the cap over time based on observable differences in coloration and particle size between the native material, new deposition material, and the TLC material. TOC and grain size analysis provided a more quantitative measure of these same differences. SPI camera results were particularly useful for distinguishing sediment deposition layers and surface sediment mixing zones. The SED-FSP provided evidence for both bottom-up and top-down mixing based on vertical variations in mean grain size (limited to the 2016 event). Material collected in the sediment traps was used to estimate the mass flux of depositional sediment to the cap as well as the contaminant flux associated with this deposition. Vertically-segmented bulk sediment chemistry measurements provided a direct measure of the vertical movement of contamination associated with mixing and deposition processes. And finally, passive sampler porewater profiling was used to evaluate changes in porewater exposure that might have been associated with mixing processes or other porewater processes such as advection or diffusion.

Success of this performance objective was gaged by how well these measures could assess benthic mixing, and ultimately by how these processes influenced the broader performance metric for surface sediment exposure and ecological response (see PO4 and PO5). As with all natural environments, sediment mixing was expected to occur, and TLCs are not necessarily designed to prevent mixing. This element of the project focused on quantifying the extent of sediment mixing and the extent to which these processes increased or reduced the exposure to DDX in surface sediments.

Overall, the performance objectives for sediment and contaminant mixing in the cap were met. Multiple lines of evidence indicated that the dominant processes observed were some disturbance associated with the installation of the cap, followed by longer term top-down mixing. The SPI camera results and the SED-FSP results provided a broader spatial context, while the visual analysis, TOC, grain size, and bulk sediment chemistry provided a more detailed and quantitative assessment of the focus stations at the site. While the long-term trends indicate that top-down mixing is ongoing and wide spread, the material depositing at the site appears to be relatively low in concentration, and thus the top-down mixing is not expected to result in a loss of performance of the EMNR remedy. Importantly, the multiple lines of evidence also indicated the relatively limited amount of bottom-up mixing. This is critical to the performance of the TLC because bottom up mixing could bring higher concentration sediments into the surface zone where biological exposure is much more likely. These findings were confirmed by the bulk sediment chemistry data that indicated minimal change in the DDX concentrations in the bottom interval of the cap just above the native sediments.

Performance Objective 3 was the evaluation of reductions in surface sediment chemical concentrations. Reduction in surface sediment concentrations was a key remedy objective for the TLC in order to reduce the ecological risk of DDX exposure. As described above, processes such as bottom-up mixing of native sediment, or top-down mixing of new deposition had the potential to influence the success of the EMNR remedy in achieving the expected reductions in

surface sediment concentrations. Under this performance objective, we evaluated the performance of the remedy with respected to achieving the desired level of reduction in concentration in surface sediments. Data required for the assessment of the performance objective included DDX concentrations in surface sediment samples and sediment cores. Results for the performance objective were supplemented by the results of the cap mixing PO2, which provide information on mixing rates and extent. Sediment samples were obtained prior to and following TLC placement (2-, 14-, and 25-month post-placement) on and off cap. Success was measured by the change in surface sediment DDX concentrations following the installation of the cap, and the long-term persistence of the change out to the 25-month sampling event.

The analysis for PO3 indicated that the TLC surface sediment is remaining below pre-TLC placement levels and that recontamination from either top-down or bottom up mixing has not occurred to an extent that would compromise the remedy. Thus the success criteria were met. Bulk sediment chemistry found reductions in concentration of total DDX were below the PRG, significant reductions over time as well as significantly lower concentrations in the TLC compared to underlying native sediment, and reductions for on cap stations were greater than off cap stations for all events on average. Sediment traps indicated relatively high deposition rates of material with lower concentrations in the post-placement events compared to baseline.

Performance Objective 4 was the evaluation of reductions in chemical bioavailability and bioaccumulation. Reducing the concentration of DDX in surface sediment was expected to in turn reduce exposure of the native benthic invertebrate community, potential direct adverse effects, as well as reduction in the potential to indirectly or directly adversely affect higher trophic level fish, birds, and mammals. The extent to which the TLC contributed to reductions in bioavailability and consequently reduced the potential for bioaccumulation up the food web was the focus of this performance objective.

The parameters to evaluate changes in bioavailability and bioaccumulation included direct measurement of DDX concentrations in benthic invertebrate tissue using *in situ* bioaccumulation testing, as well as measurement of sediment porewater concentrations with ex situ passive samplers as an indicator of the bioavailable chemical fraction in sediments. Success was measured based on reduction in uptake by benthic invertebrates as measured by *in situ* bioaccumulation testing, and reductions in surface sediment porewater DDX concentrations as measured by ex situ passive samplers, respectively.

Overall, the success criteria for reductions in bioavailability were met. Significant reductions in concentrations of total DDX in *L. variegatus* tissue (lipid weight basis) was observed in short- and long-term events (on average). Reductions in concentrations of total DDX in *C. fuminea* tissue were also observed in short-term and long-term events on average, with significant reductions in the short-term event. Concentrations of total DDX in surface sediment porewater were reduced in all events compared to baseline, with significant reductions in the short-term monitoring and most recent long-term monitoring event.

Performance Objective 5 was an evaluation of the rate of benthic recovery following TLC placement. Along with reducing contaminant levels and bioaccumulation, a key goal of the EMNR remedy was to enhance the subtidal habitat at the site for benthic invertebrates. High levels of contaminants can have direct impacts on the health and composition of the benthic

community, and creating a relatively clean environment for benthic colonization is an important aspect of the EMNR remedy. The time for benthic recovery and potential impact of the cap on the benthic community was evaluated. Projection of the long-term effectiveness of the TLC remedy was evaluated based on the rate at which the benthic community recovered after cap placement and the extent to which the benthic community showed improvement compared to baseline conditions.

Laboratory treatability studies performed prior to the installation of the TLC suggested a conceptual model for the benthic recovery in which the cap would initially reduce the benthic populations due to smothering of the native population beneath the cap, followed by a relatively rapid recolonization that should continue to improve over longer time periods as more clean, natural sediment was mixed into the cap from top-down mixing. To test this, the rate and extent of sediment cap colonization was evaluated as well as the way in which cap conditions were similar to or differ from regional background conditions. Of interest was whether the TLC improved, hindered, or was otherwise neutral regarding the quality of benthic habitat. Data required to evaluate the impact of the TLC on the benthic community included benthic taxonomic surveys before and after cap placement (five on-cap stations and two off-cap stations), and SPI camera photos to document benthic colonization. Results were used to document the effects of TLC placement on the presence of the benthic community and to document changes in community structure over time after cap placement.

Overall, the performance objective success criteria were met using the direct benthic census data over the long-term with the TLC increasing scores for abundance, richness, and diversity. The B-IBI was scored in the highest category in the long-term monitoring events. SPI survey results were not found to be in agreement with the benthic community census, and significantly less confidence was placed in the SPI results due to noted limitations under the conditions present at the site.

Future Projections

Recovery of surface sediment concentrations with EMNR (thin-layer Habitat Enhancement Cap) provides physical isolation of the impacted sediments to the benthic community and prevents resuspension or transport of impacted-sediments. Reduction in concentrations of DDX in surface sediments with the EMNR remedial option occurs in a shorter timeframe compared to MNR as shown in Figure 110. The measured concentrations in surface sediment decreased from an average of 573 µg/kg, dw in 2009 (57 months prior to TLC placement) and 264 µg/kg, dw in 2012 (20 months prior to TLC placement). After EMNR placement, measured concentrations in the 2-, 14-, and 25-month events show the concentration reaching 51 µg/kg, dw (average surface sediment) and projected to reach concentrations similar to off-cap measurement within 60 months or sooner. Concentrations in surface sediment with MNR remedy are projected to continue to decline; however, at a much slower rate of recovery. The rate of recovery under MNR was estimated based on reductions in DDX concentrations for the two off cap stations from 57 months pre-placement to 25-months post-placement, and assuming a linear rate of decline. This rate of decline was applied to surface concentrations measured at the time of cap placement to derive the MNR curve.

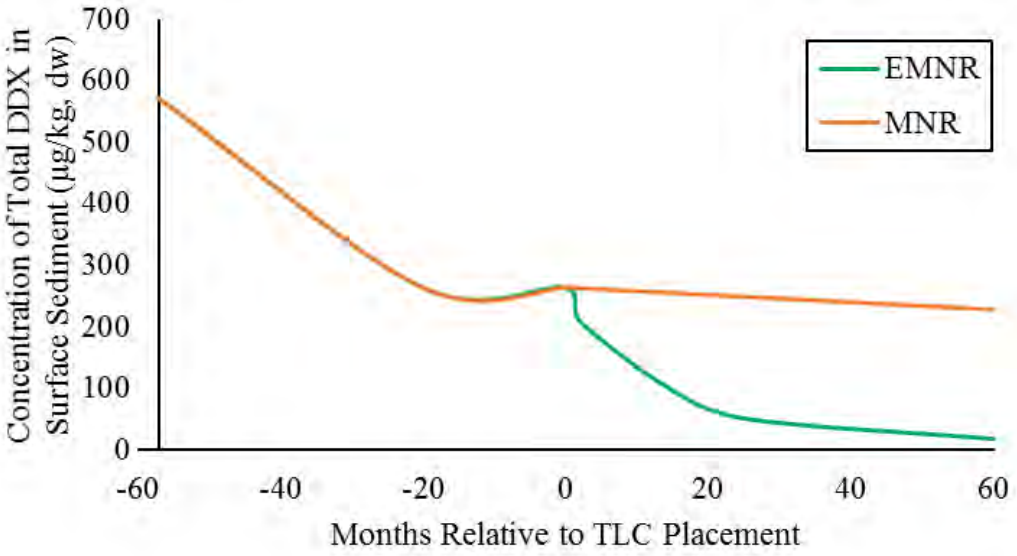


Figure 110. Illustration of EMNR and MNR Performance relative to total sediment DDX concentrations.

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7. Cost Assessment

Cost issues are critical to the evaluation and acceptance of innovative technologies. As a component of demonstrating and validating the performance of EMNR as a sediment remedy, this project will develop and validate the expected operational costs of the proposed remedy. Relevant costs will be detailed during the demonstration project so that the operational costs of EMNR implementation can be documented. Cost-related data obtained during the demonstration will be used in the ESTCP cost and performance report, as well as the ESTCP final report. Costs will be reported in the recommended Federal Remediation Technologies Roundtable format.

7.1. Cost Model

The demonstration area at Quantico Embayment is 10.9 acres and includes placement of a minimum of 6 inches over the target area. To place a cap with a minimum thickness of 6 inches, it would be necessary to place an average of 9 to 12 inches of material over the remedial footprint (NAVFAC WA 2011). Therefore, placement of 12 inches of material is conservatively assumed in this cost assessment. Costs and assumptions presented below are based on estimates derived in the Quantico Embayment Feasibility Study (Battelle, et al., 2007) and the Record of Decision (NAVFAC 2011) and have not been adjusted to reflect subsequent inflation. The costs associated with placement of the TLC include materials, labor, equipment, and subcontracts associated with design, construction, oversight/quality control costs and baseline monitoring costs (Table 43). Additionally, it was assumed that annual monitoring and maintenance will occur in years 1 to 5, followed by monitoring and maintenance every 5 years for 30 years. The present worth cost is the sum of the capital cost and the present worth of the monitoring and maintenance costs for 30 years.

Table 43. Cost model for a thin-layer sand cap for a 10.9 acre area.

Cost Element	EMNR Thin-Layer Cap Costs	
Construction Cost	Materials Labor Equipment Subcontracts **Total**	\$950,000 \$540,000 \$620,000 \$240,000 **\$2,340,000**
Design costs	Materials Labor Equipment Subcontracts **Total**	\$20,000 \$300,000 \$40,000 \$30,000 **\$390,000**
Construction Oversight & QC costs	Materials Labor Equipment Subcontracts **Total**	\$30,000 \$230,000 \$100,000 \$100,000 **\$460,000**
Contingency	**25% of above costs**	**\$800,000**
Post-construction (baseline) Monitoring	**Materials, Labor, Equipment and subcontracts**	**\$80,000**
Total Capital Costs	**Total**	**\$4,070,000**
Annual Monitoring & Maintenance Years 1-5	Monitoring Maintenance **Total**	\$110,000 \$10,000 **\$120,000**
Annual Monitoring & Maintenance Years 6-30	Monitoring Maintenance **Total**	\$20,000 \$10,000 **\$30,000**
Present Worth O&M	**Total**	**\$770,000**
Total Present Worth[1]	**Total**	**\$4,840,000**

Note: Present worth was calculated assuming a 7% discount rate.

7.2. Cost Drivers

Cost drivers to consider in selecting this technology include:

- **Material** costs will vary by amount required and the location of the project relative to the source of cap material. Estimates for the purchase and shipment of sand for this project were assumed to be $30/ton, but deviations from this can significantly impact overall costs.
- **Placement** costs can vary significantly based on the complexity of the site, including considerations for bathymetry, currents, infrastructure, regulatory requirements, and other considerations as well as site access and logistical considerations.
- **Monitoring** is needed to ensure performance meets remedial action objectives. Monitoring and maintenance costs for EMNR are largely a function of the monitoring plan and are controlled by the labor rates and number of personnel required to operate field equipment, analyze data, and generate the documentation associated with the project. Other operating costs include analytical laboratory costs and consumables.

7.3. Cost Analysis

The cost analysis will evaluate and compare the costs of EMNR thin-layer capping with monitored natural recovery (MNR) and traditional remedy alternatives, including installing a 4-foot thick isolation cap and dredging to 3-feet with offsite disposal of dredged material (assumed to be non-hazardous). With the exception of dredging, long-term monitoring at the site is expected to be required to ensure remedy effectiveness for all options. Long-term monitoring costs are driven by labor, equipment, laboratory analyses, supplies, and transportation costs, but are not expected to vary significantly among MNR, EMNR and isolation capping. Dredging is assumed to meet remedial goals during sediment removal so no substantial long-term monitoring costs are incurred.

The estimated costs presented in this assessment are prepared for alternative comparison and are based on the information available at the time of the estimate (2007). The actual costs of remediation depend on many variables, including quantity of contaminated sediments, disposal fees, health and safety regulations, and labor and equipment costs. In order for cost estimates to best reflect the differences between alternatives and relative costs, a number of assumptions are necessary regarding project scope, especially for design, construction oversight and long-term monitoring.

The key assumptions for construction costs are:

- Construction unit costs include overhead and profit for the implementing contractor or subcontractor. The costs do not include general contractor or construction manager mark-up on subcontracted work as this would not affect cost comparisons and is dependent on the acquisition strategy.
- Labor rates are based on Building Construction Cost Data 2004, RS Means Construction Publishers & Consultants, in Kingston, Massachusetts using union wage rates. Equipment rates are based on RS Means and professional judgement based on past

dredging projects. Material costs are based on personal communications from local vendors or professional judgement based on past projects.
- Construction production rates are based on equipment's rated capacity, modified for work in shallow water. All work will be done in one eight-hour shift per work day, working five days per week.

The key assumptions for design costs are:

- Pre-design sampling for all alternatives except dredging includes 5 days for sediment chemistry sampling, 2 days for benthic community sampling and sediment profile imaging (SPI), and 2 days for physical surveys. Laboratory analysis includes 20 sediment samples, 20 water samples, and 10 fish tissue samples for chemical analysis of DDX compounds, and 10 samples for benthic community analyses. The physical survey includes one day for divers with an underwater video camera.
- Pre-design sampling for dredging includes 10 days for sediment chemistry sampling, 2 days for benthic community sampling and SPI, and 2 days for physical surveys. Laboratory analysis includes 80 sediment samples, 20 water samples, and 10 fish tissue samples for chemical analysis, and 10 samples for benthic community analysis. The physical survey includes one day for divers with an underwater video camera.
- Design costs are based on preparation of design reports (including engineering calculations) and drawings for 30%, 90%, and final designs; technical specifications for 90% and final designs and construction work plans.
- Costs for procurement are not included as they would not affect cost comparisons and are dependent on the acquisition strategy.

The key assumptions for construction oversight and quality control are:

- The project manager, resident engineer, and administrative support person are be on-site fulltime for one eight-hour shift per work day.
- Water quality monitoring and sampling are completed daily during the first 10 working days, then weekly for the duration of the project. The monitoring is assumed to include analysis of six water chemistry samples per event.
- Bathymetric surveys are completed once a week for the project duration.
- Confirmation sediment sampling is done at the end of construction and includes 20 sediment samples for chemical analyses.
- Post-construction benthic survey includes SPI. Laboratory analysis for post-construction baseline includes 10 fish tissue samples and 10 samples for benthic community analysis.

The key assumptions for long-term monitoring are:

- Post-construction monitoring is done in the first year for all alternatives and is the baseline for long-term monitoring. The field work includes 5 days for sediment sampling and 2 days for benthic sampling and SPI. Laboratory analysis includes 20 samples for sediment chemical analyses and 10 fish tissue samples for chemical analyses.
- Annual monitoring is needed for years 1 through 5 for all alternatives except dredging. Each annual event includes 5 days for sediment chemistry sampling, 2 days for benthic

community sampling and SPI, and 2 days for physical surveys. The physical survey includes one day for divers with an underwater video camera. Laboratory analysis includes 20 sediment samples, 20 water samples, and 10 fish tissue samples for chemical analysis, and 10 samples for benthic community analyses.

- Monitoring occurs once every 5 years for years 6 through 30 and includes the same sampling and surveys as for years 1 through 5.
- Annual maintenance for capping alternatives includes placement of 100 tons of sand and re-planting of 0.10 acres each year and is conducted on the same schedule as monitoring.

The comparative analysis of remedial alternatives for Quantico Embayment is presented in Table 44. Overall, MNR is the least expensive option because no construction activities are involved. The majority of costs for MNR are incurred during long-term monitoring. MNR long-term monitoring costs are estimated to be less than both EMNR and isolation capping because no maintenance is required (saving approximately $10,000 per maintenance event). The costs for EMNR are greater than those for MNR, however EMNR is 2-3 times less expensive than isolation capping and dredging, which both require substantially higher capital costs.

Table 44. Cost assessment for EMNR thin-layer Cap compared to monitored natural recovery, isolation cap and dredging for a 10.9 acre area.

Cost Element	EMNR Thin-Layer Cap	Monitored Natural Recovery	Isolation Cap	Dredge and Off-site Landfill
Construction Costs	$2,340,000	$0	$6,851,000	$10,035,000
Design Costs	$397,000	$204,000	$523,000	$473,000
Oversight & QC Costs	$456,000	$0	$876,000	$825,000
Contingency (25%)	$798,000	$51,000	$2,063,000	$2,833,000
Post-Construction (Baseline) Monitoring	$76,000	$76,000	$76,000	$76,000
Total Capital Costs	**$4,070,000**	**$330,000**	**$10,400,000**	**$14,200,000**
Annual Monitoring & Maintenance Years 1-5	**$123,000**	**$113,000**	**$123,000**	**$0**
Annual Monitoring & Maintenance Years 6-30	**$32,000**	**$23,000**	**$32,000**	**$0**
Present Worth O&M	$770,000	$650,000	$770,000	$0
Total Present Worth	**$4,840,000**	**$980,000**	**$11,200,000**	**$14,200,000**

Note: Present worth was calculated using a discount rate of 7%.

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8. Implementation Issues

Although conventional isolation caps have demonstrated effectiveness in the management and remediation of chemically impacted sediment, rigorous demonstration and validation of the effectiveness of EMNR remains limited (USEPA 2005). Ongoing questions regarding the application, performance, and ecological impacts of EMNR have limited its widespread implementation. To address these implementation issues, the following relevant questions were posed. Evaluation of these questions based on the literature compiled and the demonstrations conducted as part of this project are presented below.

Is artificially-increased sediment deposition via TLC placement an effective strategy for enhancing MNR and accelerating natural system recovery rates?

The effectiveness of the TLC strategy for accelerating MNR appears to be a viable remediation approach depending on site conditions. From a process perspective, key aspects of the success of the TLC and the overall EMNR approach are that: (1) the TLC remain relatively stable above the sediment to be isolated; (2) any new deposition is relatively clean compared to surface sediment goals, even if the rate of deposition is low; (3) bottom-up mixing of the TLC is limited to the extent that the elevated levels of contamination in the underlying sediment do not unduly influence the exposure in the surface sediments following placement of the TLC; (4) advection rates through the cap are not so significant that they lead to a high level of porewater movement from below the TLC into the TLC; and (5) the remedy should demonstrate direct reduction in bioavailability over the short-term and long-term. For the Quantico embayment site where we conducted our demonstration, all of these conditions were documented to be satisfied. Multiple measures of cap thickness and elevation indicated that the cap material was remaining relatively stable and within design guidelines. New deposition, as characterized by sediment traps and surface sediment interval samples, was generally low in DDX. Bottom-up mixing was documented to be limited based on multiple lines of evidence. While advection rates were not directly measured, porewater measurements at critical intervals within the cap showed that advection was not significant enough to unduly influence the concentrations within the cap. Finally, direct measurements of bioavailability including uptake in organisms and porewater concentrations generally indicated significant reductions over both short and long time periods out to 2 years.

How sensitive is EMNR performance to the accuracy of TLC placement?

Sensitivity of the EMNR performance to the accuracy of TLC placement appears to be relatively high. This is because the layer being applied is generally thin, and on the same order of magnitude in thickness as the bioactive zone of the sediments. To be effective, the TLC must also accommodate a certain degree of bottom-up mixing that is likely to occur either during the installation or due to physical or biological disturbance over time. Thus key aspects of the sensitivity to placement include the relative thickness of the TLC compared to the bioactive zone, and the degree of bottom-up mixing that is expected based on construction methods and site specific likelihood of physical and biological disturbance following placement. For the demonstration at Quantico Embayment, the bioactive zone was relatively shallow because of the freshwater, riverine nature of the site. Also, it was observed that the installation of the TLC generally achieved target thickness throughout the site so that there were few areas where

biological activity was likely to interact with the underlying sediments. In addition, physical disturbance of the TLC appeared to have been limited to localized resuspension during the installation of the cap, resulting in some interleaving of native sediments with the cap material, but not to the extent that it interfered with the effectiveness of the remedy over the 2 years of observations.

What are the short-term construction (risk-of-remedy) effects associated with EMNR and to what extent does TLC application influence benthic community survival?

The primary risks related to the construction of the TLC appear to be potential short- to mid-term effects on the benthic community, along with some amount of disturbance of the native sediment associated with the depositing of the TLC material. The effects on the benthic community are expected to be a function of both the initial covering of the native sediments that can result in smothering of the existing infaunal community, as well as the potential that the community could be degraded over the mid-term as a result of the differing grain size and TOC characteristics of the TLC material. From our laboratory treatability studies, we observed significant smothering effects from placement of thin layers of sand over infaunal organisms. However, at the demonstration site at Quantico Embayment, we observed relatively rapid recovery of the benthic community following construction of the TLC. While the sand material may not have provided optimal habitat initially, it was observed that over time, top-down mixing of relatively clean sediment deposits into the surface layer tended to improve the habitat characteristics, and a general improvement in benthic community health was observed relative to the pre-construction conditions.

Under what range of physical, biological, and chemical conditions will EMNR be effective?

The range of effectiveness of EMNR was not completely explored in this project. However, general considerations for the selection of EMNR are becoming well established. From a physical perspective, the remedy should generally be applied at sites that are relatively quiescent, and not subject to significant physical disturbance that would disrupt or penetrate the cap to a degree that the underlying sediments would be re-exposed or significantly mixed into the TLC. The native materials must also have the physical strength to support the TLC so that gravitational mixing does not lead to failure of the TLC. From a biological perspective, the TLC thickness should consider the nature and scale of bioactivity in the surface sediments, and the expected route of exposure for the risk endpoints under consideration. From a chemical perspective, EMNR is generally viewed as being most effective at sites where MNR would be effective, but deposition rates are potentially too low to reach the desired clean up goals in a reasonable amount of time. Thus most sites where EMNR has been applied have exposure levels that are near risk thresholds, as opposed to higher concentration hot spots. For the Quantico Embayment site, our results reflect these physical, biological and chemical conditions. The site is in a relatively protected embayment, the bioactivity was limited due to the freshwater nature of the site, and the concentrations (other than in areas targeted for removal) were relatively close to the target PRG.

With respect to grain size, total organic carbon (TOC) content, and other biogeochemical parameters that influence habitat quality, how can EMNR design be optimized?

This remains a key question that was not thoroughly addressed in this project. Follow-on studies have been proposed to address this optimization question. In general, EMNR has been carried out using TLCs constructed with sand, which is optimal from a stability and construction perspective, but not necessarily optimal from a habitat or environmental protection perspective. The sand materials are often not consistent with the grain size characteristics of the native sediments, and thus create a habitat that is also inconsistent with the site conditions. In addition, the sand material contains essentially no TOC, which may create a less optimal habitat while also providing little to no binding capacity for contaminants. While the traditional sand TLC was shown to be effective over 2 years at the Quantico Embayment site, future development of a more comprehensive approach and guidance for the selection and optimization of EMNR that addressed this question would be highly beneficial to the broader implementation of the remedy.

How effective is EMNR in reducing chemical mobility and biological exposure potential in surface sediment?

Overall, review of the historical literature, and our experience with the Quantico Embayment site indicated that EMNR can be highly effective and reducing exposure in surface sediments. EMNR remedy effectiveness seems to be a function of three primary considerations, including careful consideration of site condition for the selection of EMNR, proper design of the EMNR remedy to meet site-specific conditions, and adequate monitoring to assure remedy success and address any potential defects in the TLC. For the Quantico Embayment site, the EMNR remedy was shown to be effective in reducing exposure in surface sediments as measured by bulk sediment total DDX concentrations, porewater DDX concentrations, and direct measurement of bioaccumulation in two site-exposed benthic organisms.

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Appendix A
Points of Contact

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Kyle Fetters	Ramboll Environ 136 Commercial Street, Suite 402 Portland, ME 04101	207-517-8260 Kfetters@ramboll.com	Technical and field support and consultation
Victor Magar	Ramboll Environ 333 W Wacker Dr., Suite 2700 Chicago, IL 60606	312-288-3840 Vmagar@ramboll.co m	Co-Principal Investigator Technical and field support and consultation
Todd Weidner	Battelle 505 King Avenue Columbus, OH 43201	410-306-8649 weidnert@battelle.org	Contract Management
Lyndsay Kelsey	NAVFAC Washington 1314 Harwood St SE, Building 212 Washington Navy Yard, DC 20374	202-685-3266 lyndsay.kelsey@navy.mil	Navy Site Remedial Project Manager
Marc Greenburg	USEPA - Region 2 Superfund Division 2890 Woodbridge Avenue Building 18, MS 101 Edison, NJ 08837	732-321-6754 greenberg.marc@epa.gov	Regulatory oversight

Appendix B
Laboratory Biological Characterization Studies

BIOLOGICAL CHARACTERIZATION: LABORATORY STUDIES

- **Laboratory Sediment Exposure**. Prior to field sampling, laboratory sediment will be employed to examine the uptake of DDX by a representative benthic invertebrate and to assess survival, and growth of representative benthic species following placement of the TLC, as well as fate and transport mechanisms of DDX (initial mixing of TLC material with native sediment, bioaccumulation and biotransport of DDX in benthic organisms, etc.). Data will allow several fundamental uncertainties regarding capping and DDX fate and transport to be addressed under controlled laboratory conditions, as well as provide information to optimize the experimental design for post-capping chemical and biological measurements. For laboratory physical burial effects and bioaccumulation experiments, three experiments will be conducted.
  - **Experiment 1** will be a standard bioaccumulation experiment to understand the uptake kinetics of DDX in invertebrates exposed to Quantico sediment. Concentrations of DDX will be measured in oligochaetes (*Lumbriculus variegatus*) exposed to native, DDX-impacted Quantico sediment for 1, 2, 4, 8, 12, 18 or 28 days (n = 3 for each time period). Data will allow an estimation of steady-state (equilibrium) DDX concentrations in benthic invertebrates. Steady-state concentrations better-represents concentrations in native organisms exposed for periods longer than that feasible in laboratory tests, and thus, better represent the bioavailability of DDX to on-site food webs relevant to ecological risk. *Lumbriculus* sediment exposures will follow standard guidelines. (U.S. EPA 2000; ASTM 2000). *Lumbriculus variegatus* (300 mg wet wt, approximately fifty mixed aged individuals) will be placed in 2 L tall glass beakers containing 500 g (wet wt.) of sediment and 1.2550 L of overlying water (dechlorinated tap water). The ratio of TOC in sediment to dry weight of experimental animals will be 50:1 or higher to minimize the depletion of sediment contaminants and to ensure an adequate food supply to infaunal experimental organisms. Overlying water will be aerated gently if the dissolved oxygen concentration falls below 2.5 mg/L. Chambers will be maintained at 23 °C. Two-thirds of the overlying water in the chambers will be changed three times a week. The frequency of water exchange is less from that recommended in standard guidelines for bioaccumulation to minimize contaminant loss from the exposure system. Experimental chambers will not receive external food source during the exposure to maximize the exposure of experimental animals to the contaminated sediment. The organisms will be removed at experiment termination by sieving the sediment through a 0.5 mm sieve and placed in clean water to depurate their gut contents. To minimize excessive depuration chemicals from tissues, the sediment purging period of 6 h recommended by Mount et al. (1999) for *L. variegatus* will be employed. Surviving worms will be frozen prior to solvent extraction and chemical analysis for DDX.

    The kinetic relationship produced from Experiment 1 will optimize *in situ* bioaccumulation testing (detailed below). For example, DDX may take several weeks to reach steady-state concentrations in invertebrates. Deployment of *in situ* bioaccumulation chambers for long time periods needed to reach steady-state may not be feasible or cost-effective. However, DDX *in situ* bioaccumulation data from very short (e.g., 1-week) can be extrapolated to steady-state data using the kinetic relationship derived in Experiment 1. For example, the laboratory study may suggest that at 7 days of exposure, DDX concentrations in organisms are approximately 25% of their steady state concentrations. Using that relationship, results

from a 7-day *in situ* bioaccumulation deployment could be multiplied by 4 to yield steady-state data.

- **Experiment 2** (Figure 1) will assess the "risk-of-remedy" of cap placement. The expected detrimental effect of cap placement is smothering of the benthic community by TLC material. Chemical bioaccumulation in the capped sediment will also be addressed, assuming survival of test invertebrates following TLC cap placement. Experimental details are provided below:

  At the initiation of the experiment (t = 0 days [d]), amphipods (*Hyallela azteca*, approximately 100 mature individuals) and oligochaetes (*Lumbriculus variegatus*, approximately 200 mixed aged individuals)) will be added to 16 experimental units. Experimental units will consist of 8-L jar-shaped glass chambers containing 1.5 L of sediment and 5 L of overlying water. Exposure conditions will be as described for experiment 1. Four units will contain clean sediment and serve as controls, whereas 12 units will contain native Quantico sediments with elevated DDX concentrations.

  At t = 28 d, 4 control and 4 Quantico sediments will be sieved to obtain organisms for enumeration. This data will be used to verify the suitability of Quantico sediments to support performance of the laboratory organisms, and will be used as data with which to compare biological effects results from the TLC physical burial portion of the experiment (below).

  TLC cap material will be added to address physical "smothering" effects on benthic communities, and provide initial data on mixing of TLC material with native Quantico sediment that may better optimize sediment chemistry sampling that will be conducted in the field (e.g., optimizing which TLC depths to sample to obtain information on mixing) (Figure 5-7). For the 8 experimental units, 4 units will be used as controls (i.e., no cap material addition) and 4 units will receive 15 cm of cap material, which will be gently dispensed into the chamber. Exposure will be assessed following a further 28 days (t = 56 d) at which point the effect of cap placement on organism survival and chemical bioaccumulation in *Lumbriculus variegatus* will be assessed. The concentration of DDX in the native sediment layer and the cap layer will be also measured at the end of the experimental period (t = 56 d) to determine the extent of DDX migration/mixing into the TLC.

- **Experiment 3** (Figure 2) will simulate the bioaccumulation of DDX in invertebrates that may attempt to colonize the TLC following placement, as well as the suitability of the TLC to support benthic communities. Experimental details are provided below:

  At the initiation of the experiment (t = 0 d), four experimental units will contain Quantico Embayment sediment characterized by elevated DDX concentration. Experimental units will consist of 8-L jar-shaped glass chambers containing 1.5 L of sediment and 5 L of overlying water. Exposure conditions will be as described for experiment 1, except of no exchange of overlying water will be performed. Experimental units will not contain organisms. At t = 28 d, 15 cm of cap material will be added to each experimental unit. Following an interval in which cap material is allowed to settle, amphipods and oligochaetes will be added to each unit for an interval of 28 days.

At t = 28 d, surviving amphipods and oligochaetes will be enumerated for evaluation of the suitability of the TLC to support benthic communities. Tissue DDX concentrations will be assessed in oligochaetes to understand post-capping DDX bioavailability. The concentration of DDX in both the native sediment layer and the cap layer will also be measured to assess the extent of DDX migration into the cap layer. DDX bioaccumulation data and DDX TLC and sediment data will be used to optimize post-capping experimental design.

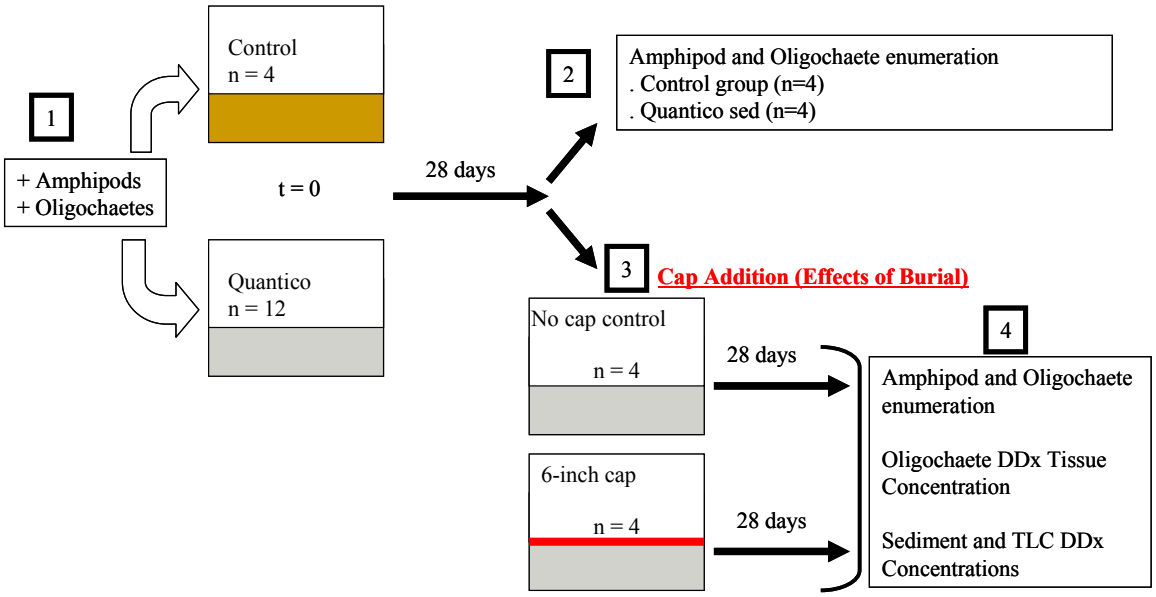


Figure 1. Experimental design for Experiment 2, conducted to understand the effects of burial on benthic organism survival and bioaccumulation of DDX, and the mixing of TLC with native sediment that occurs during TLC placement.

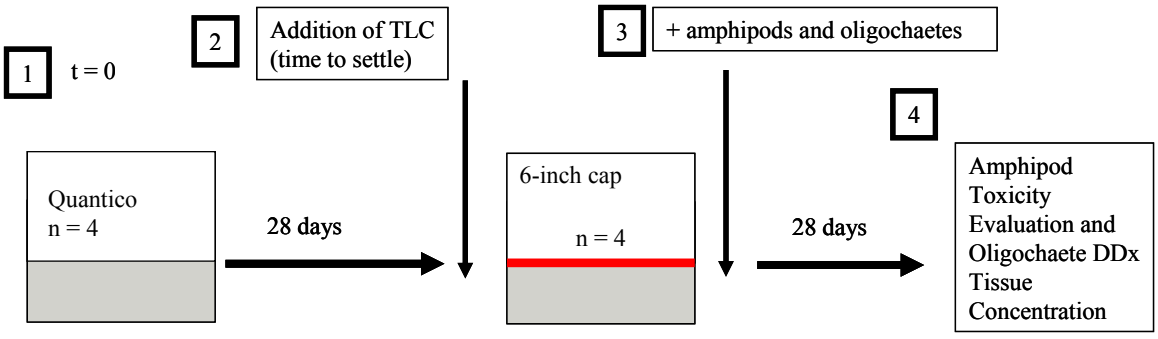


Figure 2. Experimental design for Experiment 3, conducted to understand the bioaccumulation of DDX and survival of organisms colonizing the TLC.

Appendix C
Quality Assurance Project Plan

Quality Assurance Project Plan

Purpose and Scope of the Plan

The Quality Assurance Project Plan (QAPP) for this demonstration project specifies procedures that will be used to ensure data quality and integrity for the demonstration and validation of enhanced natural recovery at Department of Defense (DoD) sediment sites. Careful adherence to these procedures will ensure that data generated from this demonstration and validation will meet the desired performance objectives and will yield appropriate analytical results. The content of this QAPP is based on guidance provided by ESTCP (ESTCP 2004), and USEPA (USEPA 1998; 2001). The format approximately follows the format provided in the ESTCP guidance (ESTCP 2004); however, additional information is also included.

In order to collect performance data of known quality, sampling and analysis procedures are critical. Approved QA/QC procedures must be implemented throughout the evaluation. All staff members participating in sample collection and handling in support of the demonstration and validation project are required to read this QAPP, and must keep it in their possession during field activities. All project participants are required to comply with the procedures identified in this QAP in order to determine that the data collected are of known and documented quality, and are useful for the purposes for which they were collected.

Quality Assurance Responsibilities

A well-organized project team, combined with adequate experience and proper training, will ensure consistent quality throughout the demonstration and validation project. Section 3.9 provides points of contact and project roles, while the organization of demonstration team members is shown in Figure 1. Primary responsibility for execution of the demonstration and validation project will be taken by Bart Chadwick (SSC Pacific) and Victor Magar (ENVIRON). The primary site representatives are Mr. Fred Evans (NAVFAC Washington) and Ms. Heather Thurston (Battelle). Project Manager and QA officer for the project will be Victoria Kirtay (SSC Pacific) who will coordinate all QA activities with site and laboratory personnel.

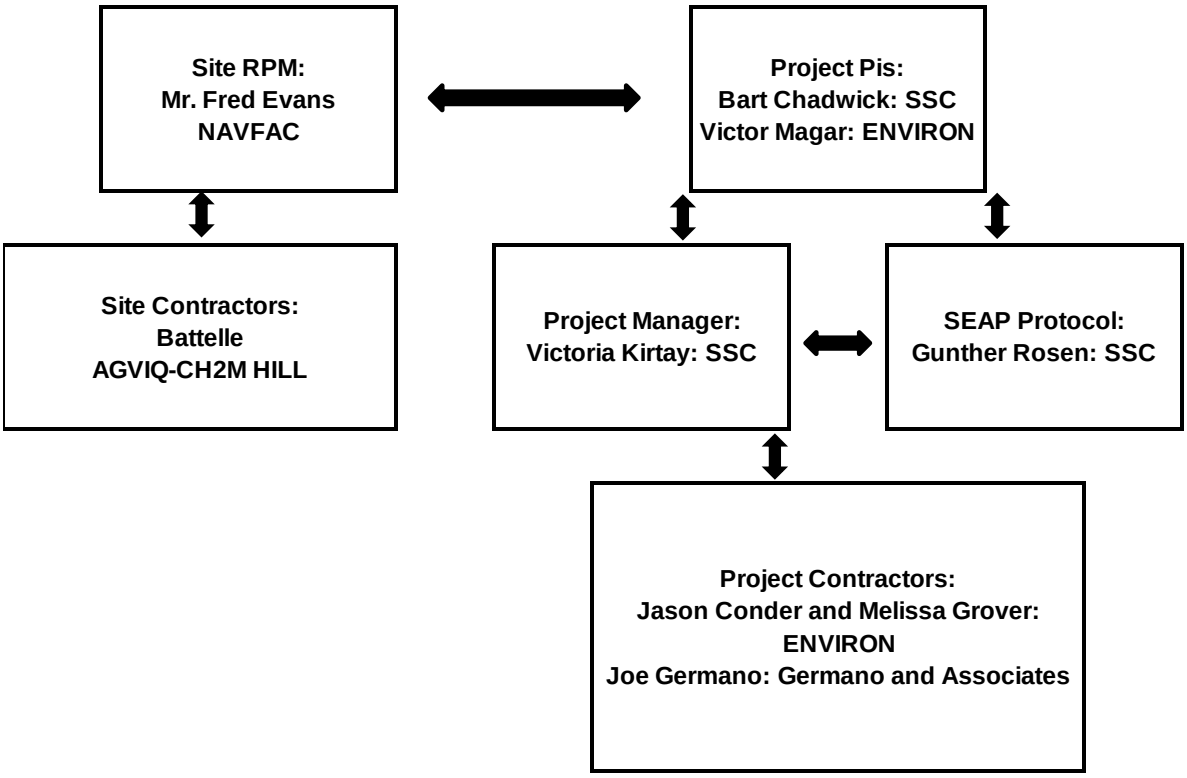


Figure 1. Project management and staffing.

Data Quality Parameters

Project Description

The overall objective of this project is to foster broader understanding and acceptance of the Enhanced Monitored Natural Recovery (EMNR) remedy through demonstration and validation of performance and cost-effectiveness at DoD contaminated sediment sites. This effort will focus on key performance issues including: 1) the effectiveness of EMNR as a remedy; 2) the effectiveness of available monitoring tools to gauge remedy performance; 3) validation of recovery processes and construction issues related to EMNR; and 4) evaluation of short-term implementation success and the ability to project the potential for long-term remedy success. The effectiveness of the remedy will be assessed through the collection and interpretation of physical, chemical and biological data from the area supporting the EMNR remedy. Data gathered during this demonstration and validation project will provide DoD site managers and regulatory agencies with cost, performance and risk-oremedy data from which to evaluate the effectiveness of EMNR as a remedial strategy.

The site chosen for implementation of this demonstration and validation project is the Quantico Embayment in Quantico, VA, also known as Site 99. The Quantico Embayment is located at the Quantico Marine Corps Base (MCB), approximately 35 miles south of Washington, D.C. The embayment is shallow, with an average depth of 1.5 meters (m), and minimally influenced by tidal effects. The application of EMNR at this site will entail the placement of a thin layer cap over

sediments characterized by elevated concentrations of the pesticide dichlorodiphenyltrichloroethane (DDT) and its derivatives. DDT and its derivatives are collectively defined in this QAPP as DDX. Information regarding the development and implementation of the thin layer cap will be provided by the site contractor and will not be generated as a component of this demonstration and validation project.

As noted, the specific technical objectives of this field effort are to:

1. Demonstrate the effectiveness of thin layer capping and EMNR as a remedy.
2. Evaluate the effectiveness of available monitoring tools to gauge performance of the implemented remedy.
3. Provide validation of natural recovery processes (i.e., reduced bioavailability, succession of benthic community structure) and construction issues related to EMNR and the placement of the thin layer cap.
4. Evaluate implementation success through short-term monitoring and assess the ability of monitoring results to project potential for long-term remedy success.

Sampling objectives will be achieved based on the collection of biological, chemical and physical data from (as relevant) on-cap and ofcap sampling stations.

Data Types and Uses

A number of different data types will be collected as part of the demonstration and validation project (Table 1). The data types are targeted for the purpose of meeting the project objectives described above, and have specific uses within the project framework as described below.

Physical and hydrodynamic monitoring includes evaluation of changes to bathymetry, cap thickness, current/flow structure, water column turbidity, sediment physical properties, sediment mixing and cap structure/consolidation during and after placement of the thin layer cap. Assessment of changes to physical parameter over time will allow documentation of: 1) the stability of the thin layer cap; 2) consolidation of the cap over time; 3) changes in system hydrodynamics resulting from cap placement; and 4) the effect of cap placement on the redistribution of bed sediment.

Chemical monitoring includes the concentration of DDX and ancillary chemical parameters (such as organic carbon content) in cap material and underlying sediment, the estimated concentration and bioavailability of DDX in porewater, and the concentration of DDX and ancillary chemical parameters in suspended particulate matter. Assessment of changes to chemical parameters over time will allow documentation of changes in surface sediment chemistry following cap placement and monitoring of the extent to which the new sediment surface (i.e. the cap material) is contaminated from either water column (top-down) or via mixing with underlying sediment (bottom-up).

Biological monitoring includes experiments to assess the effect of cap placement on the benthic community and tissue analyses to assess the extent of ongoing DDX bioaccumulation following remedy implementation. Assessment of the benthic community will focus on changes to

community structure and composition following remedy implementation, and the effect of cap placement on the health and composition of native benthic invertebrates.

Table 1. Monitoring Parameters for Demonstration and Validation Project

EVENT	*Baseline 1&2 (ER0827)*	*Baseline 3 (ER201130)*	*2 Months Post-Construction (ER201368)*	*1 Year Post-Construction (ER201368)*	*2 Year Post-Construction (ER201368)*		
ACTIVITY/TOOL	**May 2009, Sept. 2009**	**Oct-12**	**March 2014**	**March 2015**	**March 2016**	**Focus Question Addressed**	**Notes**
In situ Biaccumulation: SeaRings	◈	●	●	●	●	Risk	No adequate baseline data available on site invertebrates, although adequate baseline data are available for plants and fish; Post placement assessment of bioaccumulation potential.
Benthic Census	◈	●	●	●	●	Risk of remedy	Census includes reference areas.
Bathymetry	◈		⦿	⦿	⦿	Stability	Monitor the extent to which changes in bathymetry are resulting in changes to system energetics.
Sediment chemical and physical profiling: sediment cores	◈	⦿	⦿	⦿	⦿	Mixing; Concentration; Deposition/Winnowing	Sediment profiling for determination of DDx in sediment porewater for 1) estimation of diffusion of DDx in sediment porewater and 2) monitoring DDx bioavailability within the cap layer. Sediment profiling for determination of grain size to monitor effect of deposition and winnowing that may occur.
Bioavailability: Passive Sampler (in situ and ex situ)	◈	⦿	⦿	⦿	⦿	Risk; Mixing	Assessment of bioavailability through use of tissue proxies (SPMEs) or porewater samplers.
SPI Camera	◈		⦿		⦿	Stability; Mixing; Risk of remedy	Assessement of bioturbation depth and extent of benthic activity, potential for observing cap-native sediment interface following cap placement.
Water Depth	◈		⦿	⦿	⦿	Stability	Depth at fixed sample stations.
Cap Thickness			⦿	⦿	⦿	Stability	Monitor cap thickness post-placement and an changes over time.
Sedimentation and/or Erosion: Sediment trap analysis	◈		⦿		⦿	Concentration	Including reference areas and 1) physical analyses to estimate sedimentation rate on the cap and 2) chemical fingerprinting to identify potential sources of recontamination.

Symbol Key:

●	Biological Measurement
⦿	Physical/Chemical Measurement
◈	Measured in 2009 (ER0827)

Data Quality Requirements

The QA objective of this field investigation is to obtain results that are of known and acceptable quality and are representative of the conditions present at the site. The sampling plan for physical, chemical and biological characterization of the thin layer cap has been developed to ensure the collection of sufficient samples from appropriate locations to achieve the goals described in the data quality objectives (DQOs). Field sampling procedures will include safeguards to ensure that the samples provided to the laboratories are intact and representative of field conditions. Measurement quality objectives (MQOs) have been established for this project to ensure that the collected data are of known and sufficiently high quality to support the project objectives. Qualitative MQOs are described below. Examples of quantitative MQOs and sample handling requirements are presented in Tables 2 and 3 for DDX.

Table 2. Analytical limits for analysis of DDX in sediment, tissue and porewater samples.

Chemical Analysis	Method Reference	Units	Method Detection Limit
DDX (sediment)	EPA 8081A	µg/kg	0.5 µg/kg (with 10 g dry wt)
DDX (tissue)	EPA8081A -- micro	µg/kg	2 µg/kg (with 100 mg wet)
DDX (porewater, SPME)	EPA 8081A	ng	0.2 ng in 100 ul

Table 3. Required Containers, Preservation Technique, and Holding Times for Analysis of DDX in Sediment or Tissue Samples.

Parameter	Volume Required	Container	Preservative	Holding Time
Organochlorine Pesticides	32 oz. for sediment; 10 g for tissue	Glass	4º C for sediment; < 0º C for tissue	14 days until extraction, 40 days after extraction for sediment; 1 year for tissue

Precision

Precision is the reproducibility of measurements of the same characteristic, usually under a specific set of conditions. For replicate measurements, precision is expressed as the relative percent difference (RPD) or the standard deviation (SD, or the relative standard deviation (RSD). Precision for the physical, chemical and biological data collected in support of the demonstration and validation project will be assessed as appropriate for each instrument or analysis. Assessment of precision may include, as examples, calculation of the SD from replicate analysis performed under controlled laboratory conditions (such as for mesocosm experiments) or calculation of the RPD from replicate analysis of samples collected at a subset of stations in the field (such as for field chemical analysis).

RPD is defined as follows:

$$RPD = \frac{C_1 - C_2}{0.5(C_1 + C_2)} \times 100$$

Where C_1 is the first measurement value and C_2 is the second measurement value.

The % RSD is calculated from the standard deviation of replicate analytical results and the mean value of those same results. That is, the % RSD can be expressed as:

$$\%RSD = \frac{StdDev}{Mean} \times 100$$

Accuracy

Accuracy is the degree to which a measurement agrees with the true value. Accuracy for the physical, chemical and biological data collected in support of the demonstration and validation project will be assessed as appropriate for each instrument or analysis. Accuracy may be assessed, as examples, on the basis of sensor readings under controlled conditions, with respect to concentrations measured in certified standards (such as from National Institute of Standards and Technology) and on the basis of blank and/or spiked samples (i.e., MS/MSD samples). MS/MSD samples or blank spike samples are typically analyzed at a frequency of one for every 20 samples. Accuracy is expressed in terms of percent recovery (%R) as follows:

$$\%R = \frac{A_T - A_o}{A_F} \times 100$$

Where A_T is the total amount of analyte recovered in a spiked sample, A_o is the total amount of analyte recovered in an unspiked sample, and A_F is the magnitude of the spike addition.

Representativeness

Representativeness is a qualitative expression of the degree to which sample data accurately represent the characteristics of a population, parameter variations at a sampling point, or an environmental condition that they are intended to represent. Representativeness is maximized by (1) selecting the appropriate number of samples and sampling locations, and (2) using appropriate and established sample collection, handling, and analysis techniques to provide information that reflects actual site conditions.

Completeness

Completeness assesses the amount of valid data obtained from a measurement system. The percent completeness is calculated by the number of samples yielding acceptable data divided by the total number of samples planned to be collected and multiplied by 100. The data validation process will determine whether a particular data point is valid and acceptable, estimated and acceptable, or rejected and unacceptable. Complete results are considered acceptable and usable when they are valid or estimated. Sampling results that are considered rejected and unacceptable are considered incomplete. Although, completeness may be assessed differently for various aspects of the physical, chemical and biological data collected in support of project objectives, a degree of completeness of 90 percent (%) may be considered a baseline goal for data utility.

Comparability

Comparability is a qualitative parameter that expresses the degree of confidence that one data set may be compared to another. This goal is achieved through the use of (1) standardized techniques to collect and analyze samples, and (2) appropriate units to report analytical results. The comparability of the data will be maximized by using standard analytical methods when possible, reporting data in consistent units, reporting data in a tabular format, and by validating the results against commonly accepted methodologies.

Procedures, observations and test results will be documented for all sample collection, laboratory analysis and reporting, and data validation activities. In addition to data reports provided by the laboratories, reports will be prepared that address data quality and usability, provide tabulated laboratory and field data, and interpret the field data.

Field Records

Field records will be maintained during all stages of sample collection and preparation for shipment to the laboratory. Field records will include:

- Sampling activities and methods used
- Conditions that may impact sampling results (e.g. weather conditions, high turbidity)
- Sample collection duration and GPS coordinates of each sampling locations
- Sample labels
- Combined chain-ocustody/sample analysis request (COC/SAR) forms
- Custody seals to monitor sample security during shipment
- Photographic documentation

Laboratory Data Reports

The laboratory will perform data reduction as described in each test method for this project, and submit a complete data package with full documentation for all analyses. The laboratory quality assurance officer is responsible for reviewing laboratory data packages and checking data reduction prior to submittal. The laboratory will provide all information required for a complete quality assurance review including:

- A cover letter describing analytical procedures and methods that were followed and any problems that were encountered during the analyses.
- A summary of analyte concentrations and method reporting limits.
- Laboratory data qualifier codes appended to analyte concentrations and a summary of code definitions.
- Initial and continuing calibration data including instrument printouts and quantification summaries for all analytes.
- Results for method and calibration blanks.

- Results for all QA/QC checks including laboratory control samples, matrix spike samples, surrogate spikes, duplicate matrix spike samples, and laboratory duplicate or triplicate samples.
- Original data quantification reports for all analyses and samples.

QA/QC checks, including method blanks, laboratory control samples, matrix spike and matrix spike duplicates and/or analytical duplicates will be conducted at a frequency of 1 per 20 analytical samples. QA/QC checks will therefore be conducted at a rate of 5% of sample analysis.

Data Quality and Usability

A data quality and usability analysis will be performed with a subset of the instrumentation employed for the demonstration and validation project. The analysis will summarize the results of the data validation and data quality review, and will describe any significant quality assurance problems that were encountered. All data and any qualifiers applied to the data as a result of the quality assurance review will be included in the final report.

F5. Sample Handling and Custody

Documentation during sampling activities is essential to ensure proper sample identification, integrity and custody. A description of standard sample custody procedures that will be used to maintain and document sample integrity during collection, transportation, storage, and analysis is provided below.

Sample Custody Procedures

The field team will follow standard EPA chain-ocustody procedures for each sample as it is collected. Until shipped to the laboratory, the samples will be retained at all times in the field crew's custody. A sample is considered to be in custody if one of the following statements applies:

- It is in a person's physical possession or view.
- It is in a secure area with restricted access.
- It is placed in a container and secured with an official seal such that the sample cannot be reached without breaking the seal.

The Quality Assurance Officer is responsible for ensuring proper sample handling and documentation that will allow tracking the possession and handling of individual samples from the time of collection to laboratory receipt. The laboratory QC manager is responsible for establishing a sample control system that will allow tracking sample possession from laboratory receipt to final disposition of the sample.

Sample Labels

A sample label will be affixed to all sample containers sent to the laboratory. This identification label will contain the following information written in indelible ink:

- Project name and location
- Sample location

- Sample identification number
- Date and time of sample collection
- Preservative used
- Sample collector's name and initials
- Filtering (if applicable)
- Type of sample (grab or composite)
- Analysis required

If a sample is split with another party, sample labels with identical information will be attached to each sample container. After labeling, each sample will be refrigerated or placed in a cooler containing ice to maintain the sample temperature at 4±2° C.

Sample Documentation

Sampling activities during the field effort require several forms of documentation. The documents are prepared to maintain sample identification and chain of custody, and to provide records of significant events or observations. In addition, other documents will be prepared, such as field logbooks.

Shipping Procedures

All U.S. Department of Transportation regulations will be followed during sample packaging and shipment. Samples will be collected at the end of each of the field study phases. They will be transferred to appropriate laboratory containers, labeled, placed in a chilled ice chest, and shipped overnight to the laboratory.

Laboratory Procedures

Upon receipt of a cooler, laboratory personnel will review the contents, and sign and retain the chain-ocustody record and the air bill. Information that will be recorded on the chain-ocustody record or another appropriate document at the time of sample receipt will include the following:

- Status of the custody seals
- Temperature of the cooler upon receipt
- Identification number of any broken sample containers
- Description of discrepancies between the chain-ocustody records, sample labels, and requested analyses
- Storage location of the sample and sample extracts

Laboratory personnel will contact the analytical coordinator regarding discrepancies in paperwork and sample preservation, and will document nonconformance and corrective actions in accordance with laboratory SOPs. These procedures will be available on file at the laboratory. After samples have been accepted, checked, and logged in by the laboratory, they must be maintained in a manner consistent with the custody and security requirements specified in the laboratory QA plan.

All samples and sample extracts will be assigned to a specific refrigerator within the laboratory. All laboratory refrigerators will be assigned a number, and the refrigerator number will be recorded on an appropriate document that references the sample and extract locations. Only laboratory personnel will have access to the samples and will be required to sign a log sheet when removing samples and extracts from the refrigerators or replacing them. These log sheets will provide a chain-ocustody record as the samples move within the laboratory. A chain-ocustody record, similar to the chain-ocustody record used for sampling procedures, will be completed for samples removed from the laboratory for disposal or other purposes.

Quality Control Requirements

Quality control requirements consist of field quality control checks and laboratory quality control checks. Field quality control checks are intended to verify both that contamination during field sampling did not occur and that field instrumentation is functioning properly. Laboratory quality control checks are intended to verify that samples were analyzed to an acceptable level of PARCC parameters.

Field Quality Control Checks

Field quality control checks include equipment rinse blanks, trip blanks, and field duplicates.

Field duplicates will be collected to assess the homogeneity of the samples collected in the field, and the overall precision of the sampling process.

For pore water analysis, a trip blank will be collected by placing a sample of deionized water in a sample cooler at the beginning of the demonstration. The trip blank will be used as a quality control measure to ensure that samples are not contaminated during sample storage and shipment to the laboratory.

Laboratory Quality Control Checks.

Each analytical protocol used in this technology demonstration includes specific instructions for analysis of quality control samples and completion of quality control procedures during sample analysis. Laboratory QC checks are designed to assess the precision and accuracy of the analysis, to demonstrate the absence of interferences and contamination from glassware and reagents, and to ensure the comparability of data. Laboratory QC checks consist of method blanks, laboratory control samples, laboratory duplicates, surrogates, and MS/MSDs.

Method blanks are used to verify that preparation of samples was contamination-free. Each batch of extracted and digested samples is accompanied by a blank that is analyzed in parallel with the rest of the samples, and carried through the entire preparation and analysis procedure. Method blanks for DDX and potentially other chemical analytes will be analyzed for every sample preparation group or 1 for every 20 samples, whichever is more frequent.

Laboratory control samples (reference material or spiked blanks) are used to check overall method performance. A laboratory control sample for DDX will be analyzed for every sample delivery group or 1 for every 20 samples, whichever is more frequent.

Replicate laboratory analyses are indicators of laboratory precision. Laboratory duplicates for DDX and potentially other chemical analytes will be analyzed by splitting 1 in 20 field samples or one sample from every sample delivery group, whichever is more frequent.

Matrix spike samples and matrix spike duplicates are used to assess the effects of the sample matrix on the accuracy and precision of analytical measurements. MS/MSDs for DDX and potentially other chemical analytes will be analyzed for every sample delivery group or 1 for every 20 samples, whichever is more frequent.

Surrogate spike compounds will be added to all field and quality control samples for DDX analysis to evaluate the recovery of analytes for each sample.

Instrument and Equipment Maintenance and Calibration Requirements

In general, the principal investigator will be responsible for ensuring that routine preventative maintenance and calibrations are performed and documented for all field instrumentation and equipment. The laboratory quality assurance officer will be responsible for ensuring that routine maintenance and calibrations are performed and documented for analytical instrumentation.

Field Equipment

Detailed information regarding maintenance and servicing of field equipment is available in the guidance documents and manuals for the specific instrument to be used. Field personnel will record service and maintenance information in field logbooks. In general, the sensor area on any piece of deployed equipment should be kept clean and free of residues. All sensors should be tested and the calibration checked prior to the demonstration to assure that the precision and accuracy are within manufactures specification. If any sensor is found to be out of specification, it can be returned to the manufacturer for recalibration, or recalibrated in the laboratory under closely controlled conditions. Sensors should generally be tested, zeroed and calibrated prior to each deployment, and re-zeroed following deployment. Sampling probes should be visually inspected before and after each deployment. If there is evidence of damage to filter screens or sonde housings, screens and housings should be replaced.

Laboratory Equipment

The analytical laboratory will prepare and follow a maintenance schedule for each instrument used to analyze demonstration samples. All instruments will be serviced at scheduled intervals to optimize factory specifications. Routine preventive maintenance and major repairs will be documented in a maintenance logbook.

Initial and continuing calibration procedures for laboratory equipment and instrumentation will be completed in accordance with the cited analytical method for each analysis. The method descriptions for each analysis specify the acceptance criteria for initial and continuing calibration and state the conditions where recalibration is necessary.

Data Management

Computerized systems will be used to record, store, sort and analyze the technical data that will be generated from all instrument deployments. Automated data handling processes will be utilized that increase data integrity by reducing errors, omissions, and ambiguities that can be introduced

by manual procedures. In addition, automated procedures will be used by the analytical laboratory to capture and summarize analytical results. This will also improve efficiency and reduce errors by allowing direct electronic transfer form the laboratory to the project computer systems. Information form field log books, COC/SAR forms and other sources will be entered manually into the data system. Each data record will include a unique sample code, station ID, sample type, analyte, analyte concentration, and concentration units. Data qualifiers are entered into the data system once the data validation process is completed.

Project data tables and reports are generated using both standardized templates and customized retrievals and filters based on user specified criteria. Results from physical, chemical and biological monitoring will generally be transformed into either spatial maps using a Geographic Information System, or time-series output.

Performance and System Audits

This section describes the types of audits that may be conducted, appropriate corrective action procedures that will be taken in the event of problems in the field and in the laboratory, and quality assurance reports to management. QA audits evaluate the capability and performance of a measurement system or its components, and identifies problems that warrant correction. Audits may include reviews of project plan adherence; training status; health and safety procedures; activity performance and records; budget status; QC data; calibrations; conformance to SOPs; and compliance with laws, regulations, policies, and procedures. Personnel, who are independent of the sampling and analytical teams, conduct internal audits. For example, these personnel may be ESTCP certification program auditors. Copies of field audit reports will be forwarded to the project Principal Investigator. This chapter describes laboratory system, performance, and field audits.

System Audits

System audits include a thorough evaluation of both field and laboratory QC procedures and are normally completed before data are collected. This type of audit may consist of site reviews of measurement systems, including facilities, equipment, and personnel. In addition, measurement, QC, and documentation procedures may be evaluated. System audits are conducted on a regularly scheduled basis; the first audit is conducted shortly after a system becomes operational.

Performance Audits

A performance audit reviews the existing project and QC data to determine the accuracy of a total measurement system or a component of the system. Performance audits of sampling and analysis procedures will be conducted for field and laboratory activities. The audits may consist of the following, as appropriate:

- A field audit during the demonstration to verify that sampling and monitoring procedures and frequencies specified in the technology evaluation plan are being followed
- A laboratory audit during analysis of evaluation samples to verify that procedures and frequencies specified in the technology evaluation plan are being followed
- Issuance of blind QC samples for analysis of specified critical parameters

Internal audit routines for the laboratory are described in the laboratory QA plan.

Field Audits

A field audit involves a site visit by the auditor or auditing team. Items to be examined include the following:

- Availability and implementation of SOPs
- Calibration and operation of equipment
- Packaging, storage, and shipping of samples
- Documentation of on-site procedures and instructions
- Documentation of nonconformance's

Corrective Action Procedures

An effective QA program requires prompt and thorough correction of nonconformance conditions affecting quality. Rapid and effective corrective action minimizes the possibility that questionable data or documentation will be produced.

Two types of corrective actions exist: immediate and long term. Immediate corrective actions include correction of documentation deficiencies or errors, repair of inaccurate instrumentation, or correction of inadequate procedures. Often, the source of the problem is obvious and can be corrected at the time of the observation. Long-term corrective actions are designed to eliminate the sources of problems. Examples of long-term corrective actions are correction of systematic errors in sampling or analysis, and correction of procedures producing questionable results. Corrections can be made through additional personnel training, instrument replacement, or procedural improvements. One or more corrections may be necessary.

All QA problems and corrective actions will be documented to provide a complete record of QA activities and to help to identify needed long-term corrective actions. Defined responsibilities are required for scheduling, performing, documenting, and ensuring the effectiveness of the corrective action. This section describes the corrective action procedures to be followed in the field and laboratory.

Field Procedures

Field nonconformance conditions are defined as occurrences or measurements that are either unexpected or that do not meet established acceptance criteria and will affect data quality if corrective action is not implemented. Examples of nonconformance include:

- Incorrect use of field equipment
- Improper sample collection, preservation, and shipment procedures
- Incomplete field documentation, including chain-ocustody records
- Incorrect decontamination procedures
- Incorrect collection of QC samples

Corrective action procedures will depend on the severity of the nonconformance. In cases where immediate and complete corrective action is implemented by field personnel, the corrective actions will be recorded in the field log notebook.

Nonconformance identified during an audit that has a substantial impact on data quality requires the completion of a corrective action request form. This form may be filled out by an auditor or by any individual who suspects that any aspect of data integrity is being affected by a field nonconformance. Each form is limited to a single nonconformance; if additional problems are identified, multiple forms will be used for documentation.

In the event that a corrective action is required due to improper field technique, the program manager will be notified. The program manager, program scientist, and the project QA/QC officer will meet to discuss the appropriate steps to resolve the problem, and will use the following list:

- Determine when and how the problem developed
- Assign responsibility for problem investigation and documentation
- Determine the corrective action to eliminate the problem
- Set a schedule for completion of the corrective action
- Assign responsibility for implementing the corrective action
- Document and verify that the corrective action has eliminated the problem
- Include report of the problem and the corrective action taken in final report

A corrective action status report must be used by the project QA/QC officer to monitor the status of all corrective actions. In addition to a brief description of the problem and the individual who identified it, the report will list personnel responsible for determining and implementing the corrective action. The report also will list completion dates for each phase of the corrective action procedure and the due date for the project QA/QC officer to review and check the effectiveness of the solution. Follow-up data also will be listed to check that the problem has not reappeared. The follow-up review is conducted to ensure that the solution has adequately and permanently corrected the problem.

The project QA/QC officer can require data acquisition to be limited or discontinued until the corrective action is complete and the nonconformance is eliminated. The project QA/QC officer can also request re-analysis of any or all data acquired since the system was last in control.

Laboratory Procedures

Internal laboratory corrective action procedures and a description of out-ocontrol situations requiring corrective action are contained in the laboratory QA plan. At a minimum, corrective action will be implemented when any of the following three conditions occurs: control chart warning or control limits are exceeded; method QC requirements are not met; or sample holding times are exceeded. Out-ocontrol situations will be reported to the program manager within 2 working days of identification. In addition, a corrective action report, signed by the laboratory director or project managers and the laboratory QC coordinator, will be provided to the program manager.

Data Review, Validation and Verification

Correct equations and procedures must be used to ensure that all laboratory data generated and processed are scientifically valid, defensible, and comparable. The following sections describe the data review, validation, verification, and reporting procedures that will be used in this evaluation.

Data Review

Each analytical method contains detailed instructions and equations for calculating compound concentrations or parameters. Data will be reduced using the procedures given in the analytical methods. Final data presentation will be checked for compliance with data documentation requirements, and will be approved and certified by the laboratory senior officer. In general, data package requirements include, but are not limited to, the following categories:

- Custody of sample
- Performance of instruments
- Identification and quantitation of parameters
- Integrity, precision, and accuracy (QC checks) of samples

Field data recorded during sampling will be reduced to tables for review and verification. After they have been verified, the data will be compiled and reported in summary tables and figures, as appropriate. Corresponding descriptions and units of measure will also be provided to accurately reflect field conditions.

The analysts responsible for the measurements will enter raw data into logbooks or on data sheets. In accordance with standard document control procedures, the laboratory will maintain on file the original copies of all data sheets and logbooks containing raw data, signed and dated by the responsible analyst. Separate instrument logs will also be maintained by the laboratory to enable run sequences to be reconstructed for individual instruments.

Data Validation and Verification

Data validation is a systematic process of reviewing and qualifying data against a set of criteria to determine that the data are adequate for their intended use. During the validation process, all results will be identified as either (1) acceptable for use, (2) estimated and acceptable for limited use, or (3) rejected and unacceptable for use. Results considered rejected will be retained in the database but will not be used in quantitative evaluations. Estimated and rejected data can result from improper sampling or analytical methodology, matrix interferences, errors in data transcription, and changes in instrument performance. Erroneous results found during data validation will be identified and corrected.

Field Validation and Verification

Field personnel will review field data to identify inconsistencies or anomalous values in accordance with the MQOs for the field equipment and instrumentation. Any inconsistencies discovered will be resolved immediately, if possible, by seeking clarification from the personnel responsible for collecting data. All field personnel will be responsible for following the sampling and documentation procedures described in the demonstration plan and the QAPP in order to

assure that defensible and justifiable data are obtained. Specific requirements for field sampling include but are not limited to the following:

- Sampling locations must be fully documented and correct. Errors in sampling location (e.g. as a result of GPS failure) may result in the rejection of data for the subject station.
- Sample collection procedures must be completed as planned and fully documented. Deviations from designated procedures may affect the representativeness of the samples and must be minimized and documented where they occur.
- Sample shipping and handling procedures must be completed as described in the Demonstration Plan and the QAPP, in particular the maintenance of sample integrity and proper temperature.
- Results of the field sensor tests and field quality control samples should meet MQO limits.

Failure to meet these requirements may result in the qualification or rejection of data during the data validation process.

Laboratory Validation and Verification

During analysis and reporting, laboratory personnel will assess data by reviewing raw data for any nonconformance in analytical method protocols. The laboratory QA plan describes detailed procedures for laboratory validation and corrective action. The laboratory QA plan also discusses sample control, methods of analysis, calibration procedures, document control, QC, corrective actions, QC checks, QA, and data review.

Validation will be completed on data packages for analysis of the water samples. The data reviewer is required to notify the Principal Investigator of any missing information and request it from the laboratory. Data may not be eliminated from the review process. All data will continue through the validation process and be qualified and re-qualified as many times as necessary to meet the established criteria. Full data validation will be required on approximately 10 percent of a sample data group, although this percentage will vary with data type. Data packages consist of sample results, QA/QC summaries, and a review of all raw data associated with the sample results and QA/QC summaries. Data may be qualified as estimated or rejected if any of the following quality control samples and procedures do not meet control limits:

- Sample holding times
- Method of analysis
- Initial and continuing instrument calibration
- Calibration and method blanks
- Laboratory control samples
- Matrix spike and matrix spike duplicate samples
- Surrogate recovery
- Analyte identification and quantification

Project personnel will review the data validation reports from the laboratory to (1) assess whether data quality indicators for chemical measurement were met, and (2) determine whether the data are usable for their intended purpose. The laboratory project manager and the project QA/QC officer will approve the completed laboratory report before it is used to prepare the demonstration and validation report.

Reconciliation with Data Quality Objectives

The goal of data validation is to determine the quality of the data and to identify data that do not meet the project MQOs. Nonconforming data may be qualified as estimated or rejected as unusable. Rejected data will not be used for any purpose within the context of the demonstration except to guide recommendations for future corrective actions. If the rejected data are needed to complete the demonstration or to make a decision at the site, it may be necessary to resample. Any decision to resample will be based on discussions among the project team. Data qualified as estimated will be used for the demonstration. These data may be less accurate or precise than unqualified data. The Principal Investigator and the data users are responsible for assessing the potential ramifications of the inaccuracy or imprecision associated with the qualified data.

Appendix D
Methods and Standard Operating Procedures

Friction Sound Probe (FSP) Technology

Friction-sound is a simple and robust technique for in-situ, screening-level measurement of grain size. Friction-sound is believed to be generated when phonons are produced by the breaking or excitation of atomic or molecular bonds as the probe moves over or through the sediment. Theory and previous empirical studies suggest that friction-sound intensity is linearly related to grain size and probe velocity. A prototype SED-FSP has been constructed and tested in the laboratory. In the prototype SED-FSP, the acoustic pickup was integrated into an existing Trident porewater probe that had been sealed to preclude damage to the microphone. The results confirmed that a Trident-based SED-FSP provides a sensitive measure of grain size and that the amplitude of the sound intensity can clearly delineate between sediments with mean diameters in the clay, silt, and sand size ranges (Chadwick 2009).

The SED-FSP probe consists of a stainless steel shaft of 1/2 inch diameter and 1 meter length. The stainless steel probe tip containing the microphone sensor is approximately 1 1/4 inches in length, screwing into a Delrin section 1 1/4 inches length that serves to acoustically isolate the microphone tip assembly from the rest of the SED-FSP unit. The tip assembly has been sealed to preclude damage to the microphone sensor The SED-FSP is coupled to a 5/8 inch diameter pneumatic piston/cylinder drive unit that is vertically mounted onto a submersible frame assembly. The interface incorporates rubber vibration dampeners that serve to acoustically isolate the drive system from the probe sensor. The pneumatic system operates at an air pressure of 85 – 120 psi, controlled by a multiple-valve mechanism that regulates air pressure applied to both the input and output stroke of the piston. The air source is a portable air compressor capable of providing 85 – 120 pounds per square inch gauge (psig) for 10 – 12 seconds duration. For deployments of only a few pushes or where space or utility limitations prevent the use of an air compressor, compressed air tanks (e.g., diver tanks) may be used. When fully retracted the probe tip is near or just in contact to the sediment bed, as the pneumatic cylinder is deployed the SED-FSP extends and penetrates the sediment bed at a controlled and constant speed. The sediment penetration depth of the SED-FSP tip sensor is dependent on the pneumatic piston/cylinder stroke length (the current configuration has a stroke length of 2 feet). The entire SED-FSP assembly weighs around 50 pounds.

Chadwick, D.B. 2009. Demonstration of an In-Situ Friction-Sound Probe for Mapping Particle Size at Contaminated Sediment Sites (ER-200919) Fact Sheet. http://www.serdp.org/Program-Areas/Environmental-Restoration/Contaminated-Sediments/ER-200919

Sediment Profile Imaging Camera (SPI)

The purpose of this document is to describe the purpose and operation of the sediment profile imaging (SPI) system and the procedures used to collect SPI data.

SPI Camera Purpose

The sediment profile imaging (SPI) survey is intended to characterize physical, chemical, and biological conditions in surface sediments in the Quantico Embayment. SPI data provide the following quantitative and qualitative information:

- Indications of aerobic and/or anaerobic conditions in surface sediments.
- Indications of the composition of the benthic community and evidence (if any) of disturbance gradients in the community.
- Evidence of the depth of sediment bioturbation.
- Indications of sediment geophysical conditions (e.g., relative density and grain size).
- Evidence of erosion or deposition.

SPI surveys supplement geotechnical analysis of sediments, confirm the depth of the biologically active zone, and provide preliminary data on benthic habitat and fauna. SPI images will be acquired using a model sediment-profile camera system mounted on top of a wedge-shaped prism with a Plexiglas faceplate that captures a photograph of the sediment bed surface when the prism penetrates the sediment up to a depth of 18 inches.

SPI Camera Operation

The SPI images will be acquired using a model 3731-D sediment-profile camera system (Ocean Imaging Systems, North Falmouth, MA) with a Nikon D200 10-megapixel SLR camera mounted inside the housing. The SPI camera consists of a camera mounted on top of a wedge-shaped prism with a Plexiglas faceplate; light is provided by an internal strobe. The back of the prism has a mirror mounted at a 45-degree angle to reflect the profile of the sediment-water interface toward the camera, which is mounted horizontally on the top of the prism. The camera prism is mounted on an assembly that can be moved up and down by producing tension or slack on the winch wire. As the camera is lowered, tension on the wire keeps the prism' in the 'up' position. Once the camera frame contacts the bottom, slack on the wire allows the prism to vertically descend into the seafloor. The rate at which the optical prism penetrates into the sediments is controlled by a passive hydraulic piston. This allows the optical prism to descend at approximately 6 cm per second and minimizes disturbance to the sediment column. Once on the seafloor, the SPI camera is controlled by the descent of the prism assembly past a magnetic switch. When the magnetic switch is closed by contact with the prism assembly, photographs of the sediment column are taken at 5 and 15-second intervals from the time of switch contact. Two replicate images are collected per deployment, on taken 5 seconds after the camera contacts the seafloor and the other 15 seconds after the camera contacts the seafloor.

As the camera is raised off the bottom, a wiper blade automatically cleans any sediment off of the prism faceplate. The film is automatically advanced by a motor drive, the strobes are recharged, and the camera can be lowered for another replicate image.

When the camera is brought to the surface, the frame count is verified and the camera prism penetration is estimated from a penetration indicator that measures the distance the prism fell relative to the camera base. If penetration is minimal, weight packs can be loaded to give the assembly increased penetration. If penetration is too great, adjustable stops (which control the distance the prism descends) can be lowered, and "mud" doors can be attached to each side of the frame to increase the bearing surface.

To conduct a SPI survey, the following equipment is needed:

SPI Camera Components

Benthos Sediment Profile Camera

- 12 v Nicad Battery Packs
- 12 Kilogram Lead Weights (10 Sets)
- "Mud" Doors
- Nikon D200 Camera & Spare body
- Tool Kit
- Shackles, swivels and hardware

SPI Camera Field Collections

At the beginning of each survey day, the time on the data logger mounted on the SPI camera will be synchronized with the navigation system clock. A Nikon digital SLR camera and a charged battery are loaded in the camera housing. Test shots are fired on deck at the beginning of each day to verify all internal electronics systems are working according to specifications.

Each SPI station replicate will be identified by the time recorded in the image file and the corresponding time and position recorded by the navigation system. A position will be recorded for each of the three replicate images taken at each SPI station. Redundant sample logs will be kept by the field crew. Information recorded in the field log includes:

- Time
- Date
- Station Location
- Replicate ID
- Frame Count
- Water Depth
- Penetration
- Observations on weather conditions, environmental conditions, or other pertinent observations
- Sampling Crew
- Time of arrival at vessel

- Time of survey commencement
- Time of survey conclusion
- Time departing vessel

Three replicate images will be taken at each SPI station. At regular intervals during each survey day, the frame counter is checked to make sure that the desired number of replicates has been taken. If images have been missed or the penetration depth is insufficient, then proper adjustments are made (e.g., weight is added to the frame) and additional replicates are taken.

To collect SPI data, a vessel will be piloted to the target sampling location. Once within 20 feet of the target location, the SPI camera will be deployed. It is lowered to the seafloor until it lands on the bottom. Once on the bottom, an electronic trigger is activated signaling the camera to collect images 5 seconds after contact and 20 seconds after contact. Once the image set is acquired, the SPI camera is raised off the seafloor and lowered again to collect the remaining two replicate image sets.

Following completion of the field survey, SPI specialists will measure and characterize physical biological parameters from the digital images using a computer-image analysis system. SPI image analysis will include data on the following:

- Total prism penetration depth
- Grain size major mode and range
- Sediment boundary roughness
- Mean apparent redox potential discontinuity depth
- Presence of sediment methane
- Bedforms, mudclasts, and recently deposited sedimentary intervals, allowing identification of high and low kinetic energy areas.
- Infaunal successional stage
- Bioturbation depth
- Presence of surface microbial aggregations (indicative of hypoxic areas)
- Evidence of excess organic loading.

The SPI survey and analyses will be conducted consistent with industry-accepted standards and the equipment manufacture specifications.

SPI Data Management

Measurements of physical and some biological parameters are made directly from the digital image files using a computer-image analysis system. The color image analysis system can discriminate up to 16.7 million different shades of color, so subtle features can be digitized and measured. Data stored electronically and backed up on disks or CDs. Measured data are edited and verified by a senior-level scientist before being approved for final data synthesis, statistical analyses, and interpretation. Automatic disk storage of measured parameters allows data of interest to be compiled, sorted, displayed graphically, contoured, or compared statistically.

INTEGRITY CORER STANDARD OPERATING PROCEDURES

BACKGROUND

In situ capping of contaminated sediments with layers of clean material is an accepted and widely applied remediation technique (EPA, 2005; EPA, 2009; Palermo et al., 1998). Addition of reactive amendments to surface sediment is also emerging as an important alternative remedy. Because contamination is left in place, and natural and anthropogenic processes may lead to failure of these remedies, monitoring is generally required to verify that the cap or the amendment is meeting design goals and providing the required level of environmental protection (EPA, 2005). To the extent that capping or amendment is designed as a permanent remedy, monitoring is essentially required in perpetuity. Methods for verifying continued effectiveness of the remedy almost always involve vertical core profiling through the capping or amendment material and into the underlying sediment. These core profiles, either in the porewater phase, the particle phase, or both, are used to evaluate the effectiveness of the remedy in isolating contamination, stabilizing the sediment bed, reducing chemical fluxes to the environment, or controlling bioavailability (EPA, 1998; Ghosh et al., 2009). Because coring involves removal of the cap or amendment material, which must be repeated over a sufficient number of locations, and repeated indefinitely through time, there is a potential that monitoring activities themselves may establish pathways of exposure or lead to at least localized areas of remedy failure over time. This potential is most significant for thin-layer caps, shallow amendments, or areas of clean backfill where the vertical migration associated with the coring process is likely to be more acute.

In terrestrial sites, this problem has been recognized for many years, and standard methods are in place for backfill and sealing of direct push sampling points, soil borings, and monitoring wells. At sediment sites, recent development of small diameter passive sampling probes may help to minimize these impacts, however these methods are still in development, and provide only a limited range of chemical characterization. There currently is no demonstrated aquatic analog for sediment remedy monitoring that

provides a comparable capability to the terrestrial methods to minimize potential vertical migration of contamination associated with coring. However, recently SSC PAC, in collaboration with the University of California San Diego (UCSD), has developed a prototype coring device that can provide this capability. The Integrity Corer (iCorer) provides a simple means maintaining cap integrity by collecting sediment cores and subsequently replacing the sampling void with clean cap material.

TECHNOLOGY DESCRIPTION

The Integrity Corer (ICorer) is a device that allows for collecting intact sediment cores from thin-layer caps and subsequently replacing the cap material so that the integrity of the cap is not compromised by the coring process. The system consists of an external sleeve (2" PVC pipe), an internal core liner (2" cellulose acetate butyrate tubing), a head unit (stainless steel), and a slide hammer (Figure 1). The external sleeve can consist of a single length of pipe, or multiple lengths to allow adjustment for core length and water depth. The bottom end of the sleeve is form-fitted to provide a tight seal to the core liner and prevent sediment from entering the gap between the sleeve and the liner which could cause binding. The bottom end of the sleeve is also beveled to reduce resistance during the installation of the corer into the sediment.

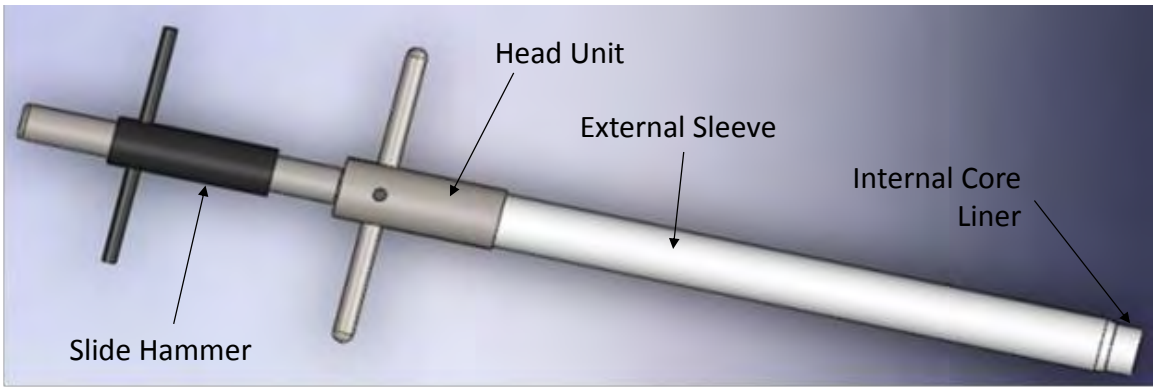


Figure 1. Assembled components of the Integrity Corer.

The core liner is a standard 2" CAB liner such as those produced by Wildco and others for standard hand-push and gravity coring systems. The liner length is adjusted such that it extends a short distance (~0.25") beyond the end of the external sleeve at the bottom, and approximately 6" beyond the sleeve at the top end to provide alignment into the head

unit. The head unit is a stainless steel cylinder with a recess that accommodates the outside diameter of the core liner. The core liner fits inside this recess while the outer sleeve butts up against the base of the head unit. The head unit has threaded holes that accommodate handles to allow the system to be pushed by hand. It also has a rod on the top that accommodates the slide hammer. The slide hammer fits over the rod on the top of the head unit and has foam cushioned handles that proved a means of actively pounding the corer into the sediment.

FIELD SAMPLING PROCEDURE

Field sampling procedures for the iCorer are described below. The methods described are generally applicable to field sampling from a small boat in shallow water. Application to deeper water is possible by diver or by modification of the system but those methods are not described here. Because different projects call for different procedures for post-collection processing of the cores, those procedures and the associated equipment requirements are not included here.

Required Equipment

The required equipment for field sampling with the iCorer is summarized in Table 1. This includes the corer components, accessories and tools required for the core collection.

Preparation of the iCorer

To prepare the iCorer for sampling, collect the equipment described in Table 1. The outer sleeve and core liner must be cut to the proper length for the sampling station. To do this, first measure or estimate the water depth at the station (WD). Then determine the desired penetration depth of the core (CPD). Then determine the required stick up of the core above the water surface to allow handling (SU). Then calculate the required length of the outer sleeve (SL) and core liner (CL) as follows:

$$SL = WD + CPD + SU$$

$$CL = SL + 6.25”$$

Assemble the outer sleeve using a tip section and as many extenstion sections as required to exceed the required SL. Then cut the assembled sleeve to the required SL using the PVC pipe cutter or a saw, using care to make the cut square. Insert the core liner into the head unit until it is fully inserted. Slide the outer sleeve over the core liner until it butts up against the head unit. Mark the core liner at a distance of 0.25" where it sticks out at the bottom of the sleeve. Slide the core liner out of the sleeve and cut it at the marked length using a saw or the PVC pipe cutter, using care to make the cut square. If a core-catcher is to be used (optional), apply Gorilla Glue (or similar) to the flange of the core-catcher and insert into the end of the core liner. Provide sufficient time for the glue to dry.

Required Item	Number Required
Head Unit	1 + spare
Head Unit Handles	2 + spares
Slide Hammer	1 + spare
External Sleeve w/ Bevel and Coupling	Depends on number of stations, can be deconed and reused but tips may need to be re-beveled.
External Sleeve Extensions	Depends on number of stations and water depth. Can be reused but after cutting may need to be replaced.
Core Liners	1 per station
Core Liner Caps	2 per station
Core Catchers (optional)	1 per station
Glue for Core Catchers	As needed
Core Holder Rack	Sufficient to hold number of cores collected
Electrical Tape	As needed
Strap Wrench	1 + spare
PVC Piper Cutter (2" min)	1 + spare
Saw	1 + spare
Tape Measurer	1 + spare
Calculator	1 + spare
Water Depth Gage	1 + spare
Sharpies	As needed
Logsheets	1 per station
Logbook	As needed

Table 1. Equipment list for the iCorer.

Assembling the iCorer

To assemble the system, first install the handles into the head unit by threading them into the threaded holes (Figure 2). Then insert the pre-cut core liner into the recess in the head unit until it bottoms out. Now slip the pre-cut and assembled outer sleeve over the liner until it butts up against the head unit. About 0.25" of the liner should protrude from the bottom of the sleeve.

Collecting the Core

Hold the iCorer with one hand on the head unit and one hand on the outer sleeve to make sure that the sleeve and liner do not fall out of the head unit during installation (Figure 2). Lower the corer vertically until the tip of the corer reaches the sediment. Make sure the iCorer is aligned vertically and that you have a stable position from which to push the corer into the bottom. Using tape or a sharpie, mark the water level on the outside of the sleeve, and measure up the desired distance for the CPD and make another mark. Keep in mind that the core may compress and that core friction may lead to cores that are shorter than the target CPD so you may need to over push to reach the target. Using the handles on the head unit, push the iCorer into the bottom as far as possible until you reach refusal or you reach the CPD as indicated by the upper mark on the sleeve reaching the water level. If you reach refusal prior to the CPD, install the slide hammer on to the top of the head unit and pound the corer in until the target CPD is reached.

Once the target CPD is achieved, remove the slide hammer and remove the head unit. Install a cap onto the top of the protruding core liner and seal with electrical tape. Now pull the core liner out of the outer sleeve, making sure to hold the outer sleeve in place so it does not come out with the liner. If needed, install a strap wrench onto the top of the liner to aid in gripping and extraction. Install a cap onto the bottom of the core liner and seal with electrical tape. Stand the core vertically in a rack to minimize disturbance until ready for post-processing.

Measure the length of sediment in the core and confirm that the target CPD was reached. Cap a section of clean core liner that is at least the length of the measured core. Fill the

liner with clean replacement cap material to the measure length. Pour the sand into the top of the outer sleeve that is still installed into the sediment bed. Now remove the outer sleeve carefully to minimize disturbance to the cap and the replacement material. Clean all parts prior to reuse to make sure there are no particles that would cause binding and no contaminants that could cross over between stations.



Figure 2. Field sampling procedure for the iCorer including (A) install the handles, (B) liner protruding from sleeve, (C) initial hand push, (D) slide hammer installation, (E) slide hammering, (F) install the cap on top and remove the liner, (G) pour the replacement material, (H) remove the outer sleeve, and (I) the completed core location with replacement material installed.

Log all required information for the station. At a minimum this should include:

- Station Number
- Latitude and Longitude
- Water Depth
- Sleeve Length
- Liner Length
- Sediment Core Length

- Sediment Core Visual Description
- General Notes

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Determination of Concentrations of DDx in Porewater by Solid Phase Microextraction (SPME)

Method

Ex situ measurement of DDx in sediment porewater will be performed by the following procedure, adapted from You et al. (2007) and Yang et al. (2008). The procedure is as follows:

1. In the field, bulk sediment will be removed from the sediment core (ideally 50-60 g, ww[1]) and placed in a 4-oz glass sample jar that has been weighed to 0.1 g (weighing jar without the lid), and preserved on ice.
2. Moisture content step: Pre-weigh (record weight) an empty labeled aluminum pan to ± 0.0001 g (i.e., 4-places), add 1-2 g, ww of sediment, re-weigh to ± 0.0001 g (record weight), place in drying oven (105°C) for 24 hours, and re-weigh to ± 0.0001 g (record weight).
3. Weigh 4-oz glass sample jar (containing sediment) to 0.1 g (weighing jar without the lid), record weight.
4. Deionized water will be added (record volume to nearest mL), as needed, to the sediment to obtain a "non-clumping" sediment slurry with > 60-90% moisture content.
5. 3 mg of $HgCl_2$ will be added to inhibit microbial growth and transformation of DDx via addition of 300 µL of a 10 mg/mL solution (1 g $HgCl_2$ in 100 mL reagent grade water). Note: 600 uL if 50-60 g, ww; 300 uL if only 20 g, ww.
6. 30 cm of SPME fiber (ten 3-cm pieces of fiber with 10-µm thickness polydimethylsiloxane (PDMS) coating, 210-µm silica core diameter, obtained from obtained from Fiber-guide Industries, Stirling, NJ ("SPC210/230R, No Jacket, CL-0097-1"); 0.06908 µL PDMS/cm PDMS), will be placed in a 110-µm stainless steel mesh envelope (4-5 cm long envelope) and added to the sediment. Envelopes must be double folded on both ends to avoid opening during mixing.
    a. To prepare envelopes, cut a 5-6cm x 4 cm square, and place 10 x 3cm long pieces of SPME fiber in the center, Fold in half length-wise twice, then fold each end inward twice.

[1] Per Mayer et al. (2014), the mass of the passive sampling sorbent phase should be about 100X less than the mass of the organic carbon in the *ex situ* sample to ensure non-depletive sampling. Assuming a 40% moisture content of wet sediment and a TOC of 4% on a dry weight basis, one needs approximately 10 g, ww or more (6 g, dw) of sediment. For lower TOC (1%), need 25 g, dw (40 g, ww). For sand (assuming 0.5% TOC, dw basis) and a 20% moisture content, need approximately 60 g, ww (50 g, dw) of sand.

b. Prior to addition, the envelope containing the SPME fiber will be rinsed thoroughly with a 50:50 mixture of reagent grade water:acetonitrile to remove any impurities, rinsed three times with reagent grade water, and allowed to dry, and packed in sealed containers.

7. The jar containing sediment and SPME envelope will be sealed, covered with aluminum foil (or enclosed) to prevent photodegradation of chemicals, and mixed continuously at 20 rpm on a rotating shaker for 14 days at room temperature to allow SPME fiber to equilibrate with DDx in sediment porewater.
8. Following the 14-day period, remove envelopes from sediment, shake off excess sediment, open envelope, and remove the fiber pieces with Teflon-coated forceps or manually wearing nitrile gloves.
9. Pre-weigh (and record weight) an empty, labeled 2-mL amber autosampler vial to ± 0.0001 g (i.e., 4-places).
10. Wipe each fiber gently on a tissue (Kimwipe) moistened with MQ water to remove sediment particles and colloids that may/may not be visible to the naked eye. Measure and record each piece's length (in cm) if pieces are broken. If pieces are missing, this is not a problem (just record the lengths of fibers that go into the vials (next step)). If fiber pieces are present that are too small to be wiped or handled efficiently, it is OK to discard these pieces. Ideally person #1 will perform this step, handing each cleaned SPME fiber to person #2 for remaining steps
11. Place the fiber pieces in the pre-weighed 2-mL amber autosampler vial.
12. Weigh (and record weight) of the labeled 2-mL amber autosampler vial containing the fiber pieces to ± 0.0001 g (i.e., 4-places).
    a. Subtracting the weight of the empty vial provides the weight of the fiber in the vial, which is needed to estimate the length of the fiber that was extracted by dividing the weight of the fiber by 0.000834 g/cm. The lengths of the fiber pieces can also be measured with a ruler, although this is more time consuming.
13. 1.8 mL of ultrapure hexane will be added to the autosampler vial to extract DDx from the fiber (two 900-µL aliquots via pipettor).
14. The hexane extract will be stored and shipped at 4°C to ERDC.

15. The 1.8-mL extract will be spiked with an internal recovery standard (PCB 34 and PCB 152) and evaporated to a volume of approximately 100 µL with pure nitrogen (performed just prior to analysis via GC).
16. The concentrated hexane extract will be analyzed for DDx via GC using USEPA method 8081A (2-µL injection into GC).
17. Concentration of DDx analytes in the hexane extract will be used to estimate the concentration in the SPME's PDMS coating. The concentration of DDx in the SPME's PDMS coating ([PDMS DDx]) will be used to derive the porewater concentration ([Sediment porewater DDx]) according to the following relationship (You et al., 2007; Yang et al., 2008):

$$[\text{Sediment porewater DDx}] = \frac{[\text{PDMS DDx}]}{K_{fs}}$$

where the K_{fs} is the compound-specific PDMS-water partition coefficient, a constant. K_{fs} values for DDT, DDD, and DDE have been measured empirically (You et al., 2007; Yang et al., 2008) and can be calculated via a modeled relationship using each compound's octanol-water partition coefficient (Mayer et al., 2000).

Method Detection Limit

The method detection limit (MDL) for DDx in porewater for the above method is approximately 0.01-0.1 ng/L. This value is expected to be sufficiently sensitive to risk-based concentrations of DDx at Quantico. For example, the MDL is approximately 10-100X lower than the expected porewater concentration in sediment (1.6-3.2 ng/L) at the risk-based target concentration estimated for the Quantico great blue heron risk model (18-36 µg/kg in sediment; Battelle and Neptune & Co., 2007), assuming a log organic-water partition coefficient (log K_{OC}) of approximately 6 and an organic carbon sediment concentration of 1%. Other food web models for great blue heron (Trophic Trace; USACOE, 2005) suggest that the MDL for porewater using the SPME method (0.1 ng/L) would be equivalent to hazard quotient ranges of 0.7-20 and 0.007-7 for great blue heron and fish (hazard quotients of 1 suggest possible risk), suggesting that the above SPME method is sufficiently sensitive to detect concentrations of DDx in porewater that are relevant to ecological risk pathways that are of concern at Quantico.

QA/QC

QA/QC for the SPME porewater method will involve the following:

1. Laboratory Blank: SPME (30 cm) will be exposed to ultrapure reagent grade water instead of sediment as a check against cross contamination or background contamination.
2. Trip Blank: As for the laboratory blank, an SPME will be exposed to ultrapure water instead of sediment as a check against cross contamination or background contamination. The ultrapure water sample will travel to the site, be opened briefly at the site, and shipped back to the laboratory with sediment samples for SPME porewater analysis.
3. Spike: A length of SPME of 0.4 to 0.5 cm (record length with calipers to nearest 0.01 cm) will be exposed to 200 mL of ultrapure water spiked with a known concentration (100 ng/L) of DDD, DDE, and DDT.
    a. The 100 ng/L solution will be made via addition of 400 µL of intermediate spike solution (50 µg/L for DDX and most other pesticides) brought to a 200-mL volume of reagent grade water containing and 3 mg or $HgCl_2$ (via addition of 300 µL of a 10 mg/mL solution to the 200-mL volume).
        i. The intermediate spike solution is 250 µL of AccuStandard's Pesticide Mix 1 (catalog # AE-00010, 10,000 µg/L for DDX and most other pesticides) brought to a 50-mL volume with pesticide or GC-grade acetonitrile.
    b. Solubility of DDT is approximately 1.2-5.5 µg/L at 25°C. Concentration indicated by the SPME will be compared to the known concentration to gauge accuracy of the method.
4. Duplicate: Split samples of sediment from the same core and depth interval will be analyzed with the SPME method to evaluate precision.

Note

This method has been optimized for DDX compounds in sediment containing at least ~1% organic carbon (OC). Use in other matrices (water, sediment with low OC, etc.) and other compounds will require modifications of the above method.

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In situ Bioaccumulation (SEA Rings)

DDx bioaccumulation will be measured in situ using *Lumbriculus variegatus* (oligochaete worms) and *Corbicula fluminea* (freshwater clams).

Field Requirements

SEA Rings will be deployed at six to seven stations. Following a 14 day exposure, organisms from replicate chambers will be recovered, enumerated, purged in clean seawater, composited, weighed, and transferred to vials for shipment and chemical analysis.

Tissue Requirements

- Target 2 g tissue per sample on recovery
- 150 mg DDx, 150 mg Lipid minimum, MDLs increase with mass
- 500 mg acceptable

Test Species

- Worms: *Lumbriculus variegatus*
- At least 3g per chamber to meet tissue requirements
- Clam: *Corbicula fluminea*
- 5 clams per chamber

SEA Ring Deployment

- Field crew will load SEA Rings into 17 gallon plastic containers (Figure 1) with site seawater, and transfer to dive boat. SEA Rings will likely be loaded one at a time to minimize stress on organisms and adversely impact passive samplers.
  Containers will be lowered from the boat one at a time to divers in water over marked station locations.
- Divers will submerge containers at surface, and perform a manual purge of air from pump lines (as directed by field crew).
- Divers will descend to sea floor with SEA Ring in container, identify appropriate deployment location, and push the SEA Ring firmly into sediment so that the lower 5" of the exposure chambers are exposed to sediment. This is roughly in line with the white plastic SEA Ring base plate. Divers will observe approximate depth of sediment cores (in relation to base plate) and successful trigger of core catcher rings, if possible. The deeper the platform is submerged into surficial sediment the better, for maximum core depth.
- Divers will then depress plastic syringes that release pre-loaded organisms (worms) into designated chambers.
- Divers will make general observations that the SEA Ring is secure and that organisms are in contact with the sediment. They will also confirm that the pump is operational based on TWO (2) blinking lights on the control module. Divers might be able to observe slight opening of duck bill valves indicating water is pumping through chambers.
- Divers will secure a small surface buoy to the SEA Ring for easy identification.
- If deemed necessary, divers will secure two sand/screw anchors on opposite sides of the SEA Ring to ensure it does not come out of the sediment.
- Divers will return to boat and continue deployment procedure until all 10 SEA Rings are secured at the appropriate stations.

- Divers will also collect top 10 cm of sediment samples for sediment chemistry and benthic invertebrate analysis.
- SEA Rings will remain in place for 14 days.

SEA Ring Recovery

- On exposure day 14, divers will return to the site with empty plastic containers and plastic core tube end caps provided by SPAWAR field crew
- Divers will descend to location with 17 gallon containers and place them on the sea floor next to the SEA Ring to be recovered.
- Divers will note condition of SEA Ring, sediment core integrity, potential organism mortalities.
- Divers will clamp the two white plastic hose clamps down firmly.
- With end caps ready for secondary capping of core catcher covered chambers, divers will carefully pull SEA Ring directly upward out of sediment, and apply caps to prevent potential loss of sediment from chambers. Documentation of any substantial amount of sediment loss from individual chambers during the removal process should be made, if possible.
- Once caps are secured, divers will transfer SEA Ring into plastic container, and bring to surface.
- SPAWAR field crew will process samples either on the boat or pierside using 1 mm sieves, a 110V submersible pump, and various other equipment prior to an overnight purge in clean seawater. Following overnight purging, organisms will be weighed, composited as necessary, and frozen for analysis.

Sample Handling and Custody

Documentation during sampling activities is essential to ensure proper sample identification, integrity and custody. A description of standard sample custody procedures that will be used to maintain and document sample integrity during collection, transportation, storage, and analysis is provided below.

Sample Custody Procedures

The field team will follow standard EPA chain-of-custody procedures for each sample as it is collected. Until shipped to the laboratory, the samples will be retained at all times in the field crew's custody. A sample is considered to be in custody if one of the following statements applies:

- It is in a person's physical possession or view.
- It is in a secure area with restricted access.
- It is placed in a container and secured with an official seal such that the sample cannot be reached without breaking the seal.

The Quality Assurance Officer is responsible for ensuring proper sample handling and documentation that will allow tracking the possession and handling of individual samples from the time of collection to laboratory receipt. The laboratory QC manager is responsible for establishing a sample control system that will allow tracking sample possession from laboratory receipt to final disposition of the sample.

Sample Labels

A sample label will be affixed to all sample containers sent to the laboratory. This identification label will contain the following information written in indelible ink:

- Project name and location
- Sample location
- Sample identification number
- Date and time of sample collection
- Preservative used
- Sample collector's name and initials
- Filtering (if applicable)
- Type of sample (grab or composite)
- Analysis required

If a sample is split with another party, sample labels with identical information will be attached to each sample container. After labeling, each sample will be refrigerated or placed in a cooler containing ice to maintain the sample temperature at 4±2° C.

Sample Documentation
Sampling activities during the field effort require several forms of documentation. The documents are prepared to maintain sample identification and chain of custody, and to provide records of significant events or observations. In addition, other documents will be prepared, such as field logbooks.

Shipping Procedures
All U.S. Department of Transportation regulations will be followed during sample packaging and shipment. Samples will be collected at the end of each of the field study phases. They will be transferred to appropriate laboratory containers, labeled, placed in a chilled ice chest, and shipped overnight to the laboratory.

Laboratory Procedures
Upon receipt of a cooler, laboratory personnel will review the contents, and sign and retain the chain-of-custody record and the air bill. Information that will be recorded on the chain-of-custody record or another appropriate document at the time of sample receipt will include the following:

- Status of the custody seals
- Temperature of the cooler upon receipt
- Identification number of any broken sample containers
- Description of discrepancies between the chain-of-custody records, sample labels, and requested analyses
- Storage location of the sample and sample extracts

Laboratory personnel will contact the analytical coordinator regarding discrepancies in paperwork and sample preservation, and will document nonconformance and corrective actions in accordance with laboratory SOPs. These procedures will be available on file at the laboratory. After samples have been accepted, checked, and logged in by the laboratory, they must be maintained in a manner consistent with the custody and security requirements specified in the laboratory QA plan.

All samples and sample extracts will be assigned to a specific refrigerator within the laboratory. All laboratory refrigerators will be assigned a number, and the refrigerator number will be recorded on an appropriate document that references the sample and extract locations. Only laboratory personnel will have access to the samples and will be required to sign a log sheet when removing samples and extracts from the refrigerators or replacing them. These log sheets will provide a chain-of-custody record as the samples move within the laboratory. A chain-of-custody record, similar to the chain-of-custody record used for sampling procedures, will be completed for samples removed from the laboratory for disposal or other purposes.



Methods for Calculating
The Chesapeake Bay Benthic Index of Biotic Integrity

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2002

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INTRODUCTION

The Chesapeake Bay benthic index of biotic integrity (B-IBI) was developed to assess benthic community health and environmental quality in Chesapeake Bay. The B-IBI evaluates the ecological condition of a sample by comparing values of key benthic community attributes ("metrics") to reference values expected under non-degraded conditions in similar habitat types. It is therefore a measure of deviation from reference conditions.

The B-IBI is used by the Chesapeake Bay Benthic Monitoring Program, which is conducted by the Maryland Department of Natural Resources (MD DNR) and by the Virginia Department of Environmental Quality (VA DEQ). The program contains two primary elements: a fixed site monitoring effort directed at identifying trends in benthic community condition, and a probability-based sampling effort intended to estimate the area of the Chesapeake Bay and its major tributaries with benthic communities meeting the Chesapeake Bay Program Benthic Community Restoration Goals (Ranasinghe et al. 1994). Further information about the benthic monitoring program can be found in the World Wide Web at www.baybenthos.versar.com.

The development of the Chesapeake Bay B-IBI has been described in Weisberg et al. (1997). In addition, a series of statistical and simulation studies were conducted to evaluate and optimize the B-IBI (Alden et al. 2002). The results of Alden et al. (2002) indicated that the B-IBI is sensitive, stable, robust, and statistically sound. New sets of metric and threshold combinations for the tidal freshwater and oligohaline habitats were also developed in Alden et al. (2002) with a larger dataset than was available to Weisberg et al. (1997) for these two habitats. The present document includes the latest updates and the necessary information to calculate the Chesapeake Bay B-IBI.

OVERVIEW

The Chesapeake Bay B-IBI is calculated by scoring each of several attributes of benthic community structure and function (abundance, biomass, Shannon diversity, etc.) according to thresholds established from reference data distributions. The scores (on a 1 to 5 scale) are then averaged across attributes to form the index. Samples with index values of 3.0 or more are considered to have good benthic condition indicative of good habitat quality.

The B-IBI is both habitat and season dependent. Therefore data must be selected for time of year and pre-classified according to the habitat type from which the samples were collected. Habitats are defined by salinity and sediment type. The application of the B-IBI is limited to samples collected in summer, defined as July 15 through September 30.

DATA COLLECTION AND PREPARATION

Samples to which the B-IBI is to be applied should be collected from unvegetated soft substrates (sand or mud) using a Young grab with a sampling area of 0.0440 m^2 to a depth of 10 cm, and within the July 15 through September 30 time period. The B-IBI has not been developed for vegetated or hard substrates (e.g., pebbly or rocky bottoms, oyster reefs), so these types of substrates should be avoided. The use of uniform sample collection and processing methods ensures within-program data comparability and avoids the need for data correction or standardization procedures.

Samples are gently sieved through a 0.5-mm mesh screen using ambient seawater. The material retained on the screen is transferred to 1-liter labeled plastic jars and preserved in seawater with 10% buffered formalin and Rose Bengal stain. The stain aids in the sorting of organisms in the laboratory.

In the laboratory, samples are washed in fresh water, and the organisms separated from the detritus and sorted into major taxa using a binocular dissecting microscope. After sorting, the organisms are stored in 70% ethanol and subsequently identified to the lowest possible taxonomic level (usually, species) and counted. Fragments without heads are eliminated from the counts but included in biomass determinations.

Ash-free dry weight biomass is measured for each species by drying the organisms to a constant weight at 60°C followed by ashing in a muffle furnace at 500°C for four hours. Because most species of oligochaetes need to be slide mounted for identification, species-specific biomass of oligochaetes cannot be provided except for *Tubificoides* spp., which do not require slide mounting for identification.

DATA REDUCTION

The B-IBI is based on observations about macrofauna that indicate benthic community condition. Taxa that are not usually retained on a 0.5-mm mesh screen (e.g., nematods, copepods, and ostracods) are eliminated from the data. Data sets must be standardized by applying uniform naming conventions. Taxa that are not sampled quantitatively or that are not truly indicative of sediment conditions are retained in the data sets but excluded from the B-IBI calculations. These taxa include benthic algae, fish, pelagic invertebrates, and epifauna. See Table 1 for currently omitted Chesapeake Bay organisms.

HABITATS

Benthic communities differ significantly according to habitat. The B-IBI was designed to account for this variability. Metrics and thresholds were derived for each of seven habitat types in Chesapeake Bay. The major factors affecting the structure of benthic communities in Chesapeake Bay are salinity and sediment type. Before metrics can be calculated, a sample must be assigned to

one of five salinity classes: tidal freshwater, oligohaline, low mesohaline, high mesohaline, and polyhaline. These classes were defined according to a modified Venice System for the classification of marine waters (Symposium on the Classification of Brackish Waters 1958). See Table 2.

Salinity is determined by the long-term average of the data collected concurrently with the biological sample (Chesapeake Bay Benthic Monitoring Program fixed stations) or by the point-in-time measurement in the absence of long-term data (Chesapeake Bay Benthic Monitoring Program random stations).

Within the high mesohaline and polyhaline classes, a sample must be further assigned to one of two sediment classes according to the percent silt-clay content of the sample. Table 2 shows the resulting habitats into which samples are classified.

METRICS

Eleven metrics are used to calculate the B-IBI:

- Shannon-Wiener species diversity index
- Total species abundance
- Total species biomass
- Percent abundance of pollution-indicative taxa
- Percent abundance of pollution-sensitive taxa
- Percent biomass of pollution-indicative taxa
- Percent biomass of pollution-sensitive taxa
- Percent abundance of carnivore and omnivores
- Percent abundance of deep-deposit feeders
- Tolerance Score
- Tanypodini to Chironomidae percent abundance ratio

Two additional metrics are used only at fixed stations by the Virginia Benthic Monitoring Program:

- Percent biomass of organisms found >5cm below the sediment-water interface
- Percent number of taxa found >5cm below the sediment-water interface

Data for the calculation of these two last metrics are obtained from box corers. Box core samples are partitioned into 2 sediment layers: 0-5 cm and 5-25 cm below the sediment-water interface. Data from the 5-25 cm layer are used to calculate the metrics.

Metrics used in the calculation of the B-IBI are those of Weisberg et al. (1997), except for the tidal freshwater and oligohaline habitats. Metrics for these two last habitats were developed in Alden et al. (2002). The metric selection process was based on Mann-Whitney U tests for differences in means between the reference and the degraded sites

of the index development data sets, and on consistency with ecological principles (Weisberg et al. 1997). Not all the metrics are used in all habitats. Table 3 shows metric usage by habitat.

Metrics are calculated as follows:

- Shannon-Wiener species diversity index

The Shannon index of diversity (Shannon 1948) is computed for each sample as follows:

$$H' = - \sum_{i=1}^{S} p_i \cdot \log_2 \cdot p_i$$

where S is the number of species per sample and p_i is the proportion of total individuals in the i^{th} species.

In counting the number of taxa present in a sample, general taxonomic designations at the generic, familial, and higher taxonomic levels are dropped if there is one valid lower-level designation for that group. For example, if both *Leitoscoloplos* sp. and *Leitoscoloplos fragilis* have been identified in one sample, *Leitoscoloplos* sp. is skipped when counting the number of taxa. Skip codes are used to track these general taxonomic designations.

- Total species abundance

  The total number of organisms present in a sample (after dropping the epifauna and incidental species, as it is done for all metrics, see Table 1) is normalized to number of organisms per meter squared of surface area. The conversion factor for the Young grab is 1 count = 22.73 individuals/ m^2.

- Total species biomass

  Total species biomass is the ash-free dry weight of each species, summed over all the species present in the sample, and normalized to grams per meter squared of surface area.

- Percent abundance of pollution-indicative taxa

  Percent abundance of pollution-indicative taxa is the percent abundance contribution of taxa classified as pollution-indicative to the total abundance of organisms in a sample.

Pollution-indicative taxa are species or higher taxonomic level designations that are tolerant of pollution. Many pollution-tolerant species display opportunistic life-history characteristics,

such as small size, rapid growth, high reproductive potential, and short-life spans; however, not all opportunist species are classified as pollution-indicative. In addition to life-history characteristics, statistical testing comparing the abundance of each species at reference sites with the abundance at polluted sites, was used to develop pollution-indicative and sensitive species lists (Weisberg et al. 1997). Table 4 lists taxa that are currently defined as pollution indicative for Chesapeake Bay. The list is modified from that of Weisberg et al. (1997).

- Percent abundance of pollution-sensitive taxa

  Percent abundance of pollution-sensitive taxa is the percent abundance contribution of taxa classified as pollution-sensitive to the total abundance of organisms in a sample. Pollution-sensitive species are often called "equilibrium" species because they grow slowly and are relatively long-lived, and thus they tend to characterize undisturbed, mature communities. Table 5 lists taxa that are currently defined as pollution sensitive for Chesapeake Bay. The list is modified from that of Weisberg et al. (1997).

- Percent biomass of pollution-indicative taxa

Percent biomass of pollution-indicative taxa is the percent biomass contribution of taxa classified as pollution-indicative to the total biomass of organisms in a sample.

- Percent biomass of pollution-sensitive taxa

Percent biomass of pollution sensitive taxa is the percent biomass contribution of taxa classified as pollution-sensitive to the total biomass of organisms in a sample.

- Percent abundance of carnivore and omnivores

Percent abundance of carnivore and omnivores is the percent abundance contribution of taxa currently classified as carnivores or omnivores to the total abundance of organisms in a sample. See Table 6 for carnivore/omnivore assignments of species collected by the Chesapeake Bay Benthic Monitoring Program.

- Percent abundance of deep-deposit feeders

Percent abundance of deep-deposit feeders is the percent abundance contribution of taxa that feed below the sediment-water interface to the total abundance of organisms in a sample. See Table 7 for deep-deposit feeding assignments of species collected by the Chesapeake Bay Benthic Monitoring Program.

- Tolerance Score

The Tolerance Score is a weighted abundance average for taxa classified according to their sensitiveness to pollution. The Tolerance Score is based on the North Carolina biotic index of Lenat (1993):

$$\text{Tolerance Score} = \frac{\sum TV_i \cdot N_i}{\sum N_i}$$

where TV_i is the tolerance value of the i^{th} taxa, and N_i is the abundance of the i^{th} taxa. The tolerance values are those of Lenat (1993), expanded to include piedmont and coastal taxa from Chesapeake Bay streams and tributaries. The higher the tolerance value (on a 1-10 scale), the more resistant is the species to stress, whether from pollution or from other sources. Not all taxa occurring in tidal freshwater or oligohaline habitats of the Chesapeake Bay have tolerance values assigned. Table 8 shows the list of taxa and their tolerance values.

- Tanypodini to Chironomidae percent abundance ratio

The Tanypodini to Chironomidae percent abundance ratio is a measure of the relative contribution of midges in the tribe Tanypodini to all the midges (Class Insecta, family Chironomidae) found in a sample. The Tanypodini are considered tolerant of pollution (Lenat 1993), and the ratio is expected to increase in perturbed areas. Similar ratios have been used in other studies (Barbour et al. 1996). The following Chesapeake Bay genera are classified in the tribe Tanypodini:

  - *Ablabesmyia* spp.
  - *Coelotanypus* spp.
  - *Procladius* spp.
  - *Tanypus* spp.

- Percent biomass of organisms found >5cm below the sediment-water interface

Percent biomass of organisms found >5cm below the sediment-water interface is the percent biomass contribution of organisms in the 5-25 cm layer of sediment to the total biomass of organisms (0-5 plus 5-25 cm layers) in a sample.

- Percent number of taxa found >5cm below the sediment-water interface

Percent number of taxa found >5cm below the sediment-water interface is the percent contribution of taxa found in the 5-25 cm layer of sediment to the total number of taxa in a sample. The total number of taxa in a sample is the number of species (or higher taxonomic level designations) found in the 0-5 cm sediment fraction plus those species found in the 5-25 cm sediment fraction that are not present in the 0-5 cm fraction. Species for which only parts

of an individual are found in the 5-25 cm fraction (e.g., nemerteans), are counted as occurring in this fraction.

SCORING OF METRICS

The scoring of metrics to calculate the B-IBI is done by comparing the value of a metric from the sample of unknown sediment quality to thresholds established from reference data distributions. These thresholds, called "Restoration Goals" (Ranasinghe et al. 1994), were established as the 5th (or 95th, see below) and 50th (median) percentile values of reference sites for each metric-habitat combination. Reference sites were those that showed no chemical contaminant impact or significant low dissolved oxygen events (see Weisberg et al. 1997).

1. For the following metrics,

- Shannon-Wiener species diversity index
- Percent abundance of pollution-sensitive taxa
- Percent biomass of pollution-sensitive taxa
- Percent abundance of carnivore and omnivores
- Percent abundance of deep-deposit feeders (polyhaline sand habitat)
- Percent biomass of organisms found >5cm below the sediment-water interface
- Percent number of taxa found >5cm below the sediment-water interface

a score of 1 is assigned to a metric if the value of the metric for the sample being evaluated is below the 5th percentile of corresponding reference values, a score of 3 is assigned for values between the 5th percentile and the median, and a score of 5 is assigned for values above the median. For any metric, a score of 1 indicates impaired conditions.

A maximum score of 3 is assigned for the pollution-sensitive taxa metric if the overall abundance in a sample is low (i.e., below the lower abundance threshold). This is done to avoid high scores due to the presence of a few organisms of pollution sensitive species found among a small number of organisms within a sample.

2. An upper threshold corresponding to the 95th percentile of reference sites is used for the following metrics:

- Percent abundance of pollution-indicative taxa
- Percent biomass of pollution-indicative taxa
- Percent abundance of deep-deposit feeders (tidal freshwater habitat)
- Tolerance Score
- Tanypodini to Chironomidae percent abundance ratio

This is done because the direction of the response for these metrics is such that higher percentages are expected in degraded sites than in reference sites. For these metrics, the scoring is reversed so that a score of 1 is assigned for values above the 95th percentile of

corresponding reference values, a score of 3 is assigned for values between the 95th percentile and the median, and a score of 5 is assigned for values below the median.

No score is assigned to the Tanypodini to Chironomidae percent abundance ratio metric if there are no chironomids in the sample (the ratio cannot be calculated). Likewise, no score is assigned to the Tolerance Score metric if none of the species for which there are tolerance values (see Table 8) are present in the sample.

3. Abundance and biomass respond bimodally to pollution (Pearson and Rosenberg 1978). An increase in abundance and/or biomass of organisms is expected at polluted sites when stress from pollution is moderate, such as at sites where there is organic enrichment of the sediment. A decrease in the abundance and biomass of organisms is expected at sites with high degrees of stress from pollution. Therefore, for these two metrics, an upper threshold corresponding to the 95th percentile of reference sites was established in addition to the lower threshold corresponding to the 5th percentile.

For total species abundance and total biomass, a score of 1 is assigned if the value of these metrics for the sample being evaluated is below the 5th percentile or above the 95th percentile of corresponding reference values, a score of 3 is assigned for values between the 5th and 25th or between the 75th and 95th percentiles, and a score of 5 is assigned for values between the 25th and 75th percentiles.

Table 9 shows the thresholds used to score each metric of the Chesapeake Bay B-IBI. For the percent biomass of pollution-indicative and pollution-sensitive taxa metrics, abundance-based thresholds may be substituted for biomass-based thresholds whenever species-specific biomass is unavailable (Weisberg et al. 1997). Table 10 shows these abundance-based thresholds.

B-IBI VALUE

The index value for a sample is computed by averaging the scores of the individual metrics (range 1-5). If the Tanypodini to Chironomidae percent abundance ratio or the Tolerance Score cannot be calculated (see above), the denominator to calculate the average of scores should be reduced accordingly. For sites with replicate samples (Chesapeake Bay Benthic Monitoring Program fixed stations), an index value is first calculated for each sample and then averaged over the samples.

The Chesapeake Bay Benthic Monitoring Program classifies benthic community condition into four levels: “meets goals”, “marginally degraded”, “degraded”, and “severely degraded”. B-IBI values of 3.0 are the breakpoint between degraded and non-degraded conditions. Table 11 shows the four condition levels and the B-IBI ranges.

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Table 1. Currently omitted Chesapeake Bay organisms*. List based on taxa identified in Maryland and Virginia Benthic Monitoring Program data files, 1984-2000.

Taxon	Taxon
Benthic algae	Mollusca: Bivalvia:
Hydrozoa	*Anomia simplex*
Scyphozoa	*Crassostrea virginica*
Anthozoa:	Mytilidae
Diadumene leucolena	*Mytilopsis leucophaeata*
Turbellaria	Arthropoda: Merostomata:
Nematoda	*Limulus polyphemus*
Polychaeta:	Arthropoda: Pycnogonida
Harmathoe spp.	Arthropoda: Branchiura
Lepidonotus spp.	Arthropoda: Cirripedia
Polydora websteri	Arthropoda: Mysidacea
Polynoidae[1]	Arthropoda: Isopoda:
Proceraea spp.	*Caecidotea communis*
Sabellariidae	*Cassidinidea* spp.
Serpulidae	Cymothoidae
Spirorbidae	*Edotea* spp.
Hirudinea	*Erichsonella* spp.
Mollusca: Gastropoda[1]:	Idoteidae[2]
Calyptraeidae	*Paracerceis caudata*
Cerithiidae	*Sphaeroma quadridentatum*
Columbellidae	Arthropoda: Amphipoda:
Cylichnidae	Ampithoidae
Epitoniidae	*Batea catharinensis*
Ferrissia spp.	Caprellidae
Goniobasis virginica	Corophiidae
Gyraulus spp.	Gammaridae
Helisoma spp.	*Incisocalliope aestuarius*
Hydrobiidae	Isaeidae
Littorina spp.	Ischyroceridae
Menetus spp.	Melitidae
Muricidae	*Parathemisto compressa*
Nudibranchia	Pleustidae
Physa spp.	Stenothoidae
Physella spp.	Arthropoda: Decapoda[1]:
Pleuroceridae	*Callinectes sapidus*
Pyramidellidae	*Crangon septemspinosa*
Skeneopsis planorbis	Majidae
Turridae	Paguridae
Vitrinellidae	Palaemonidae

*All species of taxa listed at the generic, familial, and higher taxonomic levels are omitted.
[1]Omitted when identified only to this higher taxonomic level. [2]Omitted except species of *Chiridotea* spp.

Table 1. (continued).

Taxon	Taxon
Arthropoda: Decapoda[1]:	Arthropoda: Plecoptera:
Pinnotheres ostreum	*Allocapnia* spp.
Xanthidae	Arthropoda: Coleoptera
Arthropoda: Ephemeroptera:	Arthropoda: Trichoptera
Caenis spp.	Bryozoa
Eurylophella spp.	Chordata: Ascidiacea
Paraleptophlebia spp.	Chordata: Vertebrata
Stenacron spp.	
Tricorythodes spp.	
Arthropoda: Odonata[1]:	
Aeshna spp.	
Ischnura spp.	

*All species of taxa listed at the generic, familial, and higher taxonomic levels are omitted.
[1]Omitted when identified only to this higher taxonomic level.

Table 2. Habitat classification.

Habitat Class	Bottom Salinity (ppt)	Silt-clay (<62 μ) content by Weight (%)
Tidal freshwater (TF)	0 - 0.5	N/A
Oligohaline (OH)	≥0.5 - 5.0	N/A
Low mesohaline (LM)	≥5.0 - 12.0	N/A
High mesohaline (HM) sand	≥12.0 - 18.0	0 - 40
High mesohaline (HM) mud	≥12.0 - 18.0	>40
Polyhaline (PO) sand	≥18.0	0 - 40
Polyhaline (PO) mud	≥18.0	>40

Table 3. Metric usage by habitat.

Metric	Habitat Class						
	TF	OL	LM	HM sand	HM mud	PO sand	PO mud
Shannon-Wiener species diversity index			X	X	X	X	X
Total species abundance	X	X	X	X	X	X	X
Total species biomass			X	X	X	X	X
Percent abundance of pollution-indicative taxa	X	X	X	X			
Percent abundance of pollution-sensitive taxa		X		X		X	
Percent biomass of pollution-indicative taxa*					X	X	X
Percent biomass of pollution-sensitive taxa*			X		X		X
Percent abundance of carnivore & omnivores		X		X	X		X
Percent abundance of deep-deposit feeders	X					X	
Tolerance Score	X	X					
Tanypodini to Chironomidae percent abundance ratio		X					
Percent biomass >5 cm below the sediment-water interface			X		X		
Percent number of taxa >5 cm below the sed-iment-water interface							X

*Whenever species-specific biomass is unavailable, the abundance-based metric is used in the B-IBI calculations.

Table 4. Pollution-indicative taxa for Chesapeake Bay.

A. Tidal freshwater pollution-indicative taxa. After Alden et al. (2002).

Oligochaeta:
Limnodrilus hoffmeisteri
Tubificidae without capilliform chaetae

B. Oligohaline pollution-indicative taxa*. After Alden et al. (2002).

Polychaeta:	Oligochaeta:
Heteromastus filiformis	*Limnodrilus udekemianus*
Leitoscoloplos spp.	*Quistadrilus multisetosus*
Mediomastus ambiseta	*Telmatodrilus vejdoskyi*
Neanthes succinea	Tubificidae without capiliform chaetae
Polydora cornuta	Tubificidae with capiliform chaetae
Streblospio benedicti	*Tubificoides* spp.
Oligochaeta[1]:	Bivalvia:
Aulodrilus limnobius	*Corbicula fluminea*
Aulodrilus paucichaeta	Arthropoda: Amphipoda:
Aulodrilus pigueti	*Leptocheirus plumulosus*
Aulodrilus pluriseta	Arthropoda: Chironomidae:
Branchiura sowerbyi	*Chironomus* spp.
Haber cf. *speciosus*	*Cladotanytarsus* spp.
Ilyodrilus templetoni	*Coelotanypus* spp.
Isochaetides freyi	*Glyptotendipes* spp.
Limnodrilus cervix	*Polypedilum spp.*
Limnodrilus claparedianus	*Procladius* spp.
Limnodrilus hoffmeisteri	*Tanypus* spp.

*All species of taxa listed at the generic level are classified as pollution-indicative.
[1] Oligochaetes are identified to the lowest possible taxonomic level, but unidentifiable specimens are classified as pollution-indicative.

C. Low mesohaline through polyhaline pollution-indicative taxa*.
Modified from Weisberg et al. (1997).

Polychaeta:	Arthropoda: Chironomidae:
Eteone heteropoda	*Chironomus* spp.
Leitoscoloplos fragilis	*Cladotanytarsus* spp.
Paraprionospio pinnata	*Coelotanypus* spp.
Streblospio benedicti	*Glyptotendipes* spp.
Oligochaeta:	*Polypedilum spp.*
Tubificidae without capiliform chaetae	*Procladius* spp.
Limnodrilus hoffmeisteri	*Tanypus* spp.
Bivalvia:	
Mulinia lateralis	

*All species of taxa listed at the generic level are classified as pollution-indicative.
Table 5. Pollution-sensitive taxa for Chesapeake Bay.

A. Oligohaline pollution-sensitive taxa. After
Alden et al. (2002).

Polychaeta:
Marenzelleria viridis
Arthropoda: Isopoda:
Chiridotea almyra

B. Low mesohaline through polyhaline pollution-sensitive taxa. Modified from Weisberg et al. (1997).

Anthozoa:	Bivalvia:
Ceriantheopsis americanus	*Anadara ovalis*
Polychaeta:	*Anadara transversa*
Bhawania heteroseta	*Ensis directus*
Chaetopterus variopedatus	*Macoma balthica*
Clymenella torquata	*Mercenaria mercenaria*
Diopatra cuprea	*Mya arenaria*
Glycera americana	*Rangia cuneata*
Glycinde solitaria	*Spisula solidissima*
Loimia medusa	*Tagelus divisus*
Macroclymene zonalis	*Tagelus plebeius*
Marenzelleria viridis	*Tellina agilis*
Mediomastus ambiseta	Arthropoda: Isopoda:
Nephtys picta	*Cyathura polita*
Sabaco elongatus	Arthropoda: Amphipoda:
Spiochaetopterus costarum	*Listriella clymenellae*
Spiophanes bombyx	Phoronida:
Gastropoda:	*Phoronis* spp.
Acteocina canaliculata	Echinodermata:
	Microphiopholis atra

Table 6. Species classified as carnivores-omnivores*. List based on taxa identified in Maryland and Virginia Benthic Monitoring Program data files, 1984-2000.

Anthozoa[1]	Gastropoda:
Nemertina	*Natica pusilla*
Polychaeta:	*Polinices duplicata*
Amphinomidae	*Rictaxis punctostriatus*
Arabellidae	Arthropoda: Stomatopoda:
Chrysopetallidae	*Squilla empusa*
Dorvilleidae	Arthropoda: Isopoda:
Eunicidae	Anthuridae
Glyceridae	*Chiridotea* spp.
Goniadidae	Arthropoda: Decapoda:
Hesionidae	Alpheidae
Lepidametria commensalis	Callianassidae
Lumbrineridae	*Ogyrides alphaerostris*
Malmgreniella spp.	*Pinnixa* spp.
Nephtyidae	Porcellanidae
Nereididae	Thalassinidea
Onuphidae	*Upogebia affinis*
Phyllodocidae	Arthropoda: Ephemeroptera:
Pilargidae	*Ephoron* spp.
Sigalionidae[2]	*Hexagenia* spp.
Syllidae[3]	*Potamanthus* spp.
Gastropoda:	Arthropoda: Odonata:
Aceteocina canaliculata	*Dromogomphus* spp.
Busycon canaliculatum	*Gomphus* spp.
Busycum spp.	Arthropoda: Diptera
Caecidae	Arthropoda: Chironomidae
Haminoea solitaria	Equinodermata:
Ilyanassa obsoleta	Echinoidea[4]
Nassarius trivittatus	*Mellita quinquiesperforata*
Nassarius vibex	

*All species of taxa listed at the generic, familial, and higher taxonomic levels are classified as carnivore-omnivore.

[1]All species except the epifaunal *Diadumene leucolena*.

[2]All species except the epifaunal *Pholoe minuta*.

[3]All species except the epifaunal *Odontosyllis* spp. and *Proceraea* spp.

[4]Unidentifiable specimens are classified as carnivore-ommnivores.

Table 7. Species classified as deep-deposit feeders*. List based on taxa identified in Maryland and Virginia Benthic Monitoring Program data files, 1984-2000.

Polychaeta:	Bivalvia:
Capitellidae	*Nucula proxima*
Maldanidae	*Nuculana messanensis*
Opheliidae	*Solemya velum*
Orbiniidae	*Yoldia limatula*
Pectinariidae	Hemichordata[1]:
Oligochaeta	*Balanoglossus aurantiacus*

*All species of taxa listed at the familial (polychaetes) or higher taxonomic level (oligochaetes) are classified as deep-deposit feeders.

[1]Unidentifiable specimens are classified as deep-deposit feeders.

Table 8. List of taxa and tolerance values. List based on taxa identified in Maryland and Virginia Benthic Monitoring Program data files, 1984-2000.

Taxon	Value	Taxon	Value
Oligochaeta:		Arthropoda: Chironomidae:	
Aulodrilus limnobius	5.2	*Chironomus* spp.	9.8
Aulodrilus pigueti	4.7	*Cladopelma* spp.	2.5
Aulodrilus spp.	4.7	*Cladotanytarsus* spp.	3.7
Branchiura sowerbyi	8.4	*Clinotanypus* spp.	9.1
Dero digitata	10.0	*Coelotanypus* spp.	6.2
Enchytraeidae	10.0	*Cricotopus sylvestris*	10.0
Haber cf. speciosus	2.8	*Cryptochironomus* spp.	7.3
Ilyodrilus templetoni	9.4	*Cryptotendipes* spp.	6.1
Isochaetides freyi	7.6	*Dicrotendipes neomodestus*	8.3
Limnodrilus cervix	10.0	*Dicrotendipes* spp.	7.9
Limnodrilus hoffmeisteri	9.8	*Endochironomus* spp.	7.5
Limnodrilus udekemianus	9.7	*Glyptotendipes* spp.	8.5
Lumbriculidae	7.3	*Harnischia* spp.	7.5
Slavina appendiculata	7.1	*Nanocladius* spp.	7.2
Stylaria lacustris	8.5	*Palpomyia* spp.	6.9
Tubificidae with capiliform chaetae	9.4	*Parachironomus* spp.	9.2
Tubificidae without capiliform chaetae	9.8	*Paracladopelma* spp.	6.4
Bivalvia:		*Paralauterborniella* spp.	4.8
Corbicula fluminea	6.3	*Phaenopsectra* spp.	6.8
Elliptio complanata	5.4	*Polypedilum* spp.	6.7
Sphaeridae	7.7	*Procladius* spp.	9.3
Unionidae	3.6	*Pseudochironomus* spp.	4.2
Arthropoda: Ephemeroptera:		*Rheotanytarsus* spp.	6.4
Hexagenia limbata	4.7	*Stictochironomus caffarius*	6.7
Hexagenia spp.	4.7	*Stictochironomus* spp. group	6.7
Arthropoda: Diptera:		*Tanypus neopunctipennis*	9.6
Chaoborus punctipennis	8.5	*Tanypus* spp.	9.6
Arthropoda: Chironomidae:		*Tanypus stellatus*	9.6
Ablabesmyia parajanta	7.1	*Tanytarsus* spp.	6.7

Table 9. Thresholds used to score each metric of the Chesapeake Bay B-IBI. Updated for the tidal freshwater and oligohaline habitats, and corrected from Weisberg et al. (1997) for the high mesohaline mud and polyhaline sand habitats.

	Scoring Criteria		
	5	**3**	**1**
Tidal Freshwater			
Abundance (#/m^2)	≥1050-4000	800-1050 or ≥4000-5500	<800 or ≥5500
Abundance of pollution-indicative taxa (%)	≤39	39-87	>87
Abundance of deep-deposit feeders (%)	≤70	70-95	>95
Tolerance Score	≤8	8-9.35	>9.35
Oligohaline			
Abundance (#/m^2)	≥450-3350	180-450 or ≥3350-4050	<180 or ≥4050
Abundance of pollution-indicative taxa (%)	≤27	27-95	>95
Abundance of pollution-sensitive taxa (%)	≥26	0.2-26	<0.2
Abundance of carnivores and omnivores (%)	≥35	15-35	<15
Tolerance Score	≤6	6-9.05	>9.05
Tanypodini to Chironomidae abundance ratio (%)	≤17	17-64	>64
Low Mesohaline			
Shannon-Wiener	≥2.5	1.7-2.5	<1.7
Abundance (#/m^2)	≥1500-2500	500-1500 or ≥2500-6000	<500 or ≥6000
Biomass (g/m^2)	≥5-10	1-5 or ≥10-30	<1 or ≥30
Abundance of pollution-indicative taxa (%)	≤10	10-20	>20
Biomass of pollution-sensitive taxa (%)	≥80	40-80	<40
Biomass deeper than 5 cm (%)	≥80	10-80	<10

Table 9. Continued.

	Scoring Criteria		
	5	**3**	**1**
High Mesohaline Sand			
Shannon-Wiener	≥3.2	2.5-3.2	<2.5
Abundance (#/m^2)	≥1500-3000	1000-1500 or ≥3000-5000	<1000 or ≥5000
Biomass (g/m^2)	≥3-15	1-3 or ≥15-50	<1 or ≥50
Abundance of pollution-indicative taxa (%)	≤10	10-25	>25
Abundance of pollution-sensitive taxa (%)	≥40	10-40	<10
Abundance of carnivores and omnivores (%)	≥35	20-35	<20
High Mesohaline Mud			
Shannon-Wiener	≥3.0	2.0-3.0	<2.0
Abundance (#/m^2)	≥1500-2500	1000-1500 or ≥2500-5000	<1000 or ≥5000
Biomass (g/m^2)	≥2-10	0.5-2 or ≥10-50	<0.5 or ≥50
Biomass of pollution-indicative taxa (%)	≤5	5-30	>30
Biomass of pollution-sensitive taxa (%)	≥60	30-60	<30
Abundance of carnivores and omnivores (%)	≥25	10-25	<10
Biomass deeper than 5 cm (%)	≥60	10-60	<10
Polyhaline Sand			
Shannon-Wiener	≥3.5	2.7-3.5	<2.7
Abundance (#/m^2)	≥3000-5000	1500-3000 or ≥5000-8000	<1500 or ≥8000
Biomass (g/m^2)	≥5-20	1-5 or ≥20-50	<1 or ≥50
Biomass of pollution-indicative taxa (%)	≤5	5-15	>15
Abundance of pollution-sensitive taxa (%)	≥50	25-50	<25
Abundance of deep-deposit feeders (%)	≥25	10-25	<10

Table 9. Continued.

	Scoring Criteria		
	5	**3**	**1**
Polyhaline Mud			
Shannon-Wiener	≥3.3	2.4-3.3	<2.4
Abundance (#/m^2)	**≥**1500-3000	1000-1500 or ≥3000-8000	<1000 or **≥**8000
Biomass (g/m^2)	≥3-10	0.5-3 or ≥10-30	<0.5 or ≥30
Biomass of pollution-indicative taxa (%)	≤5	5-20	>20
Biomass of pollution-sensitive taxa (%)	≥60	30-60	<30
Abundance of carnivores and omnivores	**≥**40	25-40	<25
Number of taxa >5 cm below the sediment-water interface (%)	**≥**40	10-40	<10

Table 10. Abundance-based thresholds that may be substituted for biomass-based thresholds. Corrected from Weisberg et al. (1997).

	Scoring Criteria		
	5	**3**	**1**
Low Mesohaline			
Abundance of pollution-sensitive taxa (%)	**≥**25	5-25	<5
High Mesohaline Mud			
Abundance of pollution-indicative taxa (%)	≤20	20-50	>50
Abundance of pollution-sensitive taxa (%)	**≥**30	10-30	<10
Polyhaline Sand			
Abundance of pollution-indicative taxa (%)	≤10	10-40	>40
Polyhaline Mud			
Abundance of pollution-indicative taxa (%)	≤15	15-50	>50
Abundance of pollution-sensitive taxa (%)	**≥**40	25-40	<25

Table 11. B-IBI ranges and benthic community condition used by the Chesapeake Bay Benthic Monitoring Program.

B-IBI	Benthic Community Condition
≥3.0	Meets restoration goals
2.7-2.9	Marginal
2.1-2.6	Degraded
≤2.0	Severely degraded

Appendix E

Results

Appendix E-1

Sediment Core Profiling

CORE PROCESSING SUMMARY

QUANTICO
2-MONTH MONITORING EVENT
SEPTEMBER 2014

RAMBOLL ENVIRON

2-Month Sediment Core Profiling

Station 1

Red line indicates cap-sediment interface

QT2-1-1-CORE



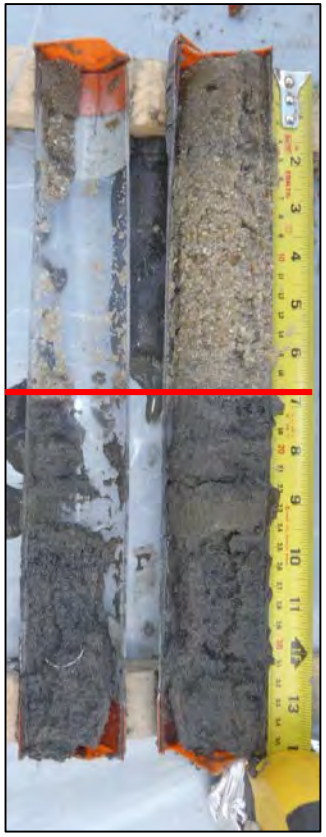
QT2-1-2-CORE



QT2-1-3-CORE



QT2-1-4-CORE



QT2-1-5-CORE



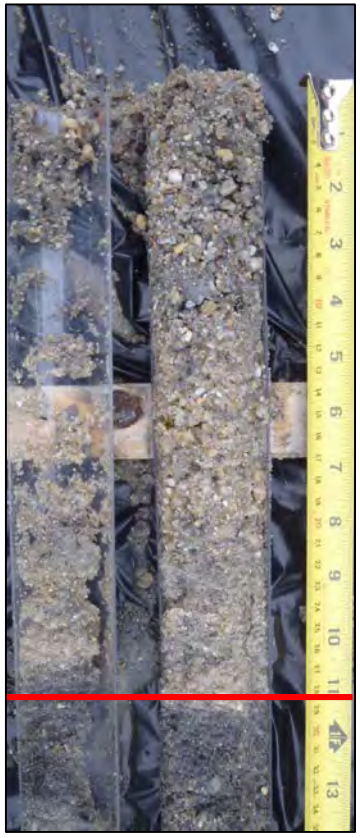
2-Month Sediment Core Profiling
Station 2

Red line indicates cap-sediment interface

QT2-2-1-CORE



QT2-2-2-CORE



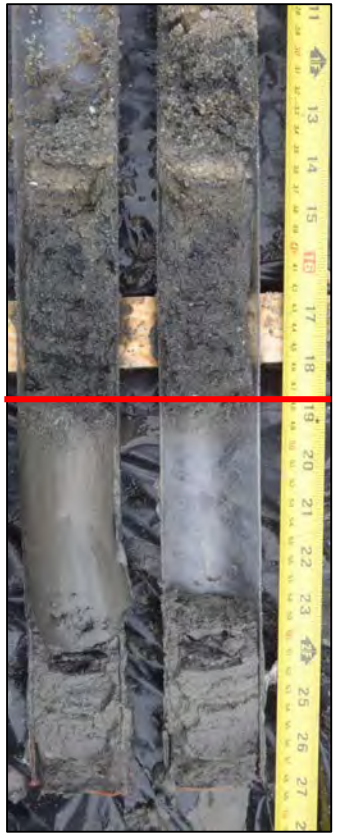
QT2-2-3-CORE



QT2-2-4-CORE



QT2-2-5-CORE



2-Month Sediment Core Profiling
Station 3

Red line indicates cap-sediment interface

QT2-3-1-CORE



QT2-3-2-CORE



QT2-3-3-CORE



QT2-3-4-CORE



QT2-3-5-CORE



2-Month Sediment Core Profiling
Station 4

Red line indicates cap-sediment interface

QT2-4-1-CORE



QT2-4-2-CORE



QT2-4-3-CORE



QT2-4-4-CORE



QT2-4-5-CORE



2-Month Sediment Core Profiling

Station 5

Red line indicates cap-sediment interface

QT2-5-1-CORE



QT2-5-2-CORE



QT2-5-3-CORE



QT2-5-4-CORE



QT2-5-5-CORE



2-Month Sediment Core Profiling
Station 5-Duplicate

Red line indicates cap-sediment interface

QT2-5DUP-1-CORE



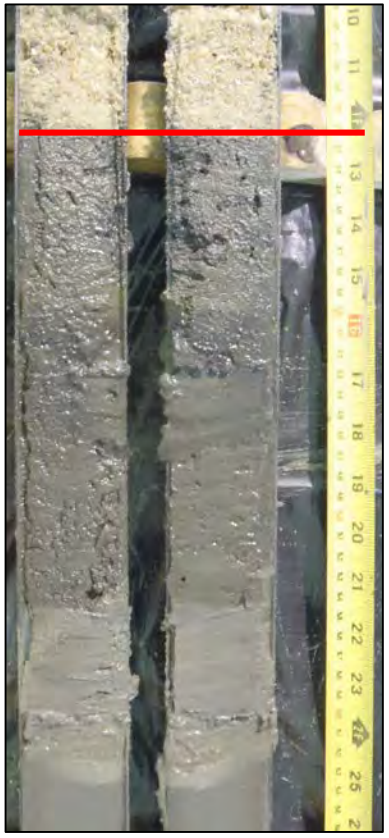
QT2-5DUP-2-CORE



QT2-5DUP-3-CORE



QT2-5DUP-4-CORE



QT2-5DUP-5-CORE



Table 1: Core Processing Log for 2-Month Event
Quantico Marine Corps Base
Quantico, Virginia

Sample ID	Processing Date	Start Depth of Interval (cm)	End Depth of Interval (cm)	Sediment Texture	Orientation to Cap Interface with Native Sediment	Notes
QT2-1-1-CORE	9/23/2014	0	12	Coarse sand	Above	
QT2-1-1-CORE	9/23/2014	12	16	Very coarse sand with gravel	Above	
QT2-1-1-CORE	9/23/2014	16	31	Silty sand	Below	
QT2-1-1-CORE	9/23/2014	31	58	Silty clay	Below	
QT2-1-2-CORE	9/23/2014	0	18	Coarse sand	Above	
QT2-1-2-CORE	9/23/2014	18	39	Silty sand	Below	Oligochaetes at depths of 30 to 38 cm
QT2-1-2-CORE	9/23/2014	39	62	Silty clay	Below	
QT2-1-3-CORE	9/23/2014	0	6	Coarse sand	Above	
QT2-1-3-CORE	9/23/2014	6	18	Coarse sand with gravel	Above	
QT2-1-3-CORE	9/23/2014	18	37	Silty sand	Below	
QT2-1-3-CORE	9/23/2014	37	72	Silty clay	Below	
QT2-1-4-CORE	9/23/2014	0	6	Coarse sand	Above	
QT2-1-4-CORE	9/23/2014	6	16	Coarse sand with gravel	Above	
QT2-1-4-CORE	9/23/2014	16	18	Coarse sand	Above	
QT2-1-4-CORE	9/23/2014	18	35	Silty sand	Below	
QT2-1-5-CORE	9/23/2014	0	3	Coarse sand	Above	
QT2-1-5-CORE	9/23/2014	3	16.5	Coarse sand with gravel	Above	
QT2-1-5-CORE	9/23/2014	16.5	18	Coarse sand	Above	
QT2-1-5-CORE	9/23/2014	18	37	Silty sand	Below	
QT2-1-5-CORE	9/23/2014	37	71	Silty clay	Below	
QT2-2-1-CORE	9/24/2014	0	18	Coarse sand with gravel	Above	
QT2-2-1-CORE	9/24/2014	18	33	Coarse sand	Above	
QT2-2-1-CORE	9/24/2014	33	39	Coarse sand with gravel	Above	
QT2-2-1-CORE	9/24/2014	39	47.5	Coarse sand	Above	
QT2-2-1-CORE	9/24/2014	47.5	58	Silty sand	Below	
QT2-2-1-CORE	9/24/2014	58	67	Silty clay	Below	
QT2-2-1-CORE	9/24/2014	67	74	Clayey sand	Below	Organic matter
QT2-2-2-CORE	9/24/2014	0	19	Coarse sand with gravel	Above	
QT2-2-2-CORE	9/24/2014	19	28	Coarse sand	Above	
QT2-2-2-CORE	9/24/2014	28	36	Coarse sand with silt	Above	
QT2-2-2-CORE	9/24/2014	36	45	Silty sand	Below	
QT2-2-2-CORE	9/24/2014	45	48	Silty sand with coarse gravel	Below	Shell
QT2-2-2-CORE	9/24/2014	48	52	Silty clay	Below	
QT2-2-3-CORE	9/24/2014	0	14	Coarse sand with gravel	Above	
QT2-2-3-CORE	9/24/2014	14	27	Coarse sand	Above	
QT2-2-3-CORE	9/24/2014	27	35.5	Coarse sand with silt	Above	
QT2-2-3-CORE	9/24/2014	35.5	48	Silty sand	Below	Plant roots

Table 1: Core Processing Log for 2-Month Event
Quantico Marine Corps Base
Quantico, Virginia

Sample ID	Processing Date	Start Depth of Interval (cm)	End Depth of Interval (cm)	Sediment Texture	Orientation to Cap Interface with Native Sediment	Notes
QT2-2-3-CORE	9/24/2014	48	67	Silty clay	Below	
QT2-2-3-CORE	9/24/2014	67	71	Silty clay with sand	Below	
QT2-2-3-CORE	9/24/2014	71	75	Silty clay	Below	
QT2-2-4-CORE	9/24/2014	0	7	Coarse sand with gravel	Above	
QT2-2-4-CORE	9/24/2014	7	10	Silty clay with gravel	Above	
QT2-2-4-CORE	9/24/2014	10	18	Coarse sand	Above	
QT2-2-4-CORE	9/24/2014	18	43	Coarse sand with gravel	Above	
QT2-2-4-CORE	9/24/2014	43	54	Silty clay	Below	
QT2-2-4-CORE	9/24/2014	54	56	Silty sand	Below	
QT2-2-4-CORE	9/24/2014	56	60	Silty sand	Below	Plant roots at depths of 56 to 57 cm
QT2-2-5-CORE	9/24/2014	0	1	Silty sand	Above	
QT2-2-5-CORE	9/24/2014	1	5	Coarse sand with gravel	Above	
QT2-2-5-CORE	9/24/2014	5	30	Coarse sand	Above	
QT2-2-5-CORE	9/24/2014	30	47	Silty sand	Above	Plant roots at depths of 37 to 47 cm
QT2-2-5-CORE	9/24/2014	47	58	Silty clay	Below	
QT2-2-5-CORE	9/24/2014	58	67.5	Silty clay with sand	Below	
QT2-3-1-CORE	9/24/2014	0	12	Coarse sand	Above	
QT2-3-1-CORE	9/24/2014	12	26	Coarse sand with gravel	Above	
QT2-3-1-CORE	9/24/2014	26	83	Silty sand	Below	Plant roots at depths of 30 to 40 cm
QT2-3-1-CORE	9/24/2014	83	89	Silty clay	Below	
QT2-3-2-CORE	9/24/2014	0	8	Coarse sand with gravel	Above	
QT2-3-2-CORE	9/24/2014	8	16	Coarse sand with silty clay	Above	
QT2-3-2-CORE	9/24/2014	16	32	Coarse sand with gravel	Above	
QT2-3-2-CORE	9/24/2014	32	104	Silty sand	Below	Plant roots at depths of 36 to 49; Red gravel at depths of 54 to 56 cm
QT2-3-2-CORE	9/24/2014	104	109	Silty clay	Below	
QT2-3-3-CORE	9/24/2014	0	14	Coarse sand	Above	
QT2-3-3-CORE	9/24/2014	14	15	Silty clay with sand	Above	
QT2-3-3-CORE	9/24/2014	15	21	Coarse sand	Above	
QT2-3-3-CORE	9/24/2014	21	30	Coarse sand with gravel	Above	
QT2-3-3-CORE	9/24/2014	30	33.5	Silty sand	Below	Shell
QT2-3-3-CORE	9/24/2014	33.5	34.5	Silty clay	Below	Plant roots
QT2-3-3-CORE	9/24/2014	34.5	66	Silty sand	Below	Plant roots at depths of 34.5 to 44 cm
QT2-3-3-CORE	9/24/2014	66	82.5	Silty sand with clay	Below	
QT2-3-3-CORE	9/24/2014	82.5	83.5	Clay with silt	Below	
QT2-3-4-CORE	9/24/2014	0	3	Coarse sand	Above	
QT2-3-4-CORE	9/24/2014	3	11	Coarse sand with gravel and silt	Above	
QT2-3-4-CORE	9/24/2014	11	28.5	Coarse sand with gravel	Above	

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Quantico Marine Corps Base
Quantico, Virginia

Sample ID	Processing Date	Start Depth of Interval (cm)	End Depth of Interval (cm)	Sediment Texture	Orientation to Cap Interface with Native Sediment	Notes
QT2-3-4-CORE	9/24/2014	28.5	90	Silty sand	Below	Plant roots at depths of 32 to 38 cm
QT2-3-5-CORE	9/24/2014	0	5	Coarse sand	Above	
QT2-3-5-CORE	9/24/2014	5	22	Coarse sand with gravel	Above	
QT2-3-5-CORE	9/24/2014	22	44	Silty sand	Below	
QT2-3-5-CORE	9/24/2014	44	48	Clay	Below	
QT2-3-5-CORE	9/24/2014	48	69.5	Clayey sand	Below	Band of organic matter (woody debris) at depths of 65 to 68 cm
QT2-3-5-CORE	9/24/2014	69.5	75	Silty sand	Below	
QT2-4-1-CORE	9/24/2014	0	2	Sandy silt	Above	
QT2-4-1-CORE	9/24/2014	2	14	Silty sand with gravel	Above	
QT2-4-1-CORE	9/24/2014	14	22	Coarse sand with gravel	Above	
QT2-4-1-CORE	9/24/2014	22	25	Silty sand with gravel	Above	
QT2-4-1-CORE	9/24/2014	25	32	Coarse sand with gravel	Above	
QT2-4-1-CORE	9/24/2014	32	40	Silty clay with sand	Below	
QT2-4-1-CORE	9/24/2014	40	64	Silty clay	Below	
QT2-4-2-CORE	9/24/2014	0	2	Sandy silt	Above	
QT2-4-2-CORE	9/24/2014	2	5	Coarse sand with gravel	Above	
QT2-4-2-CORE	9/24/2014	5	14	Coarse sand with silt	Above	
QT2-4-2-CORE	9/24/2014	14	23	Coarse sand with gravel	Above	
QT2-4-2-CORE	9/24/2014	23	26	Silty clay with sand	Above	Plant roots at depths of 24 to 25 cm
QT2-4-2-CORE	9/24/2014	26	32	Coarse sand with gravel	Above	
QT2-4-2-CORE	9/24/2014	32	51	Silty clay with sand	Below	Plant roots at depths of 35.5 to 39 cm
QT2-4-2-CORE	9/24/2014	51	58	Silty clay	Below	
QT2-4-3-CORE	9/24/2014	0	5	Silty coarse sand with gravel	Above	
QT2-4-3-CORE	9/24/2014	5	6	Silty sand	Above	
QT2-4-3-CORE	9/24/2014	6	12	Silty coarse sand with gravel	Above	
QT2-4-3-CORE	9/24/2014	12	20	Coarse sand with gravel	Above	
QT2-4-3-CORE	9/24/2014	20	22	Clayey sand with silt	Above	
QT2-4-3-CORE	9/24/2014	22	31.5	Coarse sand with gravel	Above	
QT2-4-3-CORE	9/24/2014	31.5	53	Silty clay with sand	Below	Plant roots at depths of 33 to 43 cm
QT2-4-3-CORE	9/24/2014	53	67.5	Silty clay	Below	
QT2-4-4-CORE	9/24/2014	0	15	Coarse sand with silt and gravel	Above	
QT2-4-4-CORE	9/24/2014	15	23	Coarse sand with gravel	Above	
QT2-4-4-CORE	9/24/2014	23	26.5	Silty sand	Above	
QT2-4-4-CORE	9/24/2014	26.5	32	Coarse sand with gravel	Above	
QT2-4-4-CORE	9/24/2014	32	50	Silty clay with sand	Below	Plant roots at depths of 32 to 39 cm
QT2-4-4-CORE	9/24/2014	50	71.5	Silty clay	Below	
QT2-4-5-CORE	9/24/2014	0	7	Coarse sand	Above	

Table 1: Core Processing Log for 2-Month Event
Quantico Marine Corps Base
Quantico, Virginia

Sample ID	Processing Date	Start Depth of Interval (cm)	End Depth of Interval (cm)	Sediment Texture	Orientation to Cap Interface with Native Sediment	Notes
QT2-4-5-CORE	9/24/2014	7	15	Silty sand with gravel	Above	
QT2-4-5-CORE	9/24/2014	15	23	Coarse sand with gravel	Above	
QT2-4-5-CORE	9/24/2014	23	25	Silt with sand	Above	Plant roots
QT2-4-5-CORE	9/24/2014	25	34	Coarse sand	Above	Clam
QT2-4-5-CORE	9/24/2014	34	39.5	Silty sand	Below	
QT2-4-5-CORE	9/24/2014	39.5	61	Silty clay	Below	Woody debris at depths of 40 to 41 cm
QT2-5-1-CORE	9/24/2014	0	2.5	Sand with silt	Above	
QT2-5-1-CORE	9/24/2014	2.5	3.5	Silt with sand	Above	
QT2-5-1-CORE	9/24/2014	3.5	10	Coarse sand with gravel	Above	Worm at depth of 10 cm
QT2-5-1-CORE	9/24/2014	10	12	Silt with sand	Above	
QT2-5-1-CORE	9/24/2014	12	31	Coarse sand with gravel	Above	
QT2-5-1-CORE	9/24/2014	31	46	Silty sand	Below	
QT2-5-1-CORE	9/24/2014	46	85.5	Clay with silt	Below	
QT2-5-2-CORE	9/24/2014	0	8.5	Silt with sand and gravel	Above	
QT2-5-2-CORE	9/24/2014	8.5	12.5	Coarse sand with gravel	Above	
QT2-5-2-CORE	9/24/2014	12.5	14	Silt with sand	Above	
QT2-5-2-CORE	9/24/2014	14	31	Coarse sand with gravel	Above	
QT2-5-2-CORE	9/24/2014	31	50	Silt with sand	Below	
QT2-5-2-CORE	9/24/2014	50	83	Silty clay	Below	
QT2-5-3-CORE	9/24/2014	0	6	Coarse sand with gravel	Above	
QT2-5-3-CORE	9/24/2014	6	10	Silt with sand	Above	
QT2-5-3-CORE	9/24/2014	10	14	Coarse sand with gravel	Above	
QT2-5-3-CORE	9/24/2014	14	16	Silt with sand	Above	
QT2-5-3-CORE	9/24/2014	16	35.5	Coarse sand with gravel	Above	
QT2-5-3-CORE	9/24/2014	35.5	55	Silty clay with sand	Below	
QT2-5-3-CORE	9/24/2014	55	76	Silty clay	Below	
QT2-5-4-CORE	9/24/2014	0	5	Coarse sand with silt	Above	
QT2-5-4-CORE	9/24/2014	5	12	Silt with sand	Above	Plant roots at depths of 7 to 10 cm
QT2-5-4-CORE	9/24/2014	12	34	Coarse sand with gravel	Above	
QT2-5-4-CORE	9/24/2014	34	63	Silty sand with clay	Below	
QT2-5-4-CORE	9/24/2014	63	80	Silty clay	Below	
QT2-5-5-CORE	9/24/2014	0	9	Silt with sand	Above	
QT2-5-5-CORE	9/24/2014	9	33	Coarse sand with gravel	Above	
QT2-5-5-CORE	9/24/2014	33	53	Silty sand with clay	Below	
QT2-5-5-CORE	9/24/2014	53	72	Silty clay	Below	
QT2-5DUP-1-CORE	9/25/2014	0	9	Silty sand	Above	
QT2-5DUP-1-CORE	9/25/2014	9	30.5	Coarse sand with gravel	Above	

Table 1: Core Processing Log for 2-Month Event
Quantico Marine Corps Base
Quantico, Virginia

Sample ID	Processing Date	Start Depth of Interval (cm)	End Depth of Interval (cm)	Sediment Texture	Orientation to Cap Interface with Native Sediment	Notes
QT2-5DUP-1-CORE	9/25/2014	30.5	54.5	Silty sand	Below	Minor plant roots at depths of 30.5 to 35 cm
QT2-5DUP-1-CORE	9/25/2014	54.5	74.5	Silty clay	Below	
QT2-5DUP-2-CORE	9/25/2014	0	9.5	Silty sand	Above	
QT2-5DUP-2-CORE	9/25/2014	9.5	17	Coarse sand with silt	Above	
QT2-5DUP-2-CORE	9/25/2014	17	20.5	Coarse sand with gravel	Above	
QT2-5DUP-2-CORE	9/25/2014	20.5	33	Coarse sand with minor silt	Above	
QT2-5DUP-2-CORE	9/25/2014	33	52	Silty sand	Below	
QT2-5DUP-2-CORE	9/25/2014	52	84	Silty clay	Below	
QT2-5DUP-3-CORE	9/25/2014	0	6	Silty sand	Above	
QT2-5DUP-3-CORE	9/25/2014	6	13.5	Silt with sand	Above	Minor plant roots
QT2-5DUP-3-CORE	9/25/2014	13.5	15.5	Coarse sand	Above	
QT2-5DUP-3-CORE	9/25/2014	15.5	17	Silt with sand	Above	Minor plant roots
QT2-5DUP-3-CORE	9/25/2014	17	33	Coarse sand with gravel	Above	
QT2-5DUP-3-CORE	9/25/2014	33	54.5	Silty sand	Below	
QT2-5DUP-3-CORE	9/25/2014	54.5	81	Silty clay	Below	
QT2-5DUP-4-CORE	9/25/2014	0	15	Silty sand	Above	Cap/water interface slightly askew and water released when core opened
QT2-5DUP-4-CORE	9/25/2014	15	23.5	Coarse sand	Above	
QT2-5DUP-4-CORE	9/25/2014	23.5	33	Coarse sand with gravel	Above	
QT2-5DUP-4-CORE	9/25/2014	33	54	Silty sand	Below	
QT2-5DUP-4-CORE	9/25/2014	54	90	Silty clay	Below	Shell at 88 cm
QT2-5DUP-5-CORE	9/25/2014	0	4	Sand with silt	Above	
QT2-5DUP-5-CORE	9/25/2014	4	8	Silt with minor sand	Above	
QT2-5DUP-5-CORE	9/25/2014	8	11	Coarse sand with gravel	Above	
QT2-5DUP-5-CORE	9/25/2014	11	15	Silty sand	Above	
QT2-5DUP-5-CORE	9/25/2014	15	34	Coarse sand with gravel	Above	
QT2-5DUP-5-CORE	9/25/2014	34	50	Silty sand	Below	
QT2-5DUP-5-CORE	9/25/2014	50	77.5	Silty clay	Below	

Notes:
1.) Intervals less than 1 cm were not logged.
2.) Plant roots were likely Hydrilla.
3.) Abbreviations:
cm: centimeters

Table 2: Summary of Cap-Native Sediment Interface for 2-Month Event
Quantico Marine Corps Base
Quantico, Virginia

Table 2.A. Summary by Core	
Core	**Depth of Cap-Native Sediment Interface (centimeters below water-cap interface)**
QT2-1-1-CORE	16
QT2-1-2-CORE	18
QT2-1-3-CORE	18
QT2-1-4-CORE	18
QT2-1-5-CORE	18
QT2-2-1-CORE	47.5
QT2-2-2-CORE	36
QT2-2-3-CORE	35.5
QT2-2-4-CORE	43
QT2-2-5-CORE	37
QT2-3-1-CORE	26
QT2-3-2-CORE	32
QT2-3-3-CORE	30
QT2-3-4-CORE	28.5
QT2-3-5-CORE	22
QT2-4-1-CORE	32
QT2-4-2-CORE	32
QT2-4-3-CORE	31.5
QT2-4-4-CORE	32
QT2-4-5-CORE	34
QT2-5-1-CORE	31
QT2-5-2-CORE	31
QT2-5-3-CORE	35.5
QT2-5-4-CORE	34
QT2-5-5-CORE	33
QT2-5DUP-1-CORE	30.5
QT2-5DUP-2-CORE	33
QT2-5DUP-3-CORE	33
QT2-5DUP-4-CORE	33
QT2-5DUP-5-CORE	34

Table 2.B. Summary by Statistics	
Station	**Depth of Cap-Native Sediment Interface (centimeters below water-cap interface) [Average ± Standard Deviation (Minimum - Maximum)]**
QT2-1	18 ± 1 (16 - 18)
QT2-2	40 ± 5 (35.5 - 47.5)
QT2-3	28 ± 4 (22 - 32)
QT2-4	32 ± 1 (31.5 - 34)
QT2-5	33 ± 2 (31 - 35.5)
QT2-5DUP	33 ± 1 (30.5 - 34)



Photo 1: QT2-1-BENTHIC



Photo 2: QT2-2-BENTHIC



Photo 3: QT2-3-BENTHIC



Photo 4: QT2-4-BENTHIC

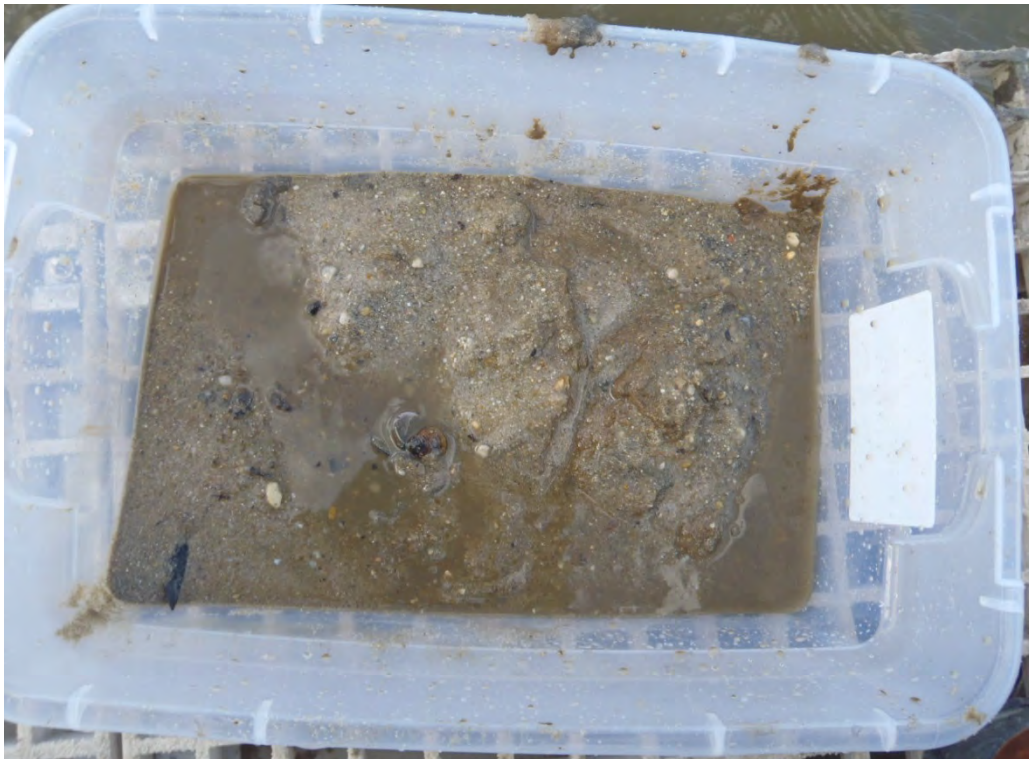


Photo 5: QT2-5-BENTHIC



Photo 6: QT2-7-GRAB



Photo 7: QT2-7-BENTHIC



Photo 8: QT2-6-GRAB



Photo 9: QT2-1 Five cores



Photo 10: QT2-1-1-CORE, QT2-1-2-CORE, QT2-1-3-CORE, QT2-1-4-CORE, and QT2-1-5-CORE (listed bottom to top)



Photo 11: QT2-1-1-CORE, QT2-1-2-CORE, and QT2-1-3-CORE (listed bottom to top)



Photo 12: QT2-1-4-CORE and QT2-1-5-CORE (listed bottom to top)



Photo 13: QT2-1-1-CORE



Photo 14: QT2-1-2-CORE



Photo 15: QT2-1-2-CORE



Photo 16: QT2-1-3-CORE



Photo 17: QT2-1-3-CORE



Photo 18: QT2-1-4-CORE



Photo 19: QT2-1-5-CORE

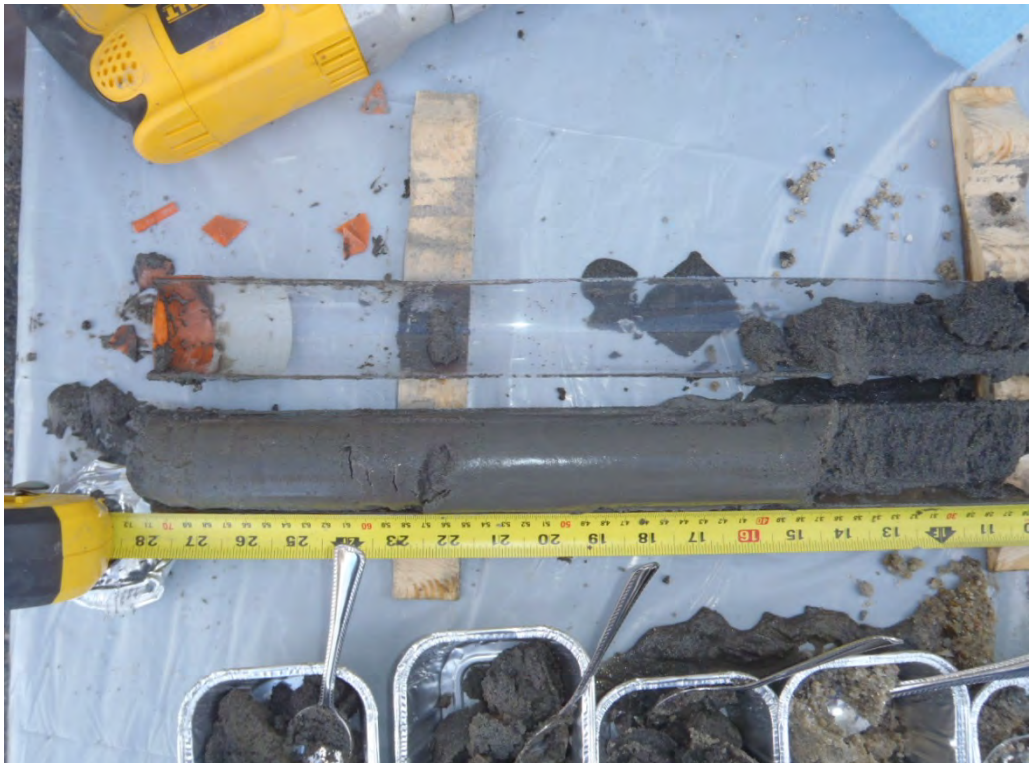


Photo 20: QT2-1-5-CORE



Photo 21: QT2-2 Five cores



Photo 22: QT2-2-1-CORE, QT2-2-2-CORE, QT2-2-3-CORE, QT2-2-4-CORE, and QT2-2-5-CORE (listed bottom to top)



Photo 23: QT2-2-1-CORE, QT2-2-2-CORE, QT2-2-3-CORE, QT2-2-4-CORE, and QT2-2-5-CORE (listed bottom to top)



Photo 24: QT2-2-1-CORE



Photo 25: QT2-2-1-CORE

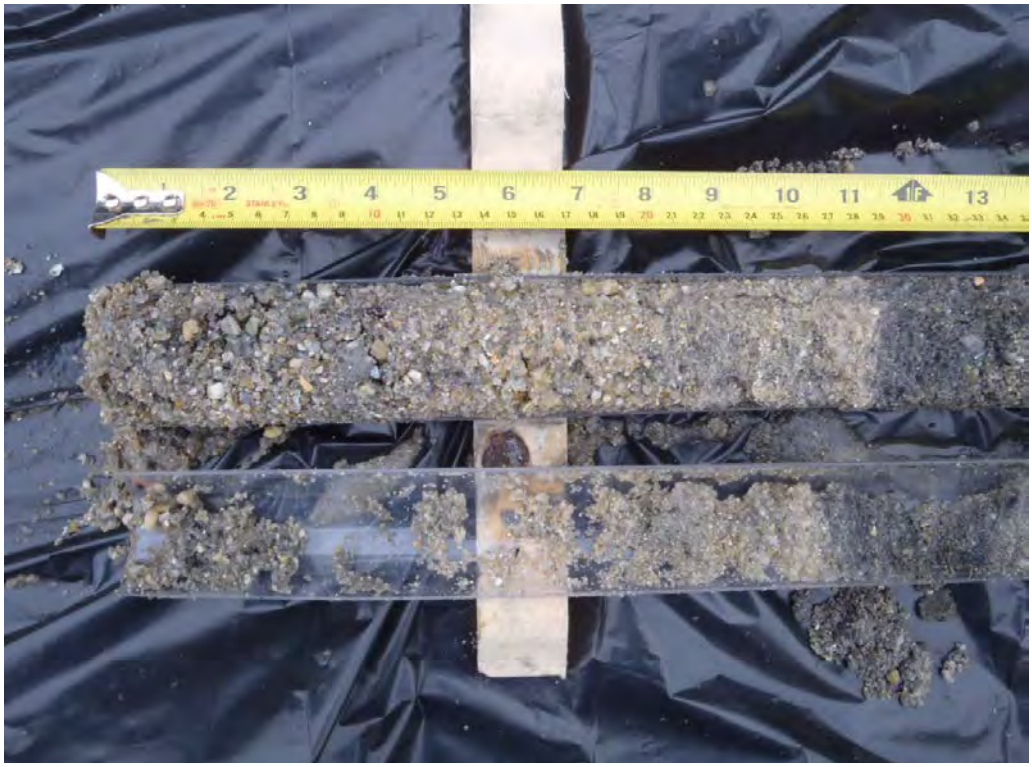


Photo 26: QT2-2-2-CORE



Photo 27: QT2-2-2-CORE



Photo 28: QT2-2-3-CORE



Photo 29: QT2-2-3-CORE

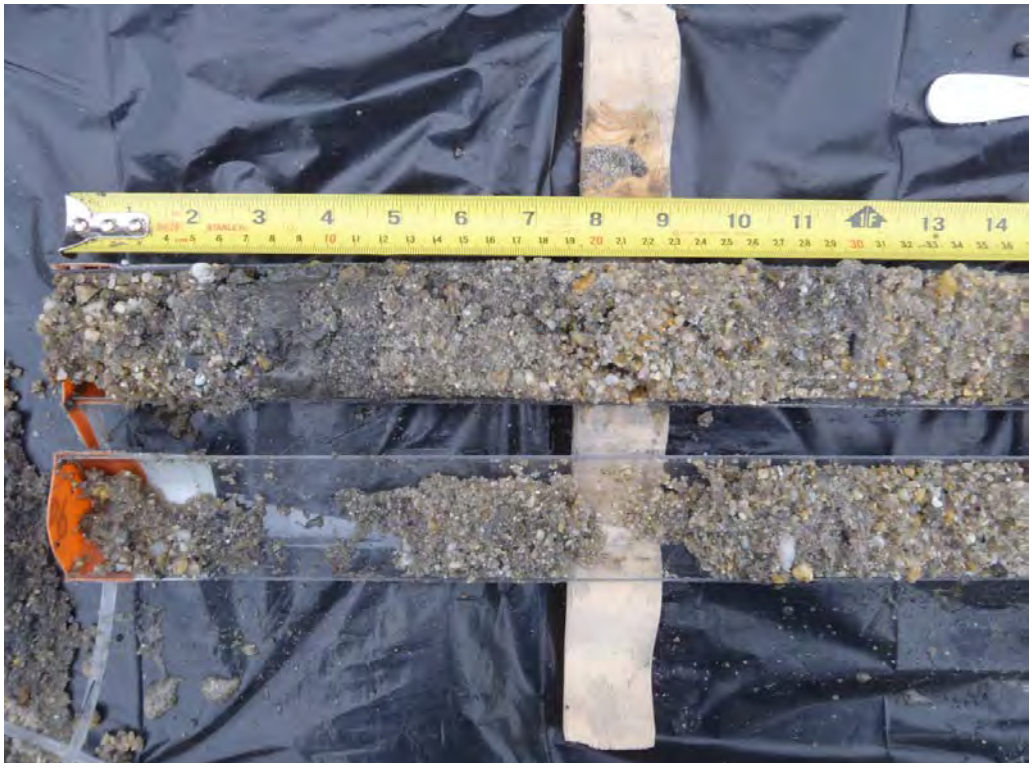


Photo 30: QT2-2-4-CORE



Photo 31: QT2-2-4-CORE



Photo 32: QT2-2-4-CORE



Photo 33: QT2-2-5-CORE



Photo 34: QT2-2-5-CORE



Photo 35: QT2-3 Five cores



Photo 36: QT2-3-1-CORE, QT2-3-2-CORE, QT2-3-3-CORE, QT2-3-4-CORE, and QT2-3-5-CORE (listed bottom to top)



Photo 37: QT2-3-1-CORE, QT2-3-2-CORE, QT2-3-3-CORE, QT2-3-4-CORE, and QT2-3-5-CORE (listed bottom to top)



Photo 38: QT2-3-1-CORE, QT2-3-2-CORE, QT2-3-3-CORE, QT2-3-4-CORE, and QT2-3-5-CORE (listed bottom to top)



Photo 39: QT2-3-1-CORE



Photo 40: QT2-3-1-CORE



Photo 41: QT2-3-1-CORE

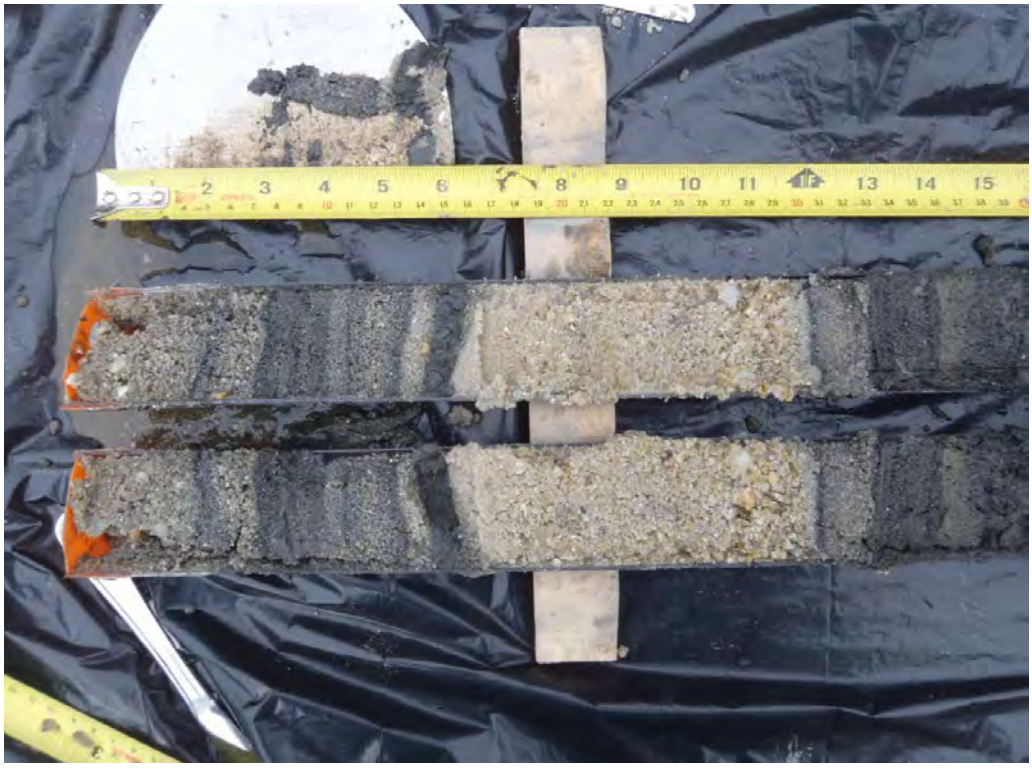


Photo 42: QT2-3-2-CORE



Photo 43: QT2-3-2-CORE



Photo 44: QT2-3-2-CORE



Photo 45: QT2-3-2-CORE

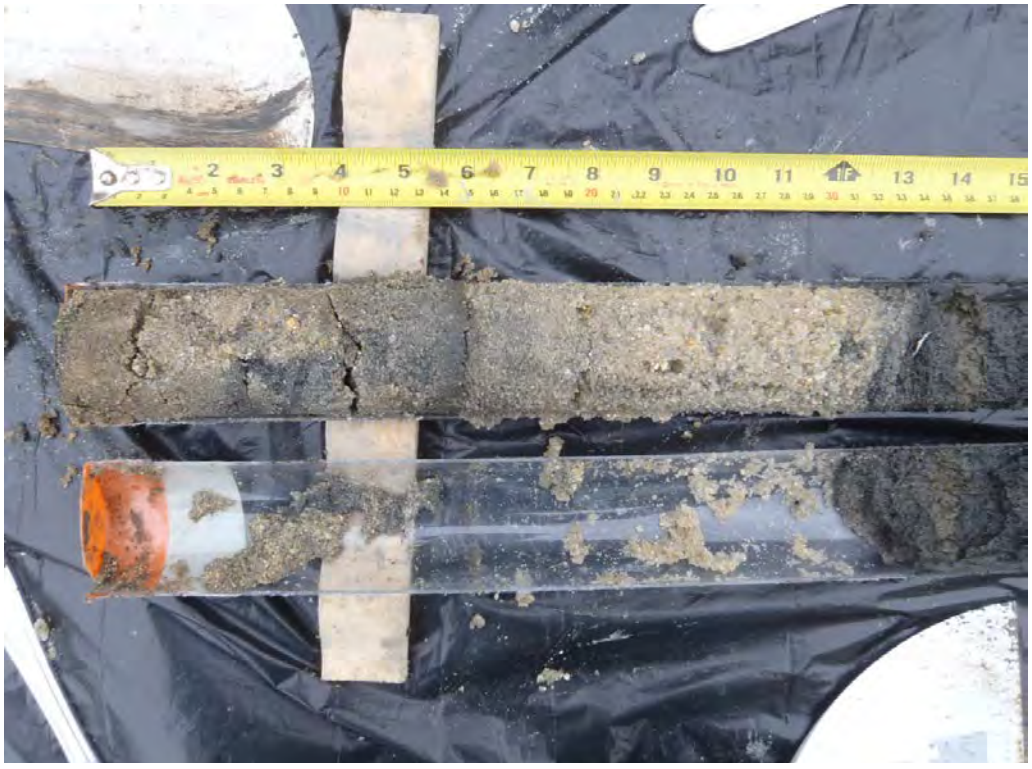


Photo 46: QT2-3-3-CORE



Photo 47: QT2-3-3-CORE



Photo 48: QT2-3-3-CORE



Photo 49: QT2-3-4-CORE



Photo 50: QT2-3-4-CORE



Photo 51: QT2-3-4-CORE



Photo 52: QT2-3-5-CORE

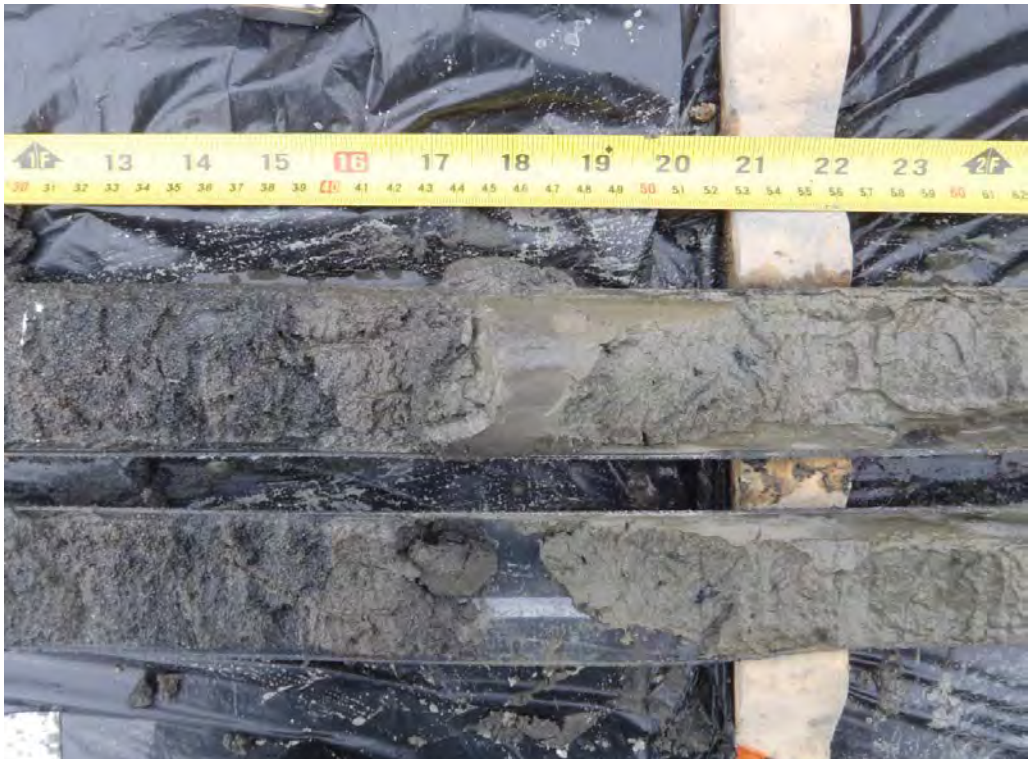


Photo 53: QT2-3-5-CORE



Photo 54: QT2-3-5-CORE



Photo 55: QT2-4 Five cores



Photo 56: QT2-4-1-CORE, QT2-4-2-CORE, QT2-4-3-CORE, QT2-4-4-CORE, and QT2-4-5-CORE (listed bottom to top)



Photo 57: QT2-4-1-CORE, QT2-4-2-CORE, QT2-4-3-CORE, QT2-4-4-CORE, and QT2-4-5-CORE (listed bottom to top)



Photo 58: QT2-4-1-CORE



Photo 59: QT2-4-1-CORE



Photo 60: QT2-4-2-CORE



Photo 61: QT2-4-2-CORE



Photo 62: QT2-4-3-CORE



Photo 63: QT2-4-3-CORE

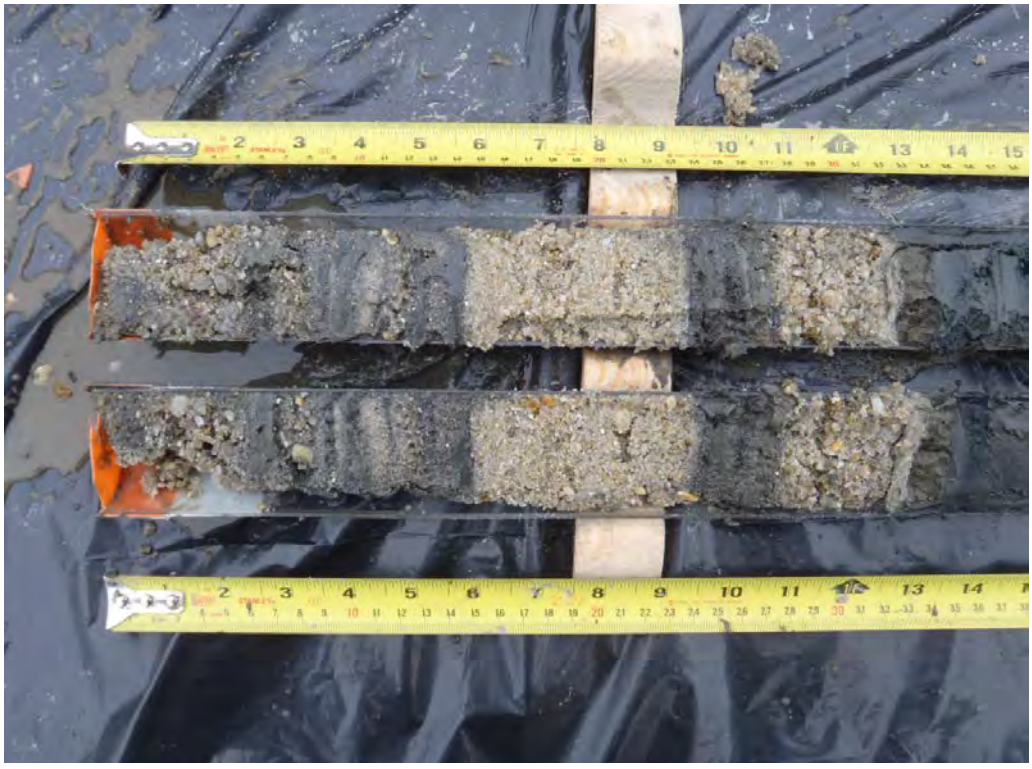


Photo 64: QT2-4-4-CORE

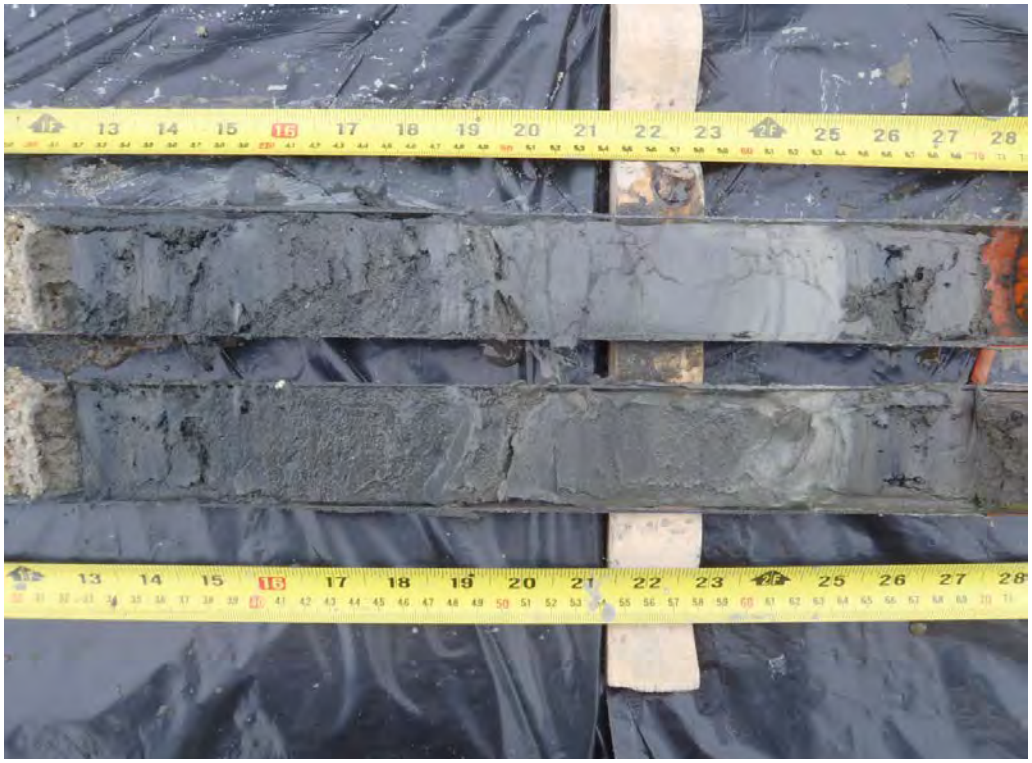


Photo 65: QT2-4-4-CORE



Photo 66: QT2-4-5-CORE



Photo 67: QT2-4-5-CORE



Photo 68: QT2-5 Five cores



Photo 69: QT2-5-1-CORE, QT2-5-2-CORE, QT2-5-3-CORE, QT2-5-4-CORE, and QT2-5-5-CORE (listed bottom to top)



Photo 70: QT2-5-1-CORE, QT2-5-2-CORE, QT2-5-3-CORE, QT2-5-4-CORE, and QT2-5-5-CORE (listed bottom to top)



Photo 71: QT2-5-1-CORE



Photo 72: QT2-5-1-CORE



Photo 73: QT2-5-1-CORE

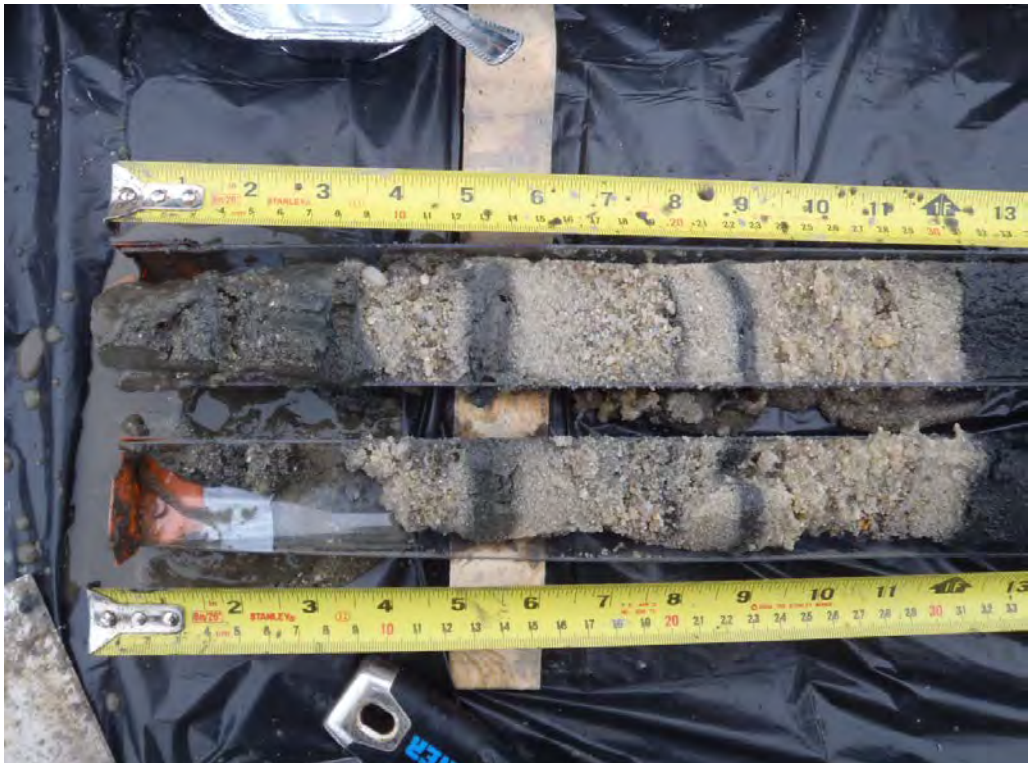


Photo 74: QT2-5-2-CORE



Photo 75: QT2-5-2-CORE



Photo 76: QT2-5-2-CORE



Photo 77: QT2-5-3-CORE



Photo 78: QT2-5-3-CORE



Photo 79: QT2-5-3-CORE



Photo 80: QT2-5-4-CORE



Photo 81: QT2-5-4-CORE



Photo 82: QT2-5-4-CORE



Photo 83: QT2-5-5-CORE

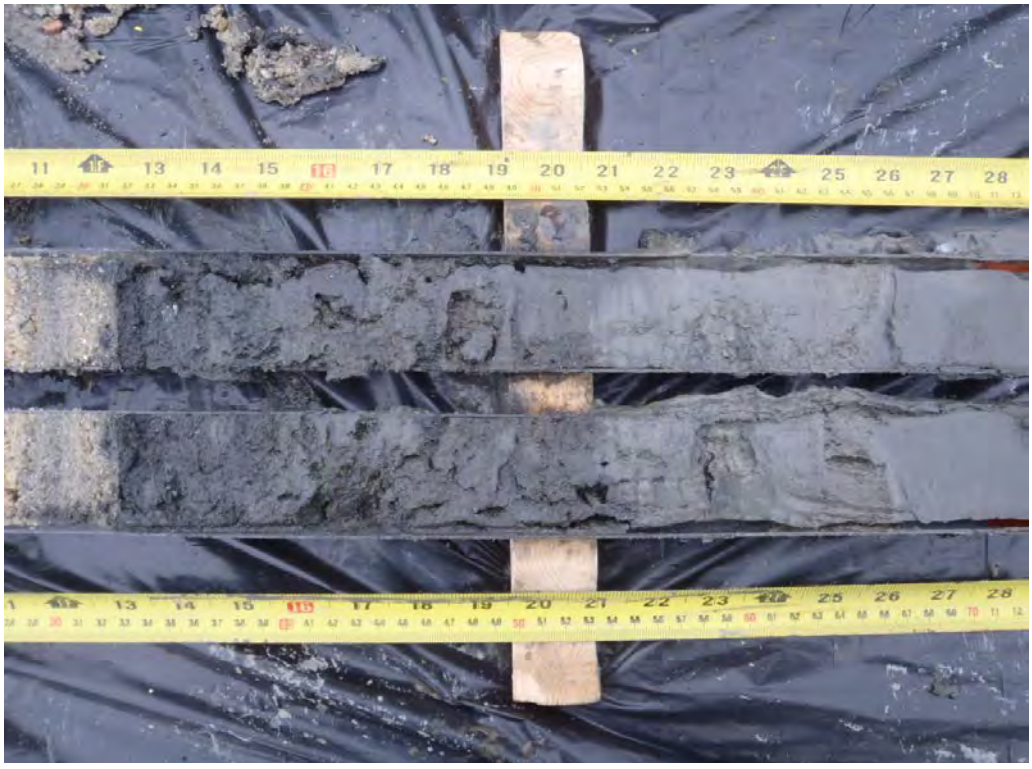


Photo 84: QT2-5-5-CORE

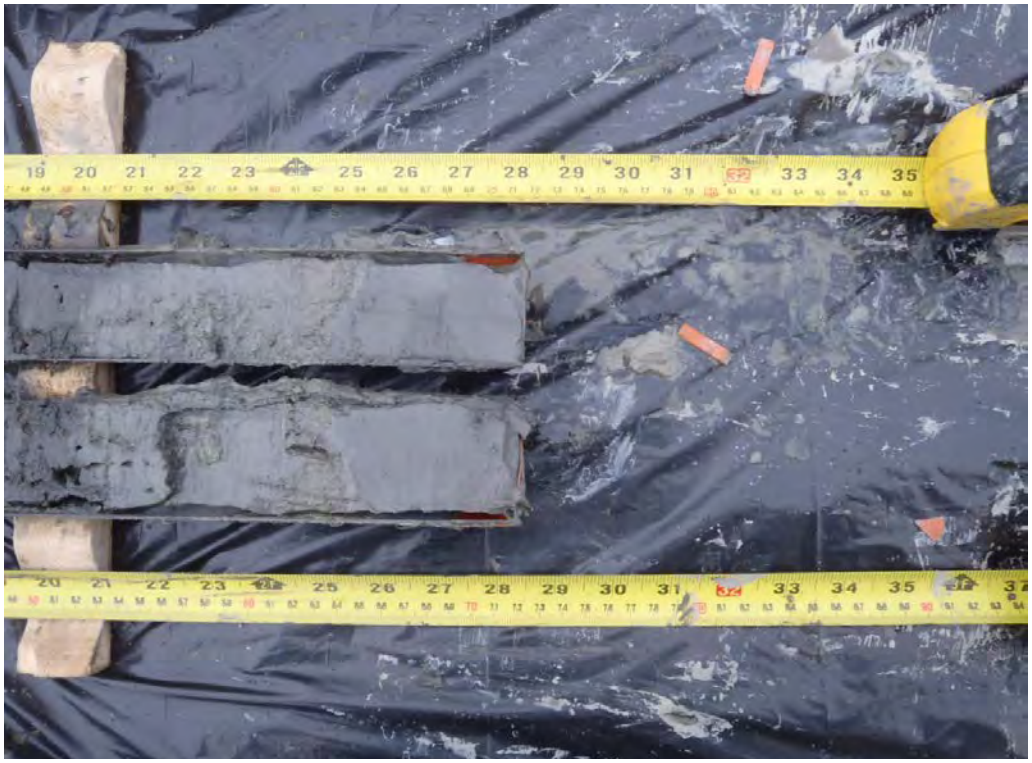


Photo 85: QT2-5-5-CORE

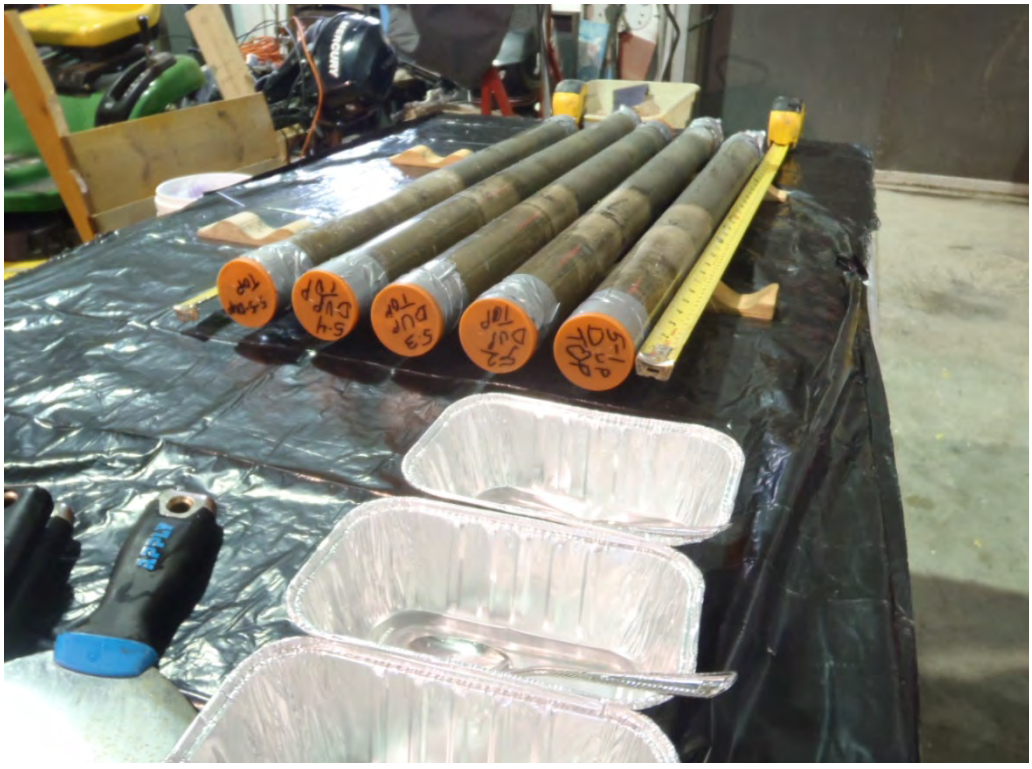


Photo 86: QT2-5DUP Five cores



Photo 87: QT2-5DUP-1-CORE, QT2-5DUP-2-CORE, QT2-5DUP-3-CORE, QT2-5DUP-4-CORE, and QT2-5DUP-5-CORE (listed bottom to top)



Photo 88: QT2-5DUP-1-CORE, QT2-5DUP-2-CORE, QT2-5DUP-3-CORE, QT2-5DUP-4-CORE, and QT2-5DUP-5-CORE (listed bottom to top)



Photo 89: QT2-5DUP-1-CORE



Photo 90: QT2-5DUP-1-CORE

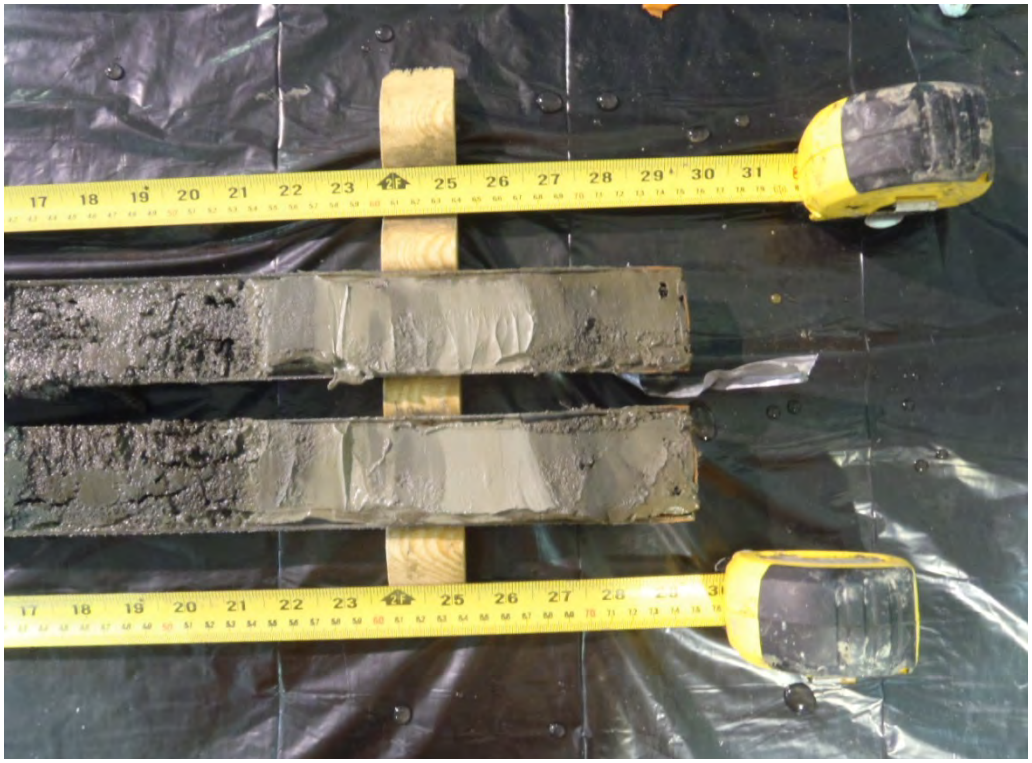


Photo 91: QT2-5DUP-1-CORE

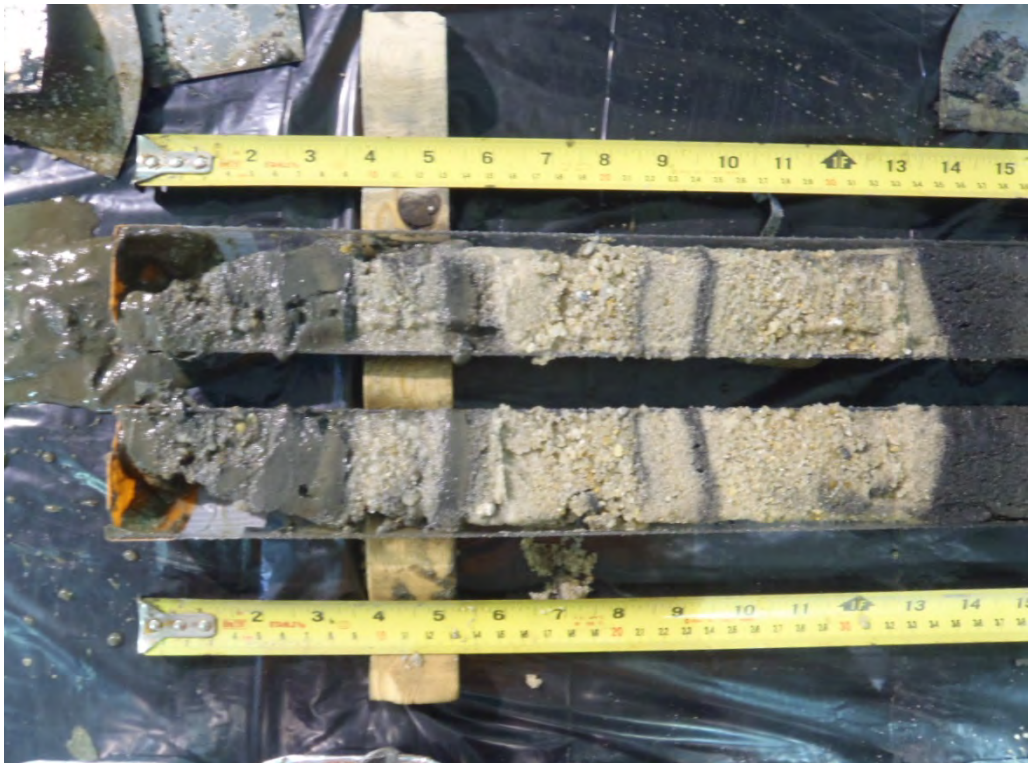


Photo 92: QT2-5DUP-2-CORE



Photo 93: QT2-5DUP-2-CORE



Photo 94: QT2-5DUP-2-CORE



Photo 95: QT2-5DUP-3-CORE

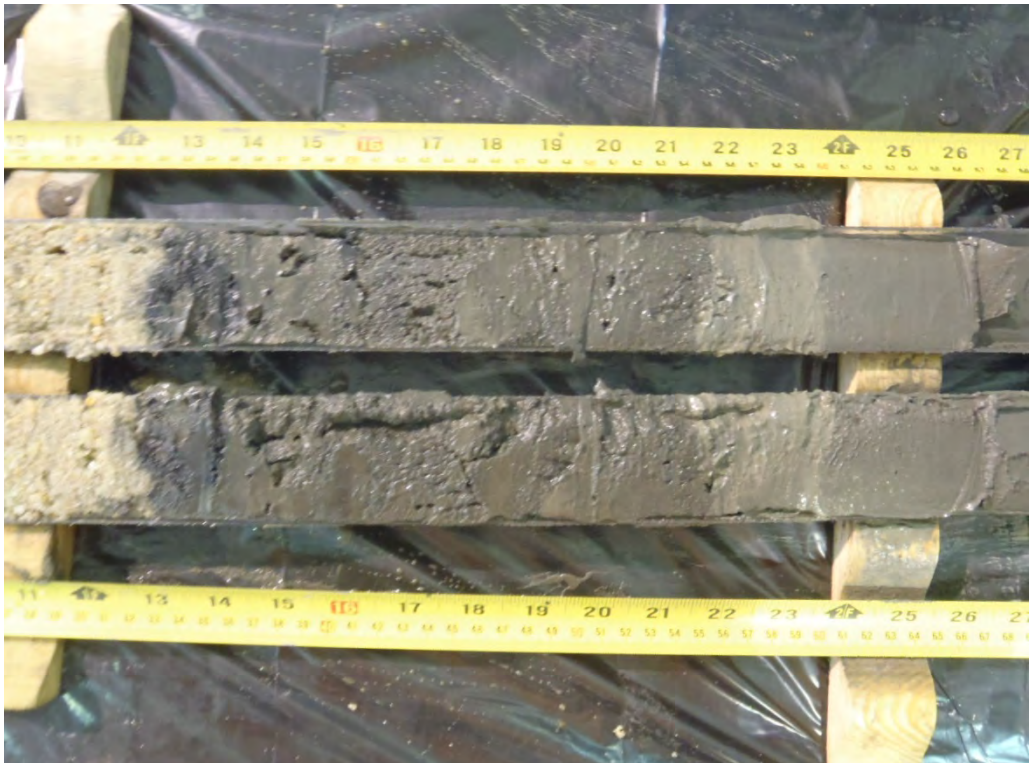


Photo 96: QT2-5DUP-3-CORE



Photo 97: QT2-5DUP-3-CORE



Photo 98: QT2-5DUP-4-CORE

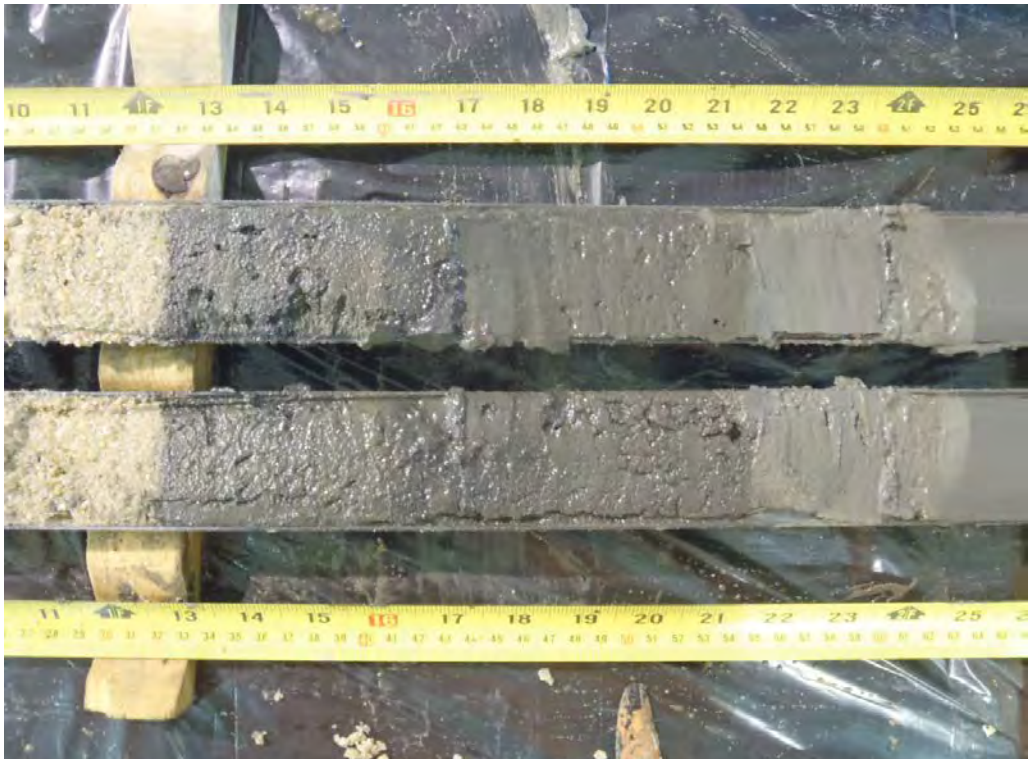


Photo 99: QT2-5DUP-4-CORE

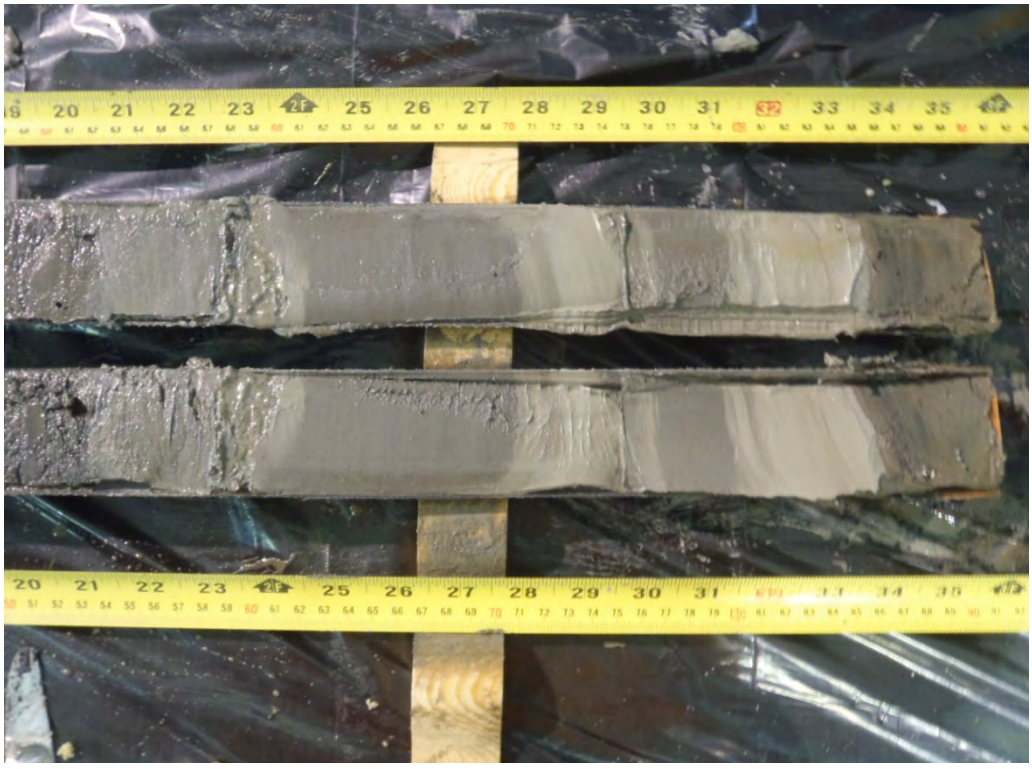


Photo 100: QT2-5DUP-4-CORE



Photo 101: QT2-5DUP-5-CORE

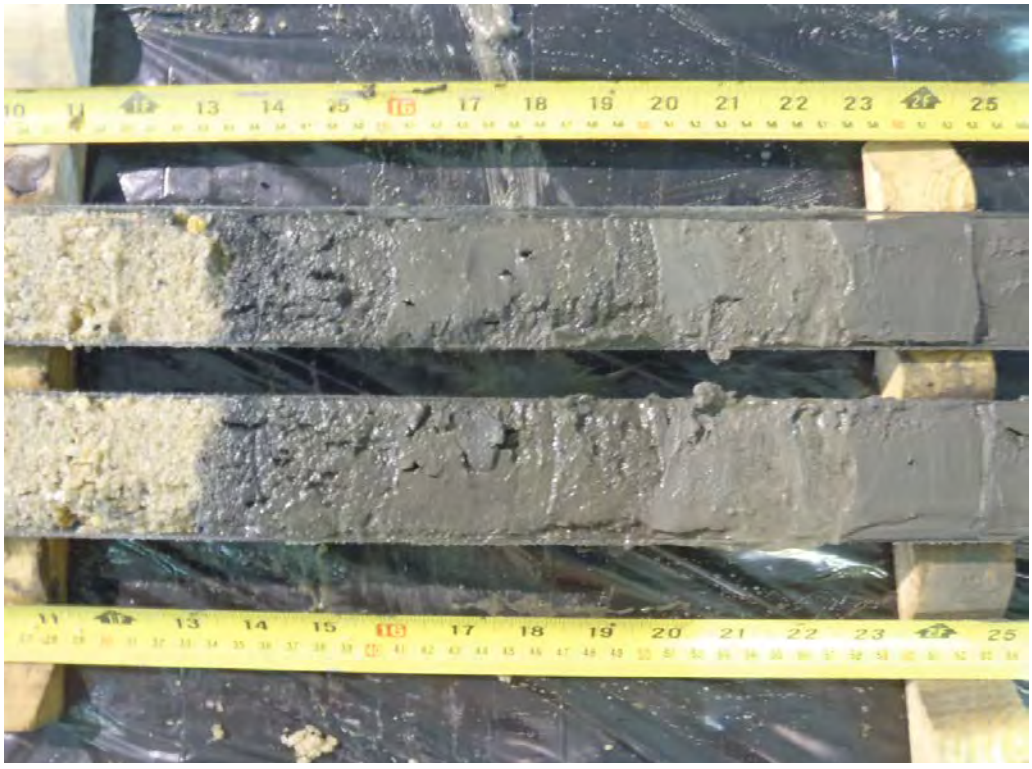


Photo 102: QT2-5DUP-5-CORE

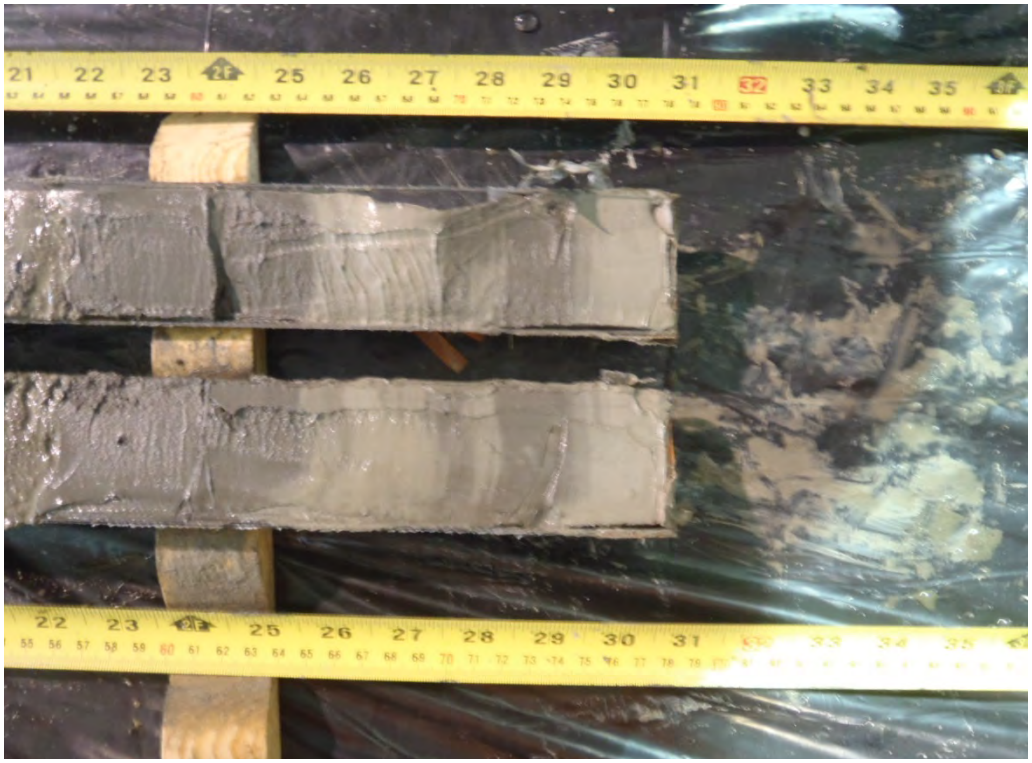


Photo 103: QT2-5DUP-5-CORE

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CORE PROCESSING SUMMARY

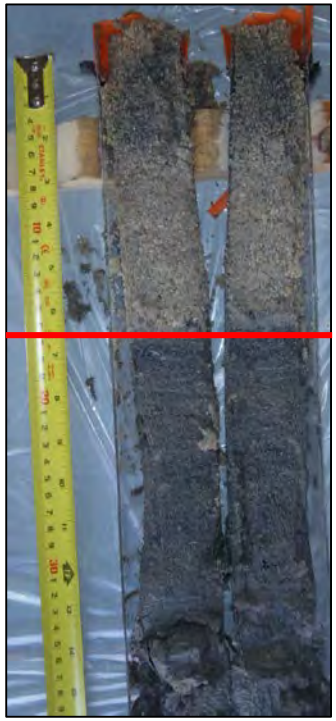
QUANTICO
14-MONTH MONITORING EVENT
SEPTEMBER 2015

RAMBOLL ENVIRON

Red line indicates cap-sediment interface

STATION 1

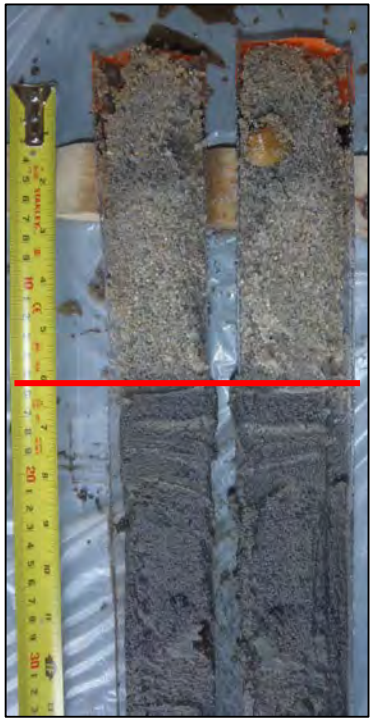
QT14-1-1-CORE



QT14-1-2-CORE



QT14-1-3-CORE



QT14-1-4-CORE



QT14-1-5-CORE



RAMBOLL ENVIRON

Red line indicates cap-sediment interface

STATION 2

QT14-2-1-CORE



QT14-2-2-CORE



QT14-2-3-CORE



QT14-2-4-CORE



QT14-2-5-CORE



RAMBOLL ENVIRON

Red line indicates cap-sediment interface

STATION 3

QT14-3-1-CORE



QT14-3-2-CORE



QT14-3-3-CORE



QT14-3-4-CORE



QT14-3-5-CORE



RAMBOLL ENVIRON

Red line indicates cap-sediment interface

STATION 4

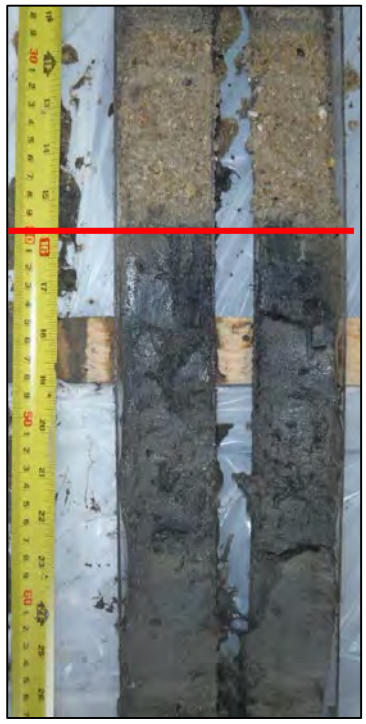
QT14-4-1-CORE



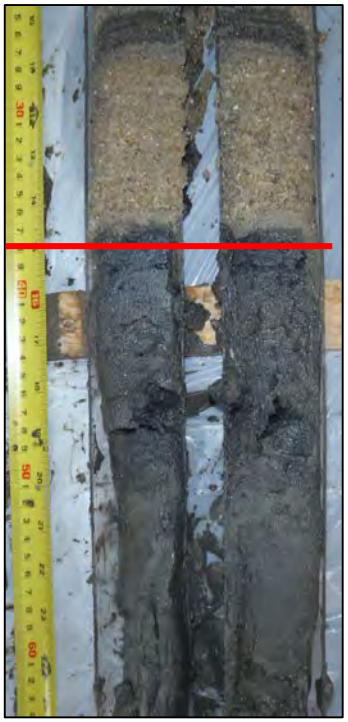
QT14-4-2-CORE



QT14-4-3-CORE



QT14-4-4-CORE



QT14-4-5-CORE

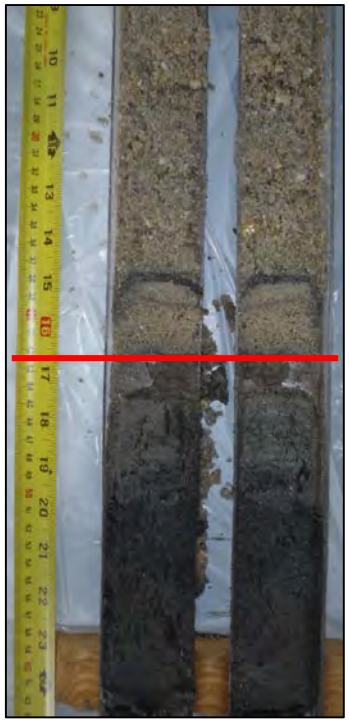


RAMBOLL ENVIRON

Red line indicates cap-sediment interface

STATION 5

QT14-5-1-CORE



QT14-5-2-CORE



QT14-5-3-CORE



QT14-5-4-CORE



QT14-5-5-CORE



RAMBOLL ENVIRON

Red line indicates cap-sediment interface

STATION 5 FIELD DUPLICATE

QT14-5DUP-1-CORE



QT14-5DUP-2-CORE



QT14-5DUP-3-CORE



QT14-5DUP-4-CORE



QT14-5DUP-5-CORE



RAMBOLL ENVIRON

Table 1: Summary of Cap-Native Sediment Interface in the 14-Month Monitoring Event
Quantico Marine Corps Base
Quantico, Virginia

Table 1.A. Summary by Core

Station	Core	Depth of Cap-Native Sediment Interface (centimeters below water-cap interface)
1	1	16
1	2	16
1	3	15
1	4	15
1	5	13
2	1	16
2	2	19
2	3	15
2	4	19
2	5	18
3	1	21
3	2	24
3	3	24
3	4	24
3	5	24
4	1	38
4	2	38
4	3	40
4	4	38
4	5	38.5
5	1	42
5	2	40.5
5	3	40
5	4	39
5	5	45
5DUP	1	41
5DUP	2	42
5DUP	3	43
5DUP	4	41
5DUP	5	44

Table 1.B. Summary by Statistics

Station	Depth of Cap-Native Sediment Interface (centimeters below water-cap interface) [Average ± Standard Deviation (Minimum - Maximum)]
1	15 ± 1.2 (13 - 16)
2	17 ± 1.8 (15 - 19)
3	23 ± 1.3 (21 - 24)
4	39 ± 0.9 (38 - 40)
5	41 ± 2.3 (39 - 45)
5DUP	42 ± 1.3 (41 - 44)

Table 2: Comparison of Cap-Native Sediment Interface for 2- and 14-Month Monitoring Events
Quantico Marine Corps Base
Quantico, Virginia

Station	2-Month September 2014 **Depth of Cap-Native Sediment Interface** (centimeters below water-cap interface) [Average ± Standard Deviation (Minimum - Maximum)]	14-Month September 2015 **Depth of Cap-Native Sediment Interface** (centimeters below water-cap interface) [Average ± Standard Deviation (Minimum - Maximum)]	**Change in Cap Thickness (cm)**
1	18 ± 1 (16 - 18)	15 ± 1.2 (13 - 16)	-3
2	40 ± 5 (35.5 - 47.5)	17 ± 1.8 (15 - 19)	-23
3	28 ± 4 (22 - 32)	23 ± 1.3 (21 - 24)	-5
4	32 ± 1 (31.5 - 34)	39 ± 0.9 (38 - 40)	7
5	33 ± 2 (31 - 35.5)	41 ± 2.3 (39 - 45)	8
5DUP	33 ± 1 (30.5 - 34)	42 ± 1.3 (41 - 44)	9

Table 3: Core Processing Log for the 14-Month Monitoring Event
Quantico Marine Corps Base
Quantico, Virginia

Station	Core	Processing Date	Start Depth of Interval (cm)	End Depth of Interval (cm)	Sediment Texture	Orientation to Cap Interface with Native Sediment	Notes
1	1	9/9/2015	0	6	Coarse sand with silt	Above	
1	1		6	16	Coarse sand	Above	
1	1		16	31	Silty sand	Below	
1	1		31	51	Silt with clay	Below	
1	1		51	87	Clay with silt	Below	
1	2	9/9/2015	0	4	Coarse sand with silt	Above	
1	2		4	16	Coarse sand	Above	
1	2		16	29	Silty sand	Below	
1	2		29	56	Silt with clay	Below	
1	2		56	84	Clay with silt	Below	
1	3	9/9/2015	0	6	Coarse sand with minor silt	Above	Clam 4-5 cm
1	3		6	15	Coarse sand	Above	
1	3		15	32	Silty sand	Below	
1	3		32	53	Silt with clay	Below	
1	3		53	98	Clay with silt	Below	
1	4	9/9/2015	0	4	Coarse sand with silt	Above	
1	4		4	15	Coarse sand	Above	
1	4		15	35	Silty sand	Below	
1	4		35	69	Silt with clay	Below	
1	4		69	97	Clay with silt	Below	
1	5	9/9/2015	0	7	Coarse sand with silt	Above	
1	5		7	13	Coarse sand	Above	
1	5		13	28	Silty sand	Below	Clam 20-23 cm. Wood fragment 26-30 cm.
1	5		28	47	Silt with clay	Below	
1	5		47	76	Clay with silt	Below	
2	1	9/9/2015	0	9	Coarse sand with silt	Above	
2	1		9	16	Coarse sand	Above	
2	1		16	32	Silty sand	Below	Clam 31-33 cm.
2	1		32	50	Silty clay	Below	
2	1		50	79	Sandy clay with silt	Below	
2	2	9/9/2015	0	7	Coarse sand with silt	Above	
2	2		7	19	Coarse sand	Above	
2	2		19	37	Silty sand	Below	
2	2		37	51	Silty clay	Below	
2	2		51	64	Sandy clay with silt	Below	
2	2		64	76	Silty sand with clay	Below	
2	2		76	82	Silty clay with sand	Below	
2	3	9/9/2015	0	2	Coarse sand with silt	Above	
2	3		2	15	Coarse sand	Above	
2	3		15	32	Silty sand	Below	Clam 31-32 cm.
2	3		32	49	Silty clay with sand	Below	
2	3		49	63	Sandy clay with silt	Below	
2	3		63	72	Sand with silt	Below	
2	3		72	81	Silty sand with clay	Below	
2	4	9/9/2015	0	8	Coarse sand with silt	Above	
2	4		8	19	Coarse sand	Above	
2	4		19	39	Silty sand	Below	
2	4		39	48	Clay with silt	Below	
2	4		48	62	Sandy clay with silt	Below	
2	4		62	72	Silty sand with clay	Below	
2	4		72	80	Clayey sand with silt	Below	

Table 3: Core Processing Log for the 14-Month Monitoring Event
Quantico Marine Corps Base
Quantico, Virginia

Station	Core	Processing Date	Start Depth of Interval (cm)	End Depth of Interval (cm)	Sediment Texture	Orientation to Cap Interface with Native Sediment	Notes
2	5	9/9/2015	0	6	Coarse sand with silt	Above	
2	5		6	18	Coarse sand	Above	
2	5		18	36	Silty sand	Below	
2	5		36	49	Silty clay with sand	Below	
2	5		49	61	Clayey sand with silt	Below	
2	5		61	73	Silty sand	Below	
2	5		73	77	Compact black silty clay with small wood bits	Below	
2	5		77	89	Silty clay with sand	Below	
3	1	9/9/2015	0	9	Coarse sand with silt	Above	
3	1		9	21	Coarse sand	Above	
3	1		21	54	Silty sand	Below	Wood debris 52-54 cm.
3	1		54	63	Silty sand with clay	Below	
3	1		63	87	Silty clay	Below	
3	2	9/9/2015	0	15	Coarse sand with silt	Above	
3	2		15	24	Coarse sand	Above	
3	2		24	49	Silty sand	Below	
3	2		49	68	Clayey sand with silt	Below	
3	2		68	89	Silty clay	Below	
3	3	9/9/2015	0	17	Coarse sand with silt	Above	
3	3		17	24	Coarse sand	Above	
3	3		24	30	Silty sand	Below	
3	3		30	48	Sandy silt	Below	*Hydrilla* roots 32-36 cm. Clam shell 40-41 cm.
3	3		48	68	Clayey sand with silt	Below	
3	3		68	90	Clay with silt	Below	Wood debris 82-85 cm.
3	4	9/9/2015	0	16	Coarse sand with silt	Above	
3	4		16	24	Coarse sand	Above	
3	4		24	69	Silty sand	Below	
3	4		69	90	Silty clay	Below	
3	5	9/9/2015	0	13	Coarse sand with silt	Above	
3	5		13	24	Coarse sand	Above	
3	5		24	67	Silty sand	Below	
3	5		67	81	Silty clay	Below	
4	1	9/10/2015	0	9	Coarse sand with silt	Above	
4	1		9	11	Silt with sand	Above	
4	1		11	17	Coarse sand with silt	Above	
4	1		17	19	Silt with sand	Above	
4	1		19	28	Coarse sand	Above	
4	1		28	30	Silt with sand	Above	
4	1		30	38	Coarse sand	Above	
4	1		38	50	Clayey silt with sand	Below	Plant roots 41-45 cm.
4	1		50	89	Silty clay	Below	
4	2	9/10/2015	0	11	Coarse sand with silt	Above	
4	2		11	12	Silty with sand	Above	
4	2		12	25	Coarse sand	Above	Stratified with silt from 15-17 cm
4	2		25	26	Silt with sand	Above	
4	2		26	38	Coarse sand	Above	
4	2		38	44	Clayey silt with sand	Below	Plant roots.
4	2		44	51	Silty clay	Below	

Table 3: Core Processing Log for the 14-Month Monitoring Event
Quantico Marine Corps Base
Quantico, Virginia

Station	Core	Processing Date	Start Depth of Interval (cm)	End Depth of Interval (cm)	Sediment Texture	Orientation to Cap Interface with Native Sediment	Notes
4	3	9/10/2015	0	11	Coarse sand with silt	Above	
4	3		11	13	Silt with sand	Above	
4	3		13	18	Coarse sand	Above	
4	3		18	19	Silt with sand	Above	
4	3		19	27	Coarse sand with pebbles	Above	
4	3		27	29	Silt with sand	Above	
4	3		29	40	Coarse sand	Above	
4	3		40	57	Clayey silt with sand	Below	Plant roots 40-45 cm.
4	3		57	84	Silty clay	Below	
4	4	9/10/2015	0	11	Coarse sand with silt	Above	Clam shell 6 cm.
4	4		11	13	Silt with sand	Above	
4	4		13	21	Coarse sand with silt	Above	Stratified silt with sand from 17-21 cm
4	4		21	27	Coarse sand	Above	
4	4		27	29	Silt with sand	Above	
4	4		29	38	Coarse sand	Above	
4	4		38	50	Clayey silt with sand	Below	Plant roots 38-41 cm.
4	4		50	80	Silty clay	Below	
4	5	9/10/2015	0	9	Coarse sand with silt	Above	
4	5		9	12	Silt with sand	Above	
4	5		12	26	Coarse sand	Above	Stratified with silt from 15-19 cm
4	5		26	27	Silt with sand	Above	
4	5		27	38.5	Coarse sand	Above	
4	5		38.5	56	Clayey silt with sand	Below	Clam shell 52-56 cm.
4	5		56	73.5	Silty clay	Below	
5	1	9/10/2015	0	20	Coarse sand with silt	Above	Stratified silt with sand from 10-11 cm.
5	1		20	42	Coarse sand	Above	Layer of silt with sand at 39 cm.
5	1		42	60.5	Silty sand with clay	Below	
5	1		60.5	91	Silty clay	Below	
5	2	9/10/2015	0	17	Coarse sand with silt	Above	Layer of silt with sand from 16-17 cm
5	2		17	40.5	Coarse sand	Above	
5	2		40.5	59	Silty sand with clay	Below	Clam shell 54-56 cm.
5	2		59	77.5	Silty clay	Below	
5	3	9/10/2015	0	17	Coarse sand with silt	Above	Silt layer with sand from 11-12 cm
5	3		17	37	Coarse sand	Above	Silt with sand from 37-38 cm
5	3		37	40	Coarse sand	Above	
5	3		40	56	Silty sand with clay	Below	
5	3		56	85	Silty clay	Below	
5	4	9/10/2015	0	12	Coarse sand with silt	Above	
5	4		12	39	Coarse sand	Above	Silt with sand from 35.5-36 cm.
5	4		39	58	Silty sand with clay	Below	
5	4		59	87	Silty clay	Below	Clam shell 60-63 cm and 65-67 cm.
5	5	9/10/2015	0	17	Coarse sand with silt	Above	
5	5		17	41	Coarse sand	Above	
5	5		41	42	Silt with sand	Above	
5	5		42	45	Coarse sand	Above	
5	5		45	74	Silty sand with clay	Below	
5	5		74	89	Silty clay	Below	
5DUP	1	9/10/2015	0	14.5	Coarse sand with silt	Above	Silt with sand from 8-9 cm.
5DUP	1		14.5	41	Coarse sand	Above	Silty sand from 37-37.5 cm.
5DUP	1		41	56	Silty sand with clay	Below	
5DUP	1		56	83.5	Silty clay	Below	Clam shell 64-67 cm.
5DUP	2	9/10/2015	0	21	Coarse sand with silt	Above	Layers of silt with sand from 13-16 cm.
5DUP	2		21	42	Coarse sand	Above	Silt with sand from 38-38.5 cm.
5DUP	2		42	66	Silty sand with clay	Below	Clam 58-61 cm.

Table 3: Core Processing Log for the 14-Month Monitoring Event
Quantico Marine Corps Base
Quantico, Virginia

Station	Core	Processing Date	Start Depth of Interval (cm)	End Depth of Interval (cm)	Sediment Texture	Orientation to Cap Interface with Native Sediment	Notes
5DUP	3	9/10/2015	0	19	Coarse sand with silt	Above	Layer of silt with sand from 13-14 cm.
5DUP	3		19	43	Coarse sand	Above	Silt with sand from 39-39.5 cm.
5DUP	3		43	59	Silty sand with clay	Below	Clam shell 56-57 cm.
5DUP	3		59	61	Silty clay with sand	Below	
5DUP	4	9/10/2015	0	7	Coarse sand with silt	Above	
5DUP	4		7	13	Coarse sand	Above	
5DUP	4		13	15	Silty sand	Above	
5DUP	4		15	41	Coarse sand	Above	Silt with sand from 37-37.5 cm.
5DUP	4		41	64	Silty sand with clay	Below	
5DUP	4		64	83	Silty clay	Below	
5DUP	5	9/10/2015	0	13	Coarse sand with silt	Above	
5DUP	5		13	15	Silt with sand	Above	
5DUP	5		15	44	Coarse sand	Above	Silty sand from 40-40.5 cm.
5DUP	5		44	62	Silty sand with clay	Below	Plant roots 46-49 cm.
5DUP	5		62	100	Silty clay	Below	

Notes:
1.) Intervals less than 1 cm were not logged.
2.) Plant roots were likely Hydrilla.

Abbreviations:
cm = centimeter
DUP = field duplicate



Photo 1: Station 1, All Cores, 0-60cm



Photo 2: Station 1, All Cores, 59cm-100cm



Photo 3: Station 1, Core 1, 0-1 feet



Photo 4: Station 1, Core 1, 1-2 feet



Photo 5: Station 1, Core 1, 2-3 feet



Photo 6: Station 1, Core 2, 0-1 feet



Photo 7: Station 1, Core 2, 1-2 feet



Photo 8: Station 1, Core 2, 2-3 feet



Photo 9: Station 1, Core 3, 0-1 feet



Photo 10: Station 1, Core 3, 1-2 feet



Photo 11: Station 1, Core 3, 2-3 feet



Photo 12: Station 1, Core 3, 3-4 feet



Photo 13: Station 1, Core 4, 0-1 feet



Photo 14: Station 1, Core 4, 1-2 feet



Photo 15: Station 1, Core 4, 2-3 feet



Photo 16: Station 1, Core 4, 3-4 feet



Photo 17: Station 1, Core 5, 0-1 feet



Photo 18: Station 1, Core 5, 1-2 feet



Photo 19: Station 1, Core 5, 2-3 feet

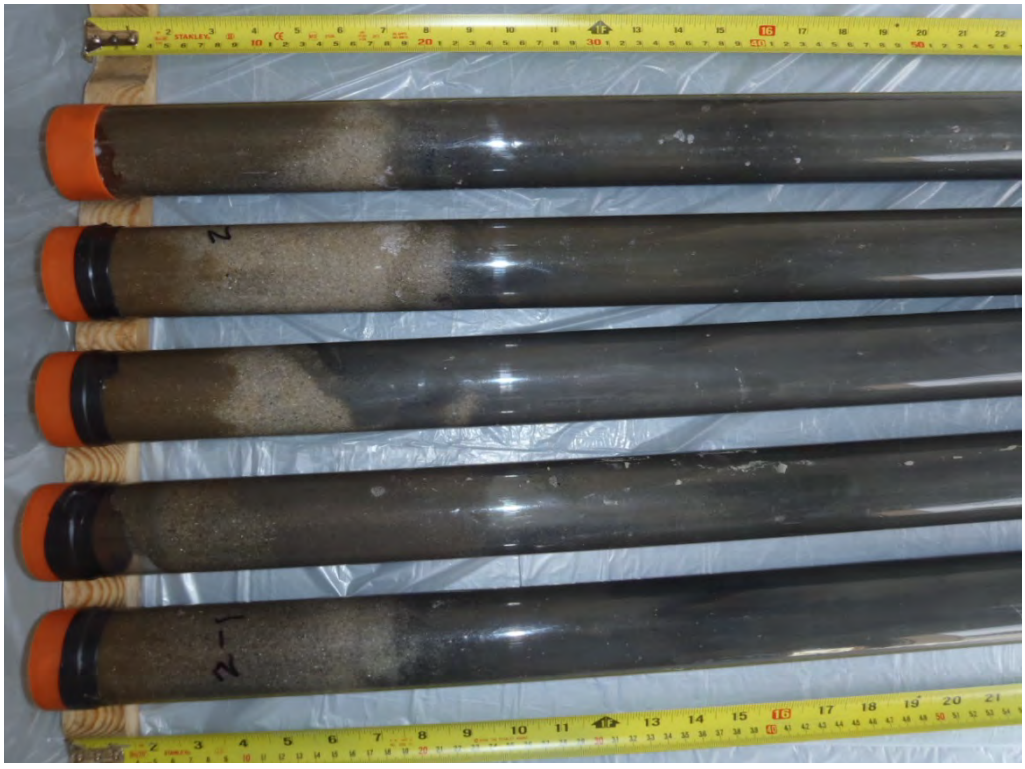


Photo 20: Station 2, All Cores, 0-54 cm

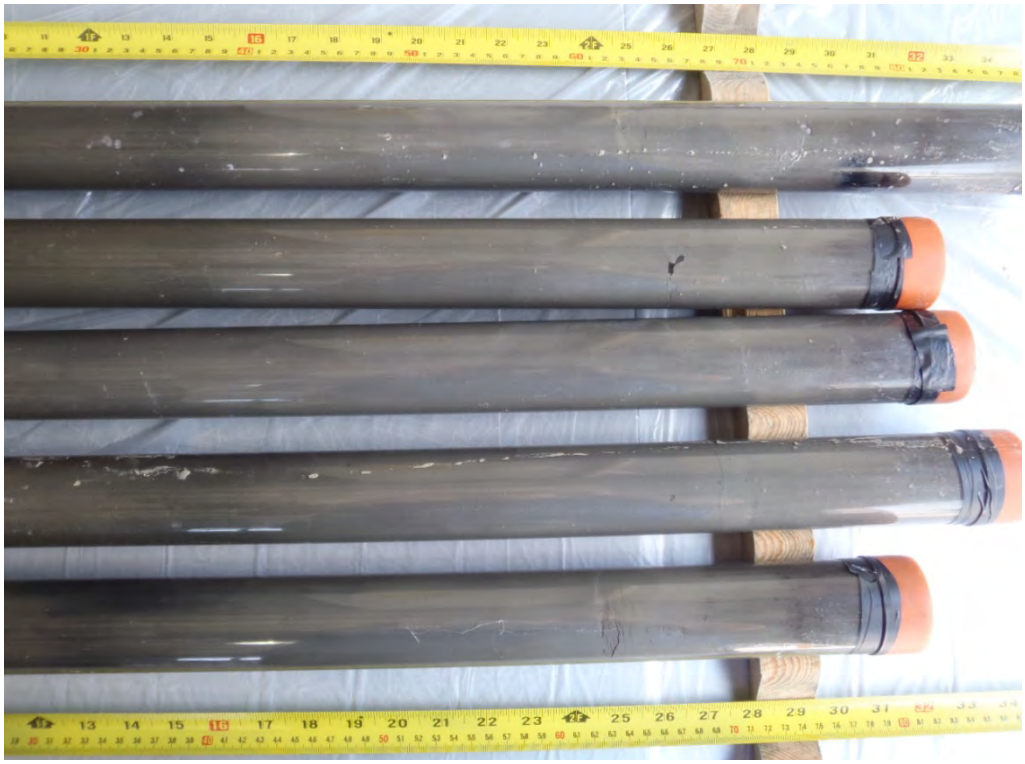


Photo 21: Station 2, All Cores, 28-88 cm



Photo 22: Station 2, All Cores, 57-100 cm



Photo 23: Station 2, Core 1, 0-1 feet



Photo 24: Station 2, Core 1, 1-2 feet



Photo 25: Station 2, Core 1, 2-3 feet



Photo 26: Station 2, Core 2, 0-1 feet



Photo 27: Station 2, Core 2, 1-2 feet



Photo 28: Station 2, Core 2, 2-3 feet



Photo 29: Station 2, Core 3, 0-1 feet



Photo 30: Station 2, Core 3, 1-2 feet



Photo 31: Station 2, Core 3, 2-3 feet



Photo 32: Station 2, Core 4, 0-1 feet



Photo 33: Station 2, Core 4, 1-2 feet



Photo 34: Station 2, Core 4, 2-3 feet



Photo 35: Station 2, Core 5, 0-1 feet



Photo 36: Station 2, Core 5, 1-2 feet



Photo 37: Station 2, Core 5, 2-3 feet



Photo 38: Station 3, All Cores, 0-60 cm



Photo 39: Station 3, All Cores, 25-90 cm



Photo 40: Station 3, All Cores, 45-90 cm



Photo 41: Station 3, Core 1, 0-1 feet



Photo 42: Station 3, Core 1, 1-2 feet



Photo 43: Station 3, Core 1, 2-3 feet



Photo 44: Station 3, Core 2, 0-1 feet



Photo 45: Station 3, Core 2, 1-2 feet



Photo 46: Station 3, Core 2, 2-3 feet



Photo 47: Station 3, Core 3, 0-1 feet



Photo 48: Station 3, Core 3, 1-2 feet



Photo 49: Station 3, Core 3, 2-3 feet



Photo 50: Station 3, Core 4, 0-1 feet



Photo 51: Station 3, Core 4, 1-2 feet



Photo 52: Station 3, Core 4, 2-3 feet



Photo 53: Station 3, Core 5, 0-1 feet



Photo 54: Station 3, Core 5, 1-2 feet



Photo 55: Station 3, Core 5, 2-3 feet



Photo 56: Station 4, All Cores, 0-30 cm

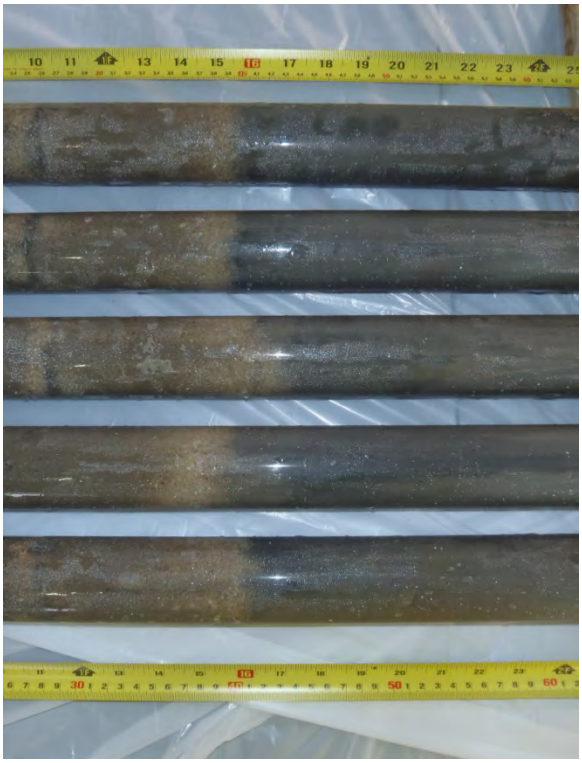


Photo 57: Station 4, All Cores, 30-60 cm



Photo 58: Station 4, All Cores, 60-90 cm



Photo 59: Station 4, Core 1, 0-1 feet



Photo 60: Station 4, Core 1, 1-2 feet



Photo 61: Station 4, Core 1, 2-2.5 feet



Photo 62: Station 4, Core 1, 2.5-3 feet



Photo 63: Station 4, Core 2, 0-1 feet



Photo 64: Station 4, Core 2, 1-2 feet



Photo 65: Station 4, Core 2, 2-3 feet



Photo 66: Station 4, Core 3, 0-1 feet



Photo 67: Station 4, Core 3, 1-2 feet



Photo 68: Station 4, Core 3, 2-3 feet



Photo 69: Station 4, Core 4, 0-1 feet



Photo 70: Station 4, Core 4, 1-2 feet



Photo 71: Station 4, Core 4, 2-3 feet



Photo 72: Station 4, Core 5, 0-1 feet



Photo 73: Station 4, Core 5, 1-2 feet



Photo 74: Station 4, Core 5, 2-3 feet



Photo 75: Station 5, All Cores, 0-55 cm



Photo 76: Station 5, All Cores, 55-80 cm



Photo 77: Station 5, All Cores, 60-100 cm



Photo 78: Station 5, Core 1, 0-1 feet



Photo 79: Station 5, Core 1, 1-2 feet



Photo 80: Station 5, Core 1, 2-3 feet



Photo 81: Station 5, Core 2, 0-1 feet



Photo 82: Station 5, Core 2, 1-2 feet



Photo 83: Station 5, Core 2, 2-3 feet



Photo 84: Station 5, Core 3, 0-1 feet



Photo 85: Station 5, Core 3, 1-2 feet



Photo 86: Station 5, Core 3, 2-3 feet



Photo 87: Station 5, Core 4, 0-1 feet



Photo 88: Station 5, Core 4, 1-2 feet



Photo 89: Station 5, Core 4, 2-3 feet



Photo 90: Station 5, Core 5, 0-1 feet



Photo 91: Station 5, Core 5, 1-2 feet



Photo 92: Station 5, Core 5, 2-3 feet



Photo 93: Station 5 Duplicate, All Cores, 0-55 cm



Photo 94: Station 5 Duplicate, All Cores, 30-80 cm



Photo 95: Station 5 Duplicate, All Cores, 60-100 cm



Photo 96: Station 5 Duplicate, Core 1, 0-1 feet



Photo 97: Station 5 Duplicate, Core 1, 1-2 feet



Photo 98: Station 5 Duplicate, Core 1, 2-3 feet



Photo 99: Station 5 Duplicate, Core 2, 0-1 feet



Photo 100: Station 5 Duplicate, Core 2, 1-2 feet



Photo 101: Station 5 Duplicate, Core 2, 2-3 feet



Photo 102: Station 5 Duplicate, Core 3, 0-1 feet



Photo 103: Station 5 Duplicate, Core 3, 1-2 feet



Photo 104: Station 5 Duplicate, Core 4, 0-1 feet



Photo 105: Station 5 Duplicate, Core 4, 1-2 feet



Photo 106: Station 5 Duplicate, Core 4, 2-3 feet



Photo 107: Station 5 Duplicate, Core 5, 0-1 feet



Photo 108: Station 5 Duplicate, Core 5, 1-2 feet



Photo 109: Station 5 Duplicate, Core 5, 2-3 feet



Photo 110: Station 5 Duplicate, Core 5, 2.5-3.5 feet

CORE PROCESSING SUMMARY

QUANTICO

25-MONTH MONITORING EVENT

AUGUST 2016

Red line indicates cap-sediment interface

STATION 1

QT25-1-1-CORE



QT25-1-2-CORE

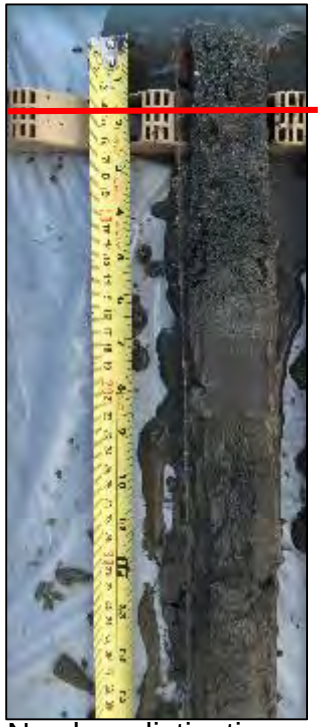


QT25-1-3-CORE



No clear distinction but minor coarse sand observed

QT25-1-4-CORE



No clear distinction but minor coarse sand observed

QT25-1-5-CORE



Red line indicates cap-sediment interface

STATION 2

QT25-2-1-CORE



QT25-2-2-CORE



QT25-2-3-CORE



QT25-2-4-CORE



QT25-2-5-CORE



Red line indicates cap-sediment interface

STATION 3

QT25-3-1-CORE

Core was collected, but photo not taken

QT25-3-2-CORE



QT25-3-3-CORE



QT25-3-4-CORE



No clear distinction but minor coarse sand observed

QT25-3-5-CORE



Red line indicates cap-sediment interface

STATION 4

QT25-4-1-CORE



QT25-4-2-CORE



QT25-4-3-CORE



QT25-4-4-CORE



QT25-4-5-CORE



Red line indicates cap-sediment interface

STATION 5

QT25-5-1-CORE



QT25-5-3-CORE



QT25-5-5-CORE



QT25-5-7-CORE



QT25-5-9-CORE



Red line indicates cap-sediment interface

STATION 5 FIELD DUPLICATE

QT25-5DUP-2-CORE



QT25-5DUP-4-CORE



QT25-5DUP-6-CORE



QT25-5DUP-8-CORE



QT25-5DUP-10-CORE



Table 1: Summary of Cap-Native Sediment Interface in the 25-Month Monitoring Event
Quantico Marine Corps Base
Quantico, Virginia

Table 1.A. Summary by Core

Station	Core	Depth of Cap-Native Sediment Interface (centimeters below water-cap interface)
1	1	20
1	2	26
1	3	10
1	4	4
1	5	14
2	1	18
2	2	18
2	3	16
2	4	16
2	5	15
3	1	22
3	2	21
3	3	22
3	4	40
3	5	22
4	1	22
4	2	18
4	3	28
4	4	25
4	5	26
5	1	43
5	3	46
5	5	43
5	7	42
5	9	43
5DUP	2	47
5DUP	4	48
5DUP	6	47
5DUP	8	44
5DUP	10	46

Table 1.B. Summary by Statistics

Station	Depth of Cap-Native Sediment Interface (centimeters below water-cap interface) [Average ± Standard Deviation (Minimum - Maximum)]
1	15 ± 8.6 (4 - 26)
2	17 ± 1.3 (15 - 18)
3	25 ± 8.2 (21 - 40)
4	24 ± 3.9 (18 - 28)
5	43 ± 1.5 (42 - 46)
5DUP	46 ± 1.5 (44 - 48)

Table 2: Comparison of Cap-Native Sediment Interface for 2, 14, and 25-Month Monitoring Events
Quantico Marine Corps Base
Quantico, Virginia

Station	2-Month September 2014 Depth of Cap-Native Sediment Interface (centimeters below water-cap interface) [Average ± Standard Deviation (Minimum - Maximum)]	14-Month September 2015 Depth of Cap-Native Sediment Interface (centimeters below water-cap interface) [Average ± Standard Deviation (Minimum - Maximum)]	Change in Cap Thickness from 2-Month (cm)	25-Month August 2016 Depth of Cap-Native Sediment Interface (centimeters below water-cap interface) [Average ± Standard Deviation (Minimum - Maximum)]	Change in Cap Thickness from 2-Month (cm)
1	18 ± 1 (16 - 18)	15 ± 1.2 (13 - 16)	-3	15 ± 8.6 (4 - 26)	-3
2	40 ± 5 (35.5 - 47.5)	17 ± 1.8 (15 - 19)	-23	17 ± 1.3 (15 - 18)	-23
3	28 ± 4 (22 - 32)	23 ± 1.3 (21 - 24)	-5	25 ± 8.2 (21 - 40)	-3
4	32 ± 1 (31.5 - 34)	39 ± 0.9 (38 - 40)	7	24 ± 3.9 (18 - 28)	-8
5	33 ± 2 (31 - 35.5)	41 ± 2.3 (39 - 45)	8	43 ± 1.5 (42 - 46)	10
5DUP	33 ± 1 (30.5 - 34)	42 ± 1.3 (41 - 44)	9	46 ± 1.5 (44 - 48)	13

Table 3: Core Processing Log for the 25-Month Monitoring Event
Quantico Marine Corps Base
Quantico, Virginia

Station	Core	Processing Date	Start Depth of Interval (cm)	End Depth of Interval (cm)	Sediment Texture	Orientation to Cap Interface with Native Sediment	Notes
1	1	8/24/2016	0	15	Silty sand	Above	
1	1		15	20	Coarse sand	Above	
1	1		20	26	Sandy silt	Below	Clam shell at 25 cm
1	1		26	75	Clay with silt	Below	
1	2	8/24/2016	0	10	Silt with sand	Above	
1	2		10	15	Sand with silt	Above	
1	2		15	19	Silt with sand	Above	
1	2		19	26	Coarse sand	Above	
1	2		26	39	Silty sand	Below	Clam shell at 28 cm
1	2		39	66	Clay (dry and stiffening)	Below	
1	3	8/24/2016	0	10	Silty sand	Above	No clear distinction but minor coarse sand observed
1	3		10	18	Silty sand with clay	Below	Clam shell at 13 cm
1	3		18	72	Clay with silt	Below	
1	4	8/24/2016	0	4	Coarse sand with silt	Above	No clear distinction but minor coarse sand observed
1	4		4	13	Sandy silt	Below	
1	4		13	48	Silty clay	Below	Snail shell at 48 cm
1	4		48	66	Clay (dry and stiffening)	Below	
1	5	8/24/2016	0	2	Silt with sand	Above	
1	5		2	8	Coarse sand with silt	Above	
1	5		8	12	Silt with sand	Above	
1	5		12	14	Coarse sand	Above	
1	5		14	17	Sandy silt	Below	
1	5		17	62	Clay (dry and stiffening)	Below	
2	1	8/24/2016	0	18	Coarse sand	Above	
2	1		18	32	Silty sand	Below	
2	1		32	52	Silty clay	Below	
2	1		52	72	Clay (dry and stiffening)	Below	
2	2	8/24/2016	0	3	Silty fine sand	Above	
2	2		3	14	Coarse sand	Above	
2	2		14	16	Silt fine sand	Above	
2	2		16	18	Coarse sand	Above	
2	2		18	30	Silty clay with sand	Below	
2	2		30	76	Clay (dry and stiffening)	Below	
2	3	8/24/2016	0	4	Silty fine sand	Above	
2	3		4	10	Coarse sand	Above	
2	3		10	13	Silty fine sand	Above	
2	3		13	16	Coarse sand	Above	
2	3		16	24	Sandy silt with clay	Below	Clam shells at 21-24 cm
2	3		24	45	Clay	Below	Clam shells at 24-29 cm
2	3		45	61	Clay (dry and stiffening)	Below	
2	4	8/24/2016	0	16	Coarse sand	Above	
2	4		16	32	Sandy silt	Below	Small (~0.5" dia) red aggregate/debris
2	4		32	44	Clay	Below	
2	4		44	58	Clay (dry and stiffening)	Below	
2	5	8/24/2016	0	10	Coarse sand	Above	
2	5		10	12	Sand with silt	Above	
2	5		12	15	Coarse sand	Above	
2	5		15	26	Sandy silt with clay	Below	Refuse/plastic food wrapper at 26 cm
2	5		26	57	Clay	Below	
2	5		57	70	Clay (dry and stiffening)	Below	
3	1	8/24/2016	0	19	Coarse sand with silt	Above	
3	1		19	22	Coarse sand	Above	
3	1		22	30	Silty fine sand	Below	Small (~0.5" dia) red aggregate/debris (potentially brick)
3	1		30	38	Silt with sand	Below	
3	1		38	69	Clay with silt	Below	
3	2	8/24/2016	0	11	Sandy silt	Above	
3	2		11	21	Coarse sand	Above	
3	2		21	31	Sandy silt	Below	
3	2		31	59	Clay	Below	

Table 3: Core Processing Log for the 25-Month Monitoring Event
Quantico Marine Corps Base
Quantico, Virginia

Station	Core	Processing Date	Start Depth of Interval (cm)	End Depth of Interval (cm)	Sediment Texture	Orientation to Cap Interface with Native Sediment	Notes
3	3	8/24/2016	0	16	Silt with minor sand	Above	
3	3		16	22	Coarse sand	Above	
3	3		22	36	Sandy silt	Below	Clam shell at 34 cm
3	3		36	66	Clay	Below	
3	4	8/24/2016	0	22	Silt with minor sand	Above	Organic debris (leaf matter) at 13-19 cm
3	4		22	40	Silty coarse sand	Above	Clam shell at 26-32 cm. Small (~0.5" dia) red aggregate/debris (potentially brick) at 30 cm.
3	4		40	70	Clay with silt	Below	
3	5	8/24/2016	0	17	Sandy silt	Above	
3	5		17	22	Coarse sand	Above	
3	5		22	32	Sandy silt	Below	
3	5		32	51	Clay with silt	Below	
4	1	8/25/2016	0	18	Sandy silt	Above	
4	1		18	22	Coarse sand	Above	
4	1		22	38	Clayey silt with sand	Below	Organic matter at 25 cm (roots)
4	1		38	62	Clay with silt	Below	
4	2	8/25/2016	0	14	Silty sand	Above	
4	2		14	18	Coarse sand	Above	
4	2		18	20	Clayey silt	Below	Clam shell
4	2		20	47	Clay with silt	Below	
4	3	8/25/2016	0	18	Silty sand	Above	
4	3		18	28	Coarse sand	Above	
4	3		28	45	Silty clay	Below	Organic matter at 30-38 cm (roots)
4	3		45	52	Clay	Below	
4	4	8/25/2016	0	16	Silty sand	Above	
4	4		16	25	Coarse sand	Above	
4	4		25	40	Silty clay	Below	Organic matter at 30- 36 cm (roots)
4	4		40	60	Clay with silt	Below	
4	5	8/25/2016	0	16	Silty sand	Above	
4	5		16	26	Coarse sand	Above	
4	5		26	42	Silty clay	Below	Organic matter at 28 - 32 cm (roots)
4	5		42	67	Clay with silt	Below	
5	1	8/25/2016	0	32	Silty sand	Above	
5	1		32	43	Coarse sand	Above	
5	1		43	48.0	Sandy silt	Below	
5	1		48	63	Silty clay	Below	
5	3	8/25/2016	0	36	Silty sand	Above	
5	3		36	46	Coarse sand	Above	
5	3		46	50	Sandy silt	Below	
5	3		50	60	Silty clay	Below	Clam shell at 53 cm
5	3		60	72	Clay	Below	
5	5	8/25/2016	0	24	Silty sand	Above	
5	5		24	43	Coarse sand	Above	
5	5		43	52	Sandy silt	Below	
5	5		52	68	Clay with silt	Below	
5	5		68	84	Clay	Below	
5	7	8/25/2016	0	13	Silty sand	Above	
5	7		13	42	Coarse sand	Above	
5	7		42	55	Silty clay	Below	
5	7		55	63	Clay	Below	Organic matter at 59 cm (wood debris)
5	9	8/25/2016	0	24	Silty sand	Above	
5	9		24	43	Coarse sand	Above	
5	9		43	49	Sandy silt	Below	
5	9		49	64	Clay with silt	Below	
5DUP	2	8/25/2016	0	36	Silty sand	Above	
5DUP	2		36	47	Coarse sand	Above	
5DUP	2		47	56	Sandy silt	Below	

Table 3: Core Processing Log for the 25-Month Monitoring Event
Quantico Marine Corps Base
Quantico, Virginia

Station	Core	Processing Date	Start Depth of Interval (cm)	End Depth of Interval (cm)	Sediment Texture	Orientation to Cap Interface with Native Sediment	Notes
5DUP	4	8/25/2016	0	35	Silty sand	Above	
5DUP	4		35	48	Coarse sand	Above	
5DUP	4		48	54	Sandy silt	Below	
5DUP	4		54	73	Silty clay	Below	
5DUP	6	8/25/2016	0	33	Silty sand	Above	
5DUP	6		33	47	Coarse sand	Above	
5DUP	6		47	53	Sandy silt with clay	Below	
5DUP	6		53	83	Clay with silt	Below	
5DUP	8	8/25/2016	0	28	Silty sand	Above	
5DUP	8		28	44	Coarse sand	Above	
5DUP	8		44	46	Sandy silt with clay	Below	
5DUP	8		46	57	Silty clay	Below	
5DUP	10	8/25/2016	0	24	Silty sand	Above	
5DUP	10		24	46	Coarse sand	Above	
5DUP	10		46	54	Sandy silt with clay	Below	

Notes:
1.) Intervals less than 1 cm were not logged.
2.) Plant roots were likely Hydrilla.
Abbreviations:
cm = centimeter
DUP = field duplicate



Photo 1: Station 1, All Cores, 0-80cm



Photo 2: Station 1, Core 1, 0-1 feet



Photo 3: Station 1, Core 1, 1-2 feet



Photo 4: Station 1, Core 1, 2-3 feet

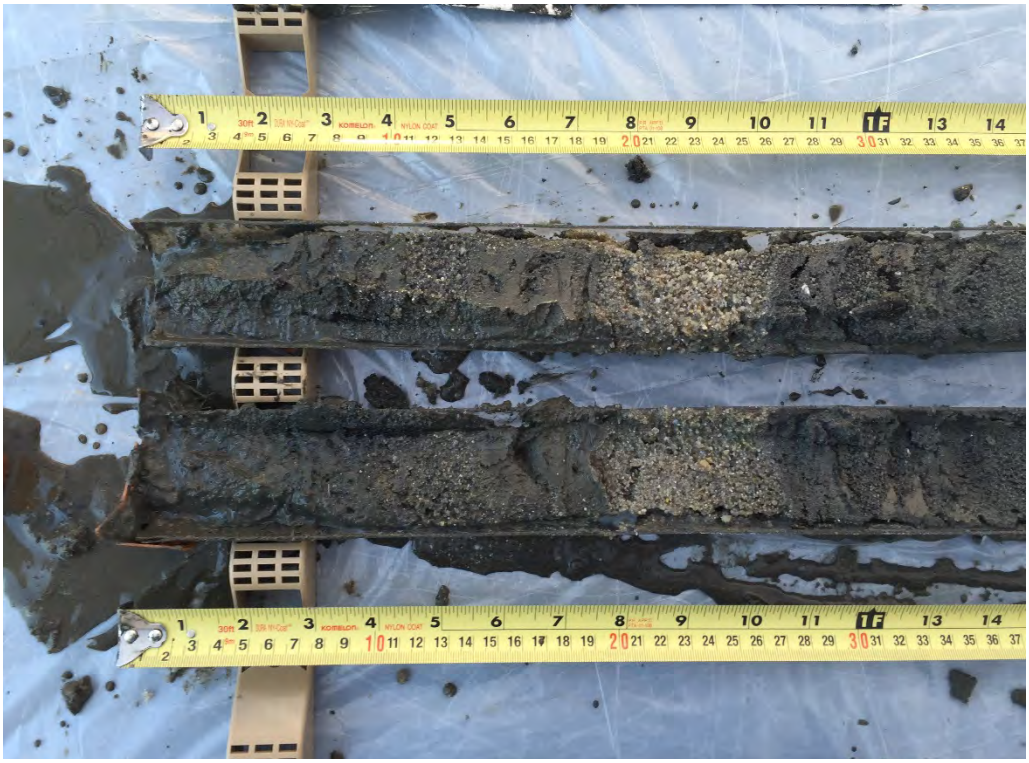


Photo 5: Station 1, Core 2, 0-1 feet



Photo 6: Station 1, Core 2, 1-2 feet



Photo 7: Station 1, Core 2, 2-3 feet



Photo 8: Station 1, Core 3, 0-1 feet



Photo 9: Station 1, Core 3, 1-2 feet



Photo 10: Station 1, Core 3, 2-3 feet

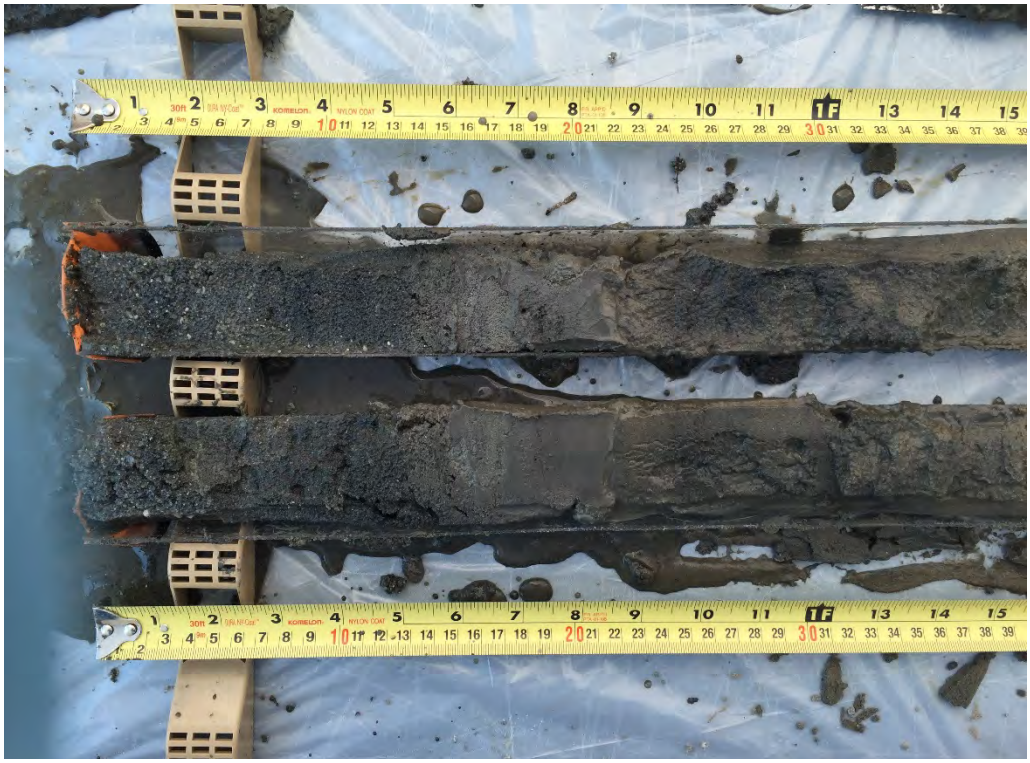


Photo 11: Station 1, Core 4, 0-1 feet



Photo 12: Station 1, Core 4, 1-2 feet



Photo 13: Station 1, Core 4, 2-3 feet

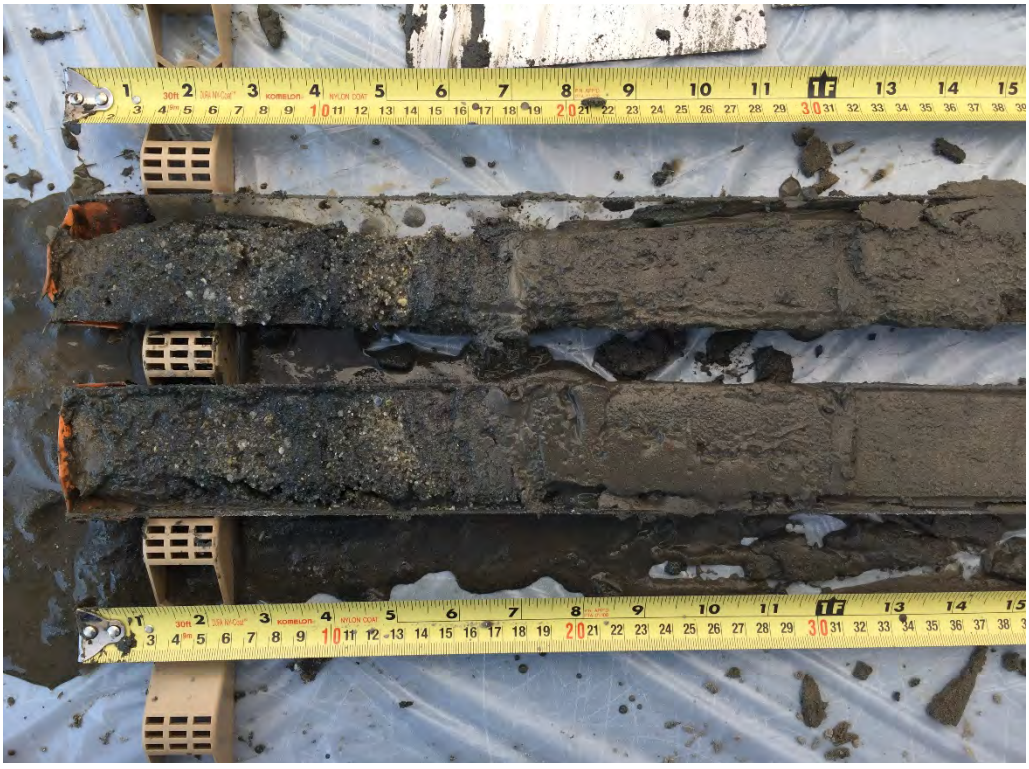


Photo 14: Station 1, Core 5, 0-1 feet



Photo 15: Station 1, Core 5, 1-2 feet



Photo 16: Station 1, Core 5, 2-3 feet

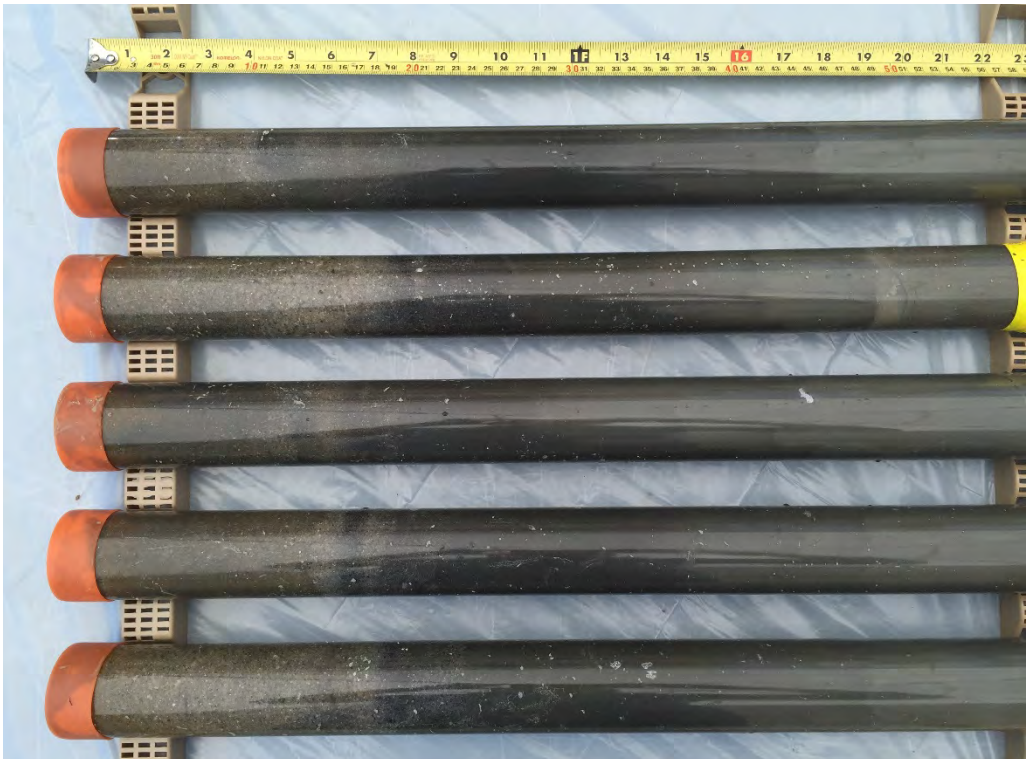


Photo 17: Station 2, All Cores, 0-58 cm



Photo 18: Station 2, All Cores, 28-80 cm



Photo 19: Station 2, Core 1, 0-1 feet



Photo 20: Station 2, Core 1, 1-2 feet



Photo 21: Station 2, Core 1, 2-3 feet



Photo 22: Station 2, Core 2, 0-1 feet



Photo 23: Station 2, Core 2, 1-2 feet



Photo 24: Station 2, Core 2, 2-3 feet



Photo 25: Station 2, Core 3, 0-1 feet



Photo 26: Station 2, Core 3, 1-2 feet

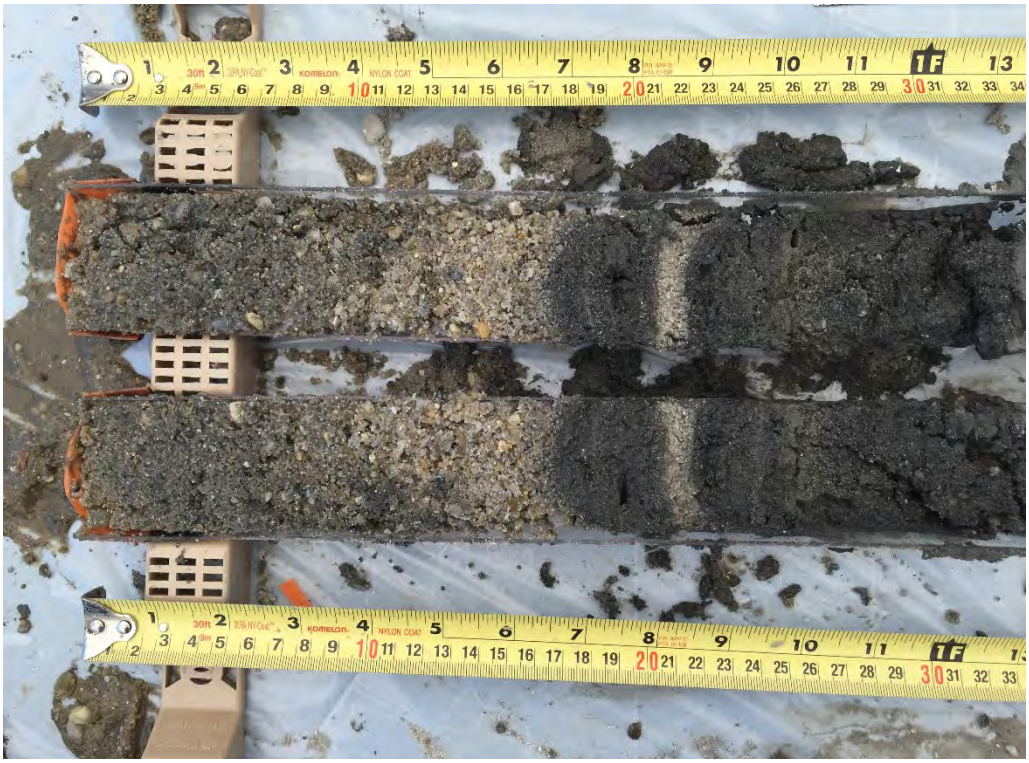


Photo 27: Station 2, Core 4, 0-1 feet



Photo 28: Station 2, Core 4, 1-2 feet



Photo 29: Station 2, Core 5, 0-1 feet



Photo 30: Station 2, Core 5, 1-2 feet



Photo 31: Station 2, Core 5, 2-3 feet



Photo 32: Station 3, All Cores, 0-64 cm



Photo 33: Station 3, All Cores, 26-72 cm



Photo 34: Station 3, Core 2, 0-1 feet



Photo 35: Station 3, Core 2, 1-2 feet



Photo 36: Station 3, Core 3, 0-1 feet



Photo 37: Station 3, Core 3, 1-2 feet



Photo 38: Station 3, Core 4, 0-1 feet

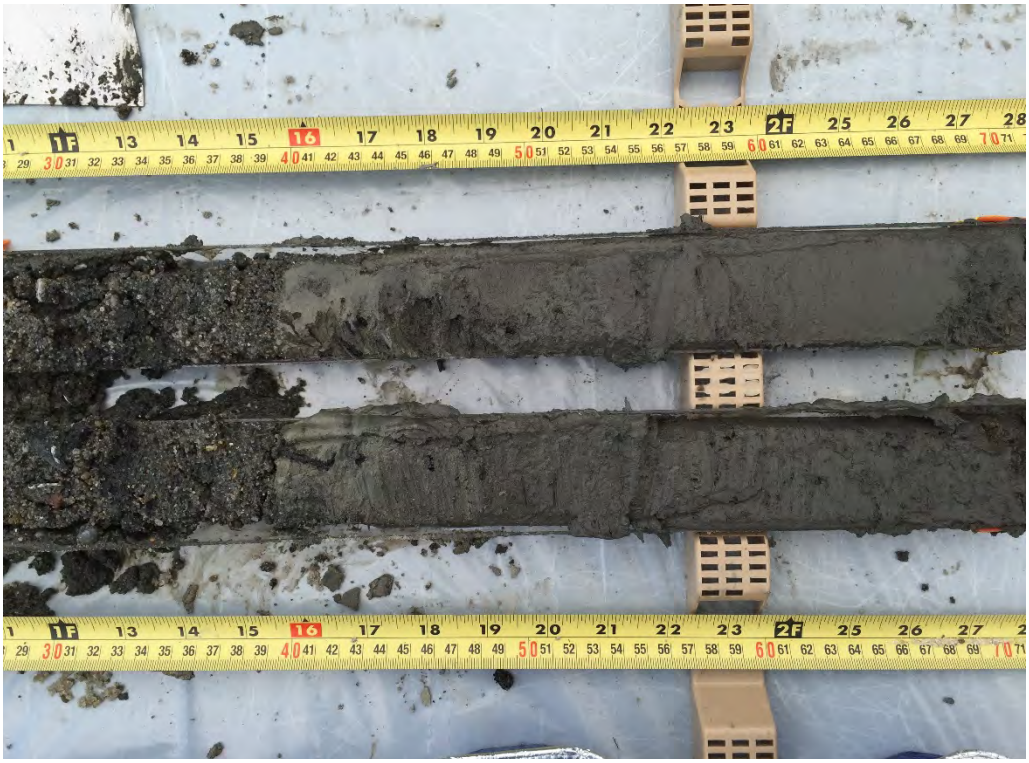


Photo 39: Station 3, Core 4, 1-2 feet



Photo 40: Station 3, Core 4, 2-3 feet



Photo 41: Station 3, Core 5, 0-1 feet



Photo 42: Station 3, Core 5, 1-2 feet

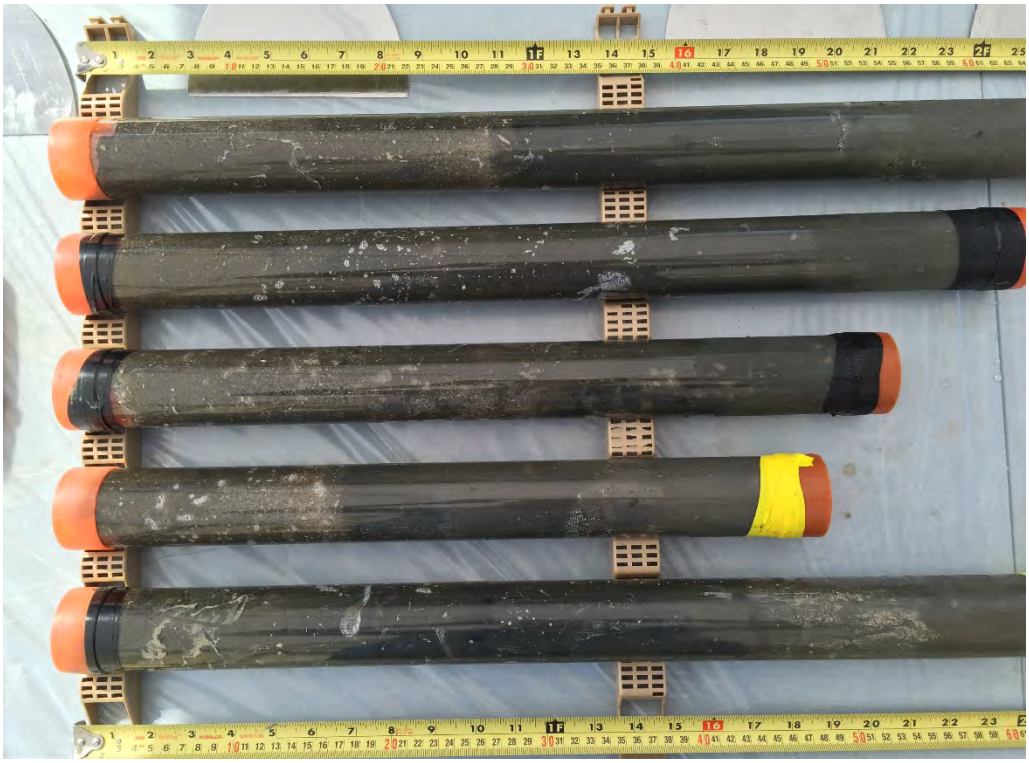


Photo 43: Station 4, All Cores, 0-60 cm



Photo 44: Station 4, All Cores, 26-68 cm



Photo 45: Station 4, Core 1, 0-1 feet



Photo 46: Station 4, Core 1, 1-2 feet



Photo 47: Station 4, Core 2, 0-1 feet



Photo 48: Station 4, Core 2, 1-2 feet



Photo 49: Station 4, Core 3, 0-1 feet

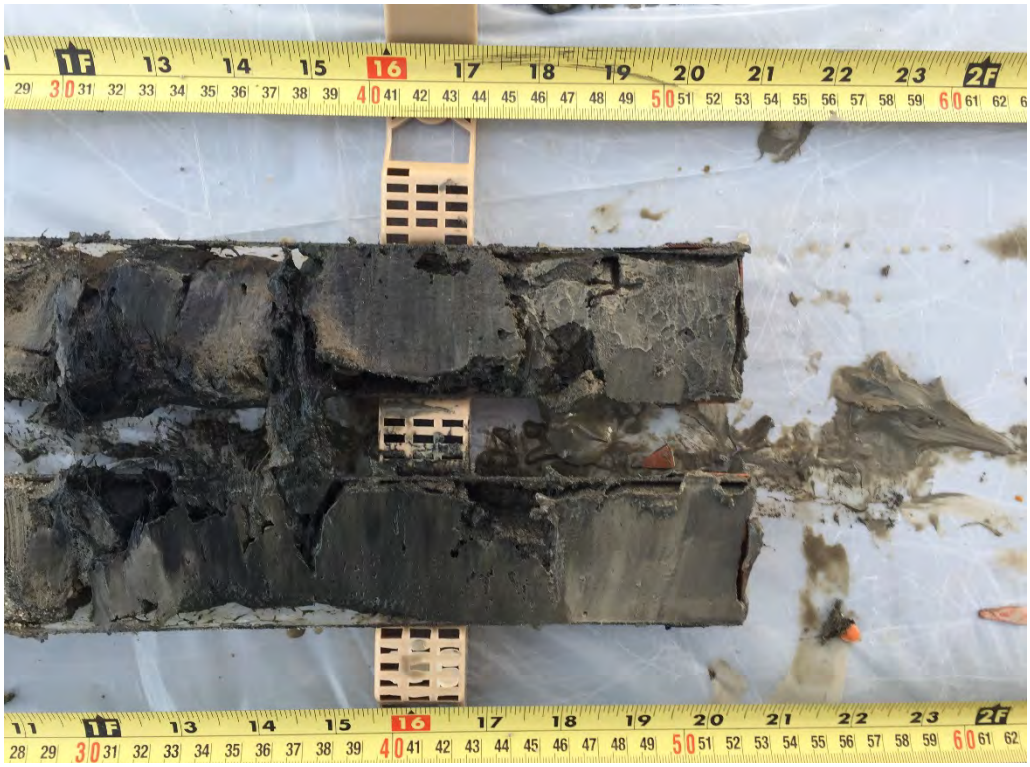


Photo 50: Station 4, Core 3, 1-2 feet

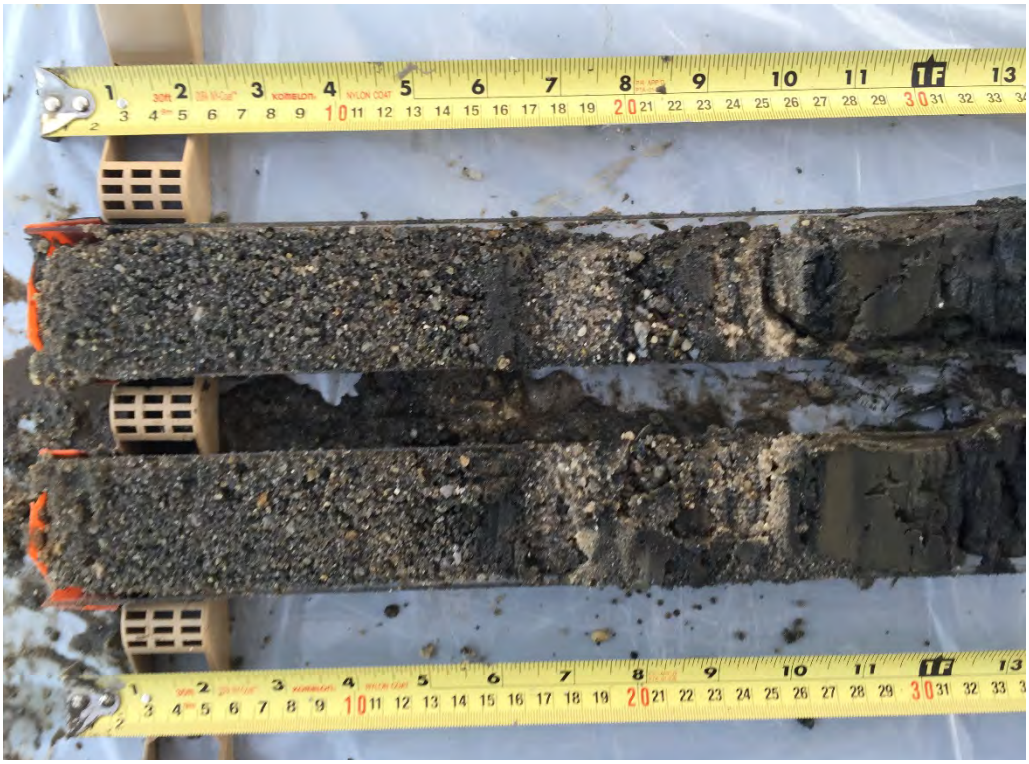


Photo 51: Station 4, Core 4, 0-1 feet

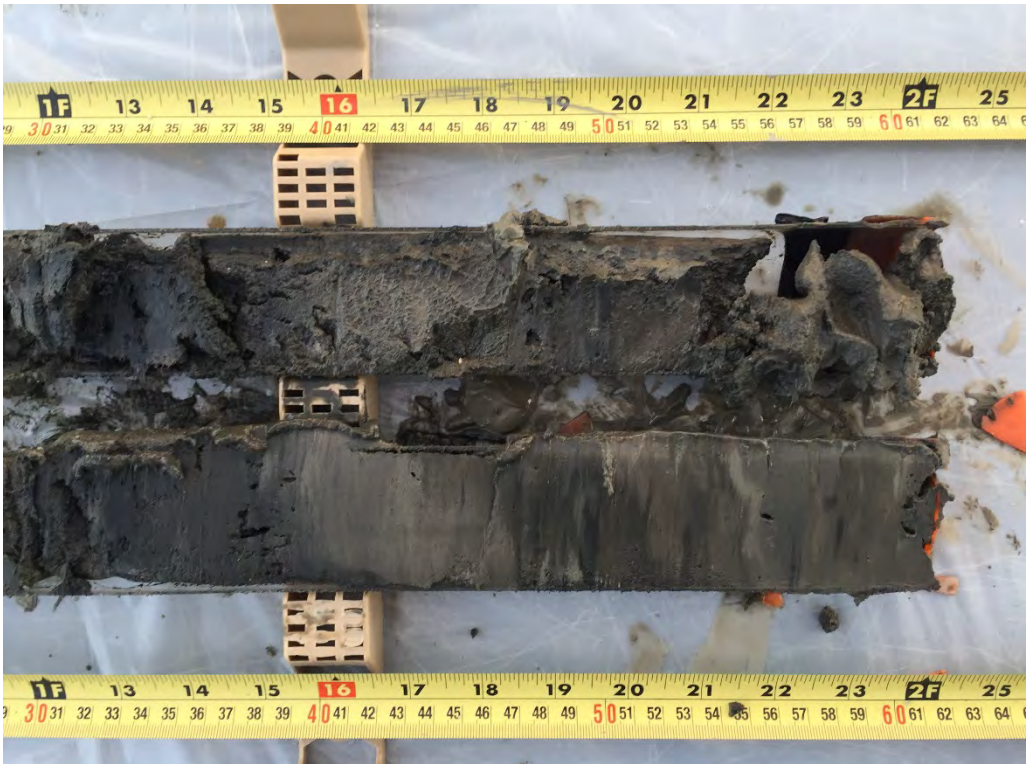


Photo 52: Station 4, Core 4, 1-2 feet



Photo 53: Station 4, Core 5, 0-1 feet

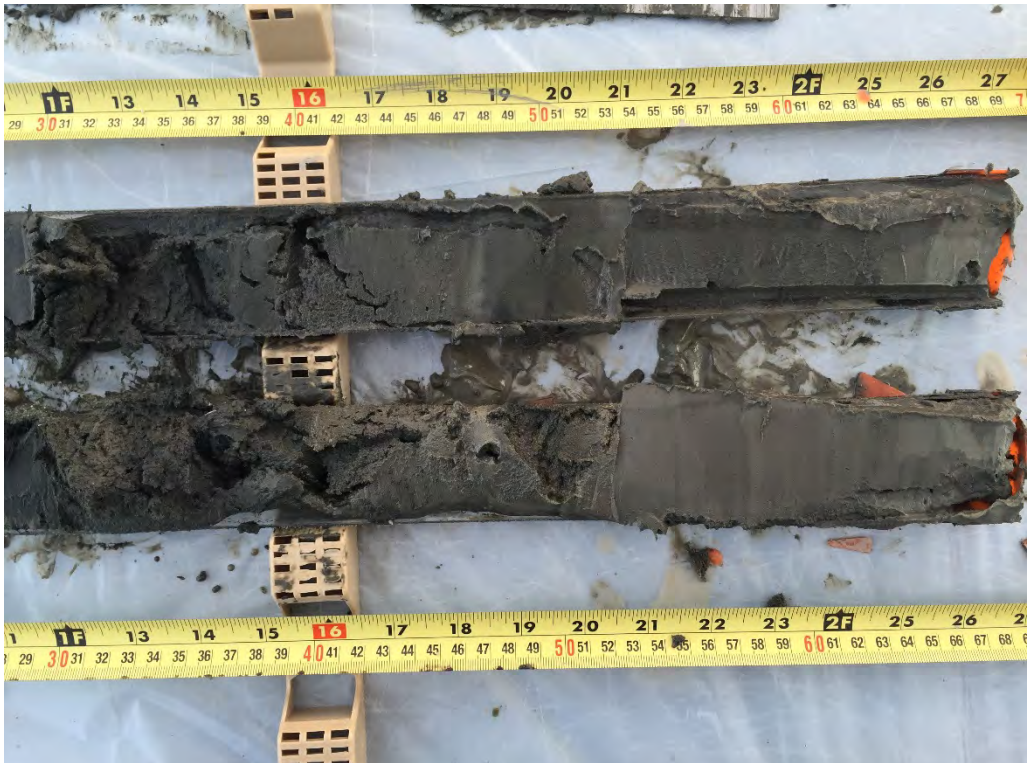


Photo 54: Station 4, Core 5, 1-2 feet



Photo 55: Station 5, All Cores, 0-60 cm



Photo 56: Station 5, All Cores, 24-84 cm



Photo 57: Station 5, Core 1, 0-1 feet



Photo 58: Station 5, Core 1, 1-2 feet



Photo 59: Station 5, Core 2, 0-1 feet



Photo 60: Station 5, Core 2, 1-2 feet



Photo 61: Station 5, Core 2, 2-3 feet



Photo 62: Station 5, Core 3, 0-1 feet

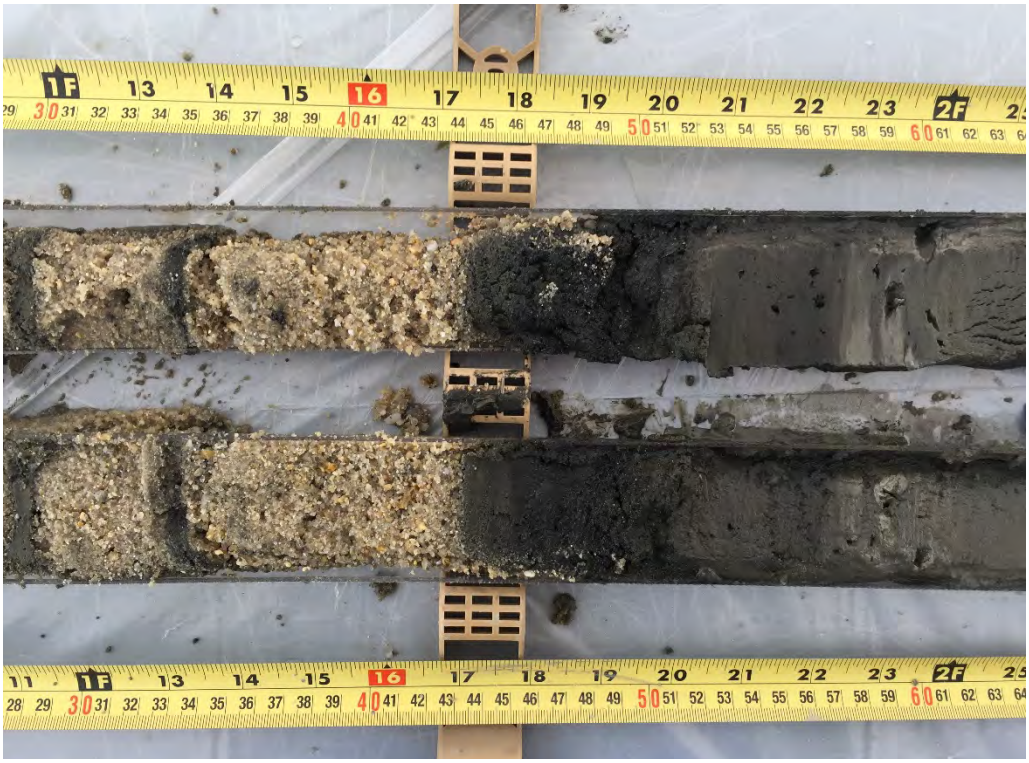


Photo 63: Station 5, Core 3, 1-2 feet



Photo 64: Station 5, Core 3, 2-3 feet

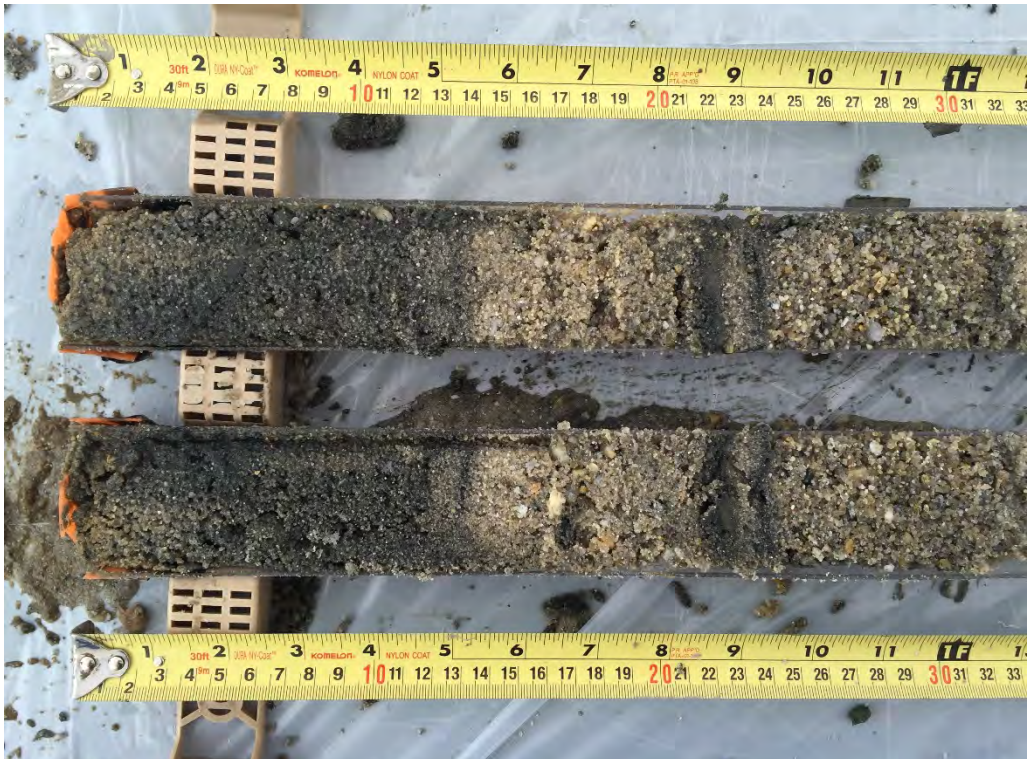


Photo 65: Station 5, Core 4, 0-1 feet

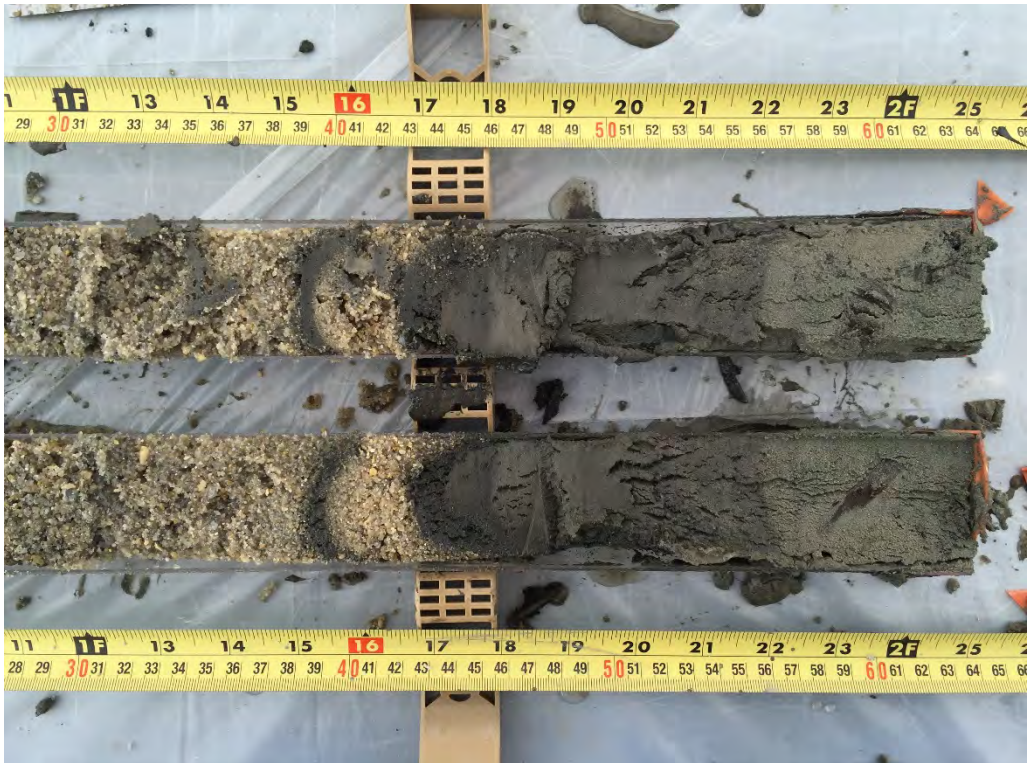


Photo 66: Station 5, Core 4, 1-2 feet



Photo 67: Station 5, Core 5, 0-1 feet



Photo 68: Station 5, Core 5, 1-2 feet

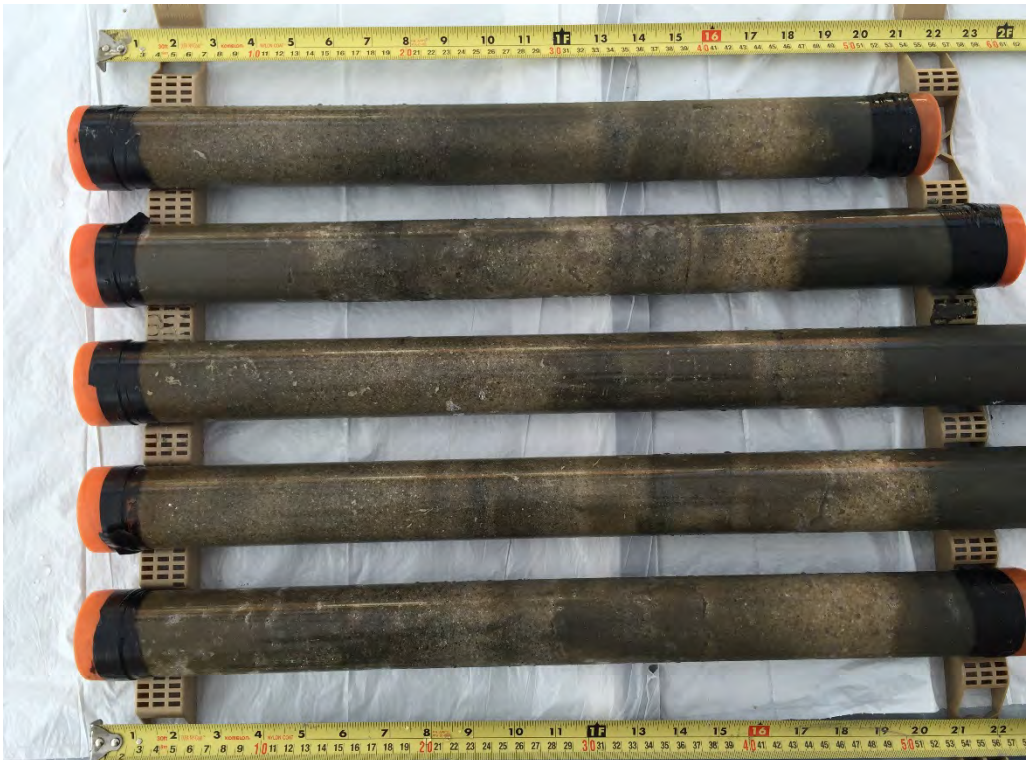


Photo 69: Station 5 Duplicate, All Cores, 0-60 cm



Photo 70: Station 5 Duplicate, All Cores, 27-84 cm



Photo 71: Station 5 Duplicate, Core 1, 0-1 feet



Photo 72: Station 5 Duplicate, Core 1, 1-2 feet



Photo 73: Station 5 Duplicate, Core 2, 0-1 feet



Photo 74: Station 5 Duplicate, Core 2, 1-2 feet



Photo 75: Station 5 Duplicate, Core 2, 2-3 feet



Photo 76: Station 5 Duplicate, Core 3, 0-1 feet



Photo 77: Station 5 Duplicate, Core 3, 1-2 feet



Photo 78: Station 5 Duplicate, Core 3, 2-3 feet



Photo 79: Station 5 Duplicate, Core 4, 0-1 feet



Photo 80: Station 5 Duplicate, Core 4, 1-2 feet

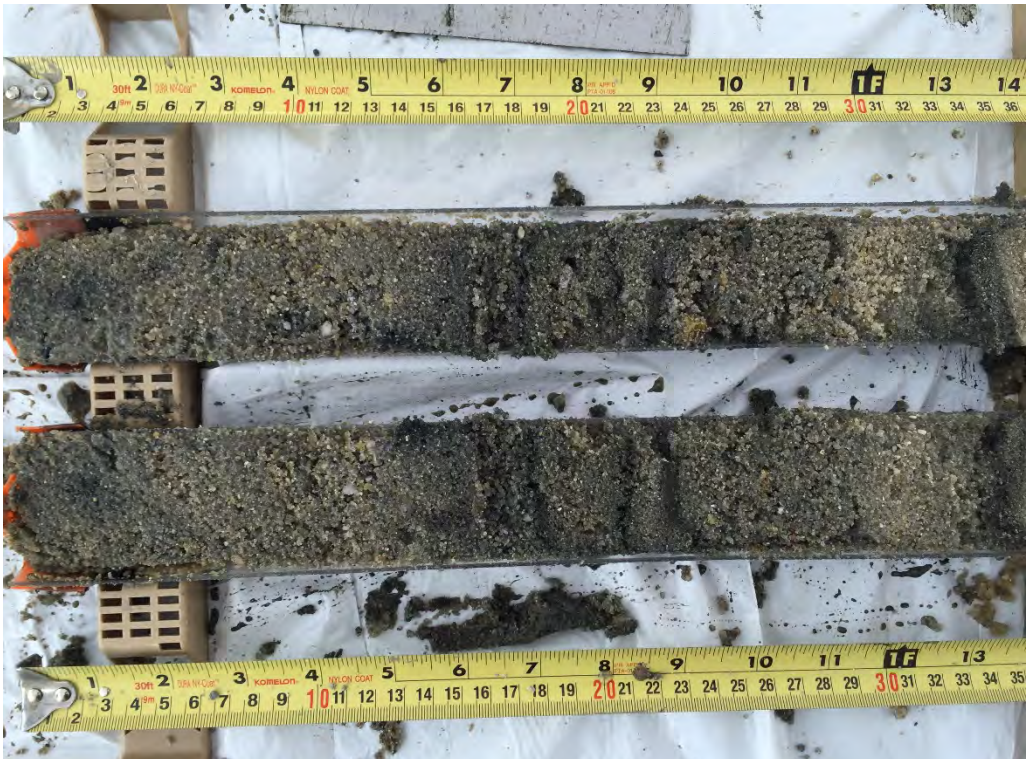


Photo 81: Station 5 Duplicate, Core 5, 0-1 feet



Photo 82: Station 5 Duplicate, Core 5, 1-2 feet

Appendix E-2

Sediment Profile Imagery

February 2010

Sediment Profile Imaging Report

Baseline Sediment Survey at Quantico Marine Base, Virginia



Prepared for:

ENVIRON International Corporation
18100 Von Karman Avenue
Suite 600
Irvine, CA 92612

Subcontract Number S6280048

Prepared by:

Germano & Associates, Inc.
12100 SE 46th Place
Bellevue, WA 98006

Sediment Profile Imaging Report

BASELINE SEDIMENT SURVEY AT QUANTICO MARINE BASE, VIRGINIA

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February, 2010

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Figure 1 Location of sampling stations for the baseline SPI survey in the Quantico Embayment, September, 2009.

Figure 2 Configuration of the hand-held aluminum Ocean Imaging Systems Model 3731-D Sediment Profile Camera.

Figure 3 Freshwater muddy bottom successional model for western Lake Erie macrobenthos following a disturbance of the lakefloor which eliminates the ambient fauna (from Soster and McCall, 1990a).

Figure 4 Spatial distribution of sediment grain-size major mode (phi units) at the Quantico Embayment in September, 2009.

Figure 5 Evidence of recently deposited sedimentary intervals was detected at some of the nearshore stations as seen in these profile images from Station 357 (left) and Station 372 (right).

Figure 6 Spatial distribution of average station small-scale surface boundary roughness (cm) at the Quantico Embayment in September, 2009.

Figure 7 Spatial distribution of average station camera prism penetration depth (cm) at the Quantico Embayment in September, 2009.

Figure 8 These profile images from Station 336 (left) and 369 (right) both have a sediment grain-size major mode of fine sand but show a notable difference in penetration depth, mainly due to the presence of subsurface methane at Station 369 which reduces sediment shear strength.

Figure 9 These profile images from Station 345 (left) and 387 (right) both show low shear-strength, highly fluid silt-clays with subsurface methane that could not support the weight of the camera prism.

Figure 10 Spatial distribution of average station mean apparent RPD depth (cm) at the Quantico Embayment in September, 2009.

Figure 11 This profile image from Station 356 shows both types of the dominant submerged aquatic vegetation found at the site, both branched milfoil prominently displayed in the left part of the image and the single-frond grasses seen in the right half of the image.

Figure 12 The profile image from Station 344 (left) shows oligochaetes projecting above the sediment-water interface in the right half of the image (arrow), while the profile image from Station 381 (right) shows the only freshwater bivalve found in all the images collected at the site.

Figure 13 Spatial distribution of infaunal successional stages at the Quantico Embayment in September, 2009.

Figure 14 The decaying SAV seen at the sediment surface in this profile image from Station 340 illustrates what a major source this plant biomass is to sediment organic enrichment.

1.0
INTRODUCTION

As part of a multidisciplinary research effort being lead by the US Navy (SPAWAR Systems Center San Diego) to demonstrate and validate the performance and cost-effectiveness of Enhanced Monitored Natural Recovery (EMNR) at various Department of Defense contaminated sediment sites, Germano & Associates, Inc. (G&A) performed a Sediment Profile Imaging (SPI) survey at the Quantico Embayment (Site 99, MCB Quantico, Quantico, VA). The purpose of the SPI survey was to document baseline benthic community status and sediment characteristics prior to placement of the demonstration thin-layer cap. Following the capping operation, SPI technology will be used once more to document the spatial extent and thickness of the cap as well as the extent of surface sediment benthic mixing and change from baseline sediment conditions.

2.0
MATERIALS AND METHODS

On September 23, 2009, scientists from G&A (J. Germano) and the US Navy (B. Davidson) conducted an SPI survey from the *R/V Potomac Princess*, a 12-ft aluminum rowboat. The vessel was barely adequate to complete the survey; the combined weight of the two passengers and equipment were almost at the weight limit capacity for the vessel, and the field crew capsized the vessel after the first 19 stations had been sampled. In spite of the difficulties encountered conducting the field survey, the field crew was still able to collect sediment profile images at 51 stations by the end of the day (Figure 1). An Ocean Imaging Systems Model 3731-D sediment profile camera was used for this survey; a grand total of 79 sediment profile images were collected for analysis during the course of the one-day field operation.

SPI was developed almost two decades ago as a rapid reconnaissance tool for characterizing physical, chemical, and biological seafloor processes and has been used in numerous seafloor surveys throughout North America, Asia, Europe, and Africa (Rhoads and Germano 1982, 1986, 1990; Revelas et al. 1987; Diaz and Schaffner, 1988; Valente et al. 1992). The sediment profile camera works like an inverted periscope. A Nikon D200 10-megapixel SLR camera with an 8-gigabyte compact flash card is mounted horizontally inside a watertight aluminum housing on top of a wedge-shaped prism. The prism has a Plexiglas® faceplate at the front with a mirror placed at a 45° angle at the back. The camera lens looks down at the mirror, which is reflecting the image from the faceplate. The prism has an internal strobe mounted inside at the back of the wedge to provide illumination for the image; this chamber is filled with distilled water, so the camera always has an optically clear path between the image sensor and the sediments against the faceplate. This wedge assembly can be lowered by hand through shallow water to the sediment surface by either two handles (Figure 2A) or from a small boat by a lifting fork assembly (Figure 2B and 2C). The knife-sharp edge of the prism transects the sediment, and the prism penetrates the bottom. Once the prism is inserted into the sediment, the operator can push a button on the handle to fire the strobe and take a picture of the upper 20 cm of the sediment column. The resulting images give the viewer the same perspective as looking through the side of an aquarium half-filled with sediment. The strobe recharges within 5 seconds, and the camera is ready to be lowered again for a replicate image. Surveys can be accomplished rapidly by "pogo-sticking" the camera across an area of seafloor while recording positional fixes on the surface vessel.

The only adjustments to the hand-held SPI system made in the field were electronic software adjustments to the Nikon D200 to control camera settings. Camera settings (f-stop, shutter speed, ISO equivalents, digital file format, color balance, etc.) are selectable through a water-tight USB port on the camera housing and Nikon Control Pro2® software. At the beginning of the survey, the time on the sediment profile camera's

internal data logger was synchronized with the internal clock on the computerized navigation system to local time. Details of the camera settings for each digital image are available in the associated parameters file embedded in the electronic image file; for this survey, the ISO-equivalent was set at 640. The additional camera settings used were as follows: shutter speed was 1/250, f8, white balance set to flash, color mode to Adobe RGB, sharpening to none, noise reduction off, and storage in compressed raw Nikon Electronic Format (NEF) files (approximately 9 MB each). Electronic files were converted to high-resolution jpeg (8-bit) format files (2592 x 3872 pixels) using Nikon Capture NX2® software (Version 2.2.4).

Either single or duplicate images were taken at each station; each SPI image was identified by the time recorded on the digital image file in the camera and in memory with vessel position on the navigation computer. The unique time stamp on the digital image was then cross-checked with the time stamp in the navigational system's data file. Digital image files were re-named with the appropriate station name immediately after completion of the field operation.

Test exposures of the Kodak® Color Separation Guide (Publication No. Q-13) were made on deck at the beginning of the survey to verify that all internal electronic systems were working to design specifications and to provide a color standard against which final images could be checked for proper color balance. A spare camera and charged battery were carried in the field at all times to insure uninterrupted sample acquisition. After deployment of the camera at each station, the frame counter was checked to make sure that the station had been adequately sampled.

Following completion of the field operations, the raw NEF image files were converted to high-resolution Joint Photographic Experts Group (jpeg) format files using the minimal amount of image file compression. Once converted to jpeg format, the intensity histogram (RGB channel) for each image was adjusted in Adobe Photoshop® to maximize contrast without distortion. The jpeg images were then analyzed using Bersoft Image Measurement© software version 3.06 (Bersoft, Inc.). Calibration information was determined by measuring 1-cm gradations from the Kodak® Color Separation Guide. This calibration information was applied to all SPI images analyzed. Linear and area measurements were recorded as number of pixels and converted to scientific units using the calibration information.

Measured parameters were recorded on a Microsoft Excel© spreadsheet. G&A's senior scientist (Dr. J. Germano) subsequently checked all these data as an independent quality assurance/quality control review of the measurements before final interpretation was performed.

2.1 MEASURING, INTERPRETING, AND MAPPING SPI PARAMETERS

2.1.1 Sediment Type

The sediment grain-size major mode and range were visually estimated from the color images by overlaying a grain-size comparator that was at the same scale. This comparator was prepared by photographing a series of Udden-Wentworth size classes (equal to or less than coarse silt up to granule and larger sizes) with the SPI camera. Seven grain-size classes were on this comparator: >4 ϕ (silt-clay), 4 ~ 3 ϕ (very fine sand), 3-2 ϕ (fine sand), 2 ~ 1 ϕ (medium sand), 1-0 ϕ (coarse sand), 0 ~ (-)1 ϕ (very coarse sand), < -1 ϕ (granule and larger). The lower limit of optical resolution of the photographic system was about 62 microns, allowing recognition of grain sizes equal to or greater than coarse silt ($\geq$ 4 ϕ). The accuracy of this method has been documented by comparing SPI estimates with grain-size statistics determined from laboratory sieve analyses.

The comparison of the SPI images with Udden-Wentworth sediment standards photographed through the SPI optical system was also used to map near-surface stratigraphy such as sand-over-mud and mud-over-sand. When mapped on a local scale, this stratigraphy can provide information on relative transport magnitude and frequency.

2.1.2 Prism Penetration Depth

The SPI prism penetration depth was measured from the bottom of the image to the sediment-water interface. The area of the entire cross-sectional sedimentary portion of the image was digitized, and this number was divided by the calibrated linear width of the image to determine the average penetration depth. Linear maximum and minimum depths of penetration were also measured. All three measurements (maximum, minimum, and average penetration depths) were recorded in the data file.

Prism penetration can be a noteworthy parameter when using the standard Model 3731 camera with a deployment frame; if the number of weights used in the camera is held constant throughout a survey, the camera functions as a static-load penetrometer. However, the force applied to the hand-held Model 3731 is variable, depending on operator strength and sediment resistance. Comparative penetration values from sites of similar grain size can give an indication of the relative water content of the sediment. Highly bioturbated sediments and rapidly accumulating sediments tend to have the highest water contents and greatest prism penetration depths.

The depth of penetration also reflects the bearing capacity and shear strength of the sediments. Overconsolidated or relic sediments and shell-bearing sands resist camera penetration. Highly bioturbated, sulfitic, or methanogenic muds are the least consolidated, and deep penetration is typical. Seasonal changes in camera prism

penetration have been observed at the same station in other studies and are related to the control of sediment geotechnical properties by bioturbation (Rhoads and Boyer 1982). The effect of water temperature on bioturbation rates appears to be important in controlling both biogenic surface relief and prism penetration depth (Rhoads and Germano 1982).

2.1.3 Small-Scale Surface Boundary Roughness

Surface boundary roughness was determined by measuring the vertical distance between the highest and lowest points of the sediment-water interface. The surface boundary roughness (sediment surface relief) measured over the width of sediment profile images typically ranges from 0.02 to 3.8 cm, and may be related to either physical structures (ripples, rip-up structures, mud clasts) or biogenic features (burrow openings, fecal mounds, foraging depressions). Biogenic roughness typically changes seasonally and is related to the interaction of bottom turbulence and bioturbational activities.

The camera must be level in order to take accurate boundary roughness measurements. In sandy sediments, boundary roughness can be a measure of sand wave height. On silt-clay bottoms, boundary roughness values often reflect biogenic features such as fecal mounds or surface burrows. The size and scale of boundary roughness values can have dramatic effects on both sediment erodibility and localized oxygen penetration into the bottom (Huettel et al., 1996).

2.1.4 Thickness of Depositional Layers

Because of the camera's unique design, SPI can be used to detect the thickness of natural depositional or dredged material layers. SPI is effective in measuring layers ranging in thickness from 1 mm to 20 cm (the height of the SPI optical window). During image analysis, the thickness of the newly deposited sedimentary layers can be determined by measuring the distance between the pre- and post-disposal sediment-water interface. Recently deposited material is usually evident because of its unique optical reflectance and/or color relative to the underlying material representing the pre-disposal surface. Also, in most cases, the point of contact between the two layers is clearly visible as a textural change in sediment composition, facilitating measurement of the thickness of the newly deposited layer.

2.1.5 Apparent Redox Potential Discontinuity Depth

Aerobic near-surface freshwater sediments typically have higher reflectance relative to underlying hypoxic or anoxic sediments. Surface sands washed free of mud also have higher optical reflectance than underlying muddy sands. These differences in optical reflectance are readily apparent in SPI images; the oxidized surface sediment contains particles coated with ferric hydroxide (an olive or tan color when associated with

particles), while reduced and muddy sediments below this oxygenated layer are darker, generally gray to black. The boundary between the colored ferric hydroxide surface sediment and underlying gray to black sediment is called the apparent redox potential discontinuity (RPD).

The depth of the apparent RPD in the sediment column is an important time-integrator of dissolved oxygen conditions within sediment porewaters. In quiescent freshwater systems such as lakes, the absence of bioturbating organisms will limit the depth of this high reflectance layer in fine-grained silt/clays to a thickness of 2 mm below the sediment-water interface (Rhoads 1974). This depth is related to the supply rate of molecular oxygen by diffusion into the bottom and the consumption of that oxygen by the sediment and associated microflora. In sediments that have very high sediment oxygen demand (SOD), the sediment may lack a high reflectance layer even when the overlying water column is aerobic.

This vertical zonation of redox stratification results from the oxidation of organic matter by a series of increasingly less energetically-favorable terminal electron acceptors, e.g., O_2, NO_3, Mn(IV), Fe (III), and SO_4^{-2} (Froelich et al., 1979). Typically, zones of Mn and Fe oxide (FMO) enrichment are present just below the oxic surface layers of sediment; Mn(IV) and Fe(III) form sparingly soluble oxides, which reductively dissolve to produce much more soluble Mn(II) and Fe(II). Therefore, accumulation of FMO just below the oxic zone is caused by Mn(II) and Fe(II) diffusing upwards from deeper, more reduced sediment zones and reacting with oxygen or nitrate diffusing downward from overlying oxic lake or porewaters (Koretsky et al., 2006). Redox zonation is influenced by many things besides this transport via diffusion of dissolved solutes, including macrophyte activity and transport of solutes and particles via bioirrigation and bioturbation. The relative sizes of these redox zones are affected by the interaction of numerous factors, including temperature, hydrology, lake turnover, mixing by river currents, and macrophytes and macrofaunal activity, all of which can vary on a seasonal basis and influence the balance between organic matter and terminal electron acceptor availability (Davison, 1993; Sherman et al., 1994; Urban et al, 1997).

The relationship between the thickness of this high reflectance layer and the presence or absence of free molecular oxygen in the associated porewaters must be considered with caution. The actual RPD is the boundary or horizon that separates the positive Eh region of the sediment column from the underlying negative Eh region. The exact location of this Eh = 0 boundary can be determined accurately only with microelectrodes; hence, the relationship between the change in optical reflectance, as imaged with the SPI camera, and the actual RPD can be determined only by making the appropriate *in situ* Eh measurements. For this reason, the optical reflectance boundary, as imaged, was described in this study as the "apparent" RPD (aRPD) and it was mapped as a mean value. In general, the depth of the actual Eh = 0 horizon will be either equal to or slightly shallower than the depth of the optical reflectance boundary (Rosenberg et al., 2001).

This is because bioturbating organisms can mix ferric hydroxide-coated particles downward into the bottom below the Eh = 0 horizon. Depending on hydrodynamics, the apparent mean RPD depth can be used either as an estimate of the depth of porewater exchange, usually through porewater irrigation from hydraulic flow or bioirrigation, or an indication of sediment accumulation from rapid deposition of resuspended, oxidized particles in fluvial systems.

Measurable changes in the aRPD depth using the SPI optical technique can be used effectively to document changes (or gradients) that develop over a seasonal or yearly cycle in river or lake systems related to changes in flow regime (rivers), water stratification/mixing (lakes), temperature effects on bioturbation rates, seasonal hypoxia, SOD, and infaunal recruitment. Time-series aRPD measurements following a disturbance can be a critical diagnostic element in monitoring the degree of recolonization in an area by the ambient benthos (Rhoads and Germano 1986).

The apparent mean RPD depth also can be affected by local erosion; scouring around curves in rivers can wash away fines and form shell or gravel lag deposits, resulting in very thin surface oxidized layer. Storm energy or heavy winds in shallow areas of lakes or rivers can cause erosion of the oxidized surface layers, effectively removing any evidence of an aRPD.

Another important characteristic of the aRPD is the contrast in reflectance at this boundary. This contrast is related to the interactions among the degree of organic loading, the physical or biological mixing depth the sediment, the concentrations of bottom-water dissolved oxygen in an area, and localized sediment geochemistry. High inputs of labile organic material increase SOD and, subsequently, sulfate reduction rates and the associated abundance of sulfide end products. This results in more highly reduced, lower-reflectance sediments at depth and higher aRPD contrasts. In a region of generally low aRPD contrasts, images with high aRPD contrasts indicate localized sites of relatively large inputs of organic-rich material such as phytoplankton, other naturally-occurring organic detritus, or anthropogenic impacts (industrial or sewage run-off or discharge).

Because the determination of the aRPD requires discrimination of optical contrast between oxidized and reduced particles, it is difficult, if not impossible, to determine the depth of the aRPD in well-sorted sands of any size that have little to no silt or organic matter in them (Painter et al, 2007). When using SPI technology on sand bottoms, little information other than grain-size, prism penetration depth, and boundary roughness values can be measured; while oxygen has no doubt penetrated the sand beneath the sediment-water interface just due to physical forcing factors acting on surface roughness elements (Ziebis et al., 1996; Huettel et al., 1998), estimates of the mean aRPD depths in these types of sediments are indeterminate with conventional white light photography.

2.1.6 Sedimentary Methane

Free gases in sediments (typically hydrogen sulfide or methane, and sometimes carbon dioxide or traces of nitrogen or ammonia) are formed from either diagenetic bacterial reactions or migration of thermally-derived gases from greater depths. All of these gases are formed by microbial communities metabolizing organic substrates; therefore, presence of gas is an indicator of organic-rich sediments. If oxygen is available in the overlying waters and porewaters, an aerobic bacterial community dominates and carbon dioxide is the end product of their metabolism; generally, carbon dioxide will diffuse upward into the water column and rarely reaches concentrations high enough for a free gas phase to develop (Middleton, 2003). If organic loading is extremely high and porewater sulfate is depleted, then methanogenesis will occur. Two competing bacterial reactions generate free methane gas in sediments, one for anaerobic acetate (or similar) fermentation ($CH_3COOH \rightarrow CH_4 + CO_2$) and the other from carbon dioxide reduction ($CO_2 + 4H_2 \rightarrow CH_4 + 2H_2O$). In general, CO_2 reduction is dominant in marine sediments while fermentation reactions are the dominant ones in freshwater environments, although in all cases both reactions operate to some extent (Clayton, 1995).

The process of methanogenesis is indicated by the appearance of methane bubbles in the sediment column. These gas-filled voids are readily discernable in SPI images because of their irregular, generally circular aspect and glassy texture (due to the reflection of the strobe off the gas bubble).

2.1.7 Infaunal Successional Stage

The mapping of infaunal successional stages is readily accomplished in marine environments with SPI technology (Rhoads and Germano, 1982, 1986). While there are relatively few applications of SPI technology in freshwater environments (Boyer and Hedrick 1989; Boyer and Shen, 1988; Boyer and Whitlatch 1989) as compared with those in marine (Solan et al. 2003), there have been sufficient studies on benthic recolonization in freshwater (Tevesz, 1985; Soster and McCall, 1990a, b) to provide a basis for biological community interpretation of sediment profile images in freshwater systems.

While an early study by Moon (1935) in Lake Windemere (UK) was not focused specifically on recolonization patterns, he did show that the fauna collected in trays of what initially was defaunated sediment were similar to those found on the natural bottom after 4 weeks time. Soster and McCall (1990a) performed a series of tray recolonization experiments in western Lake Erie during different seasons of two successive years to examine recolonization patterns in freshwater benthos following a mortality-producing disturbance. Benthic communities in the trays remained different from the surrounding bottom anywhere from 2-14 months after the start of the experiment; recovery in the first year happened much quicker than in the second year of the experiment, in part due to differences in a high abundance of the oligochaete *Vejdovskyella intermedia* on the

natural bottom the first year and its lack of abundance the second year of the experiment. Three species of opportunists (*Physocrypia globula* [an ostracod], *V. intermedia* [a tubificid oligochaete], and a *Chironomus plumosus* [chironomid larvae]) colonized sediments quite rapidly and in disproportionately high numbers, but then suffered population declines later in the year. A second group of chironomids (*Procladius* sp. and *Coelotanypus* sp.) and naidid oligochaetes (*Specaria josinae, Dero digitata, Arcteonais lomondi,* and *Pristina acuminata*) colonized the tray sediments in approximate proportion to their abundances on the natural bottom. This group was followed by the late successional group of species consisting of pisidiid bivalves and the tubificid oligochaetes *Limnodrilus* spp., *Ilyodrilus templetoni*, and to some extent, *Aulodrilus piqueti*; this group gradually increased in abundance during the experiments and eventually dominated the tray communities.

The general pattern that emerged showed a characteristic response of the benthic community following a major disturbance on the lakefloor during the spring or summer (Figure 3). The disturbed area is colonized by many of the same species present in undisturbed habitats on the natural bottom, but only one or a few species dominate the first few months; even though the taxonomic composition varied annually and seasonally, the opportunistic species mentioned earlier (*P. globula, V. intermedia,* and *C. plumosus*) were characteristic of this early assemblage. Over time, the assemblage gradually changed as slower colonizers increase in abundance and early colonizers decline. Some naidid oligochaetes, predatory chrinomids, and pididiid bivalves were also present in these late successional assemblages. Similar to recolonization patterns found in soft-bottom marine environments responding to disturbance (McCall, 1977; Rhoads et al., 1978; Pearson and Rosenberg, 1978), the life history characteristics of the early opportunists include small, mobile surface deposit feeders or suspension feeders that live at or near the sediment-water interface; their reproductive rate is high, and each species is capable of producing several generations a year, either because of short generation time (*P. globula*) or rapid asexual reproduction (*V. intermedia*). Late successional species were relatively deep infaunal dwellers that either deposit feed (tubificid oligochaetes) or filter feed (pisidiid bivalves) which grow slowly, mature later in life, and have generation times of at least one year (Soster and McCall, 1990a). Their adult body size is generally several times larger than that of early colonizers, they have infaunal life positions, and most of them reproduce sexually. The differences between these early and late successional assemblages are visible in sediment profile images.

While it may be that the response to disturbance by Lake Erie benthic communities is typical of sublittoral lacustrine benthos, there are relatively few additional studies with which to compare these results. Reviews of freshwater successional literature by Tevesz (1985) and Lopez (1988) describe similar characteristics of early and late successional stages during colonization of new lakes. Early successional stages are characterized by small, rapidly growing, suspension and surface deposit feeding taxa (*Chironomus*, naidid oligochaetes, and amphipods), and late successional stages are characterized by longer-

lived, subsurface deposit-feeding tubificid oligochaetes. So, despite profound taxonomic differences between freshwater and marine benthos (freshwater muddy bottoms are dominated by chironomid insect larvae, amphipods, tubificid oligochaetes, and bivalves [McCall and Tevesz 1982] whereas marine muddy bottoms are dominated by polychaetes, amphipods, and different families of bivalves [Sanders 1968; Rhoads, 1974]), the successional patterns are functionally similar.

While the successional dynamics of invertebrate communities in freshwater fine-grained sediments have been documented, the successional dynamics of invertebrate communities in sand and coarser sediments are not well-known. Subsequently, the insights gained from sediment profile imaging technology regarding biological community structure and dynamics in sandy and coarse-grained bottoms are fairly limited.

2.2 USING SPI DATA TO ASSESS BENTHIC QUALITY & HABITAT CONDITIONS

While various measurements of water quality such as dissolved oxygen, contaminants, or nutrients are often used to assess regional ecological quality, interpretation is difficult because of the transient nature of water-column phenomena. Measurement of a particular value of any water-column variable represents an instantaneous "snapshot" that can change within minutes after the measurement is taken. By the time an adverse signal in the water column such as a low dissolved oxygen concentration is persistent, the system may have degraded to the point where resource managers can do little but map the spatial extent of the phenomenon while gaining a minimal understanding of factors contributing to the overall degradation.

The sediment column, on the other hand, is a long-term time integrator of sediment and overlying water quality; values for any variable measured are the result of physical, chemical, and biological interactions on time scales much longer than those present in a rapidly moving fluid. Sediments are therefore an excellent indicator of environmental quality, both in terms of historical impacts and of future trends for any particular variable.

Physical measurements made with the SPI system from profile images provide background information about gradients in physical disturbance (caused by dredging, disposal, oil platform cuttings and drilling muds discharge, ship propwash in channels or in berthing areas, trawling, or storm resuspension and transport) in the form of maps of sediment grain size, boundary roughness, sediment textural fabrics, and structures. The concentration of organic matter and the SOD can be inferred from the optical reflectance of the sediment column and the apparent RPD depth. Organic matter is an important indicator of the relative value of the sediment as a carbon source for both bacteria and infaunal deposit feeders. SOD is an important measure of ecological quality; oxygen can be depleted quickly in sediment by the accumulation of organic matter and by bacterial

respiration, both of which place an oxygen demand on the porewater and compete with animals for a potentially limited oxygen resource (Kennish 1986).

The apparent RPD depth is useful in assessing the quality of a habitat for epifauna and infauna from both physical and biological points of view. The apparent RPD depth in profile images has been shown to be directly correlated to the quality of the benthic habitat in polyhaline and mesohaline estuarine zones (Rhoads and Germano 1986; Revelas et al. 1987; Valente et al. 1992). Controlling for differences in sediment type and physical disturbance factors, apparent RPD depths < 1 cm can indicate chronic benthic environmental stress or recent catastrophic disturbance.

Soster and McCall (1990b) found that the spatial and temporal distributions of many of the infaunal macrobenthos in western Lake Erie were correlated with disturbance levels; species that were abundant late in the colonization sequence were more evenly distributed in the area surveyed, while early colonizers were usually more abundant in the more severely disturbed parts of the basin. These small, shallow-dwelling opportunists appeared to have suffered a higher mortality than larger, deeper-dwelling, late colonizers during unusually windy/high stress periods, but they are quick to recolonize the area after the disturbance abates. While comparing the fauna of mud bottom lakes created by water supply dams on the Sangamon River and its tributaries in Illinois, Gersbacher (1937) found that the taxa identified as early successional stages in the Soster and McCall (1990a) study were more frequently found in disturbed parts of the river, while the more stable areas contained faunas resembling those from older pools. Studies done in Lake George (Ganf and Viner 1973) found that chironomids and ostracods recovered most rapidly from disturbances; they were most abundant in the top 5 cm of disturbed sediment, while tubificids were more abundant in the 5-35 cm layer than in the 0-5 cm layer. If early and late successional assemblages are recognizable in freshwater sediment profile images, then inferences can be made about disturbance patterns affecting different regions of the area surveyed.

SPI has been shown to be a powerful reconnaissance tool that can efficiently map gradients in sediment type, biological communities, or disturbances from physical forces or organic enrichment. The conclusions reached at the end of this report are about dynamic processes that have been deduced from imaged structures; as such, they should be considered hypotheses available for further testing/confirmation. By employing Occam's Razor, we feel reasonably assured that the most parsimonious explanation is usually the one borne out by subsequent data confirmation.

3.0
RESULTS

A complete set of all the summary data measured from each image is presented in Appendix A. Water depths over the entire sampling area ranged between 1-2 meters.

3.1 GRAIN SIZE

The sediments at most of the stations in the north-northeast half of the site and closer to shore were primarily silty fine to very fine sand; as one moved away from landand into the the southwest quadrant of the sampling area, the river bed graded into softer silt-clay sediments (Figure 4). Some of the nearshore stations, e.g., Station 357, 359, 372, showed evidence of distinct depositional intervals that were most likely due to land runoff following heavy rainfall (Figure 5).

3.2 SURFACE BOUNDARY ROUGHNESS

Surface boundary roughness ranged from 0.6 to 4.2 cm with an overall site average of 1.7 cm, principally due to surface irregularities from river currents or wind energy that was transferred to the sediment bed (Figure 6). With the exception of two images collected at Stations 344 and 365 (see Appendix A), all of the small-scale topographic roughness measured in the sediment bed was due to physical forcing factors and not from infaunal burrowing or feeding activities.

3.3 PRISM PENETRATION DEPTH

The average station camera prism penetration depth ranged from 0 (no penetration) to 21.6 cm (overpenetration), with an overall site average penetration depth of 12.8 cm (Figure 7). Unlike surveys performed with the standard Model 3731 profile camera where the force used to drive the camera prism into the sediment is uniform (dependent on the number of lead weights in the chassis holders), the force applied to the hand-held camera prism is highly variable, dependent upon the response of the sediment bed to the operator's initial push on the handle and the length of time the operator has been operating the unit (less force is applied as time goes on with physical exhaustion becoming an increasingly important variable). Also, given the restrictions in this particular survey as far as available deck space and weight capacity of the sampling platform, it was not possible to download the images during sampling operations to check if images were compromised due to prism over-penetration. Therefore, the variation in prism penetration depth seen in Figure 7 is more an indication of sediment grain-size

major mode; at those locations with a notable percentage (>20%) of particles in the sand-sized range (0.125 mm or larger), prism penetration ranged between 2-15 cm (Figure 8). In the southwest quadrant of the site where methanogenic silt-clay sediments with a high water content were found, compromised images were collected at 12 stations where the camera prism over-penetrated the bottom (Figure 9).

3.4 APPARENT REDOX POTENTIAL DISCONTINUITY DEPTH

The distribution of mean apparent RPD depths ranged from 0 to 3.7 cm, with an overall site average aRPD depth of 1.6 cm (Figure 10). None of the images in the southwest could be analyzed for aRPD depth because of the camera prism overpenetration, so data are missing from about one-quarter of the total number of stations sampled. The shallowest aRPD depths were found in a cluster of stations in the middle of the sampling area and extending to the southwest closest to shore (Figure 10); aRPD depths in the northeast section of the site (in the sandier, less-organically loaded areas) were generally higher.

3.5 SEDIMENTARY METHANE AND MACROPHYTE PRESENCE

Subsurface methane was quite common throughout the area and found at 40 of the 51 stations sampled (Figure 10); in addition to the sedimentary organic carbon, the other major source of organic input to the sediments was the high inventory of macrophytes. Two main types of aquatic vegetation were evident in the profile images, both a flat-bladed grass and a branched milfoil (it appears to be the invasive Eurasian milfoil *Myriophillum*; Figure 11). Submerged aquatic vegetation (SAV) was found at virtually every station sampled (Figure 4).

3.6 INFAUNAL SUCCESSIONAL STAGE

The freshwater successional model developed for lake bottoms was not a particularly useful paradigm for characterizing infauna in rivers. Biogenic subsurface structures (burrows, feeding pits, subsurface feeding voids) can be quickly destroyed in an extremely shallow area like this site by either river currents or wind-driven energy (affecting the bottom in the sandier areas), or deposition of additional sedimentary layers from land-based runoff at the nearshore stations. Apparent faunal densities were low, with only chironomids and oligochaetes visible as the dominant taxonomic groups, although one freshwater bivalve was seen at Station 381 (Figure 12). While the more mature successional assemblages were found in the northern half of the sampling area where aRPD depths were greatest, a somewhat incomplete picture of the infaunal community exists because successional stage could not be determined for over one-third of the images collected (Figure 13).

4.0
DISCUSSION

Even though the baseline characterization of the site is somewhat incomplete because of the number of locations where the camera prism overpenetrated the sediments, the images from future monitoring surveys will not be compromised if a better sampling platform is available for future work. There are three main conclusions to be drawn from the SPI results from this baseline survey at the Quantico Embayment site:

1. SAV was the dominant biomass at the site, and the normal annual cycle of plant growth and decay will most likely keep this as the primary source of organic carbon loading to the sediments (Figure 14). Organic enrichment through decaying plants appears to be the biggest source of both food and stress to the resident infaunal community.
2. While subsurface methane is quite prevalent and a potential disruptor to any thin-layer cap placed on the bottom, the act of placing a layer of sediment on the existing river bed will trap all of the surface plant biomass and accelerate plant death and decay. This will create a layer of decomposing organic material beneath the cap and undoubtedly generate more methane, which could add to cap disruption.
3. Land runoff will continue to occur and most likely add additional (organic-rich) material to the cap; if the land-based sediments are <u>not</u> a source of contamination, this should not be a problem. If, however, the contaminants of concern detected in the submerged sediments are also present along the shoreline, then the cap will be largely ineffective in isolating any future biological receptors from contaminants of concern.

5.0
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FIGURES

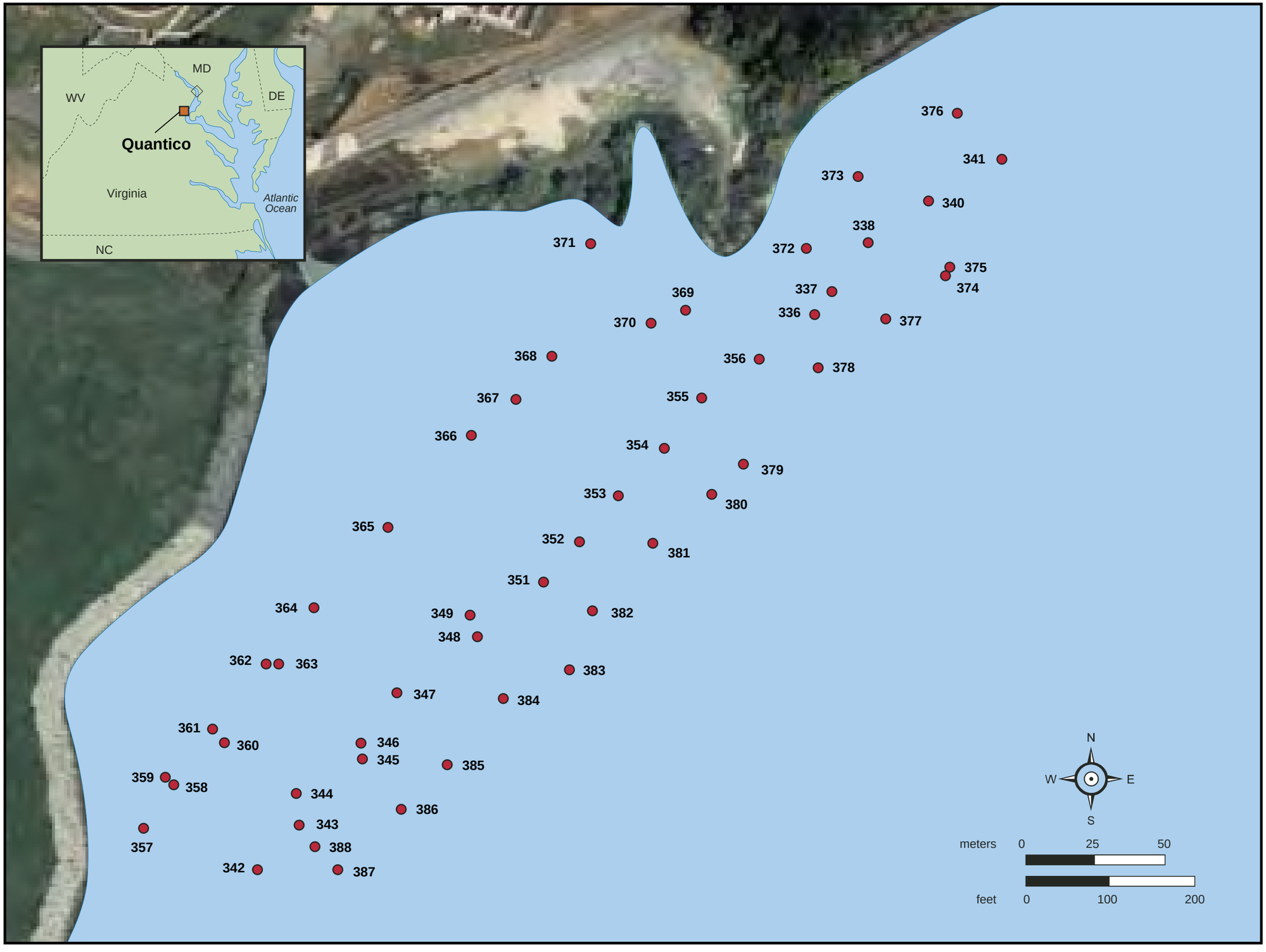


Figure 1. Location of sampling stations for the baseline SPI survey in the Quantico Embayment, September, 2009.



A. Hand held version for shallow stream and inter-tidal work, deployed by walking. Weight is approximately 40 lbs.



B. Extended handle for small boat deployment in very shallow water.



C. Longer handle for hand deployment in small boat in water depths to 6 feet.

Figure 2. Configuration of the hand-held aluminum Ocean Imaging Systems Model 3731-D Sediment Profile Camera.

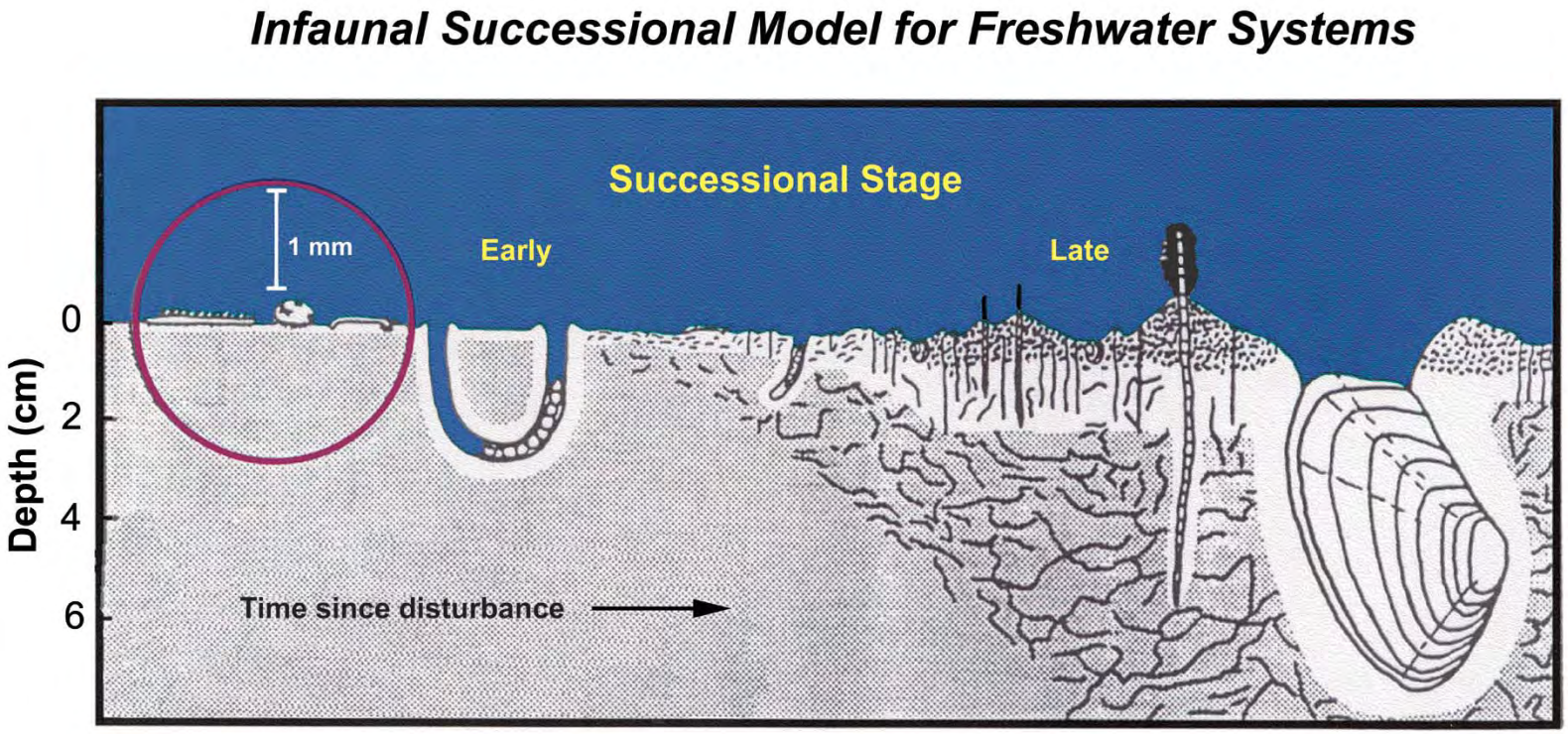


Figure 3. Freshwater muddy bottom successional model for western Lake Erie macrobenthos following a disturbance of the lakefloor which eliminates the ambient fauna (from Soster and McCall, 1990a). Area enclosed by the circle is magnified 20X; life positions of infauna from McCall and Tevesz (1982). From left to right in the circle: *Vejdovskyella intermedia, Physocrypia globula,* and first instar of *Chironomus plumosus*. A fourth instar of *Chironomus plumosus* is shown in the U-shaped tube under the label "Early", and moving to the right, we see naidid oligochaetes, pisidiid bivalves, larger tubificid oligochaetes, and then to the right of the label, "Late", the larger tubificid *Branchiura sowerbyi* and the buried large unionid bivalve.

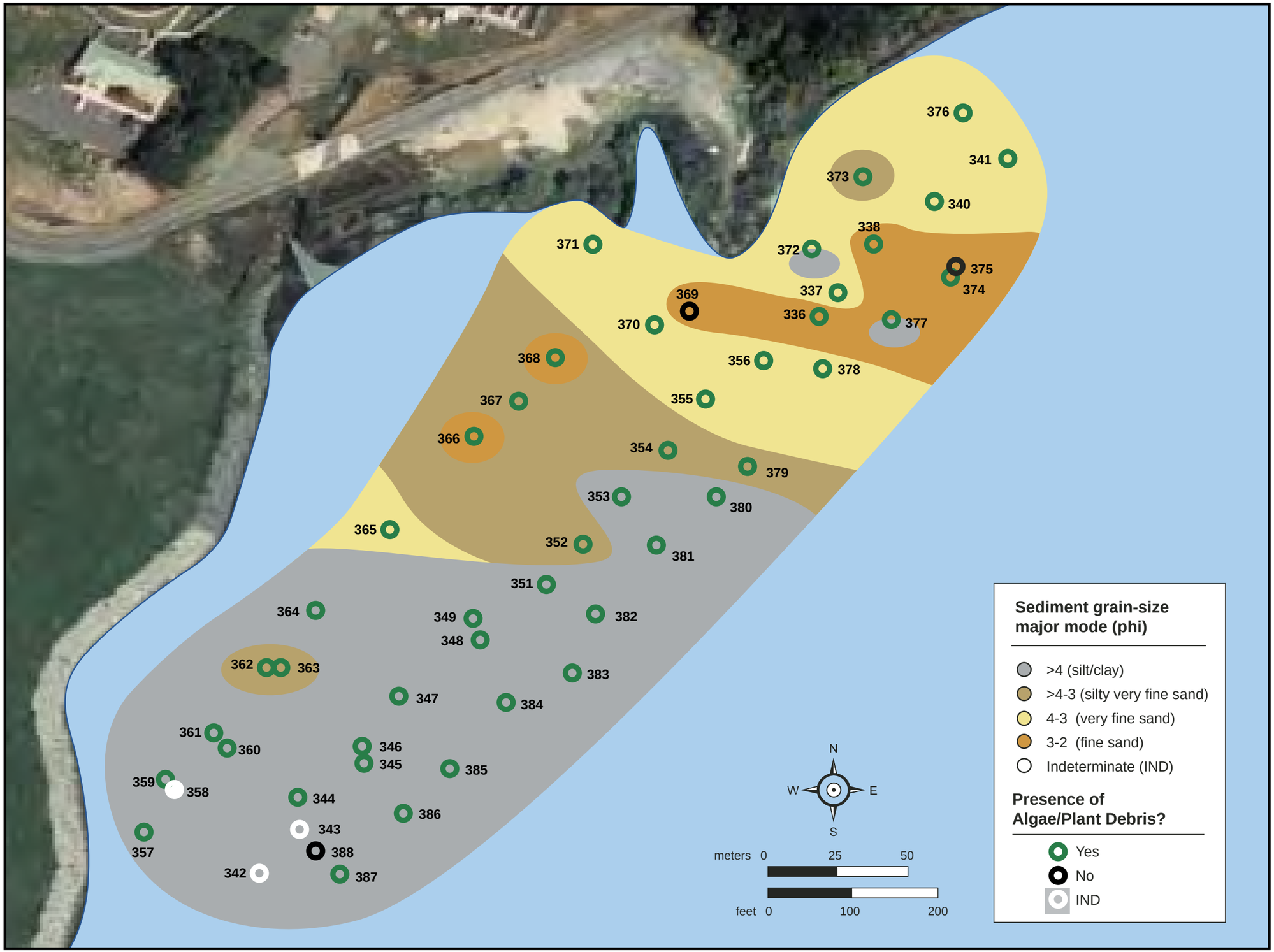


Figure 4. Spatial distribution of sediment grain-size major mode (phi units) at the Quantico Embayment in September, 2009.



Station 357

Station 372

Figure 5. Evidence of recently deposited sedimentary intervals was detected at some of the nearshore stations as seen in these profile images from Station 357 (left) and Station 372 (right); the arrows in each image show the buried contact boundary that was the former sediment-water interface. Scale: width of each image = 14.5 cm.

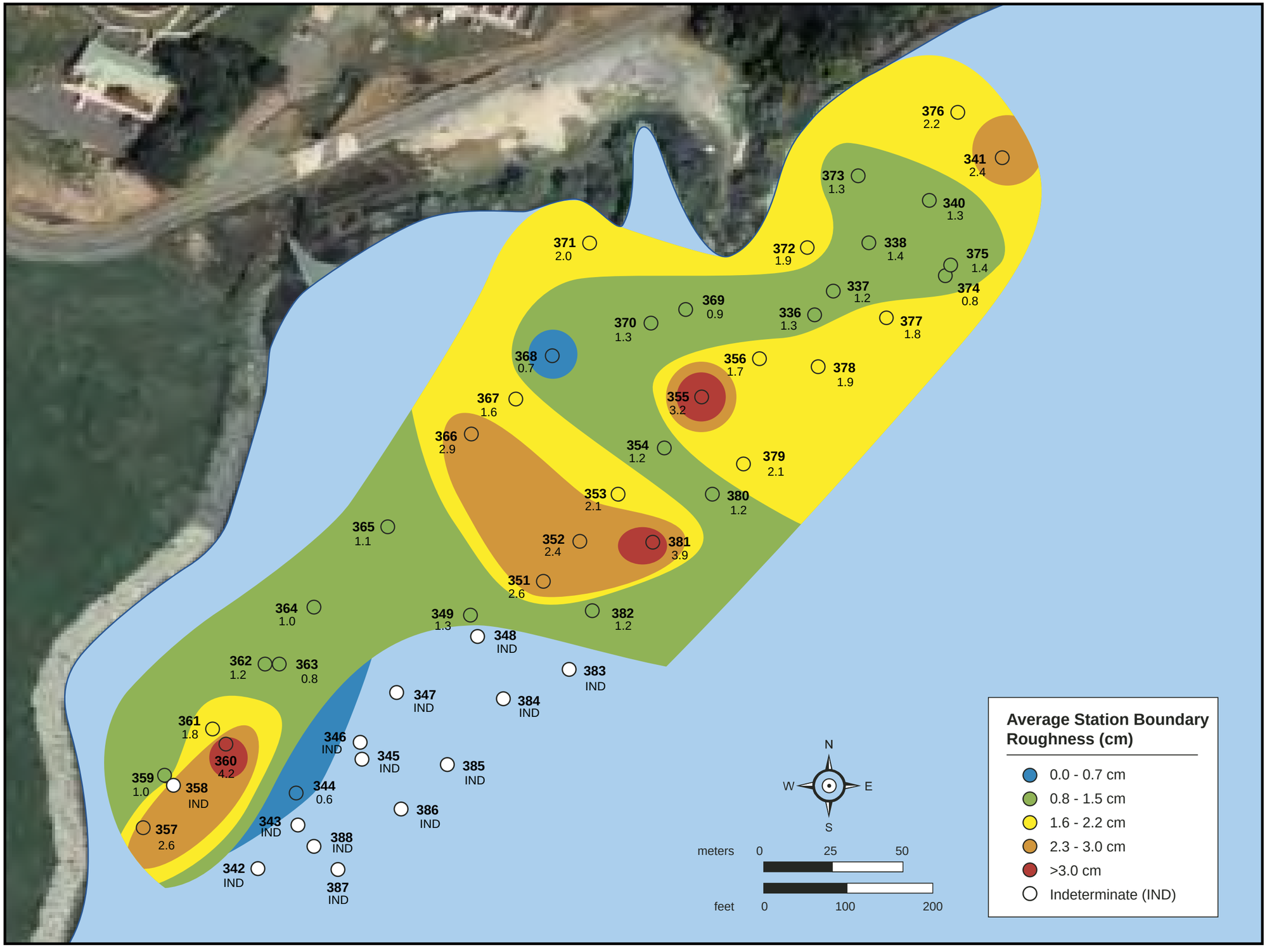


Figure 6. Spatial distribution of average station small-scale surface boundary roughness (cm) at the Quantico Embayment in September, 2009.

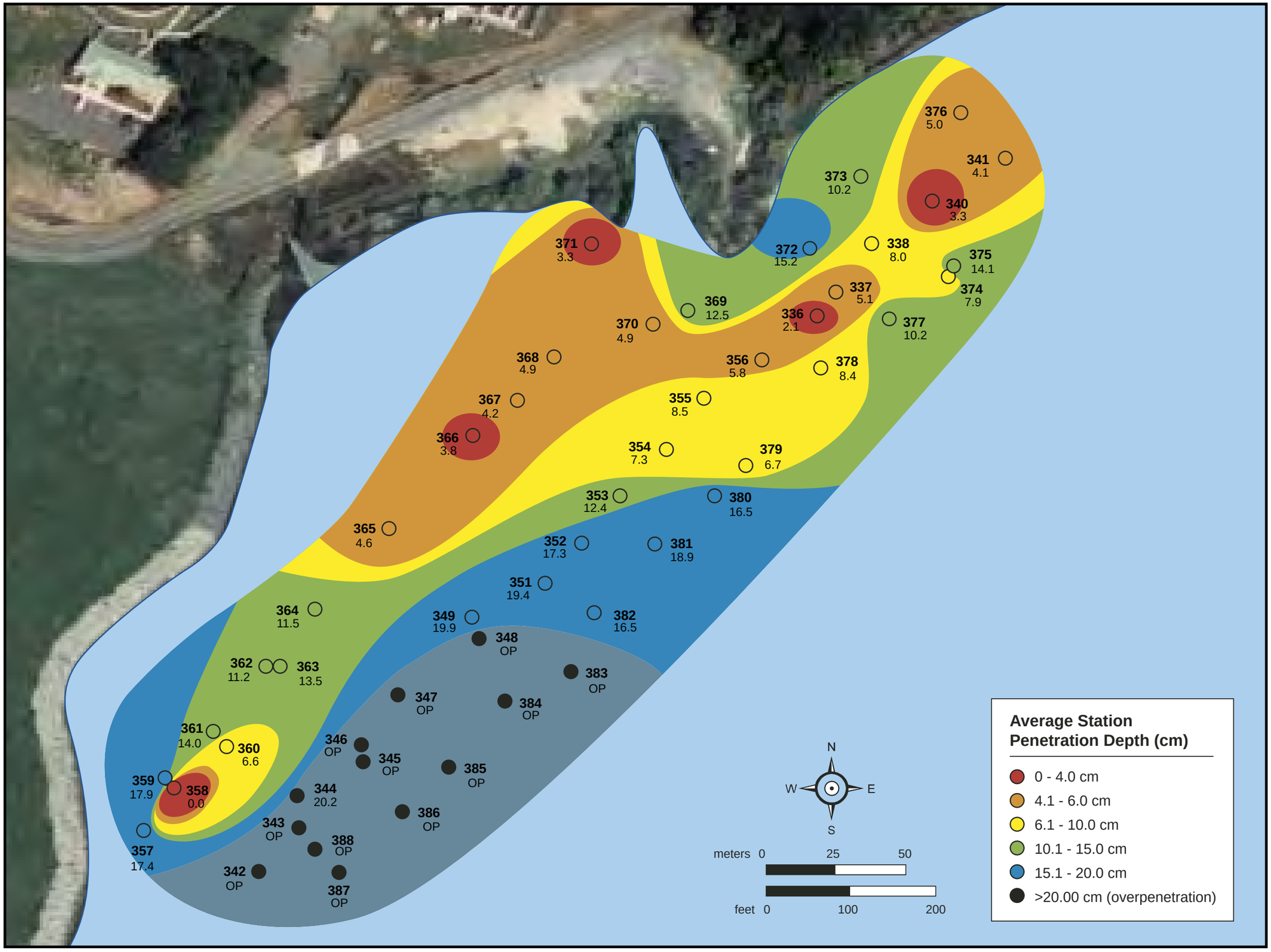


Figure 7. Spatial distribution of average station camera prism penetration depth (cm) at the Quantico Embayment in September, 2009.



Station 336 Station 369

Figure 8. These profile images from Station 336 (left) and 369 (right) both have a sediment grain-size major mode of fine sand but show a notable difference in penetration depth, mainly due to the presence of subsurface methane at Station 369 which reduces sediment shear strength. Scale: width of each image = 14.5 cm.



Station 345 Station 387

Figure 9. These profile images from Station 345 (left) and 387 (right) both show low shear-strength, highly fluid silt-clays with subsurface methane that could not support the weight of the camera prism. Scale: width of each image = 14.5 cm.

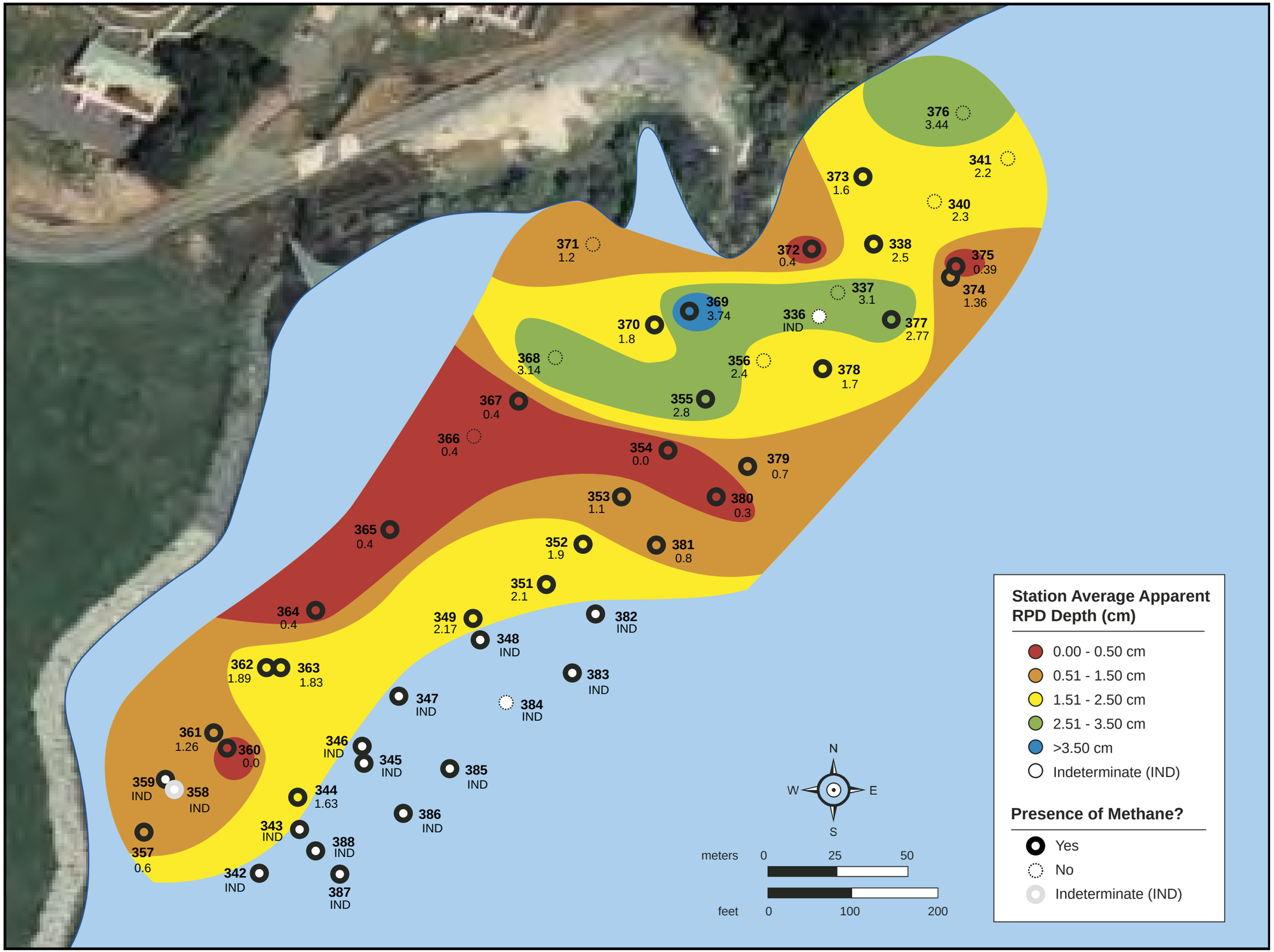


Figure 10. Spatial distribution of average station mean apparent RPD depth (cm) at the Quantico Embayment in September, 2009.



Figure 11. This profile image from Station 356 shows both types of the dominant submerged aquatic vegetation found at the site, both branched milfoil prominently displayed in the left part of the image and the single-frond grasses seen in the right half of the image. Scale: width of image = 14.5 cm.



Station 344

Station 381

Figure 12. The profile image from Station 344 (left) shows oligochaetes projecting above the sediment-water interface in the right half of the image (arrows), while the profile image from Station 381 (right) shows the only freshwater bivalve found in all the images collected at the site. Scale: width of each image = 14.5 cm.

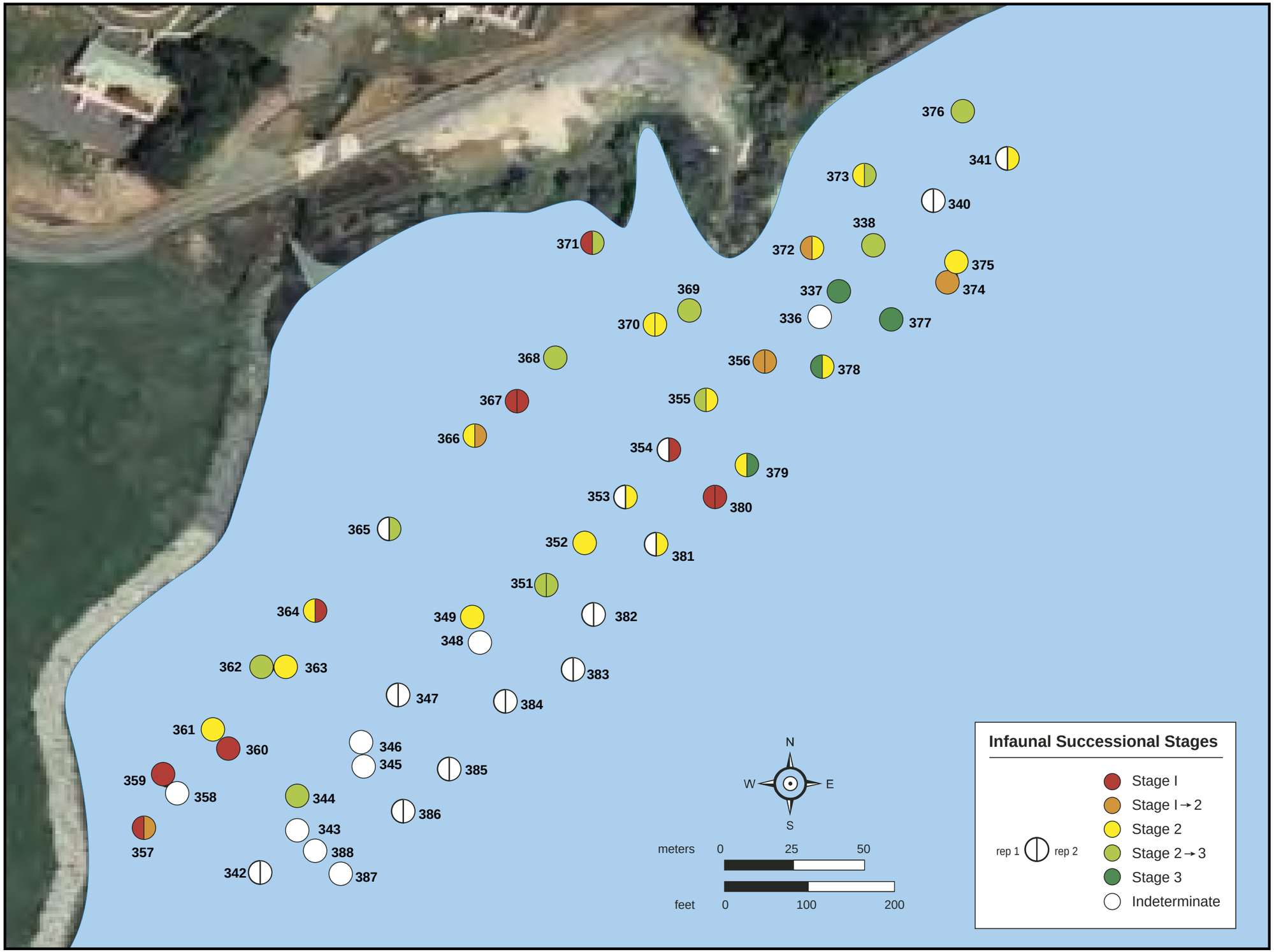


Figure 13. Spatial distribution of infaunal successional stages at the Quantico Embayment in September, 2009.



Figure 14. The decaying SAV seen at the sediment surface in this profile image from Station 340 illustrates what a major source this plant biomass is to sediment organic enrichment. Scale: width of image = 14.5 cm.

APPENDIX A

Sediment Profile Image Analysis Results

Station	DATE	TIME	Calibration Constant	Grain Size Major Mode (phi)	Grain Size Maximum (phi)	Grain Size Minimum (phi)	GrnSize RANGE	Penetration Area (sq.cm)	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Boundary Roughness (cm)	Boundary Roughness Type	RPD Area (sq.cm)	Mean RPD (cm)	METHANE	Minimum methane depth (cm)	Maximum methane depth (cm)	Methane Vesicle Diameter (cm)	Low DO?
336	9/23/2009	9:44:49	14.5	3 to 2	1	>4	>4 - 1	30.6	2.1	1.3	2.6	1.3	Physical	ind	Indeterminate	No				No
337	9/23/2009	9:46:42	14.5	4 to 3	2	>4	>4 - 2	73.4	5.1	4.4	5.6	1.2	Physical	45.2	3.12	No				No
338	9/23/2009	9:48:49	14.5	3 to 2	1	>4	>4 - 1	115.5	8.0	7.2	8.6	1.4	Physical	35.7	2.46	8	1.2	7.3	0.2	No
340 A	9/23/2009	9:51:23	14.5	4 to 3	2	>4	>4 - 2	43.9	3.0	2.3	3.6	1.3	Physical	31.5	2.17	No				No
340 B	9/23/2009	9:51:34	14.5	4 to 3	2	>4	>4 - 2	50.9	3.5	2.5	3.8	1.3	Physical	35.3	2.43	No				No
341 A	9/23/2009	9:54:00	14.5	4 to 3	2	>4	>4 - 2	55.7	3.8	3	4.5	1.5	Physical	35.7	2.46	No				No
341 B	9/23/2009	9:54:11	14.5	4 to 3	1	>4	>4 - 1	64.4	4.4	3.4	6.7	3.3	Physical	28.9	1.99	No				No
342 A	9/23/2009	10:06:18	14.5	>4	2	>4	>4 - 2	312.6	21.6	21.6	21.6	Ind	ind	ind	Indeterminate	>50	0.8	21.4	0.9	No
342 B	9/23/2009	10:06:34	14.5	>4	2	>4	>4 - 2	312.6	21.6	21.6	21.6	Ind	ind	ind	Indeterminate	>50	0.5	21.4	1.5	No
343	9/23/2009	10:09:23	14.5	>4	2	>4	>4 - 2	312.6	21.6	21.6	21.6	Ind	ind	ind	Indeterminate	>50	0.3	21.4	1.5	No
344	9/23/2009	10:10:33	14.5	>4	2	>4	>4 - 2	293.5	20.2	19.8	20.4	0.6	Biological	23.6	1.63	40	2.8	20.1	2.7	No
345	9/23/2009	10:12:35	14.5	>4	2	>4	>4 - 2	312.6	21.6	>21.4	>21.4	Ind	ind	ind	Indeterminate	>50	0.6	21.4	3.3	No
346	9/23/2009	10:13:33	14.5	>4	2	>4	>4 - 2	312.6	21.6	>21.4	>21.4	Ind	ind	ind	Indeterminate	35	2.4	21.4	0.6	No
347 A	9/23/2009	10:16:05	14.5	>4	2	>4	>4 - 2	312.6	21.6	>21.4	>21.4	Ind	ind	ind	Indeterminate	3	0.7	6.8	0.3	No
347 B	9/23/2009	10:16:26	14.5	>4	2	>4	>4 - 2	312.6	21.6	>21.4	>21.4	Ind	ind	ind	Indeterminate	>60	2.7	21.3	0.6	No
348	9/23/2009	10:19:04	14.5	>4	2	>4	>4 - 2	312.6	21.6	>21.4	>21.4	Ind	ind	ind	Indeterminate	>50	0.4	21.3	1.1	No
349	9/23/2009	10:20:00	14.5	>4	2	>4	>4 - 2	288.6	19.9	19	20.3	1.3	Physical	31.5	2.17	>50	5.3	20	2.2	No
351 A	9/23/2009	10:22:13	14.5	>4	1	>4	>4 - 1	256.6	17.7	16.5	19.1	2.6	Physical	27	1.86	33	2	16.8	0.7	No
351 B	9/23/2009	10:22:28	14.5	>4	1	>4	>4 - 1	305.8	21.1	20.1	>21.4	Ind	Physical	ind	2.43	>50	8.3	20.7	0.7	No
352 A	9/23/2009	10:24:29	14.5	>4 to 3	1	>4	>4 - 1	250.8	17.3	16.2	17.8	1.6	Physical	24.6	1.70	No				No
352 B	9/23/2009	10:24:46	14.5	>4 to 3	1	>4	>4 - 1	182.7	12.6	10.2	13.3	3.1	Physical	29.3	2.02	20	4.1	10.1	0.3	No

Station	DATE	TIME	Calibration Constant	Grain Size Major Mode (phi)	Grain Size Maximum (phi)	Grain Size Minimum (phi)	GrnSize RANGE	Penetration Area (sq.cm)	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Boundary Roughness (cm)	Boundary Roughness Type	RPD Area (sq.cm)	Mean RPD (cm)	METHANE	Minimum methane depth (cm)	Maximum methane depth (cm)	Methane Vesicle Diameter (cm)	Low DO?
353 A	9/23/2009	10:26:34	14.5	>4 to 3	1	>4	>4 - 1	205.6	14.2	12.9	15.2	2.3	Physical	19.7	1.36	3	3.4	17.1	0.4	No
353 B	9/23/2009	10:26:52	14.5	>4	1	>4	>4 - 1	154.4	10.6	9.7	11.6	1.9	Physical	11.2	0.77	20	5.4	10	0.3	No
354 A	9/23/2009	10:28:58	14.5	>4	2	>4	>4 - 2	109.7	7.6	6.9	8.2	1.3	Physical	ind	Indeterminate	No				No
354 B	9/23/2009	10:29:09	14.5	>4 to 3	1	>4	>4 - 1	102.3	7.1	6.6	7.6	1	Physical	0	0.00	Yes	4.8	6.4	1.1	No
355 A	9/23/2009	10:30:44	14.5	4 to 3	1	>4	>4 - 1	127.3	8.8	7.2	10	2.8	Physical	37.5	2.59	14	3.5	9.1	0.5	No
355 B	9/23/2009	10:31:01	14.5	4 to 3	1	>4	>4 - 1	120.2	8.3	6	9.5	3.5	Physical	45.1	3.11	35	2.8	5.8	3.2	No
356 A	9/23/2009	10:32:48	14.5	4 to 3	1	>4	>4 - 1	63.2	4.4	3.1	4.8	1.7	Physical	34.1	2.35	No				No
356 B	9/23/2009	10:32:57	14.5	4 to 3	1	>4	>4 - 1	105	7.2	7.2	8.8	1.6	Physical	ind	Indeterminate	No				No
357 A	9/23/2009	13:41:05	14.5	>4	2	>4	>4 - 2	229.8	15.8	14.8	17.4	2.6	Physical	0	0.00	44	0.7	14.2	0.8	No
357 B	9/23/2009	13:41:23	14.5	>4	2	>4	>4 - 2	275.9	19.0	17.7	20.2	2.5	Physical	16.6	1.14	40	1.8	18	2	No
358	9/23/2009	13:43:20	14.6	ind	ind	ind	Ind	0	0.0	0	0	Ind	ind	ind	Indeterminate	ind				No
359	9/23/2009	13:44:02	14.5	>4	2	>4	>4 - 2	260.1	17.9	17.3	18.3	1	Physical	ind	Indeterminate	50	2.3	14.5	1.2	No
360	9/23/2009	13:46:13	14.5	>4	1	>4	>4 - 1	95.8	6.6	3.8	8	4.2	Physical	0	0.00	30	1.4	6.9	0.2	No
361	9/23/2009	13:46:38	14.5	>4	1	>4	>4 - 1	202.4	14.0	13	14.8	1.8	Physical	18.2	1.26	24	2.6	11.1	1.2	No
362	9/23/2009	13:49:11	14.5	>4 to 3	1	>4	>4 - 1	161.7	11.2	10.7	11.9	1.2	Physical	27.4	1.89	25	1.1	8.1	0.9	No
363	9/23/2009	13:49:38	14.6	>4 to 3	1	>4	>4 - 1	197	13.5	13.1	13.9	0.8	Physical	26.7	1.83	10	1.4	13.4	0.1	No
364 A	9/23/2009	13:52:09	14.6	4 to 3	1	>4	>4 - 1	204.3	14.0	13.2	14.5	1.3	Physical	8.2	0.56	20	2.7	10.6	0.6	No
364 B	9/23/2009	13:52:35	14.5	>4	2	>4	>4 - 2	131.8	9.1	8.8	9.5	0.7	Physical	3.1	0.21	20	1.7	8.6	0.9	No
365 A	9/23/2009	13:55:24	14.6	Ind	Ind	>4	>4 - Ind	7.1	0.5	0	1.1	1.1	Physical	ind	Indeterminate	ind				No
365 B	9/23/2009	13:55:45	14.5	4 to 3	0	>4	>4 - 0	126.7	8.7	8.2	9.2	1	Biological	5.5	0.38	40	4.4	8.7	0.5	No
366 A	9/23/2009	13:59:04	14.6	3 to 2	0	>4	>4 - 0	55.8	3.8	1.9	5.2	3.3	Physical	7	0.48	No				No

Station	DATE	TIME	Calibration Constant	Grain Size Major Mode (phi)	Grain Size Maximum (phi)	Grain Size Minimum (phi)	GrnSize RANGE	Penetration Area (sq.cm)	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Boundary Roughness (cm)	Boundary Roughness Type	RPD Area (sq.cm)	Mean RPD (cm)	METHANE	Minimum methane depth (cm)	Maximum methane depth (cm)	Methane Vesicle Diameter (cm)	Low DO?
366 B	9/23/2009	13:59:24	14.5	3 to 2	-1	>4	>4 - -1	55.7	3.8	2.8	5.3	2.5	Physical	3.2	0.22	No				No
367 A	9/23/2009	14:13:37	14.5	3 to 2	-1	>4	>4 - -1	54.3	3.7	2.8	5.2	2.4	Physical	3.1	0.21	10	0.8	2.9	0.5	No
367 B	9/23/2009	14:14:11	14.6	>4 to 3	1	>4	>4 - 1	66.8	4.6	4.1	4.9	0.8	Physical	7.4	0.51	No				No
368	9/23/2009	14:16:48	14.5	3 to 2	-1	>4	>4 - -1	71.7	4.9	4.5	5.2	0.7	Physical	45.6	3.14	No				No
369	9/23/2009	14:17:45	14.5	3 to 2	-1	>4	>4 - -1	181.3	12.5	12	12.9	0.9	Physical	54.3	3.74	40	1.9	12.2	0.4	No
370 A	9/23/2009	14:20:30	14.5	4 to 3	0	>4	>4 - 0	76	5.2	5.1	5.3	0.2	Physical	19.3	1.33	No				No
370 B	9/23/2009	14:20:59	14.5	4 to 3	0	>4	>4 - 0	67	4.6	3.7	6.1	2.4	Physical	32.7	2.26	7	2	3.7	0.2	No
371 A	9/23/2009	14:23:10	14.5	4 to 3	0	>4	>4 - 0	32.4	2.2	1.4	3.2	1.8	Physical	18.2	1.26	No				No
371 B	9/23/2009	14:23:34	14.5	4 to 3	0	>4	>4 - 0	62.2	4.3	2.7	4.9	2.2	Physical	17.5	1.21	No				No
372 A	9/23/2009	14:26:17	14.5	4 to 3/>4	0	>4	>4 - 0	255.4	17.6	15.4	18.6	3.2	Physical	3.7	0.26	>40	3.2	14.9	1.3	No
372 B	9/23/2009	14:26:43	14.5	4 to 3/>4	0	>4	>4 - 0	184.9	12.8	12.4	13	0.6	Physical	8.3	0.57	>40	3.1	12.6	1.2	No
373 A	9/23/2009	14:28:41	14.5	>4 to 3	1	>4	>4 - 1	89.5	6.2	5.4	6.5	1.1	Physical	22.6	1.56	No				No
373 B	9/23/2009	14:29:15	14.5	>4 to 3/>4	1	>4	>4 - 1	206.9	14.3	13.5	14.9	1.4	Physical	24.3	1.68	10	2.2	11.6	0.1	No
374	9/23/2009	14:39:41	14.5	3 to 2	1	>4	>4 - 1	114.1	7.9	7.4	8.2	0.8	Physical	19.7	1.36	15	2.3	7.5	1.8	No
375	9/23/2009	14:40:25	14.5	3 to 2	1	>4	>4 - 1	204.6	14.1	13.4	14.8	1.4	Physical	5.7	0.39	5	5.1	13.4	0.4	No
376	9/23/2009	14:43:15	14.5	4 to 3	1	>4	>4 - 1	72	5.0	4	6.2	2.2	Physical	49.9	3.44	No				No
377	9/23/2009	14:43:50	14.5	3 to 2/>4	0	>4	>4 - 0	147.4	10.2	9.2	11	1.8	Physical	40.1	2.77	2	2.5	3.1	0.1	No
378 A	9/23/2009	14:46:06	14.5	4 to 3	0	>4	>4 - 0	131.5	9.1	8.5	9.4	0.9	Physical	20.3	1.40	4	3.7	5.9	0.5	No
378 B	9/23/2009	14:46:30	14.5	4 to 3	0	>4	>4 - 0	111.7	7.7	6.3	9.1	2.8	Physical	29.5	2.03	No				No
379 A	9/23/2009	14:49:09	14.6	4 to 3	0	>4	>4 - 0	65.1	4.5	3.1	5.3	2.2	Physical	11.3	0.77	No				No
379 B	9/23/2009	14:49:33	14.5	>4 to 3	1	>4	>4 - 1	129.2	8.9	7.5	9.5	2	Physical	10	0.69	20	2.3	4.5	0.2	No
380 A	9/23/2009	14:51:25	14.5	>4	2	>4	>4 - 2	232.6	16.0	15.4	16.6	1.2	Physical	5.4	0.37	25	6.7	15.1	0.1	No
380 B	9/23/2009	14:51:59	14.5	>4	1	>4	>4 - 1	246	17.0	16.1	17.3	1.2	Physical	4.6	0.32	25	3.2	12.7	0.4	No

Station	DATE	TIME	Calibration Constant	Grain Size Major Mode (phi)	Grain Size Maximum (phi)	Grain Size Minimum (phi)	GrnSize RANGE	Penetration Area (sq.cm)	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Boundary Roughness (cm)	Boundary Roughness Type	RPD Area (sq.cm)	Mean RPD (cm)	METHANE	Minimum methane depth (cm)	Maximum methane depth (cm)	Methane Vesicle Diameter (cm)	Low DO?
381 A	9/23/2009	14:54:13	14.5	>4	2	>4	>4 - 2	312.6	21.6	>21.4	>21.4	Ind	ind	ind	Indeterminate	10	5.5	13.2	0.7	No
381 B	9/23/2009	14:54:37	14.5	>4	2	>4	>4 - 2	273.5	18.9	16.3	20.2	3.9	Physical	11.2	0.77	10	2.2	12.6	0.4	No
382 A	9/23/2009	14:57:37	14.5	>4	2	>4	>4 - 2	312.6	21.6	21	>21.4	Ind	ind	ind	Indeterminate	25	2.9	18.1	0.2	No
382 B	9/23/2009	14:57:57	14.5	>4	2	>4	>4 - 2	239.6	16.5	16	17.2	1.2	ind	ind	Indeterminate	ind				No
383 A	9/23/2009	15:01:22	14.5	>4	2	>4	>4 - 2	312.6	21.6	21.2	>21.4	Ind	ind	ind	Indeterminate	20	3.9	12	0.5	No
383 B	9/23/2009	15:01:46	14.5	>4	2	>4	>4 - 2	312.6	21.6	>21.4	>21.4	Ind	ind	ind	Indeterminate	5	4	10.9	0.5	No
384 A	9/23/2009	15:05:51	14.5	>4	2	>4	>4 - 2	312.6	21.6	>21.4	>21.4	Ind	ind	ind	Indeterminate	No				No
384 B	9/23/2009	15:06:08	14.5	>4	2	>4	>4 - 2	312.6	21.6	>21.4	>21.4	Ind	ind	ind	Indeterminate	No				No
385 A	9/23/2009	15:09:01	14.5	>4	2	>4	>4 - 2	312.6	21.6	>21.4	>21.4	Ind	ind	ind	Indeterminate	y	10	3.2	10.9	No
385 B	9/23/2009	15:09:25	14.5	>4	2	>4	>4 - 2	312.6	21.6	>21.4	>21.4	Ind	ind	ind	Indeterminate	6	3.7	7	0.1	No
386 A	9/23/2009	15:12:04	14.5	>4	2	>4	>4 - 2	289.3	20.0	19.3	20.8	1.5	Physical	ind	Indeterminate	5	2.3	10.2	0.8	No
386 B	9/23/2009	15:12:32	14.5	>4	2	>4	>4 - 2	312.6	21.6	>21.4	>21.4	Ind	ind	ind	Indeterminate	20	0.3	12.6	0.4	No
387	9/23/2009	15:15:48	14.5	>4	2	>4	>4 - 2	312.6	21.6	>21.4	>21.4	Ind	ind	ind	Indeterminate	30	1.5	21.4	1.8	No
388	9/23/2009	15:16:46	14.5	>4	2	>4	>4 - 2	312.6	21.6	>21.4	>21.4	Ind	ind	ind	Indeterminate	5	8.9	19	0.8	No

Station	Wood debris?	Algae/Plant Debris?	Faunal Type	COMMENT	Layer 1 area	Layer 1 average thickness (cm)	Layer 1 minimum thickness (cm)	Layer 1 maximum thickness (cm)	Successional Stage
336	n	SAV=Milfoil and some eelgrass-like SAV	oligochaetes & chironomids	low pen=firm muddy fine to very fine sand>pen; SAV at sed surf; 2 orangish chironomids @depth; reduced patches but not consistent RPD contrast across image					Indeterminate
337	n	SAV=eelgrass-like grass	oligochaetes & chironomids	muddy fine to very fine sand; layering of brown oxy muddy v. fine sand over darker grey fine sand; subsurface oligochaetes visible					Stage 3
338	n	SAV= dense Milfoil	oligochaetes & chironomids	light brown oxy muddy silt+very fine sand over darker grey muddy fine sand; 1-2 chironomids@depth; reduced patches@depth with moderate RPD contrast					Stage 2 -> 3
340 A	n	SAV=milfoil	ind	low penetration with firm, muddy fine to very fine sand; dragdown of SAV; reduced@depth=moderate RPD contrast; RPD is estimate due to algae dragdown					Indeterminate
340 B	n	SAV=mix of living and decaying milfoil	ind	low pen=firm muddy fine sand>pen; dragdown of decaying milfoil; decaying macrophytes have potential to create high O2 demand					Indeterminate
341 A	n	SAV=mix of milfoil and eelgrass-like grass	ind	low pen=firm muddy fine sand>pen; some dragdown of eelgrass-like SAV; dark/reduced patches@depth=moderate RPD contrast					Indeterminate
341 B	n	SAV=mix of milfoil and eelgrass-like grass	Oligochaetes	low pen=firm muddy fine sand>pen; reduced patches@depth w/ moderate RPD contras orange sediment patches@depth (detrital dragdown); difficult to see infauna due to SAV dragdown but some oligochaetes in upper right near SWI					Stage 2
342 A	ind	ind	oligochaetes	overpen=soft sulfidic mud>pen; light grey in upper layers over dark grey w/ black patches@depth+many methane vesicles;					Indeterminate
342 B	ind	ind	oligochaetes	overpen=soft sulfidic mud>pen; medium grey w/ darker sulfidic patches+many gas vesicles; patches of brown oxidized sed@depth; many small and1 large oligochaete@depth					Indeterminate
343	ind	ind	oligochaetes	overpen=soft sulfidic mud>pen; medium grey w/ darker sulfidic patches+many gas vesicles; many small oligochaetes@depth					Indeterminate
344	n	y small pieces of SAV	oligochaetes	soft reduced mud w/ shallow RPD>pen; moderate RPD contrast; dense gas vesicles@depth; oligos@depth and at SWI					Stage 2 -> 3
345	ind	y milfoil dragdown	oligochaetes	overpen=soft reduced mud w/ RPD>pen; light-colored oxy sed@left side of image; algae dragdown; several larger oligos+many short ones@depth; reduced sed@depth					Indeterminate
346	ind	y milfoil dragdown	oligochaetes	overpen=soft reduced mud>pen; light-colored sed@surf+dragged down=some RPD present; dark grey/reduced patches@depth; oligos@depth					Indeterminate
347 A	ind	y dragdown of eelgrass-like algae	oligochaetes	overpen=soft mud>pen; significant dragdown of eelgrass+oxy brown sed; streak of oxy light brown sed+dark blackish reduced sed; oligos present					Indeterminate
347 B	ind	y dragdown of milfoil	oligochaetes	overpen=soft sandy reduced mud>pen; dragdown of oxidized surf sed+milfoil; oligochaetes@depth; moderate RPD contrast; reduced patches@depth					Indeterminate
348	ind	y some dragdown of milfoil	oligochaetes	overpen=soft reduced mud>pen; some light-brown oxy sed near surface; many small gas vesicles; oligos@depth					Indeterminate
349	n	y; some at surface in upper left	oligochaetes	soft reduced slightly sandy mud>pen; camera disturbance of RPD=estimated measurement; many small gas vesicles@depth; some oligos@depth					Stage 2
351 A	n	y dragdown of filamentous algae	chironomid in upper right	soft sandy mud>pen; dragdown of oxy surf sediment+filamentous algae; moderate RPD contrast; small gas vesicles; a few oligos@depth					Stage 2 -> 3
351 B	n	y dragdown of filamentous algae	oligochaetes	partial overpenetration=soft slightly sandy mud>pen; surface oxy lyr=RPD linear measurement from right half of image; numerous small gas vesicles@depth; dragdown algae+oxy sed					Stage 2 -> 3
352 A	n	y dragdown of algae (milfoil?)	oligochaetes	muddy soft very fine sand/sandy mud>pen; patchy RPD w/ moderate to strong contrast=black/sulfidic patches@depth; algae dragdown; oligos present@depth					Stage 2
352 B	n	y dragdown of filamentous algae	oligochaetes & chironomids	muddy fine to very fine sand>pen; oxy surface sed over grey/reduced sed@depth; moderate RPD contrast; algae dragdown.					Stage 2

Station	Wood debris?	Algae/Plant Debris?	Faunal Type	COMMENT	Layer 1 area	Layer 1 average thickness (cm)	Layer 1 minimum thickness (cm)	Layer 1 maximum thickness (cm)	Successional Stage
353 A	n	y dragdown of filamentous algae+eelgrass	ind	somewhat soft sandy mud>pen; significant dragdown of oxy sed+filamentous algae; RP measured at right edge of image; no visible infauna even though oligochaetes most likely present					Indeterminate
353 B	n	y dragdown of filamentous algae	oligochaetes & chironomids	somewhat soft sandy mud>pen; oxy surf layer w/ estimated RPD; significant dragdown filamentous algae covering most of profile; a few small gas vesicles					Stage 2
354 A	n	y dragdown of filamentous algae/milfoil	ind	slightly sandy mud>pen; significant dragdown of filamentous algae+oxy sed=indeterminate RPD and ss; mix of light brown (oxy) and grey sed (moderately reduced, most likely from decomposing macrophytes)					Indeterminate
354 B	n	y dragdown of filamentuous algae	ind	moderately firm muddy fine sand>pen; grey color w/ dark sulfidic patches; only diffusior RPD; algae dragdown; no clear evidence of infauna; methane patch at left					Stage 1
355 A	n	y eelgrass-like grass and milfoil	oligochaetes & chironomids	somewhat firm sandy mud/muddy fine sand>pen; well-developed RPD w/ moderate contrast; minor algae dragdown; a few cryptic oligochaetes near center of image					Stage 2 -> 3
355 B	n	y eelgrass+milfoil	oligochaetes	muddy fine to very fine sand>pen; well-developed RPD w/ moderate contrast; darker/more sulfidic sed@depth; a few cryptic oligochaetes; minor algae dragdown					Stage 2
356 A	n	y eelgrass and milfoil	ind	muddy firm fine to very fine sand>pen; well-developed RPD w/ moderate contrast; dragdown of algae; little clear evidence of infauna					Stage 1 -> 2
356 B	n	y eelgrass+milfoil	oligochaetes+chironomids	somewhat firm muddy fine to very fine sand>pen; sandy mud/muddy sand; some dragdown of algae; RPD distorted by plant smear; black sulfidic patches@depth; oligos+1 chironomid in lower right corner					Stage 1 -> 2
357 A	n	y some green algae (milfoil?)	oligochaetes	soft reduced mud>pen; small patch of oxy sed but RPD is functionally zero=reduced gre sed; possible layering of silt over consolidated grey clay@depth; small oligochaetes	210	14.5	12.3	17.3	Stage 1
357 B	n	y dragdown of green milfoil/filamentous algae	oligochaetes	soft reduced mud>pen; thick surf layer of silt over consolidated grey clay@depth; RPD and algae dragdown; cryptic oligochaetes	238.6	16.5	15.3	17.6	Stage 1 -> 2
358	ind	ind	ind	water shot=no pen and sed surf is disturbed by camera					Indeterminate
359	n	y minor amount of green SAV algae	oligochaetes	soft reduced mud>pen; possible smearing of RPD=ind; layering of soft silt over consolidated grey clay@depth; algae dragdown	234.2	16.2	15.1	18	Stage 1
360	n	y green SAV	ind	moderately soft reduced sandy mud>pen; minor camera disturbance of swi+SAV dragdown; grey sed=reduced throughout (no RPD); many small gas vesicles@depth	> penetration				Stage 1
361	n	y SAV=milfoil	oligochaetes	soft mud>pen; moderate RPD contrast; dragdown of SAV (milfoil); cryptic oligos@depth					Stage 2
362	n	y SAV (milfoil)	oligochaetes+chironomids	moderately soft sandy mud/muddy fine sand>pen; reduced@depth w/ black/sulfidic patch=moderate RPD contrast; 1 reddish chironomid+some cryptic oligos					Stage 2 -> 3
363	n	y SAV (eelgrass/milfoil)	oligochaetes	sandy muddy/muddy fine sand>pen; mix of oxy and reduced sed; moderate RPD contrast; some dragdown of SAV+oxy surf sed; v. small gas vesicles; cryptic oligochaetes					Stage 2
364 A	n	y SAV (milfoil)	oligochaetes	muddy fine to very fine sand>pen; sand is mostly reduced (grey to dark grey) with thin RPD; minor algae dragdown; cryptic infauna					Stage 2
364 B	n	y SAV	oligochaetes	homogenous silt w/ some fine sand@depth; oxy veneer@swi but profile appears mostly reduced; small oligochaetes					Stage 1
365 A	n	y dense SAV, both eelgrass & milfoil	ind	minimal pen= looks like firm grey fine sand w/ dense SAV (milfoil and eelgrass-like grass)					Indeterminate
365 B	n	y SAV (milfoil/eelgrass)	oligochaetes	muddy fine sand/sandy mud>pen; slight pull-away of upper 1-2 cm=sed surf appears oxy but profile mostly grey reduced sed; minor SAV dragdown; many small gas vesicles@depth; prominent red oligochaete visible in right half of image					Stage 2 -> 3
366 A	n	y SAV (milfoil/eelgrass)	oligochaetes	firm muddy fine to very fine sand>pen; thin RPD with moderate contrast; minor SAV dragdown					Stage 2

Station	Wood debris?	Algae/Plant Debris?	Faunal Type	COMMENT	Layer 1 area	Layer 1 average thickness (cm)	Layer 1 minimum thickness (cm)	Layer 1 maximum thickness (cm)	Successional Stage
366 B	n	y SAV (milfoil/eelgrass)	oligochaetes	firm muddy fine sand>pen; some medium sand; patches of oxy fine sed but sand appears mostly grey/reduced; small oligos, diffusional redox boundary					Stage 1 -> 2
367 A	n	y SAV (milfoil/eelgrass)	oligochaetes	firm muddy fine sand>pen; subtle layering fine sand over silt-clay; sand is grey (reduced?); small gas vesicles@left, diffusional RPD					Stage 1
367 B	n	y SAV (eelgrass)	oligochaetes	firm silt-clay with fine sand (muddy sand/sandy mud); minor SAV dragdown; low density of oligochaetes					Stage 1
368	n	y (SAV in farfield)	oligochaetes	firm, silty fine to medium sand>pen; some organic debris@depth; oligochaetes present and thin filaments of new SAV growth projecting above SWI					Stage 2 -> 3
369	n	n	oligochaetes	poorly sorted silty fine to medium sand>pen; very distinct RPD contrast (light over dark grey sand); sand appears "saturated" with gas vesicles@depth.					Stage 2 -> 3
370 A	n	y SAV in farfield	oligochaetes	silty fine to very fine sand>pen; thin RPD w/ weak to moderate contrast; reduced (black) patch@depth; small oligos@depth					Stage 2
370 B	n	y SAV in farfield (milfoil)	oligochaetes	silty firm fine to very fine sand>pen; minor SAV dragdown; 1-2 cryptic infaunal oligochaetes; extremely low albedo redox; gas vesicles in water column					Stage 2
371 A	n	y SAV	none visible	underpen=firm silty fine to very fine sand>pen; reduced@depth w/ moderate RPD contrast; gas bubbles in water column but no visible in sediment					Stage 1
371 B	n	y SAV	oligochaetes+chironomids	firm silty fine to very fine sand>pen; reduced patches@depth w/ moderate RPD contrast; minor algae dragdown; 1-2 infaunal orgs@left (chironomid)					Stage 2 -> 3
372 A	n	y SAV (milfoil)	oligochaetes+chironomids	distinct layering=silty reduced fine to very fine sand over grey homogenous cohesive clay; dragdown of algae; a few patches of light (oxy) sed but mostly reduced sed column; a fe large+many small gas vesicles	176.3	12.2	9.6	16	Stage 1 -> 2
372 B	n	y SAV (eelgrass/milfoil)	oligochaetes	silty reduced fine to very fine sand over grey homogenous cohesive clay; probably similar layering to previous rep but pen is insufficient to measure surf layer; thin RPD w/ moderate contrast; a few oligos@depth	present				Stage 2
373 A	n	y SAV (eelgrass)	oligochaetes	silty/muddy very fine sand>pen; minor eelgrass dragdown; weak to moderate RPD contrast; a few oligos@depth					Stage 2
373 B	n	y SAV (eelgrass)	oligochaetes	distinct layering=silty fine to very fine sand over cohesive consolidated grey clay; oxy surface layer of reduced sed@depth=moderate to strong RPD contrast; minor algae dragdown; a few oligos; small gas vesicles	189.8	13.1	12.2	14.3	Stage 2 -> 3
374	n	y SAV (milfoil)	oligochaetes	muddy/silty fine to very fine sand>pen; moderate RPD contrast; algae dragdown; gas vesicles; cryptic oligos					Stage 1 -> 2
375	n	n	oligochaetes	muddy fine to medium sand>pen; reduced throughout w/ a few patches oxy sed; grey clay patches; appears to be same layering as 373					Stage 2
376	n	y SAV (milfoil/eelgrass)	oligochaetes+chironomids	firm muddy fine to very fine sand>pen; thick RPD over reduced patches@depth; algae dragdown; slight mud over sand layering					Stage 2 -> 3
377	n	y SAV (milfoil)	oligochaetes	muddy fine to very fine sand>pen; subtle layering silt-over-sand-over-dark grey clay; moderate to strong RPD contrast=reduced@depth; subsurface oligochaetes; small gas vesicles; black patches@depth have thin strands=buried decayed milfoil					Stage 3
378 A	n	y SAV (sparse milfoil)	oligochaetes+chironomids	muddy fine to very fine sand>pen; gas vesicle far left edge; chironomid at depth					Stage 3
378 B	n	y sparse SAV in background	oligochaetes	muddy fine to very fine sand>pen; alternating grain-size depositional intervals					Stage 2
379 A	n	y SAV (milfoil)	oligochaetes	muddy fine to very fine sand>pen; midge at center SWI; minor algae dragdown					Stage 2
379 B	n	y SAV (milfoil)	oligochaetes	muddy fine to very fine sand>pen; muddy sand/sandy mud; small gas vesicles@right; larger-bodied oligochaete @depth; strong RPD contrast					Stage 3
380 A	n	y SAV (milfoil0	ind	soft mud>pen; dragdown of algae+oxy sed; thin RPD w/ moderate to strong contrast; small gas vesicles.					Stage 1
380 B	n	y SAV (milfoil)	oligochaete	soft reduced mud>pen; thin RPD w/ moderate to strong contrast; very low density of oligochaetes; significant dragdown of drift algae					Stage 1

Station	Wood debris?	Algae/Plant Debris?	Faunal Type	COMMENT	Layer 1 area	Layer 1 average thickness (cm)	Layer 1 minimum thickness (cm)	Layer 1 maximum thickness (cm)	Successional Stage
381 A	n	y SAV (milfoil)	bivalve!	overpen=soft reduced mud>pen; significant algae dragdown; bivalve l@center of image; decayed milfoil@depth					Indeterminate
381 B	n	y decayed milfoil@depth	oligochaetes	soft reduced mud>pen; a few patched oxy sed but RPD very patchy; decayed milfoil@depth=dragdown; a few v. small cryptic infaunal organisms					Stage 2
382 A	n	y decayed milfoil	ind	overpen=soft reduced mud>pen; some patches of oxy sed near surface; dragdown of dark (decayed) milfoil across 50% of image					Indeterminate
382 B	n	y decayed milfoil	ind	soft reduced mud>pen; significant disturbance of profile from algae dragdown; some oxy sed; dragdown of a few leaves; algae is black=decayed					Indeterminate
383 A	n	y decayed milfoil	ind	overpen= soft reduced mud>pen; patches of oxy sed near surface and dragged down; significant algae dragdown (decayed milfoil); 1 small oligochaete @center of image.					Indeterminate
383 B	n	y decayed milfoil	ind	overpen=soft reduced mud>pen; some patches of oxy sed near surface+dragged down; dragdown of dark (decayed) milfoil across most of image					Indeterminate
384 A	n	y decayed milfoil	ind	overpen=soft reduced mud>pen; some patches of oxy sed dragged down; dragdown of dark (decayed) milfoil across most of image					Indeterminate
384 B	n	y decayed milfoil	ind	overpen=soft reduced mud>pen; some patches of oxy sed dragged down; dragdown of dark (decayed) milfoil across most of image					Indeterminate
385 A	n	y decayed milfoil	ind	overpen=soft reduced mud>pen; some patches of oxy sed dragged down; dragdown of dark (decayed) milfoil across most of image					Indeterminate
385 B	n	y decayed milfoil	ind	overpen=soft reduced mud>pen; some patches of oxy sed dragged down; dragdown of dark (decayed) milfoil across most of image					Indeterminate
386 A	n	y decayed milfoil	oligochaetes	soft reduced mud>pen; significant dragdown of decayed algae+oxy surf sed; a few small oligochaetes visible, redox obscured by smear and algae dragdown					Indeterminate
386 B	n	y decayed milfoil	ind	overpen=soft reduced mud>pen; some patches of oxy sed dragged down; dragdown of dark (decayed) milfoil across most of image					Indeterminate
387	n	y dragdown of greenish algae	oligochaetes+chironomids	overpen=soft reduced mud>pen; dragdown of some greenish algae; patches of oxy sed but mostly dark/sulfidic; deep gas vesicles					Indeterminate
388	n	n	oligochaetes	overpen=soft reduced mud>pen; some lighter-colored sed near surf but mostly grey w/ dark sulfidic patches; gas vesicles; small black organic particles in sed matrix					Indeterminate

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Post Cap Monitoring of Enhanced Monitored Natural Recovery at MCB Quantico, Site 99.

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13. SUPPLEMENTARY NOTES

14. ABSTRACT
Sediment profile imaging (SPI) was used at the Quantico Embayment Site 99 as part of the monitored natural recovery (MNR) of a thin-layer cap (TLC) placed over contaminated sediment is a shallow embayment. About 11 acres were covered with a thin sand layer cap that would reduce ecological risk to fish and benthos to chemical of concern. This Enhanced Monitored Natural Recovery (EMNR) has the potential to accelerate and improve the effectiveness of MNR. About two-months after cap placement the sediment surface was primarily clean sands. Native sediments under cap material were observed at five stations along the outer perimeter of the cap (four on the southeast side of the capped site and one on the northwest side). Stations that were located 25 to 50 m away from the cap to the southeast appeared to be all native sediments with no cap sediment. This indicated that the cap material had not migrated far.

15. SUBJECT TERMS
Capping, Thin-Layer Capping, Tidal Freshwater, Potomac River, MNR, EMNR, Recovery, Monitoring, Contaminated Sediments

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1. Introduction

For contaminated sediment sites, risk reduction and ecological recovery are achieved primarily by reducing chemical bioavailability in surface sediments, thereby mitigating contaminant exposure pathways. Currently, the primary remedial options for the Department of Defense (DoD) sites are dredging, isolation capping, and monitored natural recovery (MNR). Dredging is expensive, can have adverse short-term effects, severely impacts the benthic community, and can negatively impact surface water hydrology and aquatic habitat. Conventional isolation capping, though less expensive than dredging, also severely impacts the benthic community, and can disrupt surface water hydrology and aquatic and near shore habitat by changing bathymetric elevations. MNR is cost effective, but is difficult to ensure performance and can take decades to be effective.

MNR combined with thin-layer capping (TLC), referred to as Enhanced Monitored Natural Recovery (EMNR), has the potential to accelerate and improve the effectiveness of MNR. TLC augments natural recovery processes by placing a thin layer (e.g., 15-30 cm) of clean material over contaminated surface sediments. Initially, the TLC isolates sediment contaminants and creates a relatively clean surficial sediment layer. This layer provides an initial foothold for benthic biota that facilitates recovery, creating a positive chain reaction where surface sediment concentration reductions promote additional colonization and recovery. As the TLC mixes with underlying sediments, recovery extends to deeper layers and ultimately results in ecosystem recovery. Compared to dredging and capping, EMNR is potentially less disruptive of the benthic community, is potentially more stable than a thick-layer cap without additional armoring, and will generally isolate the bulk of the contaminants from the benthic community and the overlying water. Thus EMNR provides the potential for accelerated recovery with minimal negative environmental impacts and represents potentially substantial cost-savings (e.g., 60-90%) to the DoD.

For the Quantico Embayment, Site 99, about 11 acres were covered with a thin sand layer cap that would reduce ecological risk to fish and benthos to chemical of concern, mostly DDT and its degradation products (DDD and DDE). Sediment profile imaging (SPI) was proposed and used to assess cap integrity and benthic response through time as part of EMNR at Site 99 (Battelle and Neptune and Co., Inc., 2004, 2010).

SPI was initially developed to investigate processes occurring at the sediment-water interface. The technology of sediment profile photography has allowed the development of a better understanding of the complexity of sediment dynamics, from both a biological and physical point of view. This approach to evaluating the environment, and potential impacts, can be easily combined with classical approaches to habitat and impact assessment providing scientists and managers with a more holistic ecosystem view. SPI allows remote sensing of the bottom to quickly provide data for evaluation of existing conditions. The sediment profile camera was developed by Rhoads and Cande (1971) to investigate processes structuring the sediment-water interface and as a means of obtaining in situ data on benthic habitat conditions. The technology of SPI or remote ecological monitoring of the sea floor (REMOTS) has allowed for the development of a better understanding of the complexity of sediment dynamics, from both a biological and physical point of view (Solan et al. 2004, Germano et al. 2011).

The objective of this project is to demonstrate and validate EMNR at DoD contaminated sediment Site 99. The SPI is part of a larger investigation to assess EMNR at Site 99. The objective of this survey was to assess existing benthic habitat conditions at the Quantico

Embayment site two-months post cap placement. Initial baseline surveys were conducted in 2009 and again in 2011 (SSC Pacific 2014).

1.1 Site Description

The Quantico Embayment at Site 99 is a semi-circular inlet of the Potomac River, approximately 190 acres in size. A private 12-acre island, Chopawamsic Island, is situated in the middle of the embayment approximately 500 feet from the shoreline (Figure 1). Water depths within the embayment are approximately 3 to 6 feet. Benthic habitats in the embayment are primarily fine-grained silt and clay sediments (>55% silt and clay) characteristic of depositional areas and shallow, slow-moving water (Battelle and Neptune and Co., Inc. 2004). Close to shore sediments are coarser-grained material due to slight scouring from wave action or runoff. Subsurface core samples collected in the Quantico Embayment (Battelle and Neptune and Co., Inc., 2004) consisted of fine-grained, unconsolidated silt and clay underlain by firmer, more consolidated clay. The depth of the unconsolidated sediments ranged approximately 10 to 40 cm (Battelle and Neptune and Co. Inc., 2004). Salinity varies seasonally, ranging from less than 0.5 psu in the spring to nearly 3 psi in the fall (U.S. Fish and Wildlife Service 1999). The shallow waters and low salinity in the spring and summer months lead to colonization by a submerged aquatic vegetation (SAV) non-native plant *Hydrilla verticillata*, which is prolific in the summer months throughout the tidal freshwater Potomac River.

2. Methods

2.1. Field Sampling

On 24 September 2014 a SPI survey was conducted at the Quantico Embayment site. A total of 32 stations were sampled (Figure 2). At each station, a digital sediment profile camera system was deployed one to three times to obtain one usable image. Two replicates from Station 6 were analyzed because they were different. At all other stations, replicate images were similar so only one replicate was analyzed. The location of each station is in Table 1.

The profile camera used a Canon 7D single lens reflex camera and captured 18-megapixel images onto internal memory card using Canon's raw image format. The profile camera prism window was 15 cm wide and 20 cm tall. The profile camera was controlled from the surface vessel via a cable that supplied power and allowed monitoring of the Canon 7D operation and image capture in real-time. The camera was triggered from the surface about 1-sec after bottom contact and after the prism stopped penetrating the sediment. One hundred (100) pounds of lead was added to the camera frame to increase prism penetration. More detail on sediment profile camera operation can be found in Rhoads and Cande (1971) and Germano et al. (2011). As SPI images were being collected, they were downloaded onto a laptop computer, and transferred to CD-ROM at the end of fieldwork for more permanent storage.

2.2. Image Analysis

All SPI were evaluated visually with data of all features recorded in a pre-formatted spreadsheet file. One image from each of the three deployments per station was digitally processed using histogram equalization and 0.1 to 1% histogram clipping to enhance contrast and color for determination of the aRPD layer depth with Adobe PhotoShop®. Data from each image were sequentially saved to a spreadsheet file for later analysis. Details of how these data were obtained can be found in Diaz and Schaffner (1988) and Rhoads and Germano (1986). A description of each parameter measured and evaluated follows.

2.2.1. Prism Penetration - This parameter provided a geotechnical estimate of sediment compaction with the profile camera prism acting as a dead weight penetrometer. The further the prism entered into the sediment the less compact the sediment is. Penetration was measured as the distance the sediment moved up the 30 cm length of the prism faceplate. For all stations the weight was kept at 100 lbs.

2.2.2. Surface Relief - Surface relief or boundary roughness was measured as the difference between the maximum and minimum distance the prism penetrated. This parameter also estimated small-scale bed roughness, on the order of the prism faceplate width (15.5 cm), which is an important parameter for predicting sediment transport and in determining processes that dominate surface sediment (Rhoads et al. 1978). The origin of surface relief can be determined from visual analysis of SPI and surface video images. In physically dominated habitats, features such as bedforms and sediment granularity, cause bed roughness. In biologically dominated habitats, bed roughness is a result of biogenic activity such as tube structures, defecation mounds, or feeding pits.

2.2.3. Sediment Oxidation State - The oxidation state of the sediment is an important parameter for estimating benthic habitat conditions and relates directly to the quality of the habitat (Pearson and Rosenberg 1978, Rosenberg et al. 2001). Oxidation and reduction state in transitional marine to tidal freshwater sediments is related to a complex biogeochemistry that is controlled by a combination of factors ranging from sediment grain size, organic content,

microbial communities, bioturbation, sediment sulfate concentration, and oxygen availability. The biogeochemistry reactions follow a consistent pattern with oxidants consumed in order of decreasing energy production per mole of organic carbon oxidized (Oxygen > manganese oxides and nitrate > iron oxides > sulfate) (Froelich et al. 1979). Fortunately, these three biogeochemical states are relatively colorful, oxic sediments being brown to reddish-brown, suboxic sediments being olive-brown to light-gray, and anoxic sediments being dark-gray to black. This is the basis for the well-known qualitative relationship between sediment color and redox state (Bull and Williamson 2001). It is assumed that given the complexities of manganese, iron, and sulfate oxidation-reduction chemistry the reddish-brown sediment color tones indicate sediments contain oxygen and are in an oxidative geochemical state, or at least are not intensely reducing (Fenchel 1969, Bull and Williamson 2001, Diaz and Trefry 2006).

The aRPD layer depth includes the oxic portion of the sediment and also the depth to which sediments appear to be suboxic. The term apparent is used in describing these parameters because no actual measurement was made of oxygen or redox potential. Color in SPI is also dependent on nonsedimentary factors such as ambient water column light, reflections, and shadows that can make parts of the image seem lighter or darker. Thus sediments visually assessed as oxic do not necessarily contain free oxygen, nor do visually anoxic sediments necessarily contain free sulfides (Wetzel 1995). The number of pixels in the user-defined aRPD layers was counted and converted to linear measurement by dividing by the width of the image used in the analysis.

2.2.4. Sediment Grain Size - Grain size is an important parameter for determining the nature of the physical forces acting on the bottom and is one of the major factors in determining benthic community composition (Rhoads 1974, Snelgrove and Butman 1994). The sediment type descriptors used for image analysis follow the Wentworth classification as described in Folk (1974) and represent the major modal class for each image. Maximum grain size was also estimated. Grain size was determined by comparison of collected images with a set of standard images for which mean grain size had been determined in the laboratory. The Phi scale sizes corresponding to sediment grain size descriptors derived from SPI is contained in Table 2.

2.2.5. Surface Features and Bed Roughness - These parameters include a wide variety of physical (such as bedforms) and biological features (such as biogenic mounds, shell, or tubes). The presence of certain surface features is indicative of the overall nature of the processes acting on surface sediment. For example, bedforms are associated with physically dominated habitats, whereas the presence of dense worm tubes or feeding pits would be indicative of a more biologically accommodating habitat (Rhoads and Germano 1986, Diaz and Schaffner 1988). Surface features were visually evaluated from each image and compiled by type and frequency of occurrence.

2.2.6 Subsurface Features - Subsurface features include a wide variety of structures (such as infaunal organisms, burrows, water or gas filled voids, and sediment layering) that reveal the importance of physical and biological processes influencing the bottom. For example, layered or homogeneous sediments are generally dominated by physical processes. Sediments with burrows, infaunal feeding voids, and/or visible infaunal organisms are generally dominated by biological processes (Rhoads and Germano 1986, Diaz and Schaffner 1988, Nilsson and Rosenberg 2000). Subsurface features were visually evaluated from each image and compiled by type and frequency of occurrence.

3. Results

Images from the 32 SPI stations were analyzed with all data in Appendix A and a summary in Table 3. A mosaic of all SPI images analyzed is in Figures 3, 4, and 5. High resolution SPI images are in Appendix B.

3.1. Sediments and Cap Characteristics

Modal sediment grain-size at the Quantico Embayment Site 99 ranged from fine-sand-silt-clay to medium-coarse-sand (Table 3). The coarsest sediments occurred at Station 03 being a mixture of medium-coarse-sand-gravel with some pebble sized grains. Stations 01, 06a, 08, 16 and 19 were all clean medium-coarse sand. About two-thirds of the stations (19 of 32 stations) were a mixture of fine-medium-coarse-sand some with siltly sediments. An additional seven stations were a mixture of fine-sand-silt-clay (Figures 3 and 4).

Sediment sampling prior to cap placement determined that native sediments were primarily silt-clay (Battelle and Neptune and Co., Inc., 2004). Based on this it was concluded that the presence of sediments that were medium-sand and coarser were all cap material. The cap was present at all stations except Stations 23, 24, 26, 27, and 28 that appeared to be native silt-clay (Figures 6 and 7). Cap thickness exceeded prism penetration depth at 23 of 28 stations with cap material (Figure 7). At Stations 02, 11, 25, 29, and 32 what appeared to be native siltly and clayey sediments were under or mixed in with the cap sediments (Figures 3, 4, and 5). Over the two-months since cap placement, it did not appear that native sediments from the surrounding bottom were transported very far from the edge of the capped site. All stations with significant amounts of fine sediments mixed with surface cap material were along the edge of the site (Figure 7).

3.2. Biology

The sediment surface at all stations appeared to be dominated by physical processes with little indication of biological processes, such as bioturbation, being important. What appeared to be small tubes (<1 mm in diameter) occurred in low densities (1 to 9 per image) at about half the stations (15 of 32 stations) with Station 04 having 10 to 24 tube per image (Table 3). These tubes could also have been small fecal pellets as there are not many tube building species in marine-freshwater transitional habitats (Dauer 1993). Tubes could be from newly settled *Marenzelleria viridis, Streblospio benedicti, or Boccardiella ligerica* three small tube building polychaete species common in fine-grained sediments from tidal freshwater to about salinities of 3 psu (Dauer 1993), which seasonally can occur at Site 99. The fecal pellets are likely from the bivalves *Rangia cuneata* or *Corbicula fluminea,* both of which were found at the Quantico Embayment Site 99 during fieldwork. They are also know to be common in the low salinity and tidal freshwater Potomac (Dauer 1993).

Oligochaetes, which are the dominant faunal group at low salinity and tidal freshwater, do not build tubes (Brinkhurst and Jamieson 1971) or ventilate their burrows (Fisher et al. 1980, McCall and Fisher 1980), which would oxidize the burrow walls and make them more visible in the SPI images. Oligochaetes were observed below the sediment surface at less then a third of all stations (9 of 32 stations) (Table 3). Infauna were all very small on the order 0.5 mm. There was no evidence of burrowing by any other infaunal species, such as Chironomid larvae that are common in tidal freshwater and low salinity habitats (Diaz 1989, Bonsdorff et al. 1996).

The dominance of surfical sediments by physical processes appeared to be the principal factor determining oxidation-reduction state of the sediments. There was no evidence of bioturbation by infauna or other benthic species at any of the Quantico Embayment stations. The shallowest depth of the aRPD occurred at Station 30 (0.5 cm) that was cap sand mixed with native silty sediment (Table 3). At native sediment stations, four of the five had aRPD layer depths >1 cm (Table 3). This indicated that resuspension-deposition events were likely responsible for the deeper aRPD layer at these four stations. In silt-clay sediments, physical diffusion limits oxygen penetration to <1 cm (Jørgensen and Revsbech 1985). At native sediment Station 27 the aRPD layer depth of 0.7 cm could have been due to physical diffusion. In sandy porous sediment, deep aRPD layers appeared primarily to be a function of porewater circulation driven by current or wave action that pumps oxygenated water in the sediment. This appeared to be the factor responsible for the deep aRPDs at many of the cap stations (Table 3, Figure 8).

The most obvious signs of biogenic activity were gas voids produced by anaerobic methanogenic microbes. When sediment sulphate is depleted, methanogenesis becomes the dominating diagenetic process producing methane and carbon dioxide (Fenchel 1987, Kristensen 2000). Gas voids occurred at half of stations (16 of 32 stations) with over 50 small gas voids in the images from Stations 01, 23, and 32 (Figure 3). Gas voids were primarily associated with silt-clay sediments but also occurred in what appeared to be clean cap sand, for example Stations 13 or 21 (Figure 4).

4. Summary of Results and Conclusions

The general muddy nature of native sediments facilitated the determination of cap material which were primarily medium- to coarse-sand (Table 3, Figures 3, 4, and 5). About two-months after cap placement the sediment surface at cap stations were primarily clean sands. Native sediments under cap material were observed at five of the Quantico Embayment Site 99 SPI stations along the outer perimeter of the cap (four on the southeast side of the capped site and one on the northwest side). Stations that were located 25 to 50 m away from the cap to the southeast appeared to be all native sediments with no cap sediment. This indicated that the cap material had not migrated far.

The cap appeared to completely cover the SPI stations located on the cap. Over the center of the capped area the cap was thicker then prism penetration and was at least about 10 to 20 cm thick (Figure 7). Cap sediments thinned to the southeast of the site and did not appear to be present 25 to 50 m away from the perimeter of the site.

Native sediments at the Quantico Embayment Site 99 appeared to be typical of other marine-freshwater transitional zone within the Potomac River and other Chesapeake Bay tributaries (Diaz 1989, 1994, Dauer 1993, Clarke et al. 2003). Native sediments in these tidal freshwater habitats are primarily silt-clays with sandy sediments being mostly fine-sand.

There was no evidence in the sediment profile images that biological processes were involved in sediment mixing at the Site 99. Bioturbation, which is a primary mixing process in marine sediments, is not an important factor in transitional or tidal freshwater benthic habitats (Diaz 1994).

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Table 1. SPI station locations at Quantico Embayment Site 99, September 24, 2014.

Station	Cap Strata	Latitude	Longitude
01	On	38.51236	-77.29909
02	On	38.51268	-77.29898
03	On	38.51273	-77.29833
04	On	38.51303	-77.29878
05	On	38.51304	-77.29807
06a	On	38.51331	-77.29840
06b	On	38.51336	-77.29846
07	On	38.51332	-77.29784
08	On	38.51332	-77.29745
09	On	38.51372	-77.29818
10	On	38.51368	-77.29758
11	On	38.51363	-77.29723
12	On	38.51393	-77.29839
13	On	38.51389	-77.29800
14	On	38.51390	-77.29743
15	On	38.51388	-77.29697
16	On	38.51417	-77.29782
17	On	38.51419	-77.29725
18	On	38.51417	-77.29672
19	On	38.51450	-77.29705
20	On	38.51452	-77.29655
21	On	38.51485	-77.29668
22	Off	38.51439	-77.29628
23	Off	38.51432	-77.29567
24	Off	38.51423	-77.29506
25	Off	38.51257	-77.29823
26	Off	38.51230	-77.29787
27	Off	38.51203	-77.29751
28	Off	38.51436	-77.29596
29	Off	38.51380	-77.29679
30	Off	38.51324	-77.29726
31	Off	38.51294	-77.29785
32	Off	38.51245	-77.29832

Table 2. Comparison of Phi scale to SPI sediment grain size descriptors.

Phi Scale	SPI Grain Size Descriptor	Sediment Grain Size Subclass	Upper Limit Size (mm)	Grains per cm of image
-6 to -8	CB	Cobble	256.0	<<1
-2 to -6	PB	Pebble	64.0	<1
-1 to -2	GR	Gravel	4.0	2.5
1 to -1	CS	Coarse-sand	2.0	5
2 to 1	MS	Medium-sand	0.5	20
4 to 2	FS	Fine-sand	0.25	40
4 to 3	VFS	Very-fine-sand	0.12	80
5 to 4	FSSI	Fine-sandy-silt	0.06	160
5.5 to 4.5	FSSICL	Fine-sandy-silt-clay	0.06	160
6 to 5	SIFS	Silty-fine-sand	0.0039	>320
7 to 5	SI	Silt	<0.0039	>320
8 to 6	SICL	Silty-clay	<0.0039	>320
>8 to 7	CLSI	Clayey-silt	<0.0039	>320
>8	CL	Clay	<0.0005	>2560

Table 3. Summary of SPI data for Quantico Embayment Site 99, September 24, 2014.

Station	Penetration Mean (cm)	aRPD Mean (cm)	Grain Size Major Mode	Cap Layer (cm)	Sediment Comment	Surface Tubes	Infauna	Gas Voids
01	15.9	>15.9	MSCS	>15.9	Trace of silt	1 to 9	0	>50
02	6.5	>6.5	MSCS/FSSI	2.2	Floc layer on surface	0	0	5
03	10.6	>10.5	MSCSGR	>10.6	Clean sand	0	0	0
04	19.9	1.7	FSMSSI	>19.9	Sand mixed with silt	10 to 24	0	10 to 19
05	8.4	>8.3	FSMSSI	>8.4	Sand mixed with silt, Floc layer on surface	0	0	5
06a	12.3	>12.3	MSCS	>12.3	Clean sand with trace of silt	0	0	0
06b	18.4	2.3	FSMSSI/MS/ FSMSSI	>18.4	Sand mixed with silt over clean sand over sand mixed with silt	1 to 9	0	30 to 39
07	13.7	3.1	FSMSSI/MSCS	>13.7	Sand mixed with silt over clean sand	1 to 9	1	0
08	9.7	>9.7	MSCS	>9.7	Trace of silt	1 to 9	1	0
09	13.1	4.3	FSMSCS	>13.1	Clean gray sand	1 to 9	0	0
10	18.3	7.4	FSMSCS	>18.3	Clean gray sand	0	0	0
11	15.3	11.7	FSMSSI/MSCS/FSSI	12.0	Sand mixed with silt over clean sand over native silty sediment	1 to 9	0	40-49
12	8.7	0.8	FSMS	>8.7	Clean gray sand	1 to 9	0	0
13	12.1	4.0	FSMS	>12.1	Clean gray sand	0	0	30 to 39
14	8.6	>8.6	FSMSCS	>8.6	Clean sand	0	0	0
15	9.3	5.8	FSMSSI/MSCS	>9.3	Sand mixed with silt over clean sand, Floc layer on surface	0	0	0
16	11.2	>11.2	MSCS	>11.2	Clean sand	0	0	0
17	11.6	4.3	FSMSCS	>11.6	Clean sand	0	0	0
18	5.0	>5.0	FSMSCS	>5.0	Clean sand with trace of silt, Floc layer on surface	0	0	0
19	13.5	>13.5	MSCS	>13.5	Clean sand	0	0	0
20	13.1	2.9	FSMSCS	>13.1	Clean gray sand	0	2	10 to 19
21	24.7	9.0	FSMSCS	>24.7	Clean sand	1 to 9	1	10 to 19
22	13.4	2.1	FSMS	>13.4	Clean gray sand	0	2	0
23	15.7	5.6	FSSI	0	Native sandy silty bottom	1 to 9	1	>50
24	17.5	6.7	FSSI	0	Native sandy silty bottom	1 to 9	0	20 to 29
25	27.5	2.1	FSMSSI/SICL	6.9	Sand mixed with silt over native silty sediment	0	0	30 to 39
26	20.1	2.1	FSSICL	0	Native silty bottom	0	0	40-49
27	13.6	0.7	FSSICL	0	Native silty bottom	1 to 9	0	1 to 9
28	13.3	1.6	FSSICL	0	Native silty bottom	0	1	0
29	3.4	1.4	FSMSICL	0.2?	Thin sandy silt layer over clay, Sand from cap??	1 to 9	0	0
30	15.7	0.5	FSSIFSMSSI	>15.7	Sand mixed with silt over clean sand over sand mixed with silt	1 to 9	1	20 to 29
31	12.8	1.9	FSSIMSCS	>12.8	Sand mixed with silt over clean sand	1 to 9	1	0
32	27.5	1.8	FSMSSISICL	7.5	Sand mixed with silt over native silty sediment	0	0	>50

* Sediment descriptors:

CL = Clay GR = Gravel MS = Medium=Sand
CS = Coarse-Sand FS = Fine-Sand SI = Silt PB = Pebble

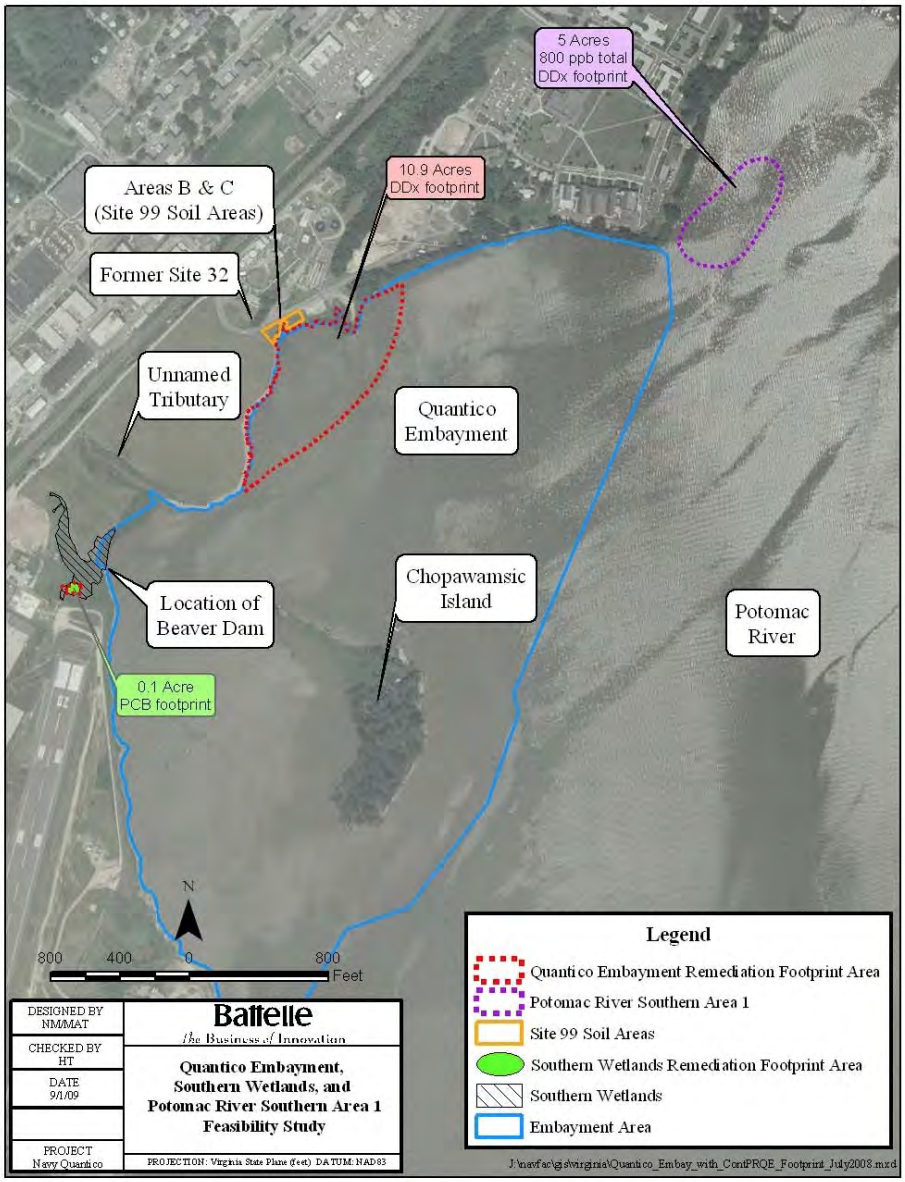


Figure1. Quantico Embayment remediation area (Battelle and Neptune and Co., Inc., 2010).

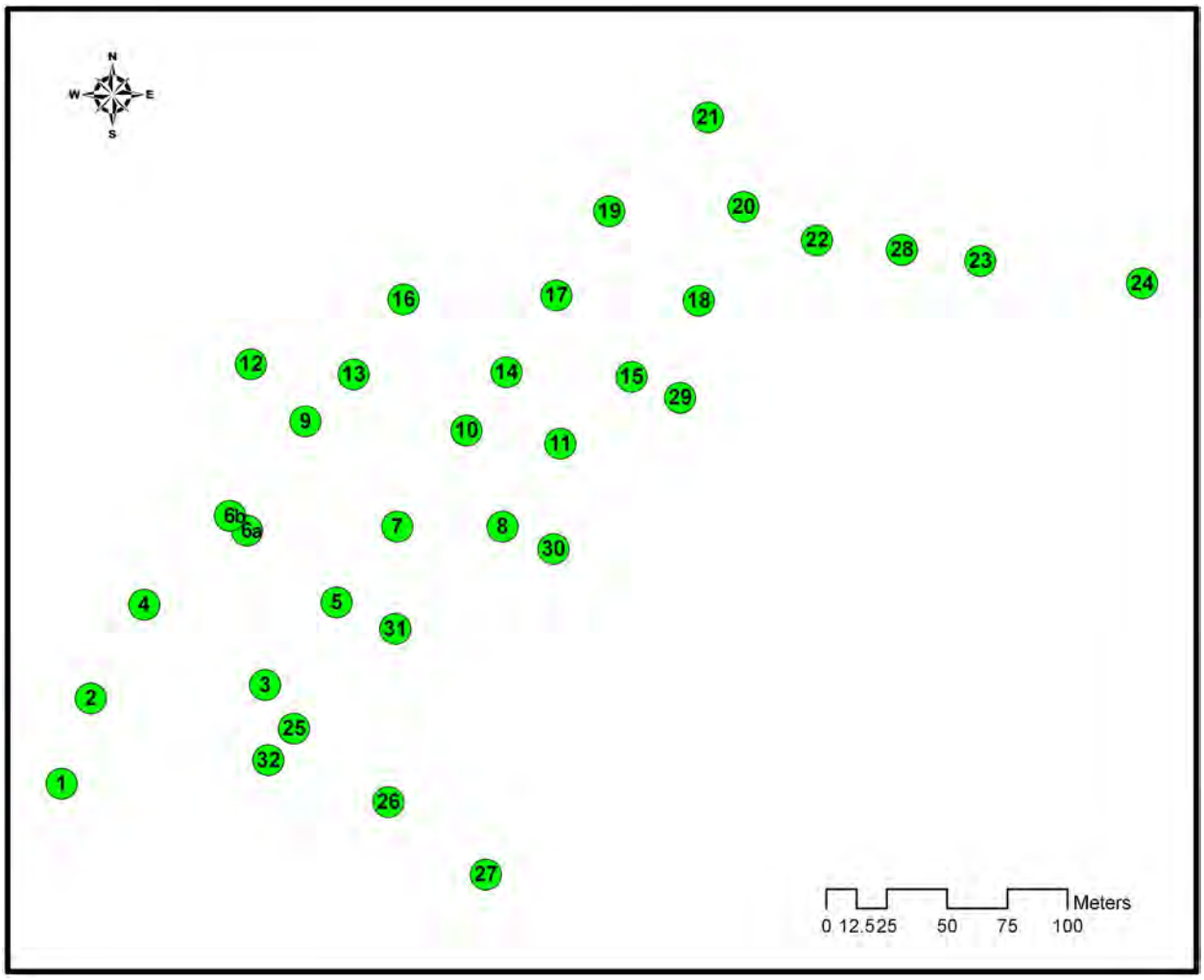


Figure 2. SPI station locations at Quantico Embayment Site 99 within the 10.9 acre DDx footprint, September 24, 2014.

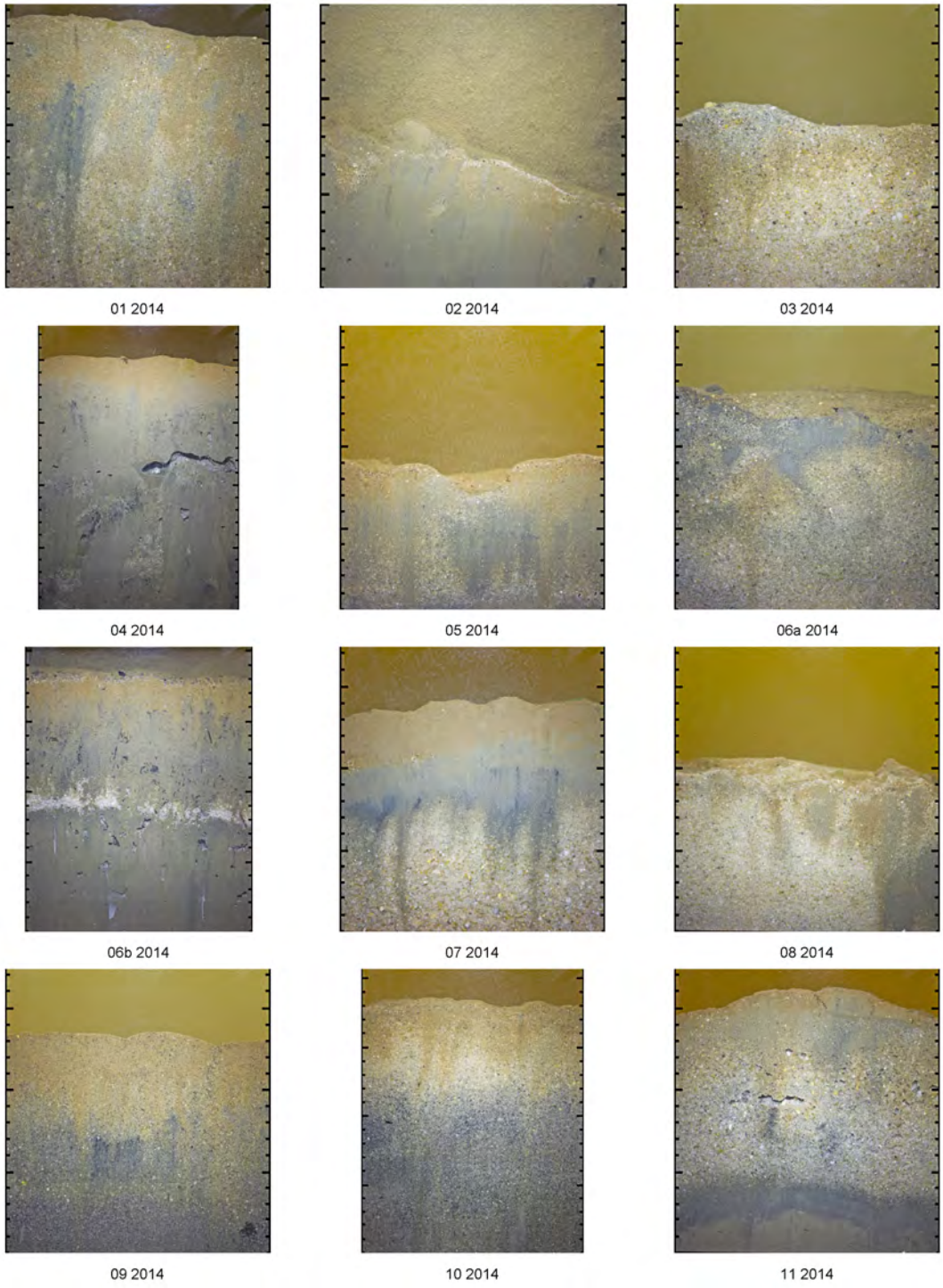


Figure 3. Mosaic of images from Quantico Embayment Site 99 stations 01 to 11 for two-month post-cap SPI survey September 24, 2014. Scale on side of images is in cm.

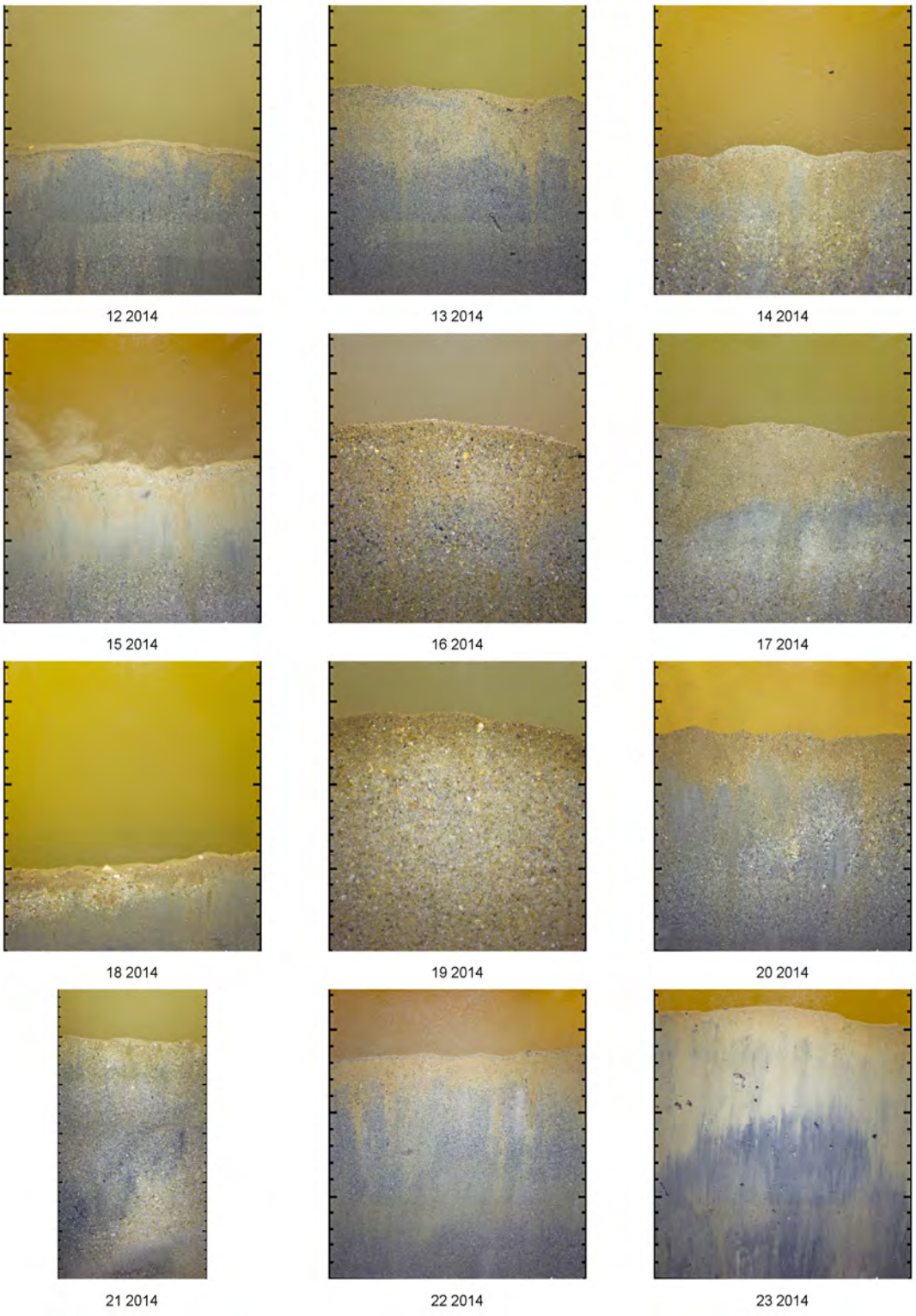


Figure 4. Mosaic of images from Quantico Embayment Site 99 stations 12 to 23 for two-month post-cap SPI survey September 24, 2014. Scale on side of images is in cm.

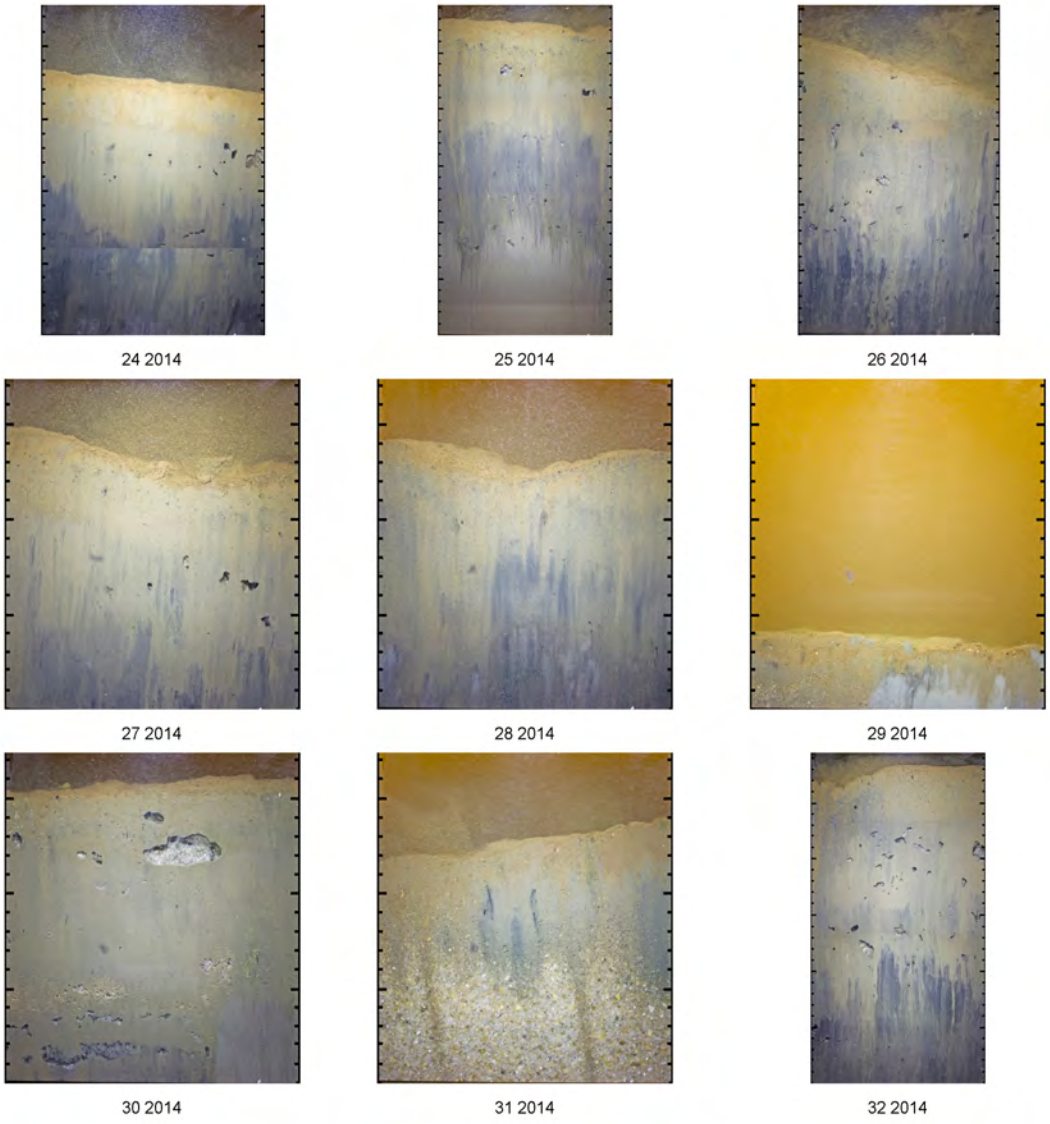


Figure 5. Mosaic of images from Quantico Embayment Site 99 stations 24 to 32 for two-month post-cap SPI survey September 24, 2014. Scale on side of images is in cm.

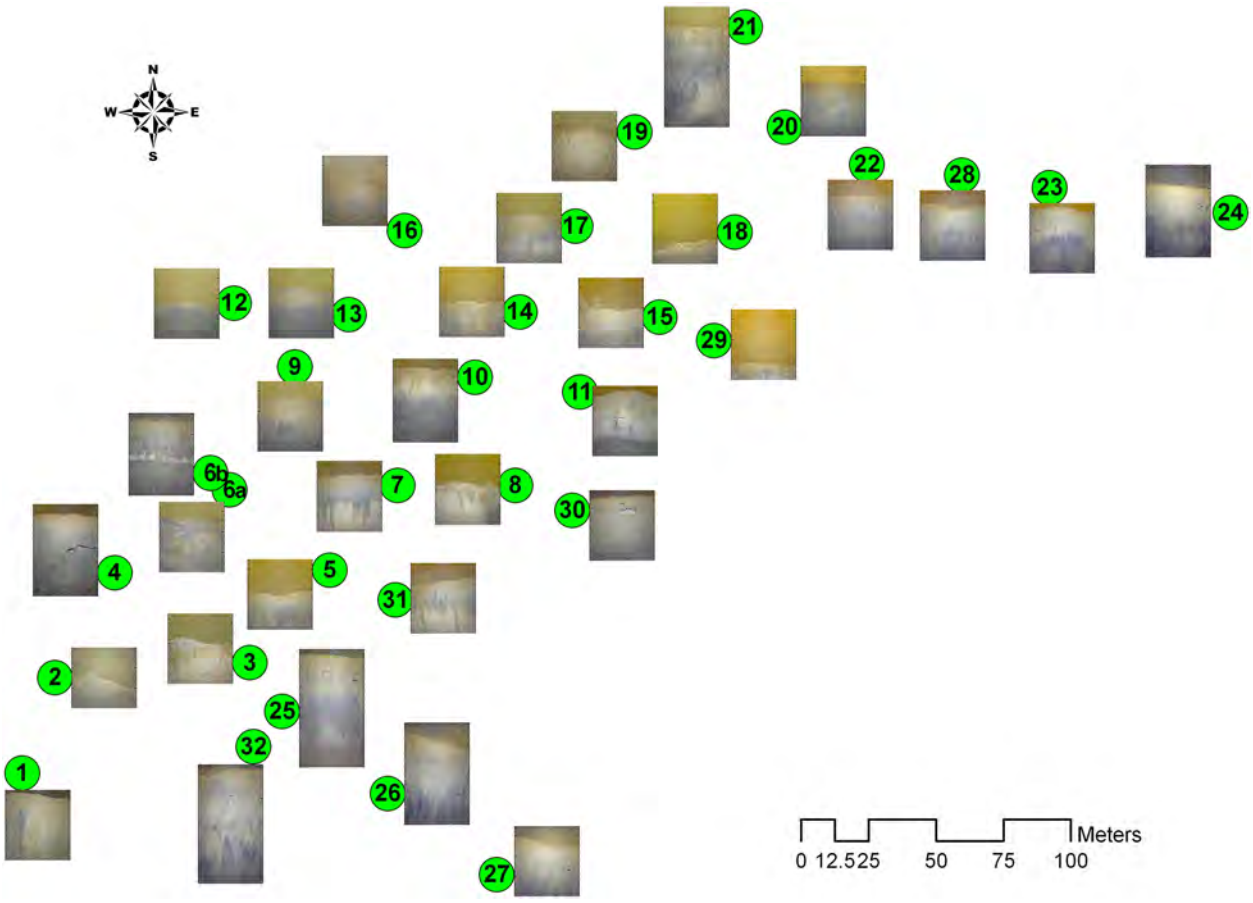


Figure 6. Spatial mosaic of images from Quantico Embayment Site 99 for two-month post-cap SPI survey September 24, 2014. Scale on side of images is in cm.

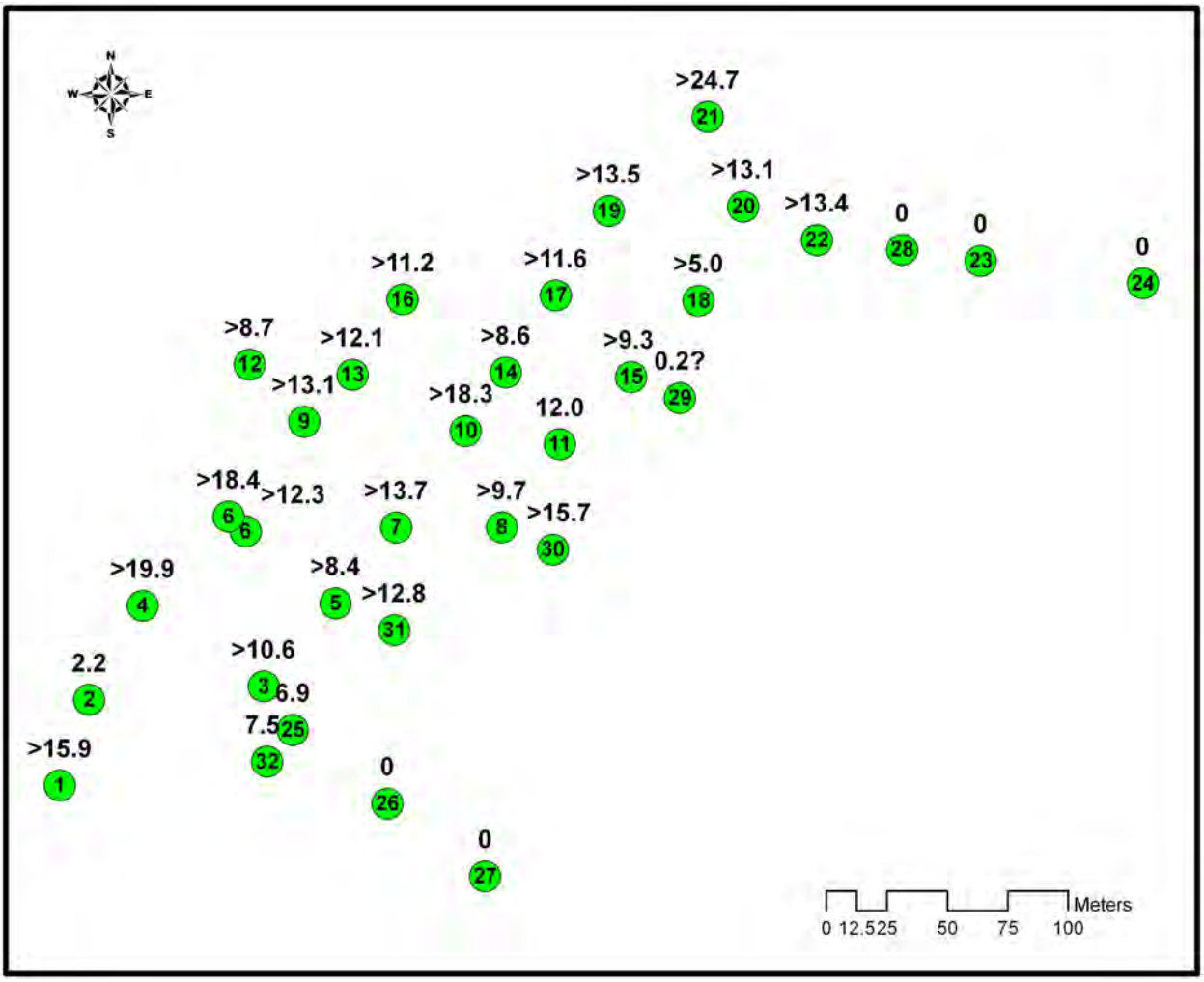


Figure 7. Cap thickness (cm) at Quantico Embayment Site 99 SPI stations two-month post-cap SPI survey September 24, 2014. The > symbol indicates that cap material was thicker than prism penetration.

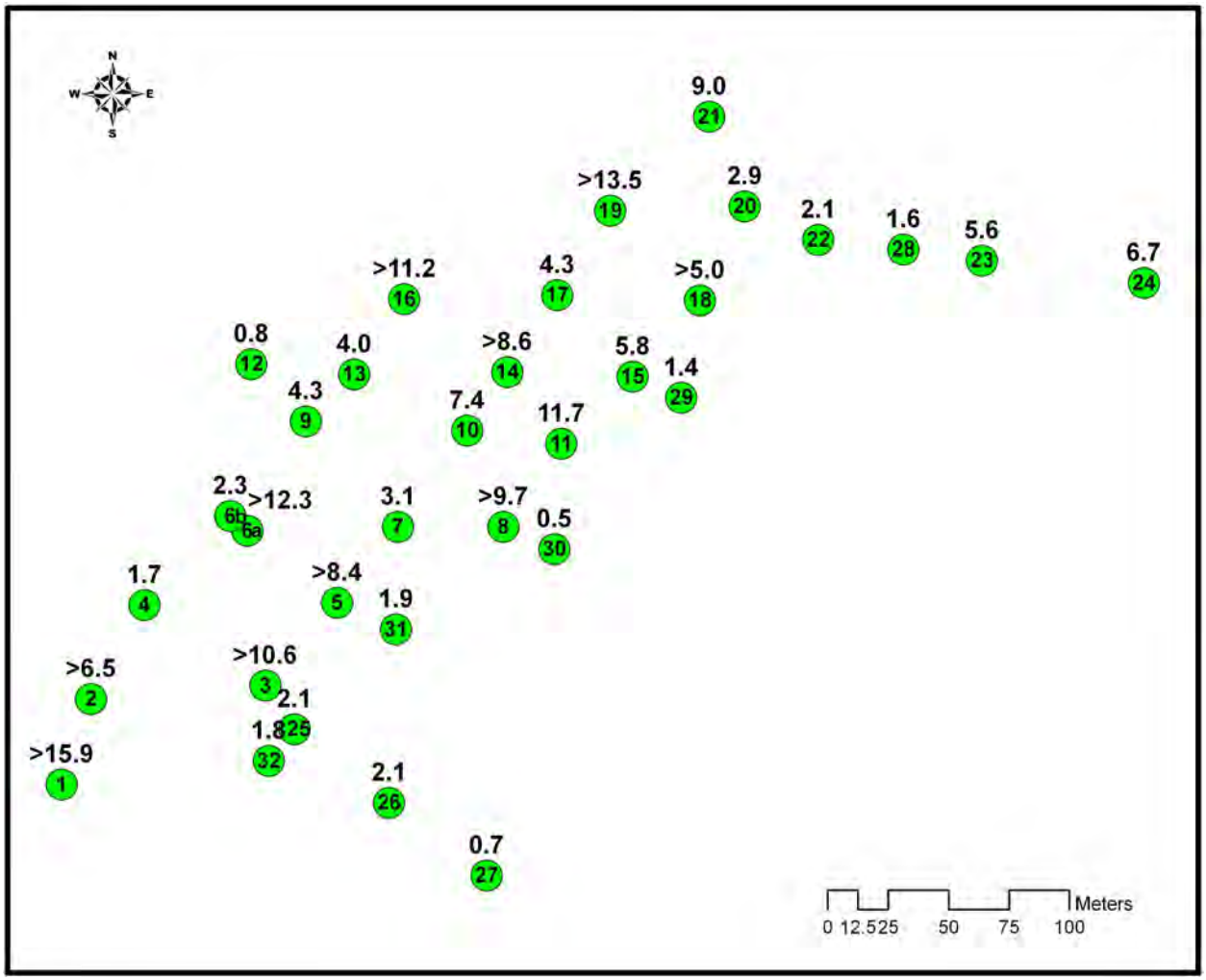
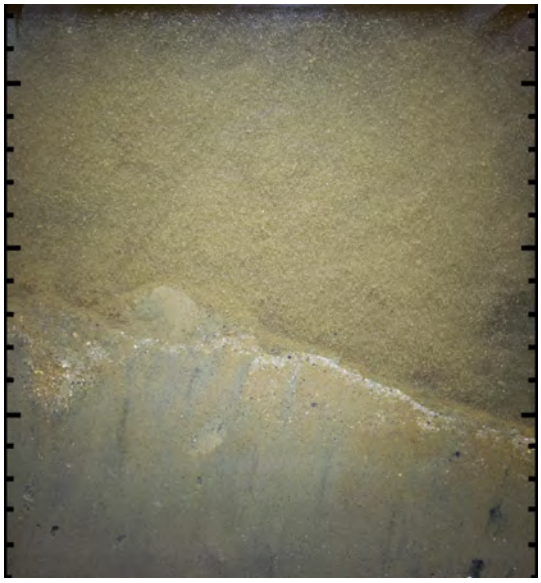


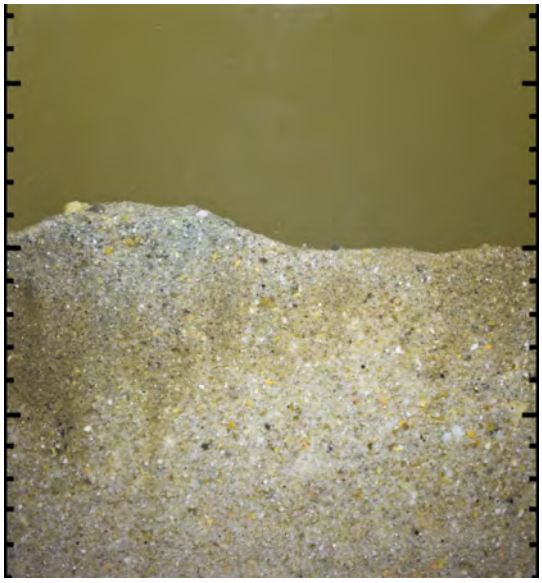
Figure 8. aRPD layer depth (cm) at Quantico Embayment Site 99 SPI stations, two-month post-cap SPI survey September 24, 2014. The > symbol indicates that the aRPD layer was deeper than prism penetration depth.



01-1



02-1



03-1



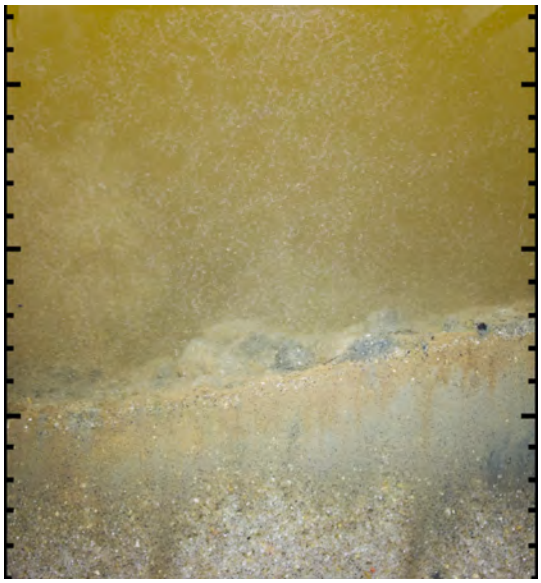
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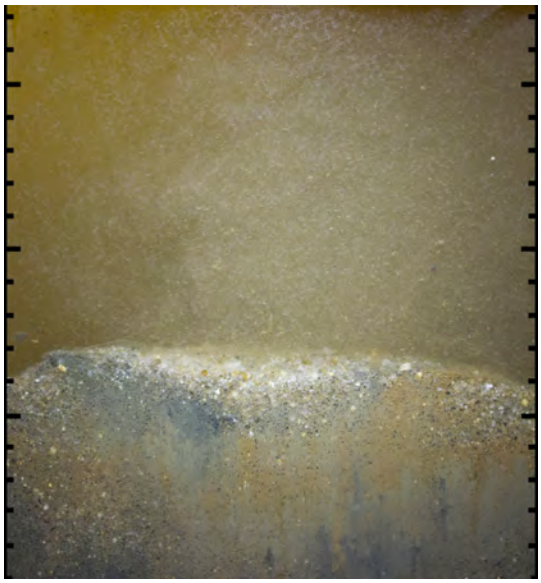
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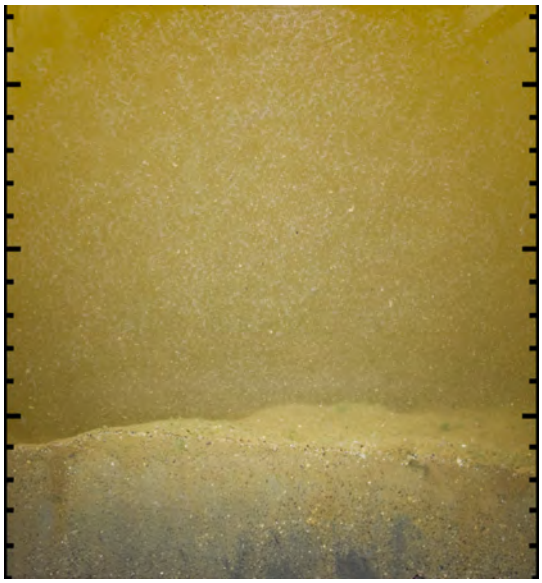
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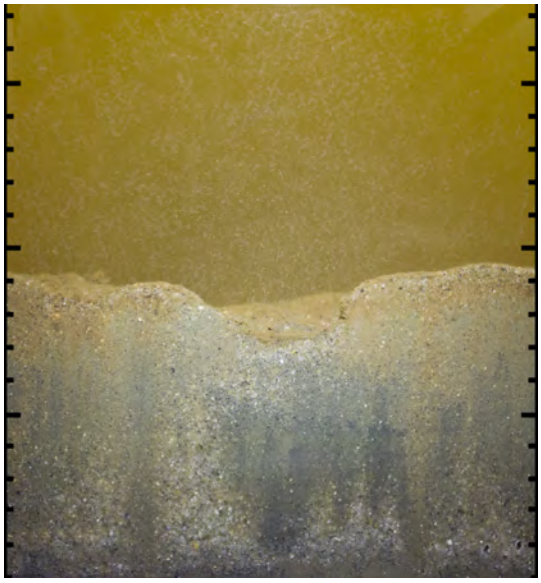
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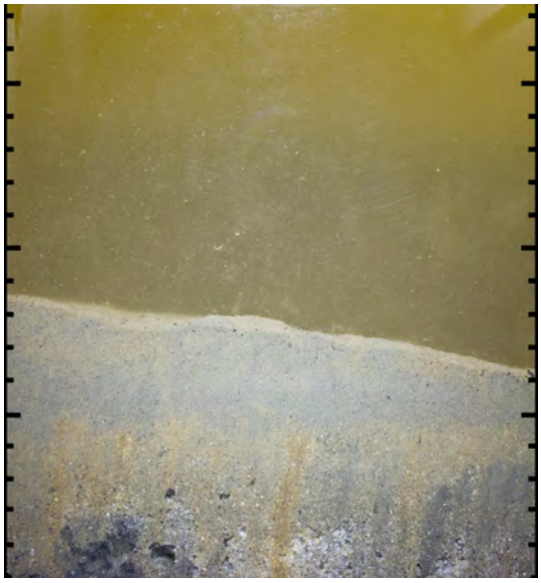
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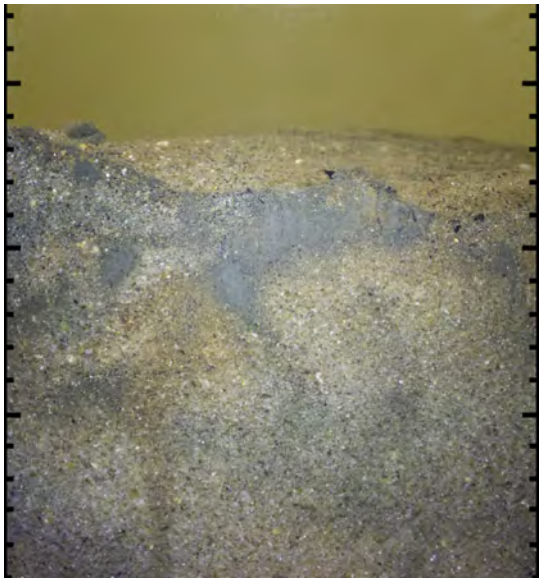
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05-5



06-1



06-2



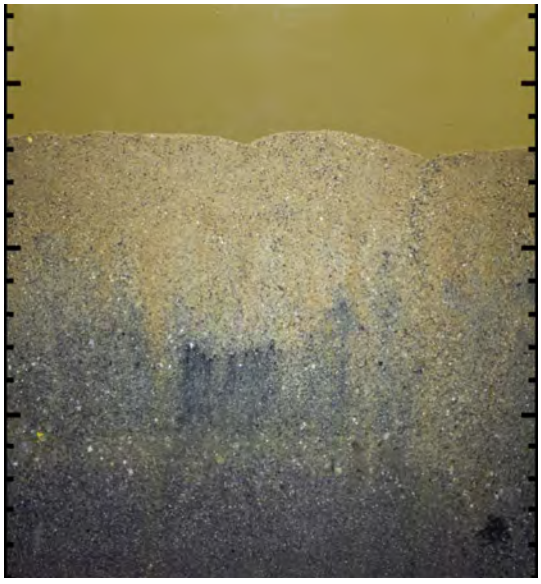
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08-1



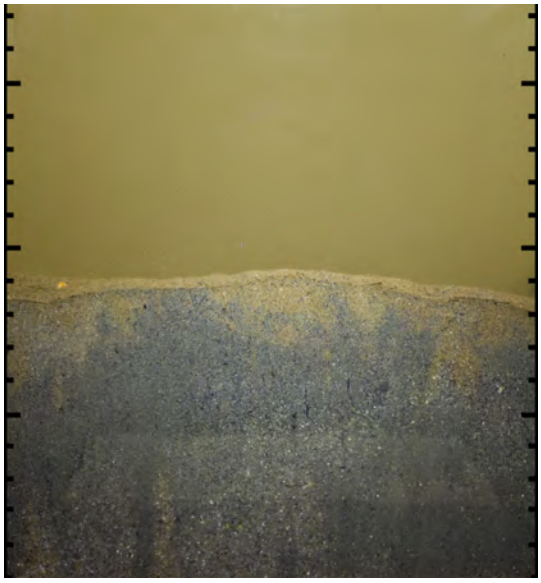
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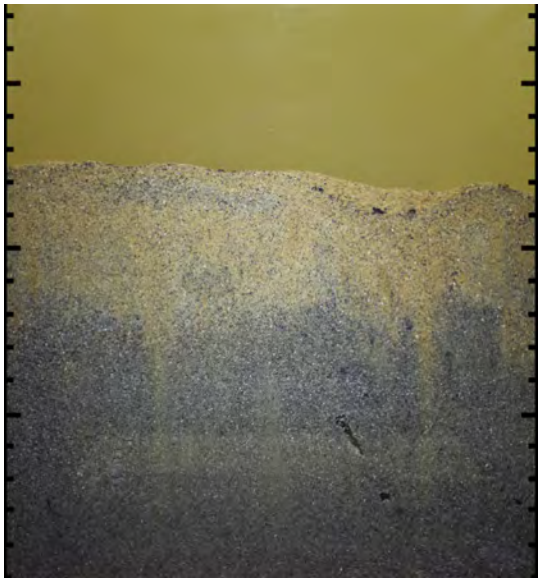
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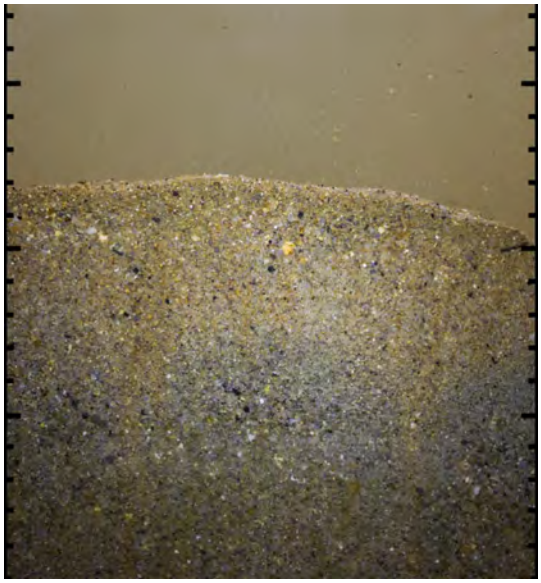
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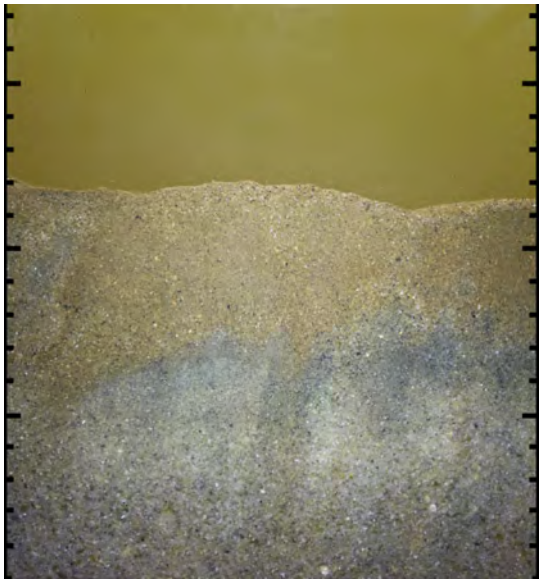
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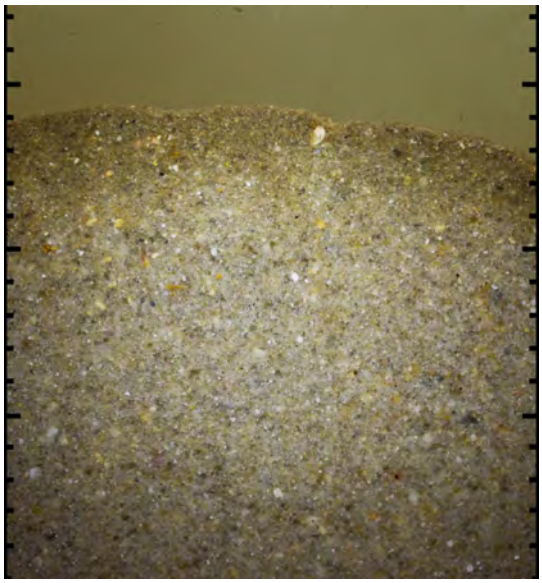
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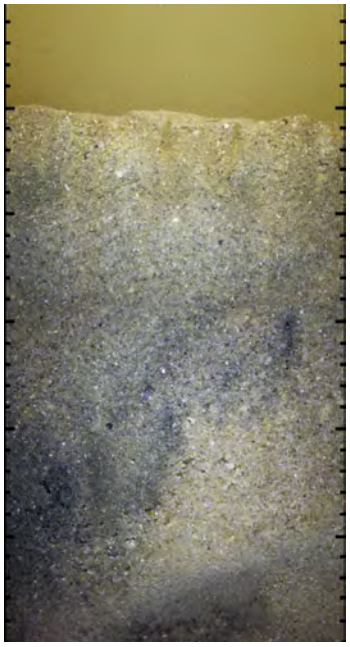
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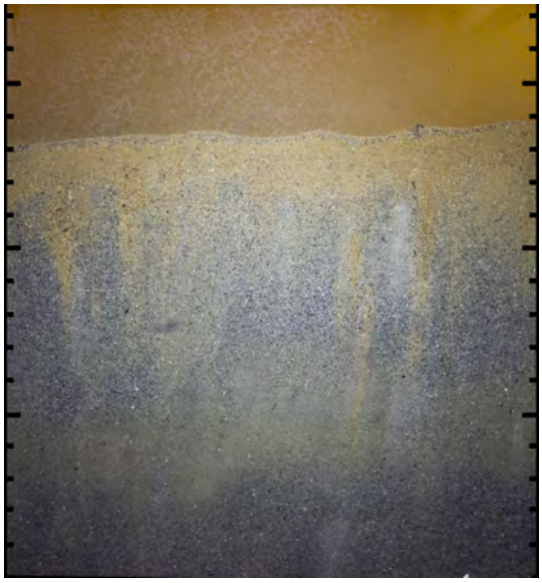
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22-1



23-1



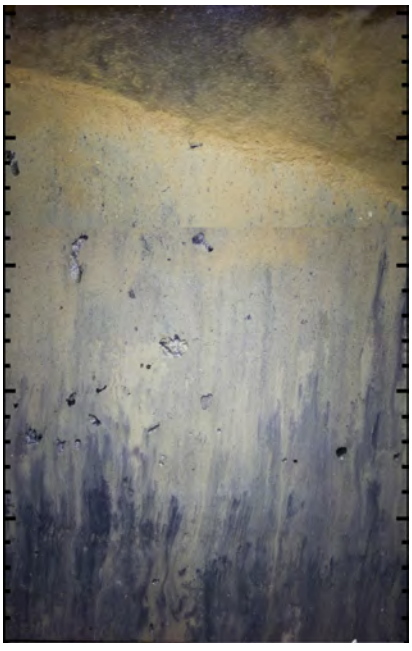
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25-2



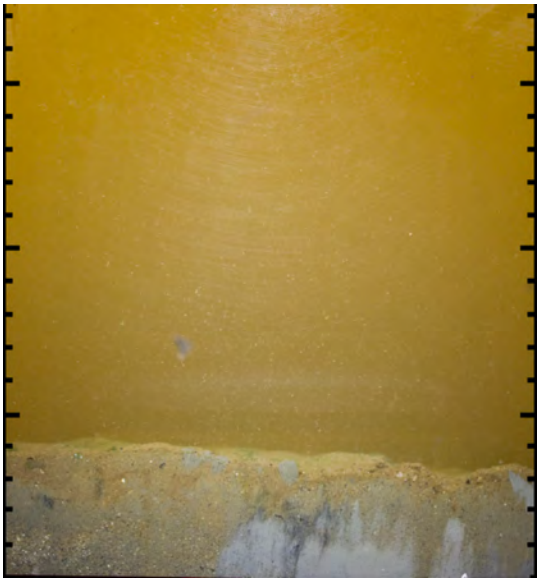
26-1



27-1



28-1



29-1



30-1



31-1

Site 99, Marine Corps Base Quantico
Sediment Profile Image Monitoring
Year 1
June 2016

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June 2016

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Appendices

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Acronyms and Abbreviations

aO_2	oxygen penetration
aRPD	apparent reduction-oxidation potential discontinuity depth
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm	centimeter
DDT	dichlorodiphenyltrichloroethane
DDE	dichlorodiphenyldichloroethylene
DDD	dichlorodiphenyldichloroethane
DDx	sum of DDT, DDE, and DDD
DoD	Department of Defense
ESTCP	Environmental Security Technology Certification Program
HEC	habitat enhancement cap
ID	identification
IR	Installation Restoration
lb	pound
psu	practical salinity unit
R/V	research vessel
REMOTS	remote ecological monitoring of the sea floor
RGB	red, green, blue image histograms
SAV	submerged aquatic vegetation
SPI	sediment profile imaging

1.0 Introduction

As required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), a long-term monitoring study (Battelle and Neptune and Co., 2010) was designed and implemented at Installation Restoration (IR) Site 99 at the Marine Corps Base Quantico to assess benthic recolonization and stability of a thin-layered cap called a habitat enhancement cap (HEC). The HEC was designed to reduce ecological risk to fish and benthos from chemicals of concern in the sediment, mostly the pesticide DDT (dichlorodiphenyltrichloroethane) and its degradation products (dichlorodiphenyldichloroethane [DDD] and dichlorodiphenyldichloroethylene [DDE]), referred to collectively as DDx. Sediment profile imaging (SPI) was proposed to be conducted at 21 random locations within the submerged area of the HEC to assess cap integrity and benthic response through time.

SPI was initially developed to investigate processes occurring at the sediment-water interface. The technology of sediment profile photography has allowed the development of a better understanding of the complexity of sediment dynamics, from both a biological and physical point of view. This approach to evaluating the environment, and potential impacts, can be easily combined with classical approaches to habitat and impact assessment providing scientists and managers with a more holistic ecosystem view. SPI allows remote sensing of the bottom to quickly provide data for evaluation of existing conditions. The sediment profile camera was developed by Rhoads and Cande (1971) to investigate processes structuring the sediment-water interface and as a means of obtaining in situ data on benthic habitat conditions. The technology of SPI or remote ecological monitoring of the sea floor (REMOTS) has allowed for the development of a better understanding of the complexity of sediment dynamics, from both a biological and physical point of view (Solan et al., 2004; Germano et al., 2011).

This study is part of a larger investigation to assess existing conditions at Site 99. The objective of this survey was to assess existing benthic habitat conditions at the Quantico Embayment site one year post cap placement.

2.0 Site Description

The Quantico Embayment at Site 99 is a semi-circular inlet of the Potomac River, approximately 190 acres in size. A private 12-acre island, Chopawamsic Island, is situated in the middle of the embayment approximately 500 feet from the shoreline (Figure 1). Water depths within the embayment are approximately 3 to 6 feet. Benthic habitats in the embayment are primarily fine-grained silt and clay sediments (>55% silt and clay) characteristic of depositional areas and shallow, slow-moving water (Battelle and Neptune and Co., Inc., 2004). Close to shore sediments are coarser-grained material due to slight scouring from wave action or runoff. Subsurface core samples collected in the Quantico Embayment (Battelle and Neptune and Co., Inc., 2004) consisted of fine-grained, unconsolidated silt and clay underlain by firmer, more consolidated clay. The depth of the unconsolidated sediments ranged approximately 10 to 40 cm (Battelle and Neptune and Co. Inc., 2004). Salinity varies seasonally, ranging from less than 0.5 practical salinity unit (psu) in the spring to nearly 3 psu in the fall (U.S. Fish and Wildlife Service, 1999). The shallow waters and low salinity in the spring and summer months lead to

colonization by a submerged aquatic vegetation (SAV) non-native plant *Hydrilla verticillata*, which is prolific in the summer months throughout the tidal freshwater Potomac River.

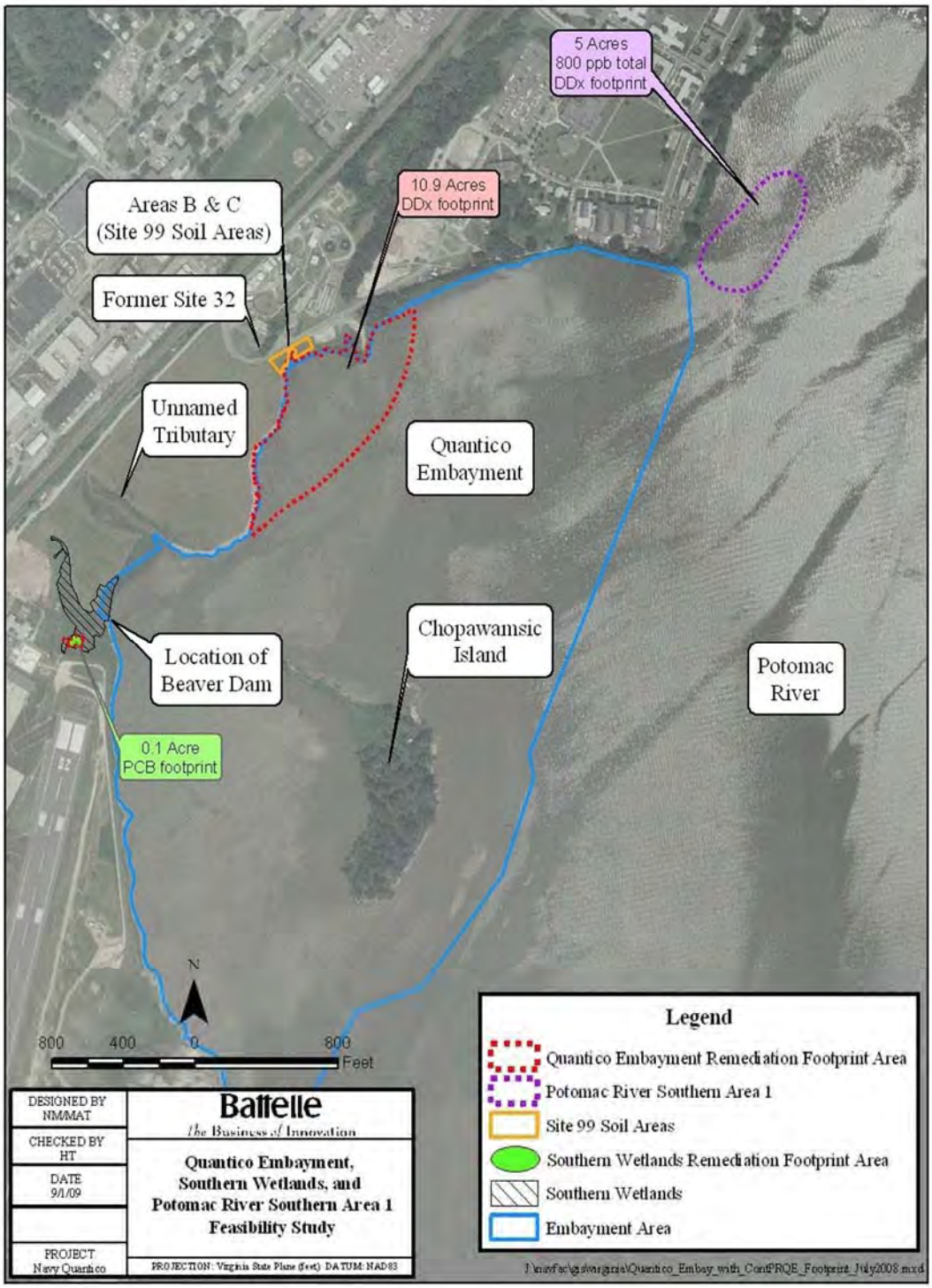


Figure 1. Quantico Embayment Remediation Area

3.0 Fieldwork

The Site 99 Year 1 SPI survey fieldwork was performed aboard the Research Vessel (R/V) *Gale Force* on June 9, 2015. A total of 21 stations were sampled (Figure 2). At each station, a digital sediment profile camera system was deployed one to three times to obtain one usable image. The locations of each station are provided in Table 1. A description of the SPI equipment, deployment, survey design, and field survey implementation is provided below.

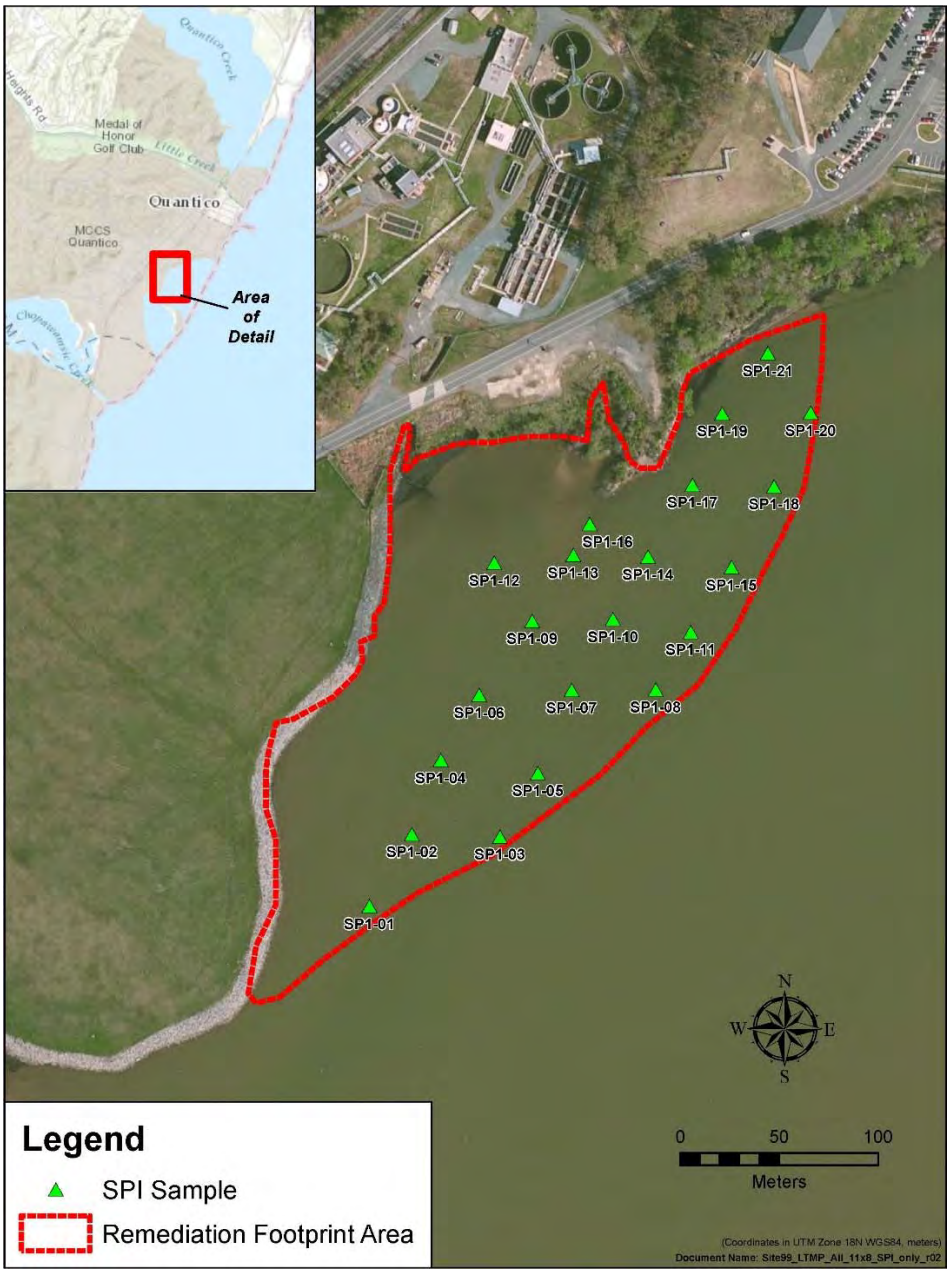


Figure 2. Site 99 Year 1 SPI Station Locations within the 10.9-acre DDx Footprint

Table 1. Site 99 Year 1 SPI Survey Stations

Station ID	Date	Latitude[1]	Longitude[1]	SPI Photo Time
SP1-01	6/9/2015	38.512355	-77.299015	0950
SP1-02	6/9/2015	38.512686	-77.298781	1008
SP1-03	6/9/2015	38.512685	-77.298271	1017
SP1-04	6/9/2015	38.513025	-77.298625	1022
SP1-05	6/9/2015	38.512978	-77.298061	1028
SP1-06	6/9/2015	38.513325	-77.298411	1037
SP1-07	6/9/2015	38.513358	-77.297877	1042
SP1-08	6/9/2015	38.513370	-77.297392	1049
SP1-09	6/9/2015	38.513667	-77.298116	1059
SP1-10	6/9/2015	38.513685	-77.297648	1106
SP1-11	6/9/2015	38.513635	-77.297198	1112
SP1-12	6/9/2015	38.513926	-77.298343	1126
SP1-13	6/9/2015	38.513970	-77.297888	1135
SP1-14	6/9/2015	38.513971	-77.297456	1145
SP1-15	6/9/2015	38.513933	-77.296971	1150
SP1-16	6/9/2015	38.514113	-77.297798	1210
SP1-17	6/9/2015	38.514303	-77.297208	1216
SP1-18	6/9/2015	38.514305	-77.296735	1223
SP1-19	6/9/2015	38.514630	-77.297046	1231
SP1-20	6/9/2015	38.514643	-77.296535	1238
SP1-21	6/9/2015	38.514908	-77.296790	1244

1 Latitude and longitude in World Geodetic System 1984

3.1 Equipment

SPI technology is an effective reconnaissance tool for evaluating and characterizing seabed conditions; the technology involves the use of a submersible digital camera to penetrate and acquire vertical cross-sectional photographic images of the sediment-water interface that can be analyzed for a variety of physical, chemical and biological parameters. The resulting image gives the viewer a perspective as though looking through the side of an aquarium (Figure 3).

The profile camera used a Canon 7D single lens reflex camera and captured 18-megapixel images onto an internal memory card using Canon's raw image format. The profile camera prism window was 15.5 centimeter (cm) wide and 30 cm tall. The profile camera was controlled from the surface vessel via a cable that supplied power and allowed monitoring of the Canon 7D operation and image capture in real time. The camera was triggered from the surface about 1second after bottom contact and after the prism stopped penetrating the sediment. One hundred

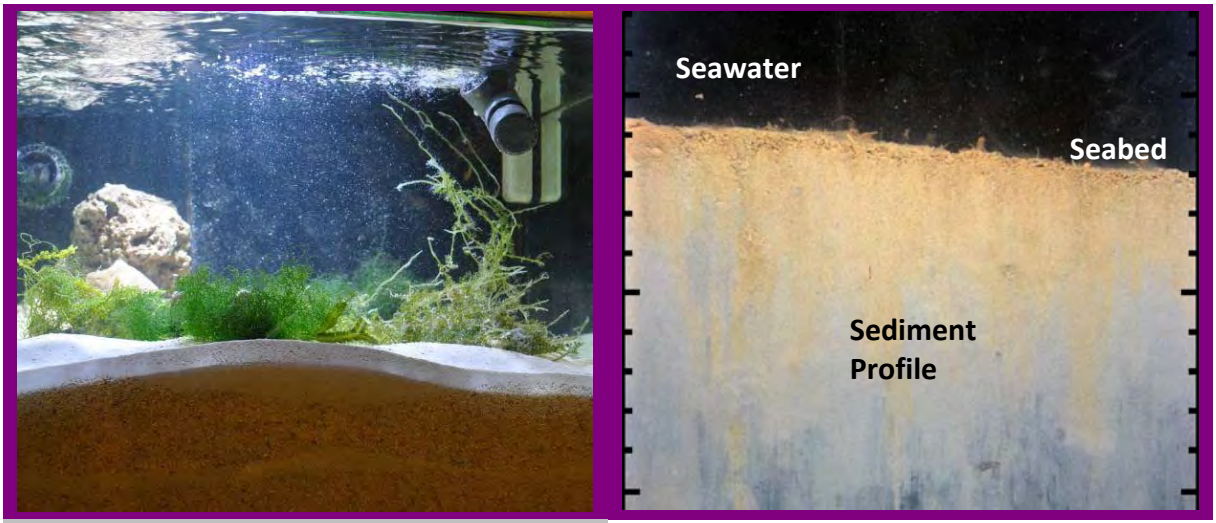


Figure 3. SPI Technology

pounds (lb) of lead was added to the camera frame to increase prism penetration (Figure 4). More detail on sediment profile camera operation can be found in Rhoads and Cande (1971) and Germano et al. (2011). As the SPI videos were being collected, they were downloaded onto a laptop computer, and transferred to CD-ROM at the end of fieldwork for permanent storage.

The sediment profile camera equipment was developed to investigate the nature and structure of the sediment-water interface, and as a means of obtaining in situ data on benthic habitat conditions (Rhoads and Cande, 1971). The SPI technology has allowed for the development of a broader understanding of the complexity of sediment dynamics from physical, chemical and biological points of view (Germano et al., 2011).

The SPI system works like an inverted periscope, wherein the digital camera is enclosed in a water-tight, pressure-resistant housing mounted on top of a wedge-shaped optical prism. As shown in Figure 5, the prism has an anterior transparent faceplate (1) with a mirror placed at a 45º angle to the rear (2). The camera lens (3) looks down at the mirror which reflects the image from the faceplate. The prism has a xenon strobe mounted next to the camera lens to provide illumination. The prism chamber is filled with fresh water which is exchanged as needed to ensure the camera/prism assembly always has a clear optical path.

3.2 Deployment

The camera/prism assembly is mounted on a moveable carriage attached to a frame which enables the prism to penetrate the sediment when lowered to the seabed. The frame is lowered at a steady rate on a winch wire, with the prism in its “up” position. Just before the frame encounters the seabed, at a predetermined elevation above the seabed dependent on water clarity,



Figure 4. SPI Camera

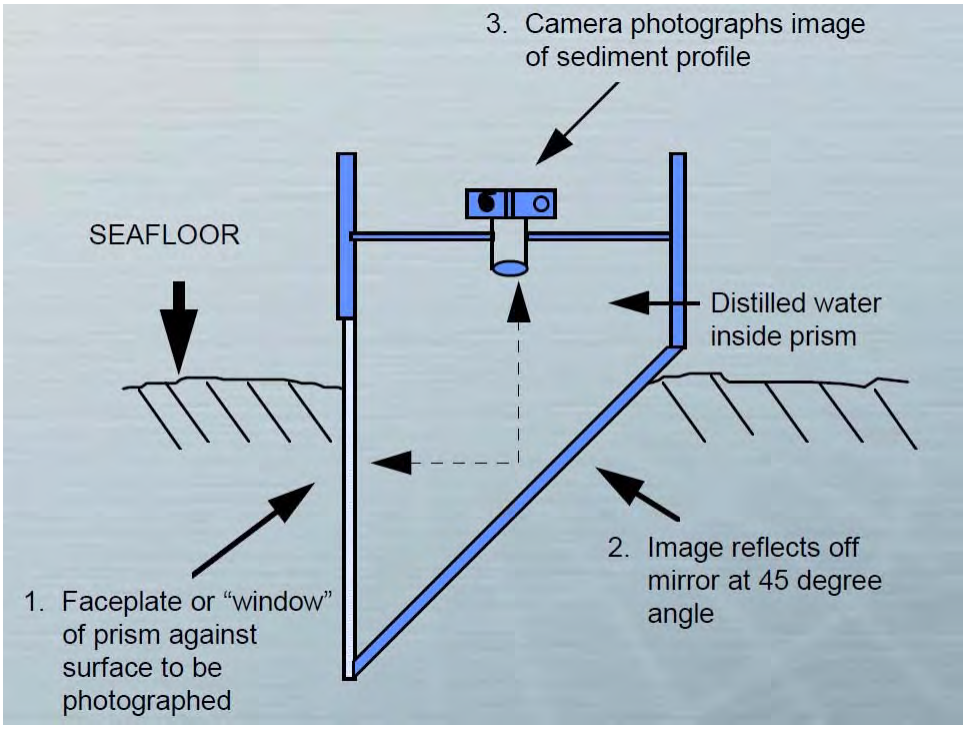


Figure 5. Sediment Profile Imaging Schematic

a mechanically-activated switch triggers the plan-view camera and an image is obtained of the seabed surface and epifauna conditions. When the frame encounters the seabed and the winch cable goes slack, the SPI camera/prism assembly continues to descend orthogonally into the seabed at a slow rate controlled by the dampening action of a hydraulic piston so as not to disturb the sediment-water interface. The leading-edge of the prism transects the sediment-seawater interface as it penetrates the seabed. As the SPI camera begins to descend into the sediment, a second trigger turns the SPI strobe on and starts a timer to initiate the SPI camera and collect the image after full penetration of the system is achieved. The system is then raised up about 2 to 3 meters off the bottom as the strobes recharge, and the system is then ready to be lowered again to collect replicate SPI images. A ruler is photographed on the faceplate prior to each survey to ensure profile image distance calibration.

3.3 Survey Design and Implementation

Twenty-one SPI stations were sampled in the Site 99 Year 1 survey. The sampling locations were randomly distributed throughout the Quantico Embayment (Figure 2). At each station, the SPI system was initially lowered, and then lifted and lowered twice more with the aim of collecting three replicate sets of SPI. Three replicate images were collected at each of 21 stations visited. Upon retrieval of the SPI system, images were viewed and assessed for acceptability prior to departing each station. Table 1 lists the station identification (ID), latitude/longitude, and date/time.

4.0 Image Analysis Methodology

For each station (Table 1), the clearest sediment profile image was selected for analysis from the multiple images obtained from each station. Images were analyzed using National Institute of Health ImageJ software version 1.48 and Adobe Photoshop®. To increase contrast, the red, green, blue (RGB) image histograms were equalized and clipped 0.1 to 1%. Prior to making image adjustments, excess water column space above the sediment-water interface was cropped from the image to improve contrast between RGB pixel layers. Pixel size, used to measure linear distance and area, was calibrated for the SPIs by measuring 1-cm gradations from the Kodak® Color Separation Guide. This calibration information was applied to all of the SPIs analyzed. Linear and area measurements were recorded as number of pixels and converted to scientific units by using calibration information. All measured parameters were recorded to Microsoft® Excel spreadsheets. Senior Scientist Dr. Robert Diaz conducted the image analysis. A listing of parameters measured is provided in Table 2. A brief description of each parameter measured and evaluated follows.

Table 2. Sediment Profile Imaging Parameters

Parameter	Units	Method	Description
Prism Penetration	cm	Computer Analysis	A geotechnical estimate of sediment compaction. Average of maximum and minimum distance from sediment surface to bottom of prism window
Sediment Surface Relief	cm	Computer Analysis	An estimate of small-scale bed roughness. Maximum depth of penetration minus minimum
Oxygen Penetration (aO_2) & Apparent Reduction-oxidation Potential Discontinuity Depth (aRPD)	cm	Computer Analysis	Estimate of depth to which sediments appear to be oxidized (from color change in sediment). Area of aerobic sediment divided by width of digitized image
Sediment Grain Size	Modal phi interval	Visual	An estimate of sediment types present. Determined from comparison of image to images of known grain size
Thickness of Sediment Layers	cm	Computer Analysis	Measure thickness above original sediment surface
Methane/Nitrogen Gas Voids	Number	Visual	Count
Epifaunal Occurrence	Number	Visual	Count, identify
Tube Density	Number/sq. cm	Visual	Count
Tube Type			
Burrow Structures	—	Visual	Identify
Pelletal Layer	cm	Visual	Measure thickness, area
Bacterial Mats	—	Visual	Determine presence and color
Infaunal Occurrence	Number	Visual	Count, identify
Feeding Voids	Number	Visual	Count, measure thickness, area

Prism Penetration — Prism penetration is a geotechnical estimate of sediment compaction with the profile camera prism acting as a dead weight penetrometer. The further the prism enters into the seabed, the softer the sediment and likely the higher the water content. Penetration is measured as the average distance the sediment surface appears to rise up the 30 cm length of the prism faceplate. For all stations, the weight was kept at 100 lb.

Sediment Surface Relief or Boundary Roughness — Surface relief is an important parameter for predicting sediment transport and in determining processes that dominate surface sediment dynamics (Rhoads et al., 1978). Surface relief or boundary roughness is measured as the difference between the minimum and maximum distance the prism penetrated. This parameter also estimates small-scale bed roughness, on the order of the prism faceplate width (14.5 cm). The origin of bed roughness is determined from visual analysis of the images. In physically dominated habitats, features such as ripples or bedforms, and sediment granularity cause bed roughness. In biologically dominated habitats, bed roughness is a result of biogenic activity such as tube structures, defecation mounds, or feeding pits.

Apparent Redox Potential Discontinuity (aRPD) Layer and Oxygen Penetration (aO_2) — These parameters are important estimators of benthic habitat conditions, which relate directly to the quality of the habitat (Pearson and Rosenberg, 1978; Rosenberg, 2001). Oxidation and reduction state in transitional marine to tidal freshwater sediments are related to a complex biogeochemistry that is controlled by a combination of factors ranging from sediment grain size, organic content, microbial communities, bioturbation, sediment sulfate concentration, and oxygen availability. The biogeochemistry reactions follow a consistent pattern with oxidants consumed in order of decreasing energy production per mole of organic carbon oxidized (oxygen > manganese oxides and nitrate > iron oxides > sulfate) (Froelich et al., 1979). Fortunately, these three biogeochemical states are relatively colorful. Oxic sediments are brown to reddish-brown, suboxic sediments are olive-brown to light-gray, and anoxic sediments are dark-gray to black. This is the basis for the well-known qualitative relationship between sediment color and redox state (Bull and Williamson, 2001). It is assumed that given the complexities of manganese, iron, and sulfate oxidation-reduction chemistry, the reddish-brown sediment color tones indicate sediments contain oxygen and are in an oxidative geochemical state, or at least are not intensely reducing (Fenchel, 1969; Bull and Williamson, 2001; Diaz and Trefry, 2006).

The aRPD layer depth includes the oxic portion of the sediment and also the depth to which sediments appear to be suboxic. The term apparent is used in describing these parameters because no actual measurement was made of oxygen or redox potential. Color in SPI is also dependent on non-sedimentary factors such as ambient water column light, reflections, and shadows that can make parts of the image seem lighter or darker. Thus, sediments visually assessed as oxic do not necessarily contain free oxygen, nor do visually anoxic sediments necessarily contain free sulfides (Wetzel et al., 1995). The number of pixels in the user-defined aRPD layers was counted and converted to linear measurement by dividing by the width of the image used in the analysis.

Sediment Grain Size — Grain size is an important parameter for determining the nature of the physical forces acting on the bottom of the sea and is one of the major factors in determining benthic community composition (Rhoads, 1974; Snelgrove and Butman, 1994). The sediment type descriptors used for image analysis followed the Wentworth classification as described in Folk (1974) and represent the major modal class for each image. Grain size was determined by comparison of collected images with a set of standard images for which mean grain size had been determined in the laboratory. The Phi scale sizes corresponding to sediment grain size estimated from images are provided in Table 3.

Table 3. Comparison of Phi Scale to SPI Sediment Grain Size Descriptors

Phi Scale	SPI Grain Size Descriptor	Sediment Grain Size Subclass	Upper Limit Size (mm)	Grains per cm of image
-6 to -8	CB	Cobble	256.0	<<1
-2 to -6	PB	Pebble	64.0	<1
-1 to -2	GR	Gravel	4.0	2.5
1 to -1	CS	Coarse-sand	2.0	5
2 to 1	MS	Medium-sand	0.5	20
4 to 2	FS	Fine-sand	0.25	40
4 to 3	VFS	Very-fine-sand	0.12	80
5 to 4	FSSI	Fine-sandy-silt	0.06	160
5.5 to 4.5	FSSICL	Fine-sandy-silt-clay	0.06	160
6 to 5	SIFS	Silty-fine-sand	0.0039	>320
7 to 5	SI	Silt	<0.0039	>320
8 to 6	SICL	Silty-clay	<0.0039	>320
>8 to 7	CLSI	Clayey-silt	<0.0039	>320
>8	CL	Clay	<0.0005	>2560

Surface Features and Bed Roughness — These parameters include a wide variety of physical (such as bedforms) and biological features (such as biogenic mounds, shell, or tubes). The presence of certain surface features is indicative of the overall nature of the processes acting on surface sediment. For example, bedforms are associated with physically dominated habitats, whereas the presence of dense worm tubes or feeding pits would be indicative of a more biologically accommodating habitat (Rhoads and Germano, 1986; Diaz and Schaffner 1988). Surface features were visually evaluated from each image and compiled by type and frequency of occurrence.

Subsurface Features — Subsurface features included a wide variety of characteristics (such as infaunal organisms, burrows, water-filled voids, gas voids, or sediment layering) that reveal information about physical and biological processes influencing the sea bottom. For example, habitats with grain size layers or homogeneous color layers are generally dominated by physical processes while habitats with disruptive burrows, infaunal feeding voids, and/or visible infaunal organisms are generally dominated by biological processes (Rhoads and Germano, 1986; Diaz and Schaffner, 1988; Valente et al., 1992). Subsurface features are visually evaluated from each image and compiled by type and frequency of occurrence.

5.0 Survey Results

Twenty-three SPI images were analyzed from the 21 SPI stations. All SPI data are in Appendix A and a summary is in Table 4. Replicate images from Stations 05 and 07 indicated that there was some small scale spatial heterogeneity, on the order of 3 to 5 meters, within the Quantico Embayment site so both images were analyzed. A mosaic of all SPI images analyzed is in Figures 6 and 7. High resolution SPI images are in Appendix B. Field logs for each of the stations is provided in Appendix C. The profile images were histogram-equalized to highlight the apparent color RPD layer and other sedimentary features. The scale graduations on the sides of the images are in centimeters. An overall summary of the Site 99 Year 1 conditions based on the data acquired from observation of the images is provided below.

5.1 Sediments and Cap Characteristics

Modal sediment grain size at Quantico Embayment Site 99 ranged from silt-clay to medium-coarse-sand (Table 4). The coarsest sediments occurred at Station 05, which has a mixture of medium-coarse sand and gravel, and Station 16, which is composed of medium-coarse sand (Figures 6 and 7). About half of the stations (11 of 21 stations) were a mixture of fine-medium-coarse sand. An additional three stations were a mixture of silt-clay and fine-medium-coarse sand. The finest silt-clay sediments occurred at Station 03. Maximum grain size of pebbles was observed at Stations 05 and 08.

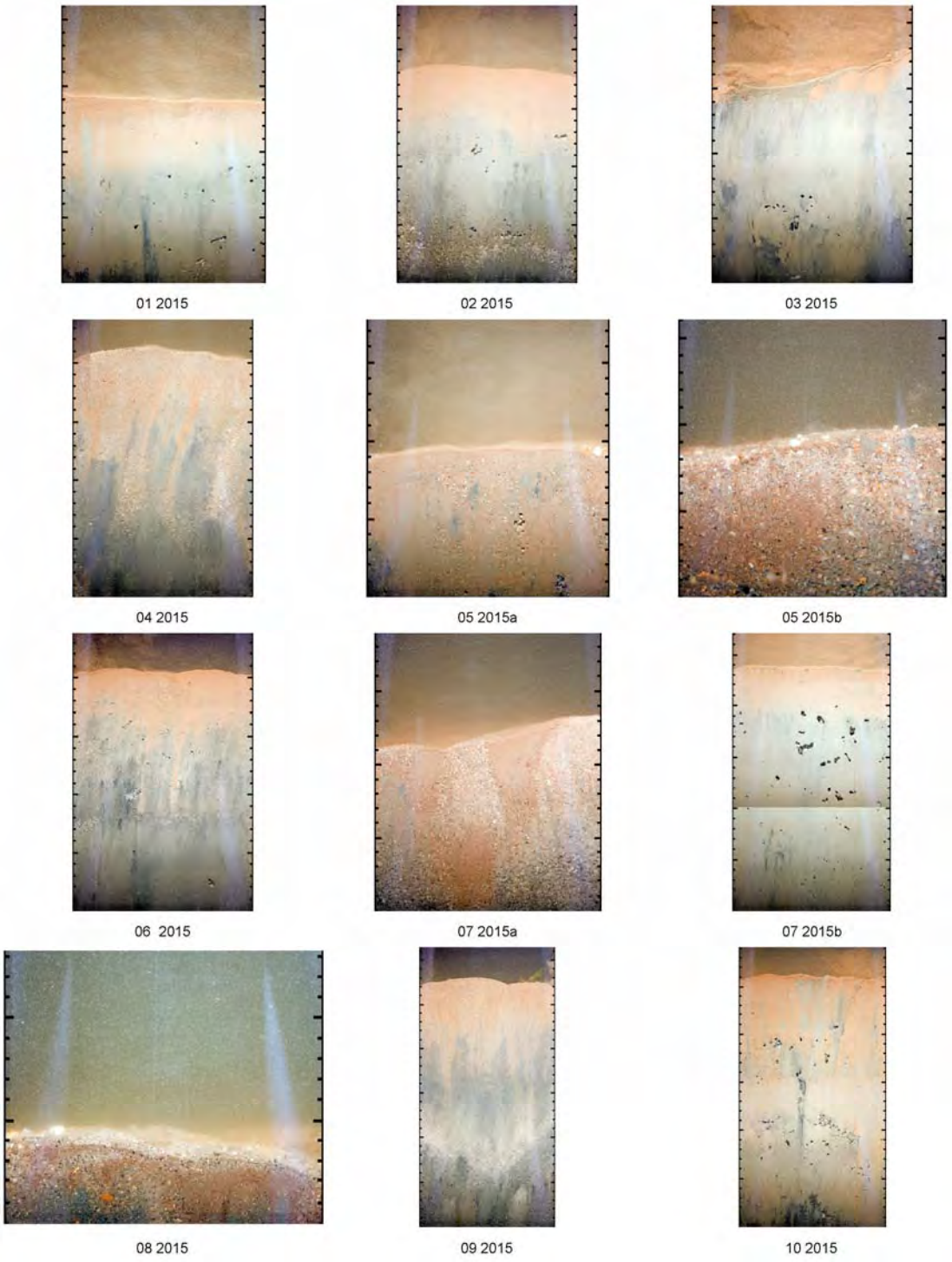
The sediment surface at all stations was dominated by physical processes. Appearances of current-generated asymmetric bedforms or ripples were observed at about half of the stations (11 of 21 stations). The boundary roughness associated with these bedforms could be measured when the profile prism cut the bedforms at nearly a right angle. This occurred at eight stations (7a, 13, 14, 15, 18, 19, 20, and 21) giving estimates of roughness that ranged from 1.3 cm at Stations 15 and 18 to 3.0 cm at Station 13 (Table 4). Spatially, stations toward the north-east end of the site tended to have bedforms (Figure 8).

Sediment sampling prior to cap placement determined that native sediments were primarily silt-clay (Battelle and Neptune and Co., Inc., 2004). Therefore, based on the presence of sediments that were medium sand and coarser and layering of finer sediment over coarser sediments, it was concluded that grain sizes from medium sand to gravel were all cap material. The cap was present at all stations except Station 03 which appeared to be native silt clay (Figure 6). Cap thickness exceeded prism penetration depth at all stations with cap material (Figure 9). At Stations 01, 02, 07, 10, and 17, appearances of silt clay native sediment layers were on top of or mixed into the cap sediments (Figures 6 and 7). Over the year since cap placement, it appears that native sediments from the surrounding bottom were transported to the capped site and mixed with cap material.

Table 4. SPI Data for Site 99 Quantico Embayment Year 1 (June 9, 2015)

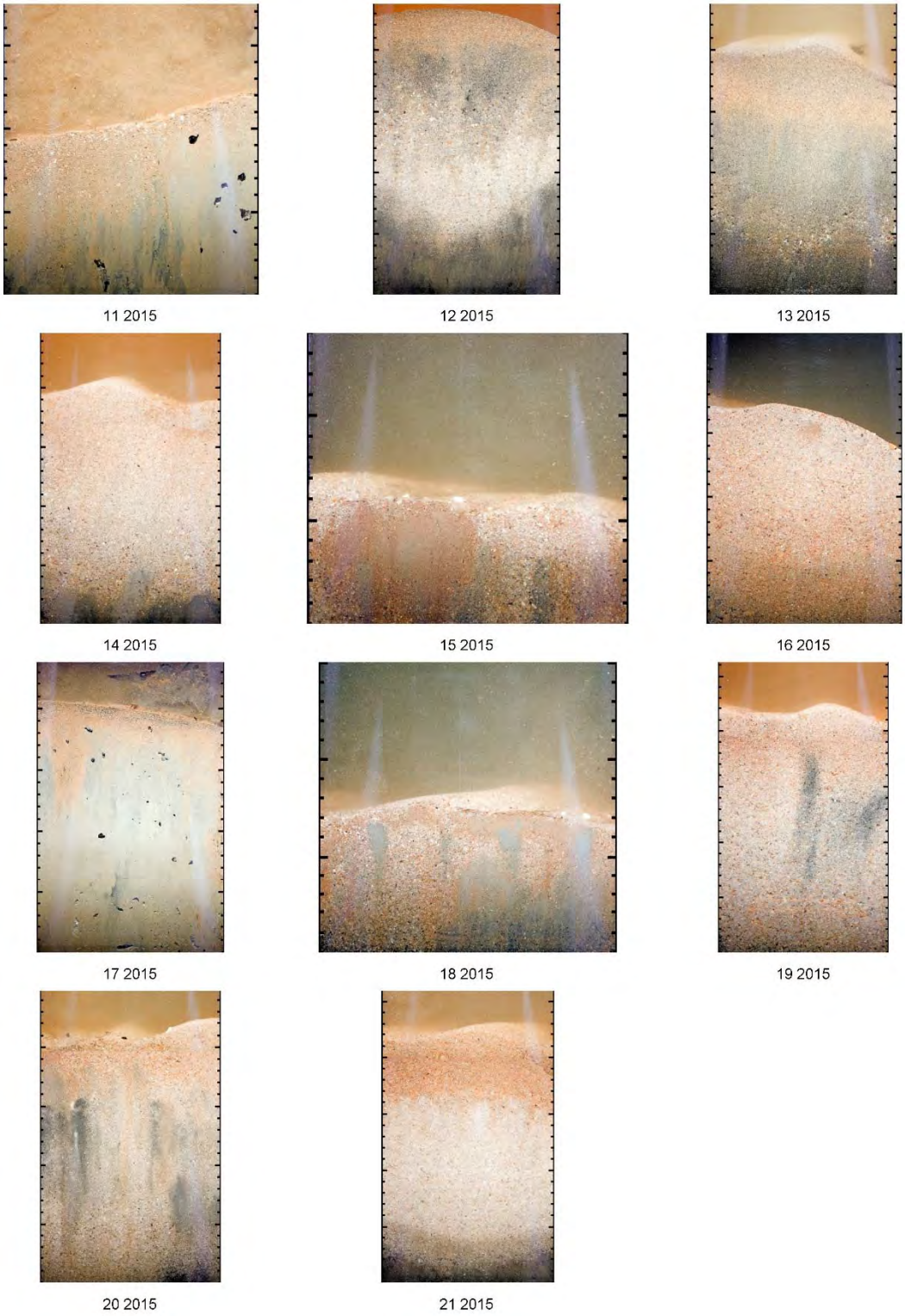
Station	Pene-tration (cm)	Boundary Rough-ness (cm)	aRPD (cm)	Grain Size Major Mode*	Grain Size Min*	Grain Size Max*	Cap Layer (cm)	Sediment Comment	Surface Tubes	Infauna	Burrows	Gas Voids	Comment
01	14.0	0.6	2.1	SICL/MSSI	CL	MS	11.6	Cap material under native sediments, Flocculent surface sediment	0	0	0	20 to 29	
02	18.1	1.0	2.8	SICL/MSSI/ MSCS	CL	CS	12.4	Cap material under native sediments, Flocculent surface sediment	0	5	0	30 to 39	Long thin worms?
03	16.3	2.6	1.1	SICL	CL	FS	0.0	Native sediment, Flocculent surface sediment	0	2	0	20 to 29	Long thin worms?
04	20.8	1.1	5.0	FSMSCS	SI	CS	>20.8	Cap sand with a trace of silt, Bedforms	1 to 9	0	0	1 to 9	Long thin tubes, Fecal pellets on surface
05a	9.1	0.9	8.1	FSMSCSSI	SI	CS	>9.1	Cap sandy silt, Floc layer on surface	1 to 9	0	0	1 to 9	Fecal pellets on surface
05b	8.5	1.9	>8.5	MSCSGR	SI	PB	>8.5	Cap clean sand, trace of silt	1 to 9	0	0	0	Fecal pellets on surface
06	20.5	0.5	3.5	FSMSCSSI	SI	CS	>20.5	Cap sandy silt, Floc layer on surface	0	2	0	0	Large worms
07a	12.1	2.3	8.8	FSMSCS	SI	CS	>12.1	Cap clean sand, Floc layer on surface, Bedforms	1 to 9	0	0	1 to 9	Fecal pellets on surface
07b	23.6	0.5	2.3	SICL/MSSI	CL	MS	21.6	Cap material under native sediments, Flocculent surface sediment	0	1	0	0	Worm near gas void
08	3.5	0.8	2.5	FSMSCS	FS	PB	>3.5	Cap clean sand, Bedforms	0	0	0	0	
09	27.4	1.0	4.5	FSMSSI/ FSMSCS	SI	CS	>27.4	Cap sandy silt	0	1	0	0	Aquatic vegetation
10	25.8	1.0	1.7	FSMSSI/ FSMS	SI	MS	22.2	Cap material under native sediments, Flocculent surface sediment	0	2	0	>50	Worm in gas void
11	10.7	2.8	3.3	FSMSCSSI	SI	CS	>10.7	Cap sandy silt	1 to 9	1	0	1 to 9	Fecal pellets on surface
12	22.3	2.3	2.8	FSMSCS	FS	CS	>22.3	Cap clean sand	0	0	0	0	
13	18.9	3.0	5.2	FSMSCS	FS	CS	>18.9	Cap clean sand, Bedforms	0	0	0	10 to 19	
14	19.3	2.1	16.2	FSMSCS	FS	CS	>19.3	Cap clean sand, Bedforms	1 to 9	0	0	0	Fecal pellets on surface
15	5.3	1.3	2.9	FSMSCS	SI	CS	>5.3	Cap clean sand, trace of silt, Bedforms	1 to 9	0	0	0	Fecal pellets on surface
16	15.4	3.6	>15.4	MSCS	MS	CS	>15.4	Cap clean sand, Bedforms	0	0	0	0	
17	19.6	2.0	1.9	FSSI/ FSMSSI	SI	MS	16.0	Cap material under native sediments, Flocculent surface sediment	1 to 9	0	0	40 to 49	Fecal pellets on surface
18	7.1	1.3	5.6	FSMSCS	SI	CS	>7.1	Cap clean sand, trace of silt, Bedforms	1 to 9	0	0	0	Fecal pellets on surface
19	21.3	1.5	>21.3	FSMSCS	FS	CS	>21.3	Cap clean sand, Bedforms	0	0	0	0	
20	21.1	2.2	>21.1	FSMSCS	FS	CS	>21.1	Cap clean sand, Bedforms	1 to 9	0	0	0	Fecal pellets on surface
21	21.3	2.1	19.8	FSMSCS	FS	CS	>21.3	Cap clean sand, Bedforms	0	0	0	0	

* Sediment descriptors:
CL = Clay FS = Fine-Sand MS = Medium=Sand SI = Silt
CS = Coarse-Sand GR = Gravel PB = Pebble



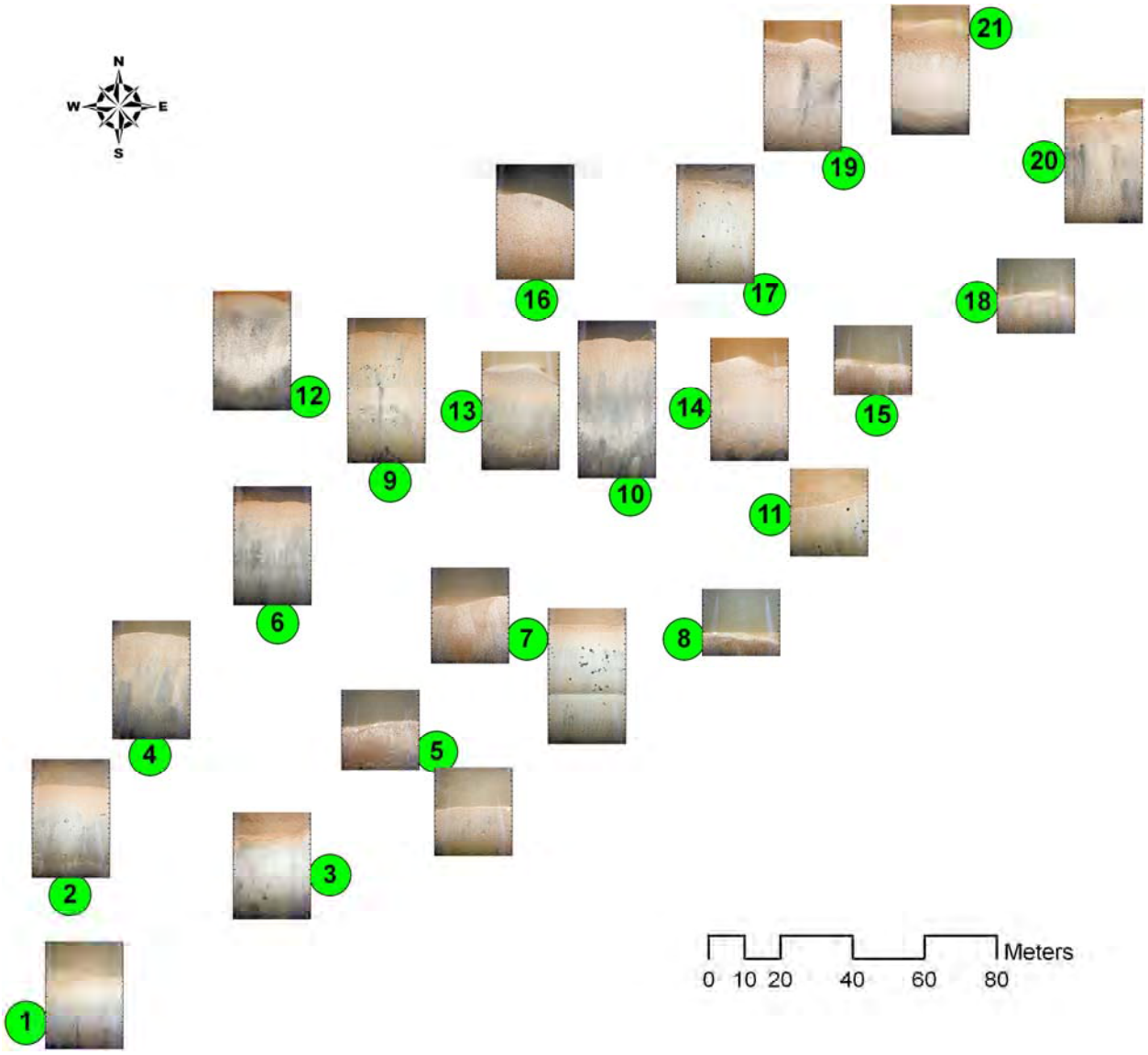
(Scale on side of images is in cm).

Figure 6. Mosaic of Images from Quantico Embayment Site 99 Stations 01 to 10 for One Year Post-cap SPI Survey June 9, 2015



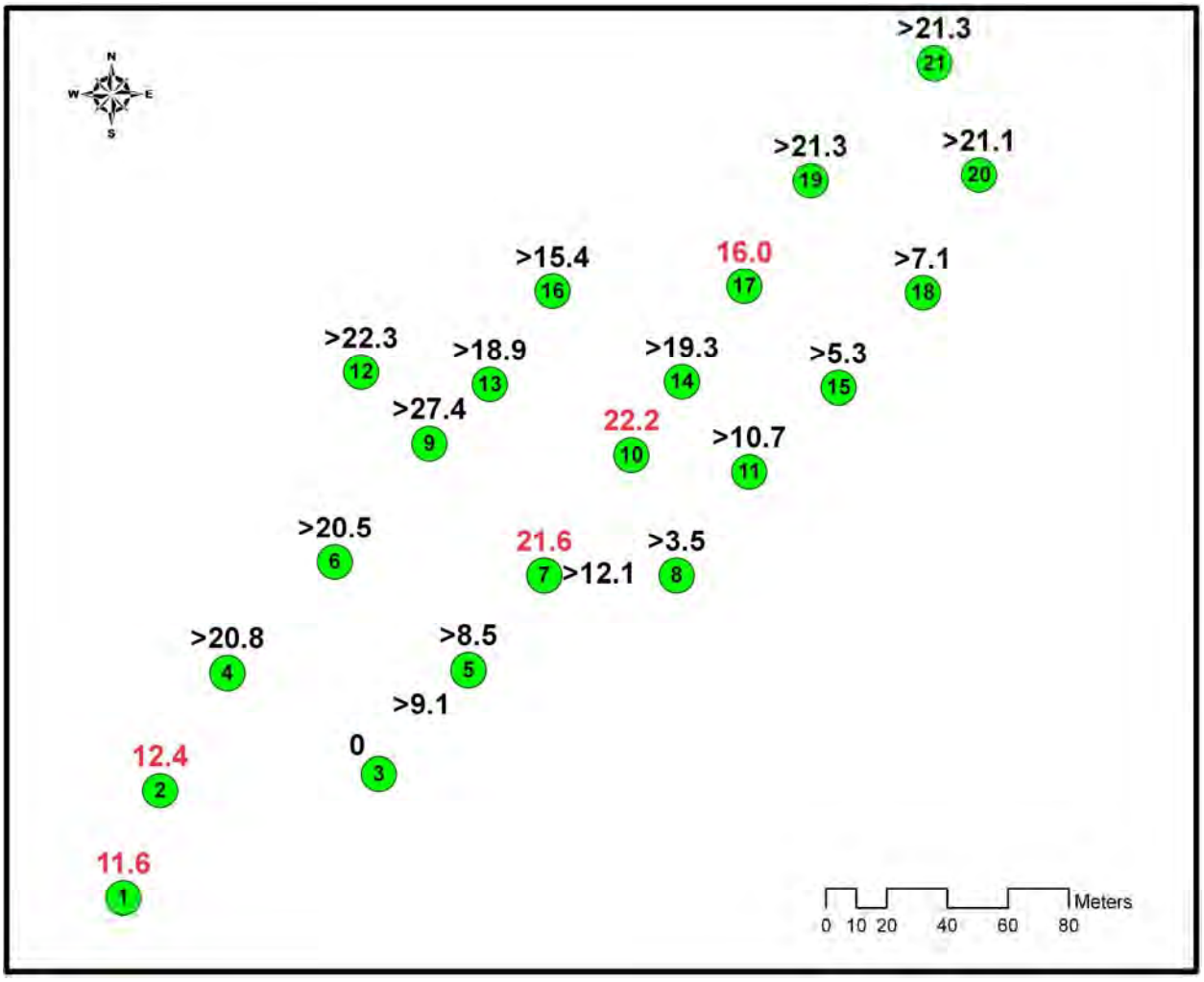
(Scale on side of images is in cm).

Figure 7. Mosaic of Images from Quantico Embayment Site 99 Stations 11 to 21 for One Year Post-cap SPI Survey June 9, 2015



(Scale on side of images is in cm.)

Figure 8. Spatial Mosaic of Images from Quantico Embayment Site 99 for One Year Post-cap SPI Survey June 9, 2015



(The > symbol indicates that cap material was thicker than prism penetration. Red numbers indicate the thickness of native sediments on top of or mixed in with cap material.)

Figure 9. Cap Thickness (cm) at Quantico Embayment Site 99 SPI Stations, June 9, 2015

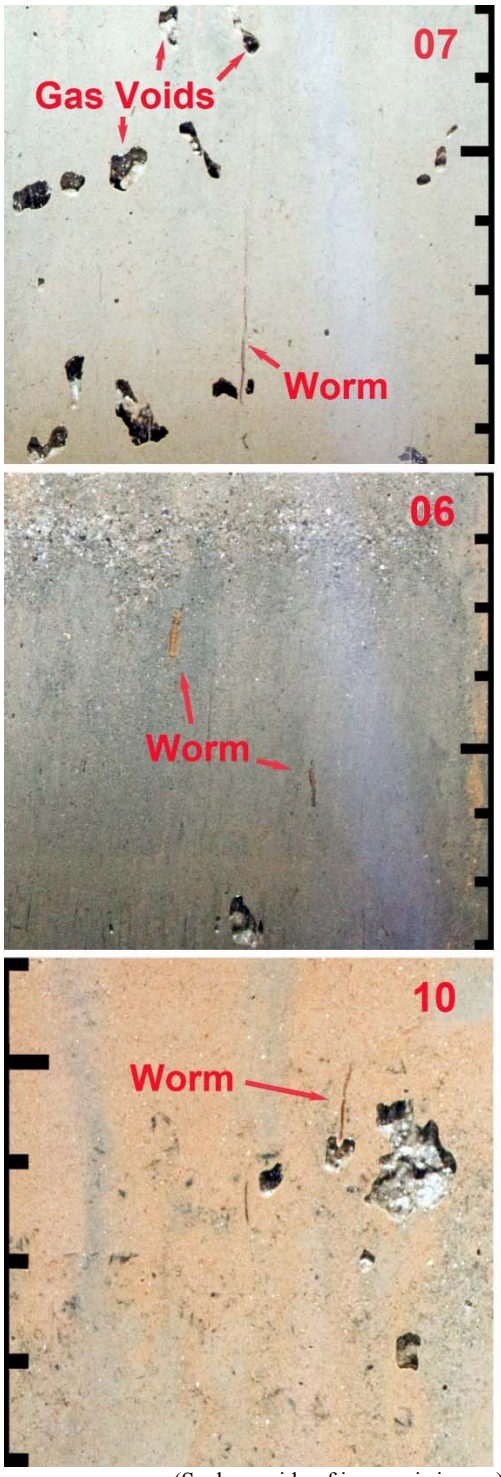
5.2 Biology

Appearances of small tubes occurred in low densities (one to nine per image) at about half the stations (nine of 21 stations) (Table 4). These tubes could also have been small fecal pellets as there are not many tube-building species in marine-freshwater transitional habitats (Dauer, 1993). Tubes could be from newly settled *Marenzelleria viridis, Streblospio benedicti, or Boccardiella ligerica*, which are three small tube-building polychaete species common in fine-grained sediments from tidal freshwater to about salinities of 3 psu (Dauer, 1993). The fecal pellets are likely from the bivalves *Rangia cuneata* or *Corbicula fluminea,* both of which were found at the Quantico Embayment Site 99 during fieldwork. They are also known to be common in the low salinity and tidal freshwater Potomac River (Dauer, 1993).

Oligochaetes, which are the dominant faunal group at low salinity and tidal freshwater, do not build tubes (Brinkhurst and Jamieson, 1971) or ventilate their burrows (Fisher et al., 1980; McCall and Fisher 1980), which would oxidize the burrow walls and make them more visible in the SPI images. Oligochaetes were observed below the sediment surface at one third (seven of 21 stations) stations (Table 4). The largest oligochaetes were observed at Stations 06, 07, and 10 (Figure 10). There was no evidence of burrowing by any other infaunal species, such as Chironomid larvae (Bonsdorff et al., 1996).

The dominance of surficial sediments by physical processes appeared to be the principal factor determining oxidation-reduction state of the sediments. There was no evidence of bioturbation by infauna or other benthic species at any of the Quantico Embayment stations. The shallowest depth of the aRPD occurred at Station 03 (1.1 cm) which was native sediment with a flocculent surface sediment (Table 4). In silt-clay sediments, physical diffusion limits oxygen penetration to <1 cm (Jørgensen and Revsbech, 1985). This indicated that resuspension-deposition events were likely responsible for the shallower aRPD layer at Station 03. In sandy porous sediment, deep aRPD layers appeared primarily to be a function of porewater circulation driven by current or wave action that pumps oxygenated water into the sediment. This appeared to be the factor responsible for the deep aRPDs at many stations (Table 4, Figure 11).

The most obvious signs of biogenic activity were gas voids produced by anaerobic methanogenic microbes. When sediment sulfate is depleted, methanogenesis becomes the dominating diagenetic process producing methane and carbon dioxide (Fenchel, 1987; Kristensen, 2000). Gas voids occurred at about half of the stations (10 of 21 stations) with over 50 small gas voids in the image from Station 10 (Figure 6). Gas voids were primarily associated with silt-clay sediments, but also occurred in what appeared to be clean sand, for example at Station 13 (Figure 7).



(Scale on side of images is in cm.)

Figure 10. Oligochaetes Observed at Quantico Embayment Site 99 SPI Station 06 at 14 and 16 cm Below Sediment Surface, Station 07 at 12 cm Below the Surface, and Station 10 at 7 cm Below the Surface, June 9, 2015

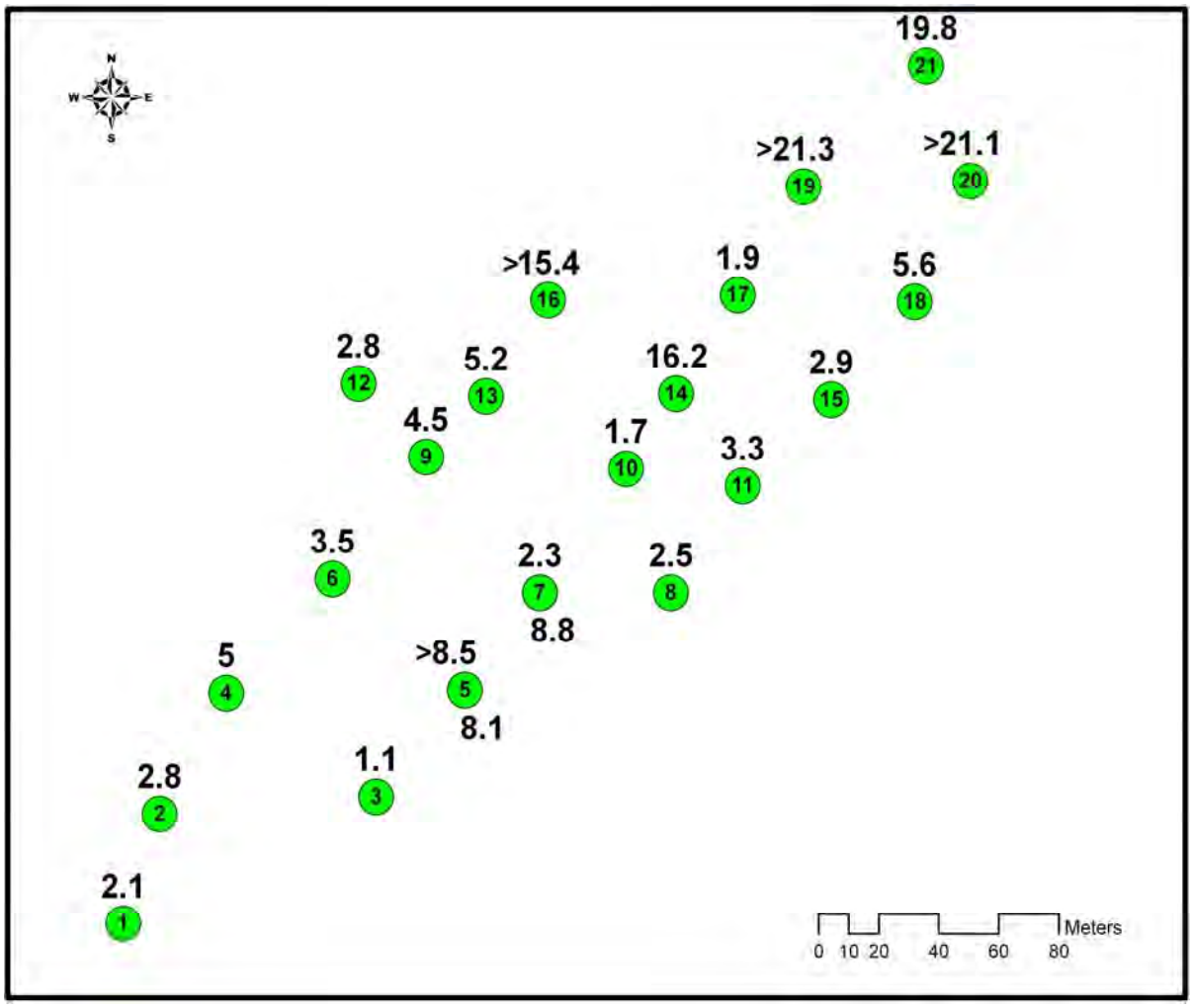


Figure 11. aRPD Layer Depth (cm) at Quantico Embayment Site 99 SPI Stations, June 9, 2015

6.0 Discussion

Overall, the Quantico Embayment Site 99 appeared to be typical of other marine-freshwater transitional zones within the Potomac River and other Chesapeake Bay tributaries (Diaz, 1989, 1994; Dauer, 1993; Clarke et al., 2003). Native sediments in these tidal freshwater habitats are primarily silt-clays with sandy sediments composed mostly of fine sand.

The general muddy nature of native sediments facilitated the identification of the cap material which was primarily medium- to coarse-sand (Table 4, Figures 6 and 7). Shortly after cap placement in 2014, the surface of cap stations was primarily clean sands (Diaz, unpublished data from the Department of Defense [DoD] Environmental Security Technology Certification Program [ESTCP] project evaluating the Site 99 HEC). One year after cap placement, the surface sediments at most cap stations had significant amounts of fine silt-clay sediments on top of cap sands or mixed into the surface. For example, at Station 02, there was an approximate 4 cm layer of native silt clay sediment over a layer of about 8 cm of silty medium sand that was over clean medium-coarse sand cap sediments (Figure 6). It was likely that storm-related resuspension-deposition events were responsible for mixing native and cap sediments. Due to limited prism penetration, native sediments under cap material were not observed at any of the Quantico Embayment Site 99 SPI stations. Only Station 03 on the south-eastern edge of the cap site appeared to be without cap sediment.

There was no evidence in the sediment profile images that biological processes were involved in sediment mixing at the Site 99 HEC. Bioturbation, which is a primary mixing process in marine sediments, is not an important factor in transitional or tidal freshwater benthic habitats (Diaz, 1994).

7.0 References

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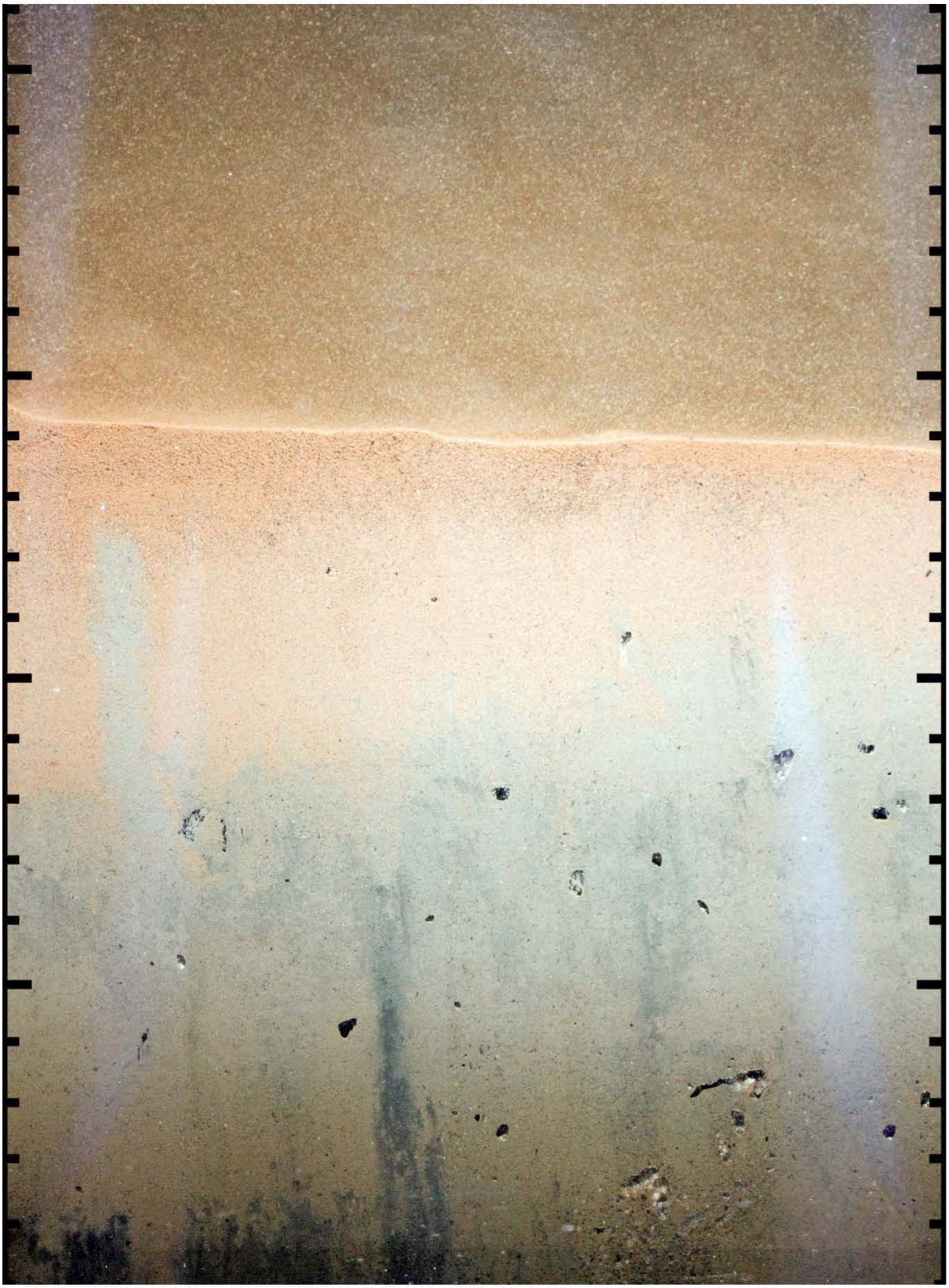
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Appendix A:
Sediment Profile Image Data

Station	Rep	Penetration Mean (cm)	Boundary Roughness (cm)	Boundary Roughness Source	aRPD Qualifier	aRPD Mean (cm)	Grain Size Major Mode (phi)	Grain Size Minimum (phi)	Grain Size Maximum (phi)	Cap Layer Qualifier	Cap Layer
1	1	14.01	0.6	PHY		2.1	SICL/MSSI	CL	MS		11.6
2	1	18.11	1	PHY		2.8	SICL/MSSI/ MSCS	CL	CS		12.4
3	1	16.27	2.6	PHY		1.1	SICL	CL	FS		0
4	1	20.78	1.1	PHY		5	FSMSCS	SI	CS	>	20.8
5	1	9.12	0.9	PHY		8.1	FSMSCSSI	SI	CS	>	9.1
5	2	8.51	1.9	PHY	>	8.5	MSCSGR	SI	PB	>	8.5
6	1	20.47	0.5	PHY		3.5	FSMSCSSI	SI	CS	>	20.5
7	1	12.11	2.3	PHY		8.8	FSMSCS	SI	CS	>	12.1
7	2	23.6	0.5	PHY		2.3	SICL/MSSI	CL	MS		21.6
8	1	3.47	0.8	PHY		2.5	FSMSCS	FS	PB	>	3.5
9	1	27.44	1	PHY		4.5	FSMSSI/FS MSCS	SI	CS	>	27.4
10	1	25.81	1	PHY		1.7	FSMSSI/FS MS	SI	MS		22.2
11	1	10.69	2.8	PHY		3.3	FSMSCSSI	SI	CS	>	10.7
12	1	22.27	2.3	PHY		2.8	FSMSCS	FS	CS	>	22.3
13	1	18.94	3	PHY		5.2	FSMSCS	FS	CS	>	18.9
14	1	19.27	2.1	PHY		16.2	FSMSCS	FS	CS	>	19.3
15	1	5.28	1.3	PHY		2.9	FSMSCS	SI	CS	>	5.3
16	1	15.44	3.6	PHY	>	15.4	MSCS	MS	CS	>	15.4
17	1	19.58	2	PHY		1.9	FSSI/FSMSS I	SI	MS		16
18	1	7.06	1.3	PHY		5.6	FSMSCS	SI	CS	>	7.1
19	1	21.34	1.5	PHY	>	21.3	FSMSCS	FS	CS	>	21.3
20	1	21.14	2.2	PHY	>	21.1	FSMSCS	FS	CS	>	21.1
21	1	21.32	2.1	PHY		19.8	FSMSCS	FS	CS	>	21.3

Station	Rep	Sediment Comment	Surface Tubes	Infauna	Burrows	Gas Voids	Comment
1	1	Cap material under native sediments, Floculent surface sediment	0	0	0	20 to 29	
2	1	Cap material under native sediments, Floculent surface sediment	0	5	0	30 to 39	Long thin worms?
3	1	Native sediment, Floculent surface sediment	0	2	0	20 to 29	Long thin worms?
4	1	Cap sand with a trace of silt, Bedforms	1 to 9	0	0	1 to 9	Long thin tubes, Fecal pellets on surface
5	1	Cap sandy silt, Floc layer on surface	1 to 9	0	0	1 to 9	Fecal pellets on surface
5	2	Cap clean sand, trace of silt	1 to 9	0	0	0	Fecal pellets on surface
6	1	Cap sandy silt, Floc layer on surface	0	2	0	0	Large worms
7	1	Cap clean sand, Floc layer on surface, Bedforms	1 to 9	0	0	1 to 9	Fecal pellets on surface
7	2	Cap material under native sediments, Floculent surface sediment	0	1	0	0	Worm near gas void
8	1	Cap clean sand, Bedforms	0	0	0	0	
9	1	Cap sandy silt	0	1	0	0	Aquatic vegetation
10	1	Cap material under native sediments, Floculent surface sediment	0	2	0	>50	Worm in gas void
11	1	Cap sandy silt	1 to 9	1	0	1 to 9	Fecal pellets on surface
12	1	Cap clean sand	0	0	0	0	
13	1	Cap clean sand, Bedforms	0	0	0	10 to 19	
14	1	Cap clean sand, Bedforms	1 to 9	0	0	0	Fecal pellets on surface
15	1	Cap clean sand, trace of silt, Bedforms	1 to 9	0	0	0	Fecal pellets on surface
16	1	Cap clean sand, Bedforms	0	0	0	0	
17	1	Cap material under native sediments, Floculent surface sediment	1 to 9	0	0	40 to 49	Fecal pellets on surface
18	1	Cap clean sand, trace of silt, Bedforms	1 to 9	0	0	0	Fecal pellets on surface
19	1	Cap clean sand, Bedforms	0	0	0	0	
20	1	Cap clean sand, Bedforms	1 to 9	0	0	0	Fecal pellets on surface
21	1	Cap clean sand, Bedforms	0	0	0	0	

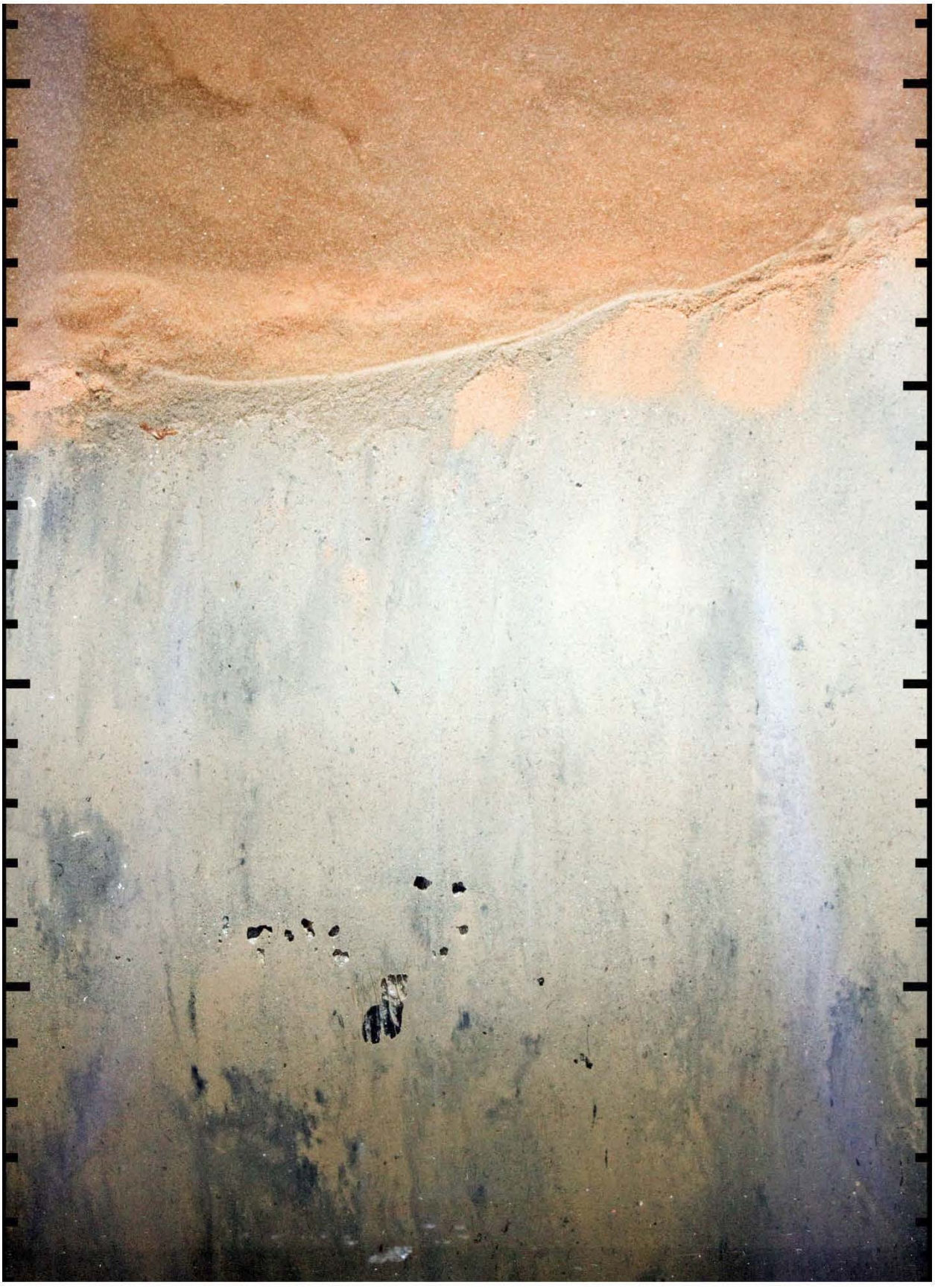
Appendix B:
Sediment Profile Images



Station 01 - 2015



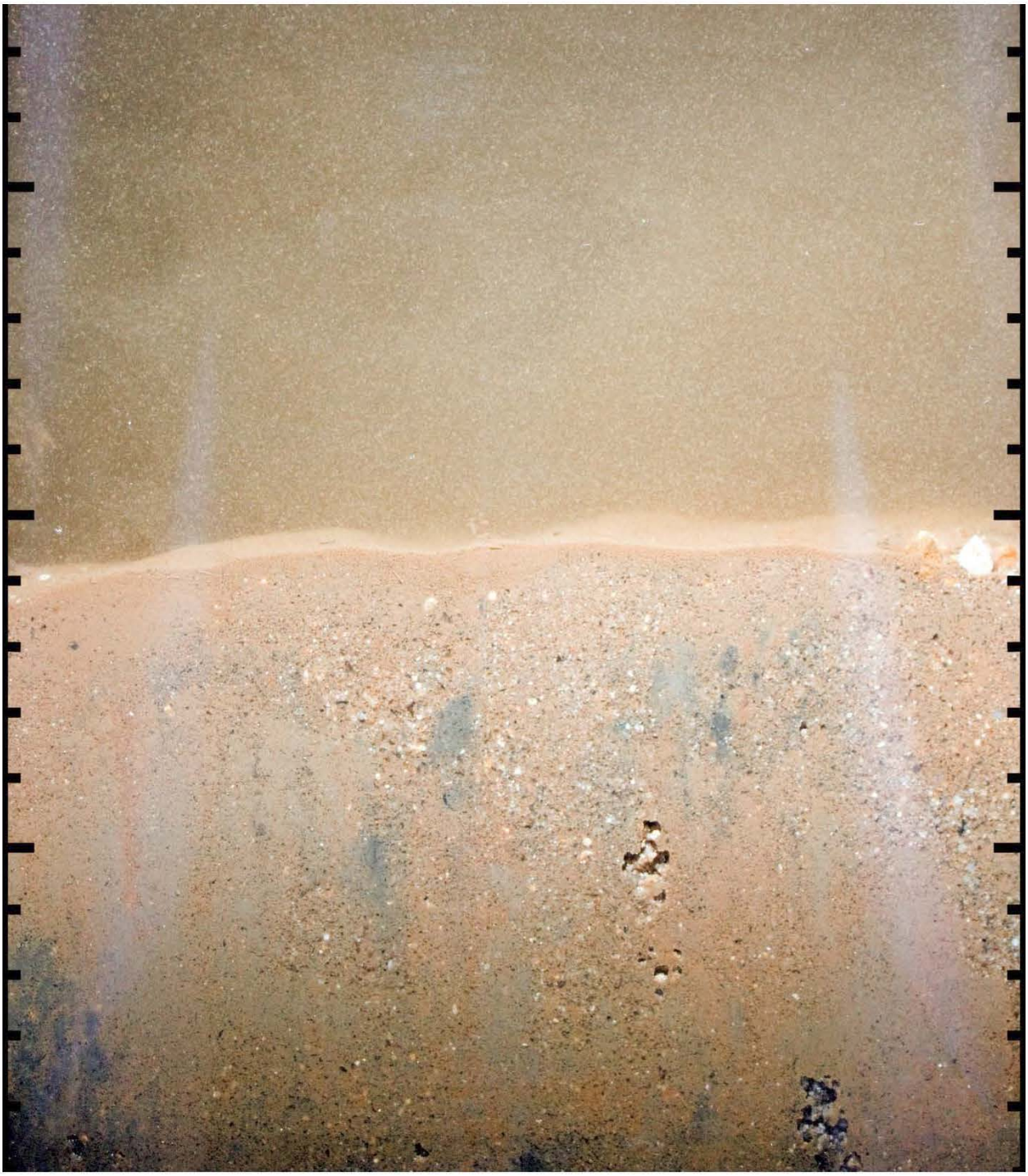
Station 02 - 2015



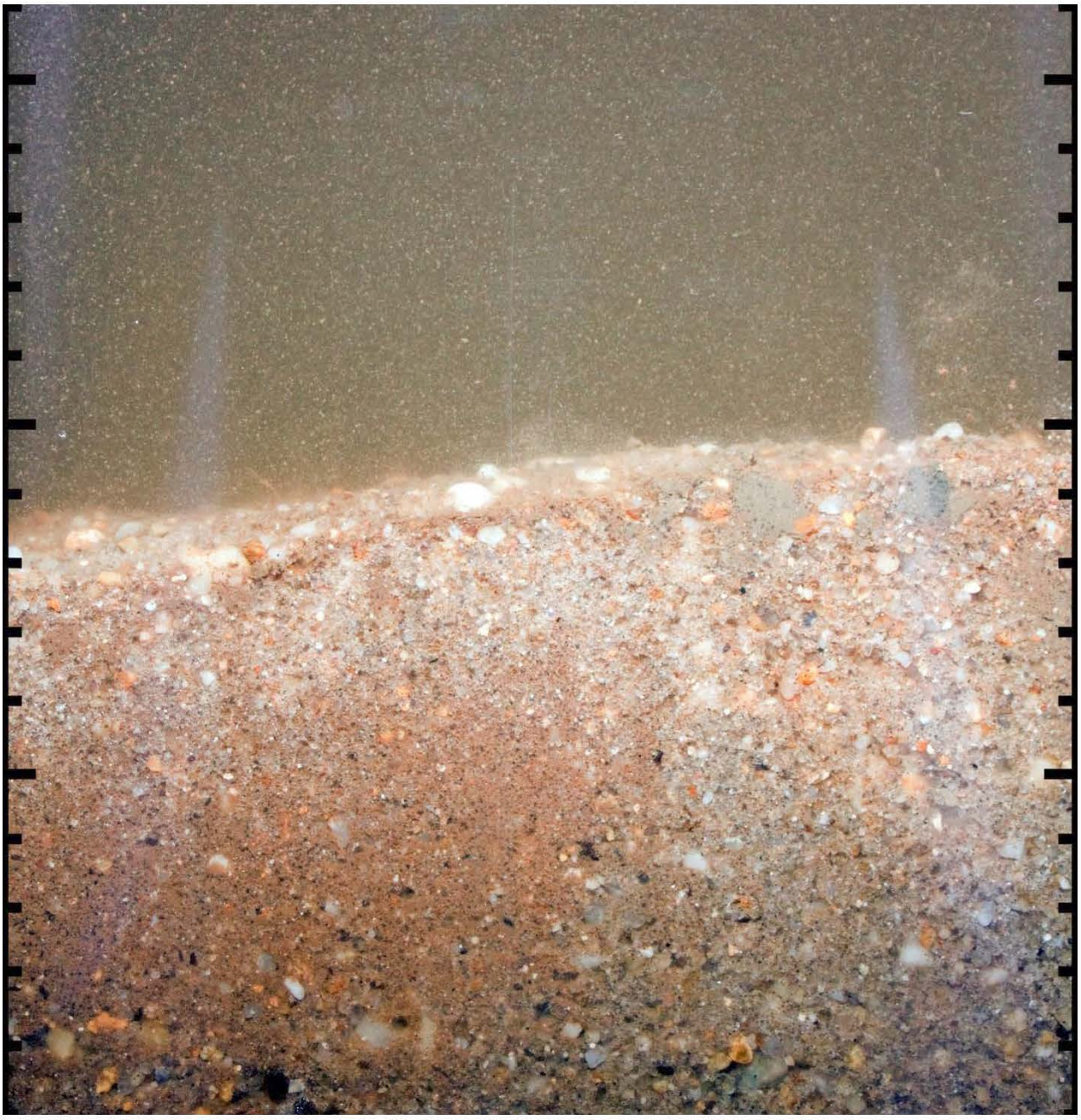
Station 03 - 2015



Station 04 - 2015



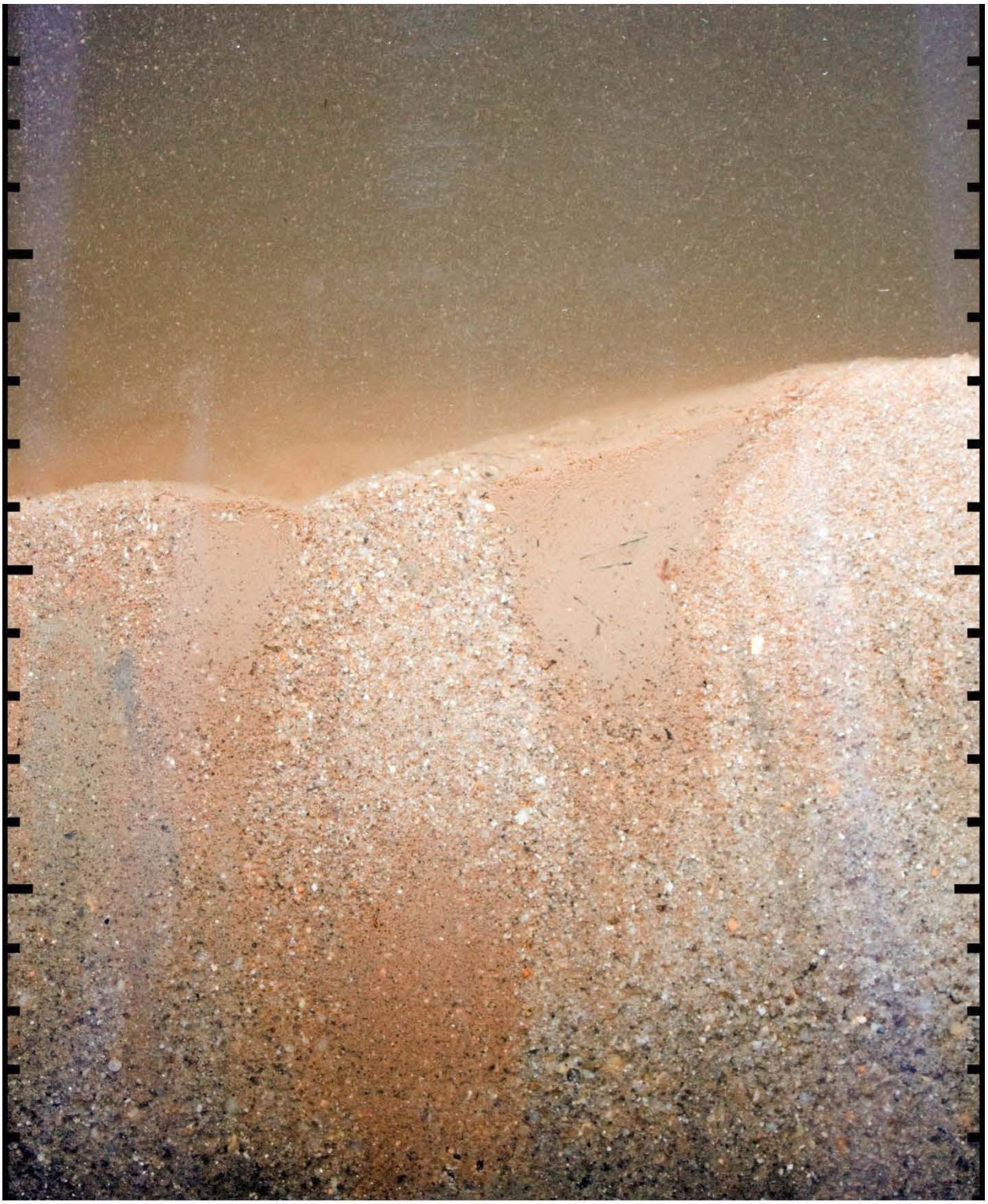
Station 05a - 2015



Station 05b - 2015



Station 06 - 2015



Station 07a - 2015



Station 07b - 2015



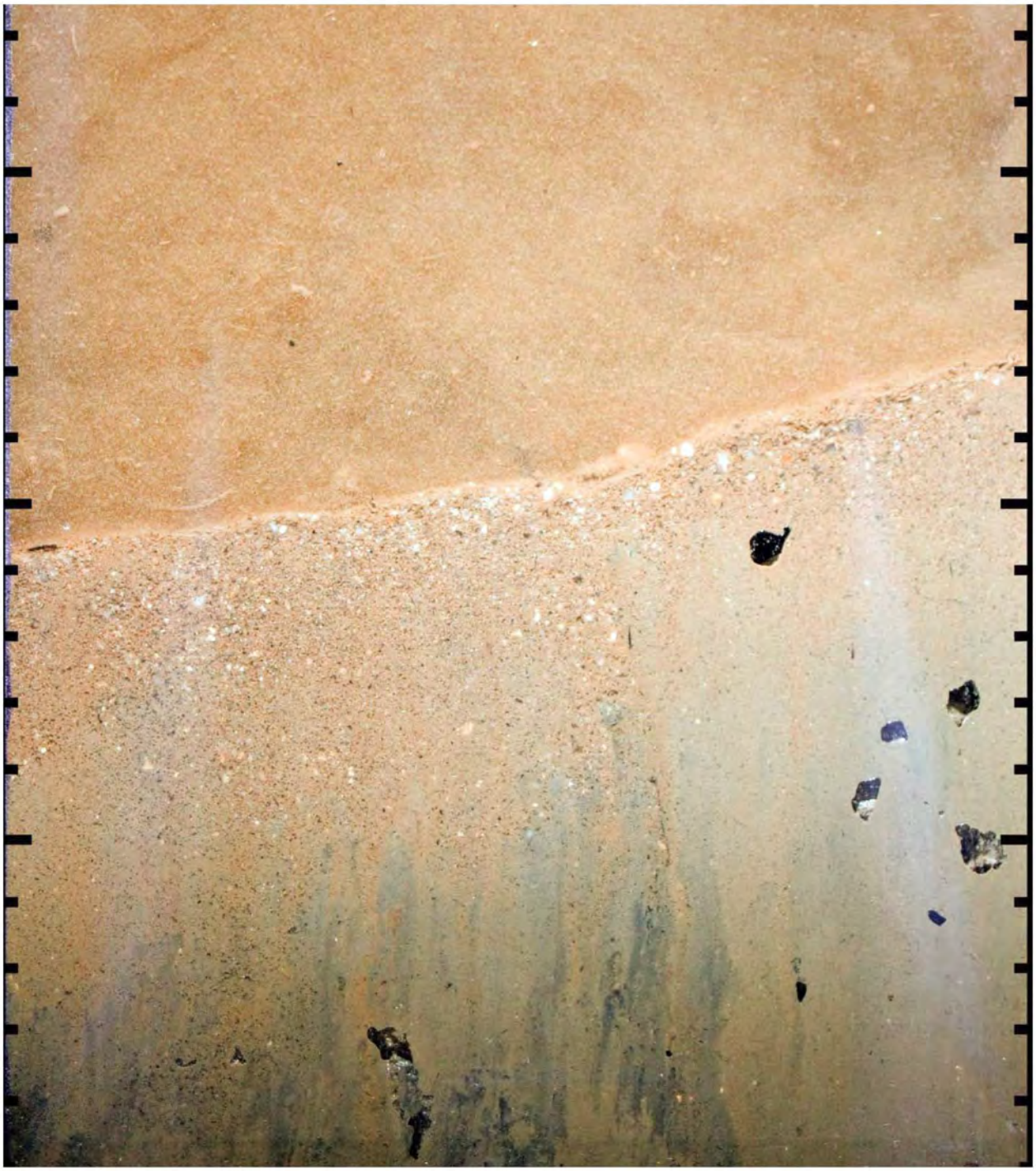
Station 08 - 2015



Station 09 - 2015



Station 10 - 2015



Station 11 - 2015



Station 12 - 2015



Station 13 - 2015



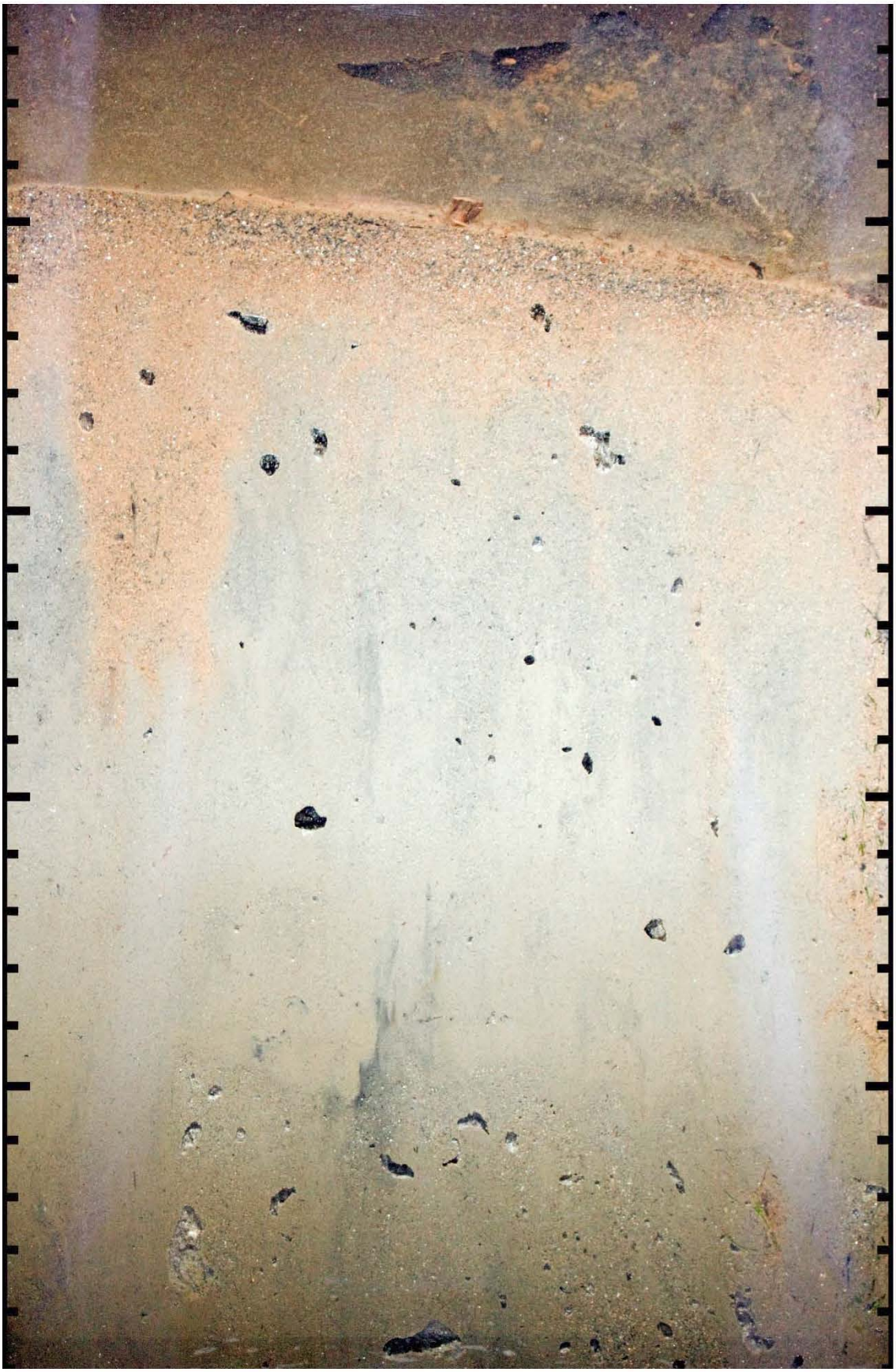
Station 14 - 2015



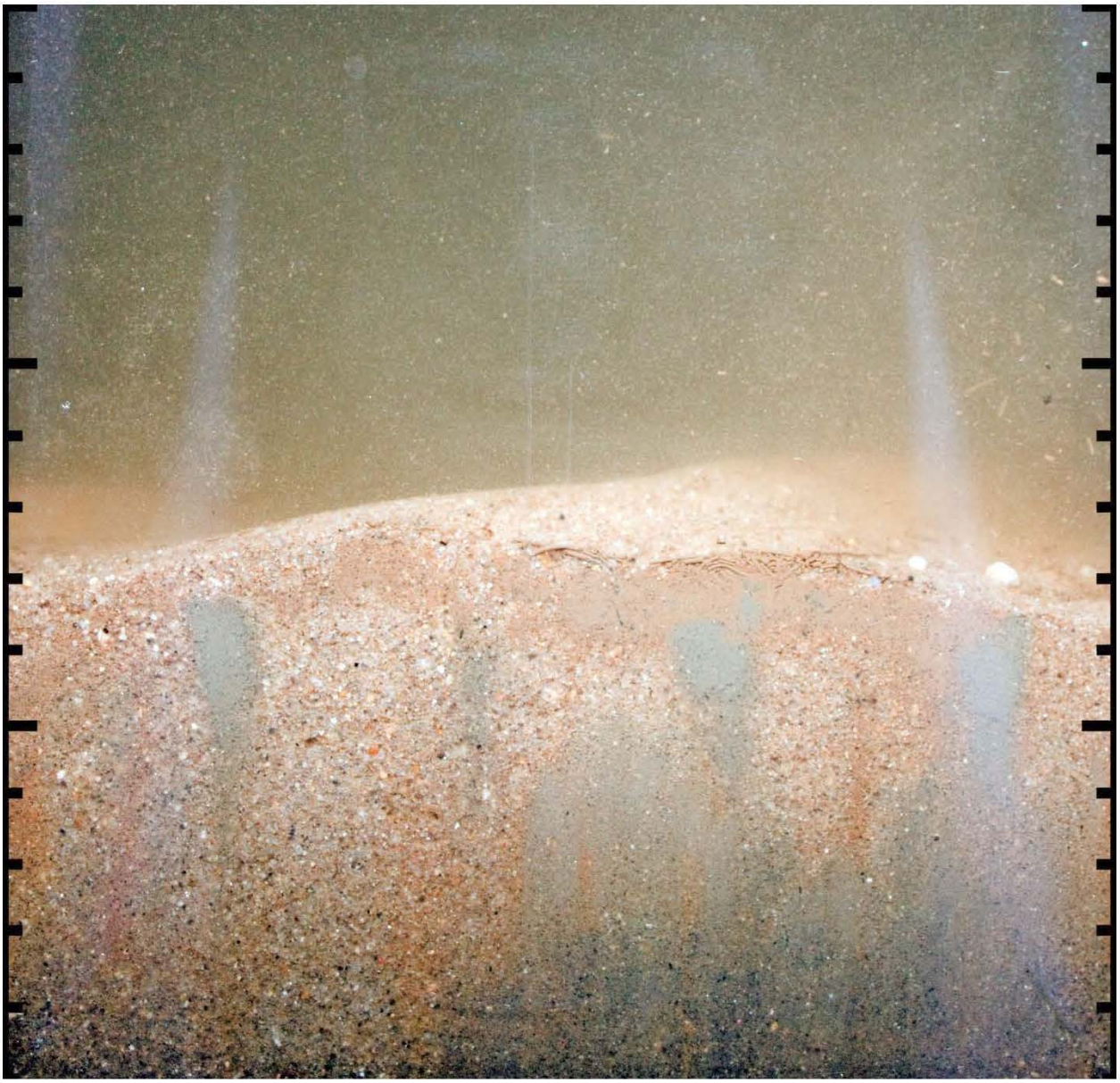
Station 15 - 2015



Station 16 - 2015



Station 17 - 2015



Station 18 - 2015



Station 19 - 2015



Station 20 - 2015



Station 21 - 2015

Appendix C:
Site 99 Year 1 Field Logs

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IR SITE 99 LONG TERM MONITORING
SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 6/9/15	Recorder: Caitlyn Farragher
Vessel: Gale Force	Sampling Staff: DIA2 PBL/MRE/CNF	Sampler type: SPI
Area: CAP	Station ID: ~~SPI-01~~ ① SP1-01	Water depth (ft): 5.2
Sample Time (local): 09:50	Water depth (ft)	GPS units:
Northing /Lat: 38.512355	Easting/Long: -77.299015	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments: Way Point 4001 ① SB (PBL 6/9/15)		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Field Activities / Comments / Observations:		

Field Team Leader Review and Approval _____

Battelle
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IR SITE 99 LONG TERM MONITORING
SPI DEPLOYMENT LOG

Battelle Project No. 100018515	**Date:** 6/9/15	**Recorder:** PBC	
Vessel: Gale Force	**Sampling Staff:** DIAZ PBC/MRF/CNF	**Sampler type:** SPI	
Area: CAP	**Station ID:** ① ~~SPI 02~~ SPI-02	**Water depth (ft):** 4.1	
Sample Time (local): 10:08	**Water depth (ft)**	**GPS units:**	
Northing /Lat: 38.512686	**Easting/Long:** -77.298781	**DGPS Accuracy Estimate:**	
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments: Way Point 4002 ① SB (PBC 6/9/15)			
Sample Time (local):	**Water depth (ft)**	**GPS units:**	
Northing /Lat:	**Easting/Long:**	**DGPS Accuracy Estimate:**	
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments:			
Sample Time (local):	**Water depth (ft)**	**GPS units:**	
Northing /Lat:	**Easting/Long:**	**DGPS Accuracy Estimate:**	
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments:			
Field Activities / Comments / Observations:			

Field Team Leader Review and Approval _____

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IR SITE 99 LONG TERM MONITORING
SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 6/9/15	Recorder: PBC
Vessel: Gale Force	Sampling Staff: DIAZ MRF/PBC/CNF	Sampler type: SPI
Area: CAP	Station ID: ~~SPI-03~~ SP1-03	Water depth (ft): 6.2
Sample Time (local): 1017	Water depth (ft)	GPS units:
Northing /Lat: 38.512685 ~~38.512686~~ HLT	Easting/Long: -77.298271 ~~-77.298781~~ HLT	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments: Way Point 4003 ① SB (PBC 6/9/15)		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Field Activities / Comments / Observations:		

Field Team Leader Review and Approval _____

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IR SITE 99 LONG TERM MONITORING
SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 6/9/15	Recorder: PBC
Vessel: Gale Force	Sampling Staff: DIAZ PBC/MPF/CNF	Sampler type: SPI
Area: CAP	Station ID: ~~SPI-04~~ SP1-04 PBC 6/9/15	Water depth (ft): ~~5.3~~ ① 2.4
Sample Time (local): 10:22	Water depth (ft)	GPS units:
Northing /Lat: 38.513025	Easting/Long: -77.298625	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments: Way Point 4004 ① SB(PBC 9 Jun 2015)		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Field Activities / Comments / Observations:		

Field Team Leader Review and Approval _____

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IR SITE 99 LONG TERM MONITORING
SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 6/9/15	Recorder: PBC
Vessel: *Gale Force*	Sampling Staff: DMZ PBC/MAE/CNF	Sampler type: SPI
Area: CAP	Station ID: ~~SPI-05~~ SPI-05 PBC 6/9/15	Water depth (ft): 5.3
Sample Time (local): 10:28	Water depth (ft)	GPS units:
Northing /Lat: 38.512978	Easting/Long: -77.298061	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments: WP = 4005		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Field Activities / Comments / Observations:		

Field Team Leader Review and Approval _____

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IR SITE 99 LONG TERM MONITORING
SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 9/Jun/2015	Recorder: CNF	
Vessel: Gale Force	Sampling Staff: DIAZ PBC/MRF/CNF		Sampler type: SPI
Area: CAP	Station ID: ~~SPI-06~~ SP1-06 PBC 6/9/15		Water depth (ft): 3.3
Sample Time (local): 10:37	Water depth (ft)		GPS units:
Northing /Lat: 38.513325	Easting/Long: -77.298411		DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments: Waypoint ~~4007~~ 4006			
Sample Time (local):	Water depth (ft)		GPS units:
Northing /Lat:	Easting/Long:		DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments:			
Sample Time (local):	Water depth (ft)		GPS units:
Northing /Lat:	Easting/Long:		DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments:			
Field Activities / Comments / Observations:			

Field Team Leader Review and Approval _____

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IR SITE 99 LONG TERM MONITORING
SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 9 June 2015	Recorder: PBC	
Vessel: Gale Force	Sampling Staff: Diaz PBC/MRF/CNF	Sampler type: SPI	
Area: CAP	Station ID: ① ~~SPI-007~~ SPI-07 PBC 6/9/15	Water depth (ft): 5.2	
Sample Time (local): 10:42	Water depth (ft)	GPS units:	
Northing /Lat: 38.513358	Easting/Long: -77.297877	DGPS Accuracy Estimate:	
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments: Waypoint 4007 ① SB/PBC 9 June 2015)			
Sample Time (local):	Water depth (ft)	GPS units:	
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:	
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments:			
Sample Time (local):	Water depth (ft)	GPS units:	
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:	
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments:			
Field Activities / Comments / Observations:			

Field Team Leader Review and Approval _____

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IR SITE 99 LONG TERM MONITORING
SPI DEPLOYMENT LOG

Battelle Project No. 100018515	**Date:** 9 JUNE 2015	**Recorder:** PBL
Vessel: Gale Force	**Sampling Staff:** DIAZ PBL/MRF/CNF	**Sampler type:** SPI
Area: CAP	**Station ID:** ~~SPI-08~~ SP1-08 PBL 6/9/15	**Water depth (ft):** 4.5
Sample Time (local): 10:49	**Water depth (ft)**	**GPS units:**
Northing /Lat: 38.513370	**Easting/Long:** -77.297392	**DGPS Accuracy Estimate:**
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments: WAYPOINT 4008		
Sample Time (local):	**Water depth (ft)**	**GPS units:**
Northing /Lat:	**Easting/Long:**	**DGPS Accuracy Estimate:**
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Sample Time (local):	**Water depth (ft)**	**GPS units:**
Northing /Lat:	**Easting/Long:**	**DGPS Accuracy Estimate:**
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Field Activities / Comments / Observations:		

Field Team Leader Review and Approval _____

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IR SITE 99 LONG TERM MONITORING
SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 9 June 2015	Recorder: PBC
Vessel: Gale Force	Sampling Staff: Diaz PBC/MRF/CNF	Sampler type: SPI
Area: Cap	Station ID: ~~SPI-09~~ SPI-09 PBC 6/9/15	Water depth (ft): 3.2
Sample Time (local): 1059	Water depth (ft)	GPS units:
Northing /Lat: 38.513667	Easting/Long: -77.298116	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments: Waypoint 4009		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Field Activities / Comments / Observations:		

Field Team Leader Review and Approval _____

Battelle
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IR SITE 99 LONG TERM MONITORING
SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 9 June 2015	Recorder: PBC	
Vessel: Gale Force	Sampling Staff: DIAZ PBC/MRF/CNF	Sampler type: SPI	
Area: CAP	Station ID: SPI-10 ~~SPI-10~~ PBC 6/9/15	Water depth (ft): 4.1	
Sample Time (local): 11:06	Water depth (ft)	GPS units:	
Northing /Lat: 38.513685	Easting/Long: -77.297648	DGPS Accuracy Estimate:	
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments: Waypoint 4010			
Sample Time (local):	Water depth (ft)	GPS units:	
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:	
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments:			
Sample Time (local):	Water depth (ft)	GPS units:	
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:	
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments:			
Field Activities / Comments / Observations:			

Field Team Leader Review and Approval _____

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IR SITE 99 LONG TERM MONITORING
SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 9 June 2015	Recorder: PBC
Vessel: *Gale Force*	Sampling Staff: DIAZ PBC/MRF/CWF	Sampler type: SPI
Area: CAP	Station ID: ~~SPI-11~~ SPI-12 PBC 6/9/15	Water depth (ft): 5.1
Sample Time (local): 1112	Water depth (ft)	GPS units:
Northing /Lat: 38.513635	Easting/Long: -77.297198	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments: Waypoint 401		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Field Activities / Comments / Observations:		

Field Team Leader Review and Approval _____

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SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 9 June 2015	Recorder: PBC
Vessel: Gale Force	Sampling Staff: DIAZ PBC/CAF/MAF	Sampler type: SPI
Area: CAP	Station ID: SP1-12 ~~SPI-12~~ PBC 6/9/15	Water depth (ft): 2.0
Sample Time (local): 11:26	Water depth (ft)	GPS units:
Northing /Lat: 38.513926	Easting/Long: -77.298343	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments: Waypoint 4012		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Field Activities / Comments / Observations:		

Field Team Leader Review and Approval _____

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SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 9 June 2015	Recorder: PBC
Vessel: Gale Force	Sampling Staff: DMZ PBC/MRF/KNF	Sampler type: SPI
Area: OAP	Station ID: ~~SPI-13~~ SP1-13 PBC 6/9/15	Water depth (ft): 2.7
Sample Time (local): 11:35	Water depth (ft)	GPS units:
Northing /Lat: 38.513970	Easting/Long: -77.297888	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments: waypoint 4013		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Field Activities / Comments / Observations:		

Field Team Leader Review and Approval _____

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SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 9 June 2015	Recorder: PBC
Vessel: Gale Force	Sampling Staff: DINZ PBC/MRF/CNF	Sampler type: SPI
Area: CAP	Station ID: ~~SPI-14~~ SP1-14 PBC 6/5/14	Water depth (ft): 3.6
Sample Time (local): 11:45	Water depth (ft)	GPS units:
Northing /Lat: 38.513971	Easting/Long: -77.297456	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments: WAYPOINT 4014		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Field Activities / Comments / Observations:		

Field Team Leader Review and Approval _____

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SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 9 JUNE 2015	Recorder: PBC	
Vessel: Gale Force	Sampling Staff: DIAZ PBC/MRF/CNF	Sampler type: SPI	
Area: CAP	Station ID: ~~SPI-15~~ SP1-15 PBC 6/9/15	Water depth (ft): 4.6	
Sample Time (local): 11:50	Water depth (ft)	GPS units:	
Northing /Lat: 38.513933	Easting/Long: -77.296971	DGPS Accuracy Estimate:	
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments: WAYPOINT 4015			
Sample Time (local):	Water depth (ft)	GPS units:	
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:	
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments:			
Sample Time (local):	Water depth (ft)	GPS units:	
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:	
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments:			
Field Activities / Comments / Observations:			

Field Team Leader Review and Approval _____

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SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 9 June 2015	Recorder: PBL
Vessel: Gale Force	Sampling Staff: DIAZ PBL/MAE/CNT	Sampler type: SPI
Area: CAP	Station ID: ~~SPI-16~~ SP1-16 PBL 6/9/15	Water depth (ft): 1.2
Sample Time (local): 12:10	Water depth (ft)	GPS units:
Northing /Lat: 38.514113	Easting/Long: -77.297798	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments: WAYPOINT ~~400~~ ①	① SB (PBL 9 June 2015) Could not get to station. Too shallow MOVED STATION	
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Field Activities / Comments / Observations:		

Field Team Leader Review and Approval _____

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SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 9 June 2015	Recorder: PBC
Vessel: *Gale Force*	Sampling Staff: DIAZ PBC/MRF/CNF	Sampler type: SPI
Area: CAP	Station ID: ~~SPI-17~~ SPI-17 mod 6/9/15	Water depth (ft): 4.2
Sample Time (local): 12:16	Water depth (ft)	GPS units:
Northing /Lat: 38.514303	Easting/Long: -77.297208	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments: WP = 4017		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Field Activities / Comments / Observations:		

Field Team Leader Review and Approval _____

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SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 9 June 2015	Recorder: PBL
Vessel: Gale Force	Sampling Staff: DIAZ PBL/MRF/CNF	Sampler type: SPI
Area: CAP	Station ID: ~~SPI-18~~ SP1-18 PBL 6/9/15	Water depth (ft): 4.3
Sample Time (local): 12:23	Water depth (ft)	GPS units:
Northing /Lat: 38.514305	Easting/Long: -77.296735	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments: WAYPOINT 4018		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Field Activities / Comments / Observations:		

Field Team Leader Review and Approval _____

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SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 9 June 2015	Recorder: PBL	
Vessel: Gale Force	Sampling Staff: DIAZ PBL/MRF/CNF	Sampler type: SPI	
Area: CAP	Station ID: ~~SPI-19~~ SP1-19 PBL 6/9/15	Water depth (ft): 2.2	
Sample Time (local): 1231	Water depth (ft)	GPS units:	
Northing /Lat: 38.514630	Easting/Long: -77.297046	DGPS Accuracy Estimate:	
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments:			
Sample Time (local):	Water depth (ft)	GPS units:	
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:	
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments:			
Sample Time (local):	Water depth (ft)	GPS units:	
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:	
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments:			
Field Activities / Comments / Observations:			

Field Team Leader Review and Approval _____

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SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 9 June 2015	Recorder: PBC
Vessel: Gale Force	Sampling Staff: DIAZ PBC/MRF/CNF	Sampler type: SPI
Area: CAP	Station ID: ~~SPI-20~~ SP1-20 PBC 6/9/15	Water depth (ft): 3.4
Sample Time (local): 12:38	Water depth (ft)	GPS units:
Northing /Lat: 38.514643	Easting/Long: -77.296535	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments: WP= 4020		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Sample Time (local):	Water depth (ft)	GPS units:
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).		
Comments:		
Field Activities / Comments / Observations:		

Field Team Leader Review and Approval _____

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SPI DEPLOYMENT LOG

Battelle Project No. 100018515	Date: 9 June 2015	Recorder: PBC	
Vessel: Gale Force	Sampling Staff: DIAZ PBC/MRF/CNF	Sampler type: SPI	
Area: CAP	Station ID: ~~SPI-21~~ SP1-21 PBC	Water depth (ft): 2.3	
Sample Time (local): 12:44	Water depth (ft)	GPS units:	
Northing /Lat: 38.514908	Easting/Long: -77.296790	DGPS Accuracy Estimate:	
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments: WP= 4021			
Sample Time (local):	Water depth (ft)	GPS units:	
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:	
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments:			
Sample Time (local):	Water depth (ft)	GPS units:	
Northing /Lat:	Easting/Long:	DGPS Accuracy Estimate:	
SAV: Species present, relative abundance, & Percent Cover (< 33%, 33 – 66%, >66%).			
Comments:			
Field Activities / Comments / Observations:			

Field Team Leader Review and Approval _____

Appendix E-3

Benthic Community Census

Table 1: Counts, Abundance and Species Richness of Benthic Invertebrates in Baseline 1 (2009) Monitoring Event
SSC Pacific
Quantico, Virginia

Taxonomic Group			Benthic sampling results (number of individuals found in three 0.023-m^2 grabs)						
Order	**Family**	**Genus / Species**	**Station 5 (CAP 1) Primary**	**Station 5 (CAP 1) Duplicate**	**Station 3 (CAP 2)**	**Station 2 (CAP 3)**	**Station 7 (OFFCAP 1)**	**Station 6 (OFFCAP 2)**	**OFFCAP 3**
Nematoda	--	--		3	4	1		12	4
Lumbriculida	Lumbriculidae	*Lumbriculus variegatus*						1	
Tubificidae	Tubificidae	*Aulodrilus sp.*							4
		Brachirua sowerbyi						2	
		Limnodrilus sp.	2		2	1		41	12
Spionida	Spionidae	*Marenzelleria viridis*							4
Mesogastropoda	Hydrobiidae	*Amnicola sp.*					1		
Basommatophora	Planorbidae	*Gyraulus sp.*							1
Veneroidea	Mactridae	*Rangia cuneata*				2		1	1
Amphipoda	Gammaridae	*Gammarus sp.*	6		21	39	39	204	57
	Aoridae	*Leptocheirus plumulosus*		1				4	
Isopoda	Anthuridae	*Cyathura polita*							1
	Asellidae	*Lirceus sp.*							1
Acariformes	--	--		2					
Ephemeroptera	Caenidae	*Caenis sp.*					1	1	
Odonata	Coenagrionidae	*Enallagma sp.*		1			1	3	1
Trichoptera	Hydroptilidae	*Orthotrichia sp.*					1	2	1
Diptera	Ceratopogonidae	*Probezzia sp.*	1						
	Chironomidae	*Chironomus sp.*	1				1	1	1
		Cladopelma sp.		1					
		Clinotanypus sp.				2			
		Coelotanypus sp.		2			9	4	1
		Cricotopus sp.	1						
		Cryptochironomus fulvus gr.			3		1	4	1
		Demicryptochironomus sp.	1						
		Glyptotendipes sp.	5	2	1	2	5	6	1
		Halotanypus sp.							1
		Orthocladius sp.			2				
		Polypedilum sp.	2		1				
		Procladius sp.	1						
		Rheotanytarsus sp.	1		1				
		Tanytarsus sp.					2		
Total Number of Individuals [2]			**21**	**12**	**35**	**47**	**61**	**286**	**92**
Species Richness (total number of taxa) [3]			**10**	**7**	**8**	**6**	**10**	**14**	**16**
Total Abundance (number / m^2) [4]			**304**	**174**	**507**	**681**	**884**	**4,145**	**1,333**

Notes

1. Samples were collected in May 2009. Benthic macroinvertebrate were identified to the lowest taxonomic level.
2. Number of Individuals is the total number of identifiable benthic invertebrate collected in each composite sample.
3. Species Richness is the number of different taxon collected in each composite sample.
4. Total Abundance is the number of individuals divided by the sample area (US EPA 1987). Area sampled at each station was 0.069 m^2 (0.023 m^2 multiplied by three grab samples).

Table 2: Calculation of Shannon-Wiener Diversity (H') and Pielou's Evenness (J') in Baseline 1 (2009) Monitoring Event
SSC Pacific
Quantico, Virginia

Taxonomic Group			$p_i \times \ln(p_i)$ [1]						
Order	**Family**	**Genus / Species**	**Station 5 (CAP 1) Primary**	**Station 5 (CAP 1) Duplicate**	**Station 3 (CAP 2)**	**Station 2 (CAP 3)**	**Station 7 (OFFCAP 1)**	**Station 6 (OFFCAP 2)**	**OFFCAP 3**
Nematoda	Not Identified	Not Identified		-0.3466	-0.2479	-0.0819		-0.1331	-0.1363
Lumbriculida	Lumbriculidae	*Lumbriculus variegatus*						-0.0198	
Tubificidae	Tubificidae	*Aulodrilus sp.*							-0.1363
		Branchirua sowerbyi						-0.0347	
		Limnodrilus sp.	-0.2239		-0.1636	-0.0819		-0.2785	-0.2657
Spionida	Spionidae	*Marenzelleria viridis*							-0.1363
Mesogastropoda	Hydrobiidae	*Amnicola sp.*					-0.0674		
Basommatophora	Planorbidae	*Gyraulus sp.*							-0.0491
Veneroidea	Mactridae	*Rangia cuneata*				-0.1343		-0.0198	-0.0491
Amphipoda	Gammaridae	*Gammarus sp.*	-0.3579		-0.3065	-0.1548	-0.286	-0.241	-0.2966
	Aoridae	*Leptocheirus plumulosus*		-0.2071				-0.0597	
Isopoda	Anthuridae	*Cyathura polita*							-0.0491
	Asellidae	*Lirceus sp.*							-0.0491
Acariformes	Not Identified	Not Identified		-0.2986					
Ephemeroptera	Caenidae	*Caenis sp.*					-0.0674	-0.0198	
Odonata	Coenagrionidae	*Enallagma sp.*		-0.2071			-0.0674	-0.0478	-0.0491
Trichoptera	Hydroptilidae	*Orthotrichia sp.*					-0.0674	-0.0347	-0.0491
Diptera	Ceratopogonida	*Probezzia sp.*	-0.145						
	Chironomidae	*Chironomus sp.*	-0.145				-0.0674	-0.0198	-0.0491
		Cladopelma sp.		-0.2071					
		Clinotanypus sp.				-0.1343			
		Coelotanypus sp.		-0.2986			-0.2823	-0.0597	-0.0491
		Cricotopus sp.	-0.145						
		Cryptochironomus fulvus gr.			-0.2106		-0.0674	-0.0597	-0.0491
		Demicryptochironomus sp.	-0.145						
		Glyptotendipes sp.	-0.3417	-0.2986	-0.1016	-0.1343	-0.205	-0.0811	-0.0491
		Halotanypus sp.							-0.0491
		Orthocladius sp.			-0.1636				
		Polypedilum sp.	-0.2239		-0.1016				
		Procladius sp.	-0.145						
		Rheotanytarsus sp.	-0.145		-0.1016				
		Tanytarsus sp.					-0.1121		
Shannon-Weiner Diversity (H') [2]			**2.02**	**1.86**	**1.40**	**0.72**	**1.29**	**1.11**	**1.51**
Pielou's Evenness (J') [3]			**0.88**	**0.96**	**0.67**	**0.40**	**0.56**	**0.42**	**0.55**

Notes

1. p_i is the proportion of individuals in species i to the total number of individuals in each sample. Ln is the natural logarithm of p_i.
2. Shannon-Wiener Diversity (H') is calculated as the sum of $p_i \times \ln(p_i)$ for each species in each sample (Becker et al. 2011, USEPA 1987).
3. Pielou's Evenness (J') is calculated as H' divided by the natural logarithm of the number of taxa (Becker et al. 2011, USEPA 1987).

Table 3: Calculation of Metrics used in the Benthic Index of Biotic Integrity (B-IBI) in Baseline 1 (2009) Monitoring Event
SSC Pacific
Quantico, Virginia

Taxonomic Group			Benthic sampling results (number of individuals found in three 0.023-m2 grabs)							Exlude from B-IBI Calculations? [1]	Oligohaline pollution-indicative taxa [2]	Oligohaline pollution-sensitive taxa [3]	Species classified as carnivores-omnivores [4]	Tolerance Values [5]	Tanypodinae or Chironomidae [6]	Tolerance Scores [5]												
																Station 5 (CAP 1) Primary		Station 5 (CAP 1) Duplicate		Station 3 (CAP 2)		Station 2 (CAP 3)		Station 7 (OFFCAP 1)		Station 6 (OFFCAP 2)		OFFCAP 3	
Order	Family	Genus/Species	Station 5 (CAP 1) Primary	Station 5 (CAP 1) Duplicate	Station 3 (CAP 2)	Station 2 (CAP 3)	Station 7 (OFFCAP 1)	Station 6 (OFFCAP 2)	OFFCAP 3							TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni
Nematoda	--	--		3	4	1		12	4	X																			
Lumbriculida	Lumbriculidae	*Lumbriculus variegatus*						1						7.3												105.8	14.49		
Tubificidae	Tubificidae	*Aulodrilus sp.*							4		X			4.7														272.5	57.97
		Brachirua sowerbyi						2			X			8.4												243.5	28.99		
		Limnodrilus sp.	2		2	1		41	12		X			9.9		285.5	28.99			285.5	28.99	142.8	14.49			5853	594.2	1713	173.9
Spionida	Spionidae	*Marenzelleria viridis*							4			X																	
Mesogastropoda	Hydrobiidae	*Amnicola sp.*					1			X																			
Basommatophor	Planorbidae	*Gyraulus sp.*							1	X																			
Veneroidea	Mactridae	*Rangia cuneata*				2		1	1					6								173.9	28.99			86.96	14.49	86.96	14.49
Amphipoda	Gammaridae	*Gammarus fasciatus*	6		21	39	39	204	57	X																			
	Aoridae	*Leptocheirus plumulosus*		1				4			X																		
Isopoda	Anthuridae	*Cyathura polita*							1				X																
	Asellidae	*Lirceus sp.*							1																				
Acariformes	--	--		2																									
Ephemeroptera	Caenidae	*Caenis sp.*					1	1		X																			
Odonata	Coenagrionidae	*Enallagma sp.*		1			1	3	1																				
Trichoptera	Hydroptilidae	*Orthotrichia sp.*					1	2	1	X																			
Diptera	Ceratopogonidae	*Probezzia sp.*	1										X	6		86.96	14.49												
	Chironomidae	*Chironomus sp.*	1				1	1	1		X		X	9.8	C	142	14.49									142	14.49	142	14.49
		Cladopelma sp.		1									X	2.5	C			36.23	14.49										
		Clinotanypus sp.				2							X	9.1	T							263.8	28.99						
		Coelotanypus sp.		2			9	4	1		X		X	6.2	T														
		Cricotopus sp.	1										X		C														
		Cryptochironomus fulvus gr.			3		1	4	1				X	7.3	C					317.4	43.48			105.8	14.49	423.2	57.97	105.8	14.49
		Demicryptochironomus sp.	1										X		C														
		Glyptotendipes sp.	5	2	1	2	5	6	1		X		X	8.5	C	615.9	72.46	246.4	28.99	123.2	14.49	246.4	28.99	615.9	72.46	739.1	86.96	123.2	14.49
		Halotanypus sp.							1				X		C														
		Orthocladius sp.			2								X	6	C					173.9	28.99								
		Polypedilum sp.	2		1						X		X	6.7	C	194.2	28.99			97.1	14.49								
		Procladius sp.	1								X		X	9.3	T	134.8	14.49												
		Rheotanytarsus sp.	1		1								X	6.4	C	92.75	14.49			92.75	14.49								
		Tanytarsus sp.					2						X	6.7	C									194.2	28.99				
Total Number of Individuals			**21.00**	**12.00**	**35.00**	**47.00**	**61.00**	**286.00**	**92.00**																				
Species Richness (total number of taxa)			**10.00**	**7.00**	**8.00**	**6.00**	**10.00**	**14.00**	**16.00**																				
Total Abundance (number/m^2)			**304.35**	**173.91**	**507.25**	**681.16**	**884.06**	**4,144.93**	**1,333.33**																				
Total Abundance of B-IBI Taxa (number/m^2)			**217.39**	**130.43**	**144.93**	**101.45**	**275.36**	**971.01**	**420.29**																				
Abundance of pollution-indicative taxa (number/m2)			**159.42**	**72.46**	**57.97**	**43.48**	**217.39**	**840.58**	**275.36**																				
Abundance of pollution-indicative taxa (%)			**73%**	**56%**	**40%**	**43%**	**79%**	**87%**	**66%**																				
Abundance of pollution-sensitive taxa (number/m2)			**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**57.97**																				
Abundance of pollution-sensitive taxa (%)			**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**14%**																				
Abundance of carnivore and omnivores (number/m2)			**188.41**	**72.46**	**115.94**	**57.97**	**260.87**	**217.39**	**86.96**																				
Abundance of carnivore and omnivores (%)			**87%**	**56%**	**80%**	**57%**	**95%**	**22%**	**21%**																				
Tolerance Scores																**8.24**		**6.50**		**7.52**		**8.15**		**8.11**		**9.36**		**8.43**	
Tanypodinae to Chironomidae abundance ratio (%)			**9%**	**67%**	**0%**	**100%**	**100%**	**36%**	**25%**																				

[1] Species excluded from IBI calculations based on Llanso (2002)
[2] Percent abundance of pollution-indicative taxa is the percent abundance contribution of taxa classified as pollution-indicative to the total abundance of organisms in a sample.
[3] Percent abundance of pollution-sensitive taxa is the percent abundance contribution of taxa classified as pollution-sensitive to the total abundance of organisms in a sample.
[4] Percent abundance of carnivore and omnivores is the percent abundance contribution of taxa currently classified as carnivores or omnivores to the total abundance of organisms in a sample.
[5] The Tolerance Score is a weighted abundance average for taxa classified according to their sensitiveness to pollution. The Tolerance Score is based on the North Carolina biotic index of Lenat (1993):

$$\text{Tolerance Score} = \frac{\sum TV_i \cdot N_i}{\sum N_i}$$

where TVi is the tolerance value of the ith taxa, and Ni is the abundance of the ith taxa. Tolerance values for each taxa from Llanso (2002).
[6] The Tanypodinae to Chironomidae percent abundance ratio is a measure of the relative contribution of midges in the subfamily Tanypodinae to all the midges (Class Insecta, family Chironomidae) found in a sample.

Table 4: Summary of Benthic Metrics and B-IBI Scores in Baseline 1 (2009) Monitoring Event
SSC Pacific
Quantico, Virginia

Within Cap Placement Area?	Within										Outside					
Community Index	Station 5 (CAP 1) Primary		Station 5 (CAP 1) Duplicate		Station 5 (CAP 1) Avg [1]		Station 3 (CAP 2)		Station 2 (CAP 3)		Station 7 (OFFCAP 1)		Station 6 (OFFCAP 2)		OFFCAP 3	
	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Total Abundance of B-IBI Taxa (number/m^2)	217	3	130	1	174	1	145	1	101	1	275	3	971	5	420	3
Abundance of Pollution-indicative taxa (%)	73%	3	56%	3	64%	3	40%	3	43%	3	79%	3	87%	3	66%	3
Abundance of Pollution-sensitive taxa (%)	0%	1	0%	1	0%	1	0%	1	0%	1	0%	1	0%	1	14%	3
Abundance of carnivore and omnivores (%)	87%	5	56%	5	71%	5	80%	5	57%	5	95%	5	22%	3	21%	3
Tolerance Score	8.2	3	6.5	3	7.4	3	7.5	3	8.2	3	8.1	3	9.4	1	8.4	3
Tanypodinae to Chironomidae percent abundance ratio (%)	9%	5	67%	1	38%	3	0%	5	100%	1	100%	1	36%	3	25%	3
B-IBI Value [2]	-	3.3		2.3		2.7		3.0		2.3		2.7		2.7		3.0

Notes:
1. Primary and duplicate metrics collected at Cap 1 were averaged, followed by calculation of B-IBI on these average values.
2. B-IBI Value is calculated as the average of scored metrics. B-IBI values > 3 indicate a station 'meets restoration goals', scores from 2.7 to 2.9 indicate marginal degradation, scores from 2.1 to 2.6 indicate degradation, and scores <2.0 indicate severe degradation.

Table 5. Summary of Benthic Community Health Metrics in Baseline 1 (2009) Monitoring Event
SSC Pacific
Quantico, Virginia

Within Cap Placement Area?	Within					Outside		
Station ID	Station 5 (CAP 1) Primary	Station 5 (CAP 1) Duplicate	Station 5 (CAP 1) Avg [1]	Station 3 (CAP 2)	Station 2 (CAP 3)	Station 7 (OFFCAP 1)	Station 6 (OFFCAP 2)	OFFCAP 3
Total Abundance [2]	304	174	239	507	681	884	4,145	1,333
Species Richness [3]	10	7	9	8	6	10	14	16
Shannon-Wiener Diversity Index [4]	2.02	1.86	1.94	1.40	0.72	1.29	1.11	1.51
Pielou's Eveness [5]	0.88	0.96	0.92	0.67	0.40	0.56	0.42	0.55
B-IBI Score [6]	3.3	2.3	2.7	3.0	2.3	2.7	2.7	3.0

Notes:

1. Primary and duplicate metrics collected at Cap 1 were averaged, followed by calculation of B-IBI on these average values.
2. Total Abundance is the number of individuals divided by the sample area (US EPA 1987) - 3 x 0.023m^2 grab samples.
3. Species Richness is the number of different taxon collected in each composite sample.
4. Shannon-Wiener Diversity (H') is calculated as the sum of $p_i \times \ln(p_i)$ for each species in each sample (Becker et al. 2011, USEPA 1987).
5. Pielou's Evenness (J') is calculated as H' divided by the natural logarithm of the number of taxa (Becker et al. 2011, USEPA 1987).
6. B-IBI values are calculated as the average of scored metrics. B-IBI values > 3 indicate a station 'meets restoration goals', scores from 2.7 to 2.9 indicate marginal degradation, scores from 2.1 to 2.6 indicate degradation, and scores < 2.0 indicate severe degradation.

Table 1: Counts, Abundance and Species Richness of Benthic Invertebrates in Baseline 3 (2012) Monitoring Event

SSC Pacific

Quantico, Virginia

Taxonomic Group			Benthic sampling results (number of individuals found in three 0.023-m^2 grabs)					
Order	**Family**	**Genus / Species**	**QB 1**	**QB 2**	**QB 3**	**QB 4**	**QB 5**	**QB 6**
Nematoda	--	--	8	8	3	1	4	1
Tubificinae	Tubificidae	*Branchiura sowerbyi*						2
		Limnodrilus sp.	7	25	20	4	7	5
Spionida	Spionidae	*Marenzelleria viridis*	1					1
		Polydora sp.	1	5				
		Streblospio benedictyi	9	31	96	10	38	24
Veneroidea	Mactridae	*Rangia cuneata*	3	1	2			
Amphipoda	Corophiidae	*Corophium sp.*	1	2	2			1
	Gammaridae	*Gammarus sp.*						1
Cumacea	Nannastacidae	*Almyracuma proximoculi*	2	2				
Isopoda	Anthuridae	*Cyathura polita*	32	38	20		1	1
Trichoptera	Leptoceridae	*Oecetis sp.*	1	3	1			
Diptera	Ceratopogonidae	*Palpomyia cplx.*					1	
	Chaoboridae	*Chaoborus sp.*					1	
	Chironomidae	*Cladotanytarsus sp.*	3	5	2			
		Cryptochironomus fulvus gr.	4	13	4	1		
		Polypedilum halterale gr.	20	15	8			
		Pseudochironomus sp.		2	1			
		Tanytarsus sp.	1	4	8	3		
		Chironomus sp.			1		1	
		Coelotanypus sp.			2	6	18	2
		Stictochironomus sp.			1			
Total Number of Individuals [2]			**93**	**154**	**171**	**25**	**71**	**38**
Total Abundance (individuals per m^2) [3]			**1348**	**2232**	**2478**	**362**	**1029**	**551**
Species Richness (total number of taxa) [4]			**14**	**14**	**15**	**6**	**8**	**9**

Notes

[1] Samples collected October, 2012. Benthic macroinvertebrate were identified to the lowest taxonomic level.

[2] Number of Individuals is the total number of identifiable benthic invertebrate collected in each composite sample.

[3] Total Abundance is the number of individuals divided by the sample area (US EPA 1987) - 3 x 0.023m^2 grab samples.

[4] Species Richness is the number of different taxon collected in each composite sample.

Table 2: Calculation of Shannon-Wiener Diversity (H') and Pielou's Evenness (J') in Baseline 3 (2012) Monitoring Event
SSC Pacific
Quantico, Virginia

Order	Family	Genus/Species	$p_i \times \ln(p_i)$ [1]					
			QB 1	QB 2	QB 3	QB 4	QB 5	QB 6
Nematoda	--	--	-0.21	-0.15	-0.07	-0.13	-0.16	-0.10
Tubificinae	Tubificidae	*Branchiura sowerbyi*						-0.15
		Limnodrilus sp.	-0.19	-0.30	-0.25	-0.29	-0.23	-0.27
Spionida	Spionidae	*Marenzelleria viridis*	-0.05					-0.10
		Polydora sp.	-0.05	-0.11				
		Streblospio benedictyi	-0.23	-0.32	-0.32	-0.37	-0.33	-0.29
Veneroidea	Mactridae	*Rangia cuneata*	-0.11	-0.03	-0.05			
Amphipoda	Corophiidae	*Corophium sp.*	-0.05	-0.06	-0.05			-0.10
	Gammaridae	*Gammarus sp.*						-0.10
Cumacea	Nannastacidae	*Almyracuma proximoculi*	-0.08	-0.06				
Isopoda	Anthuridae	*Cyathura polita*	-0.37	-0.35	-0.25		-0.06	-0.10
Trichoptera	Leptoceridae	*Oecetis sp.*	-0.05	-0.08	-0.03			
Diptera	Ceratopogonidae	*Palpomyia cplx.*					-0.06	
	Chaoboridae	*Chaoborus sp.*					-0.06	
	Chironomidae	*Cladotanytarsus sp.*	-0.11	-0.11	-0.05			
		Cryptochironomus fulvus gr.	-0.14	-0.21	-0.09	-0.13		
		Polypedilum halterale gr.	-0.33	-0.23	-0.14			
		Pseudochironomus sp.		-0.06	-0.03			
		Tanytarsus sp.	-0.05	-0.09	-0.14	-0.25		
		Chironomus sp.			-0.03		-0.06	
		Coelotanypus sp.			-0.05	-0.34	-0.35	-0.15
		Stictochironomus sp.			-0.03			
Shannon-Weiner Diversity (H') [2]			**2.01**	**2.15**	**1.60**	**1.51**	**1.31**	**1.35**
Pielou's Evenness (J') [3]			**0.76**	**0.81**	**0.59**	**0.85**	**0.63**	**0.61**

Notes

1. p*i* is the proportion of individuals in species *i* to the total number of individuals in each sample. Ln is the natural logarithm of p*i*.
2. Shannon-Wiener Diversity (H') is calculated as the sum of pi×ln(pi) for each species in each sample (Becker et al. 2011, USEPA 1987).
3. Pielou's Evenness (J') is calculated as H' divided by the natural logarithm of the number of taxa (Becker et al. 2011, USEPA 1987).

Table 3: Calculation of Metrics used in the Benthic Index of Biotic Integrity (B-IBI) in Baseline 3 (2012) Monitoring Event
SSC Pacific
Quantico, Virginia

Taxonomic Group			Benthic sampling results (number of individuals found in three 0.023-m^2 grabs)						Exlude from B-IBI Calculations? [1]	Oligohaline pollution-indicative taxa [2]	Oligohaline pollution-sensitive taxa [3]	Species classified as carnivores-omnivores [4]	Tolerance Values [5]	Tanypodinae or Chironomidae [6]	Tolerance Scores [5]									
															QB 1		QB 2		QB 3		QB 4		QB 5		QB 6	
Order	Family	Genus/Species	QB 1	QB 2	QB 3	QB 4	QB 5	QB 6							TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni
Nematoda	--	--	8	8	3	1	4	1	X																	
Tubificinae	Tubificidae	*Branchiura sowerbyi*						2		X			8.4												243	29
		Limnodrilus sp.	7	25	20	4	7	5		X			10		1,014	101	3,623	362	2,899	290	580	58	1,014	101	725	72
Spionida	Spionidae	*Marenzelleria viridis*	1					1			X															
		Polydora sp.	1	5																						
		Streblospio benedictyi	9	31	96	10	38	24																		
Veneroidea	Mactridae	*Rangia cuneata*	3	1	2								6		261	43	87	14	174	29						
Amphipoda	Corophiidae	*Corophium sp.*	1	2	2			1	X																	
	Gammaridae	*Gammarus sp.*						1	X																	
Cumacea	Nannastacidae	*Almyracuma proximoculi*	2	2																						
Isopoda	Anthuridae	*Cyathura polita*	32	38	20		1	1				X														
Trichoptera	Leptoceridae	*Oecetis sp.*	1	3	1				X																	
Diptera	Ceratopogonidae	*Palpomyia cplx.*					1					X	6.9										100	14		
	Chaoboridae	*Chaoborus sp.*					1					X	8.5										123	14		
	Chironomidae	*Cladotanytarsus sp.*	3	5	2					X		X	3.7	C	161	43	268	72	107	29						
		Cryptochironomus fulvus gr.	4	13	4	1						X	7.3	C	423	58	1,375	188	423	58	106	14				
		Polypedilum halterale gr.	20	15	8					X		X	6.7	C	1,942	290	1,457	217	777	116						
		Pseudochironomus sp.		2	1							X	4.2	C			122	29	61	14						
		Tanytarsus sp.	1	4	8	3						X	6.7	C	97	14	388	58	777	116	291	43				
		Chironomus sp.			1		1			X		X	9.8	C					142	14			142	14		
		Coelotanypus sp.			2	6	18	2		X		X	6.2	T					180	29	539	87	1,617	261	180	29
		Stictochironomus sp.			1							X	6.7	C					97	14						
TOTAL			**93**	**154**	**171**	**25**	**71**	**38**																		
NUMBER OF TAXA			**14**	**14**	**15**	**6**	**8**	**9**																		
Total Abundance (number/m^2)			**1,348**	**2,232**	**2,478**	**362**	**1,029**	**551**																		
Total Abundance of B-IBI Taxa (number/m^2)			**1,203**	**2,043**	**2,391**	**348**	**971**	**507**																		
Abundance of pollution-indicative taxa (number/m^2)			**435**	**652**	**478**	**145**	**377**	**130**																		
Abundance of pollution-indicative taxa (%)			**36%**	**32%**	**20%**	**42%**	**39%**	**26%**																		
Abundance of pollution-sensitive taxa (number/m^2)			**14.49**	**0.00**	**0.00**	**0.00**	**0.00**	**14.49**																		
Abundance of pollution-sensitive taxa (%)			**1%**	**0%**	**0%**	**0%**	**0%**	**3%**																		
Abundance of carnivore and omnivores (number/m^2)			**870**	**1,116**	**681**	**145**	**319**	**43**																		
Abundance of carnivore and omnivores (%)			**72%**	**55%**	**28%**	**42%**	**33%**	**9%**																		
Tolerance Scores															**7.08**		**7.77**		**7.94**		**7.47**		**7.39**		**8.80**	
Tanypodinae to Chironomidae abundance ratio (%)			**0%**	**0%**	**8%**	**150%**	**1800%**	**NA [7]**																		

[1] Species excluded from IBI calculations based on Llanso (2002)
[2] Percent abundance of pollution-indicative taxa is the percent abundance contribution of taxa classified as pollution-indicative to the total abundance of organisms in a sample.
[3] Percent abundance of pollution-sensitive taxa is the percent abundance contribution of taxa classified as pollution-sensitive to the total abundance of organisms in a sample.
[4] Percent abundance of carnivore and omnivores is the percent abundance contribution of taxa currently classified as carnivores or omnivores to the total abundance of organisms in a sample.
[5] The Tolerance Score is a weighted abundance average for taxa classified according to their sensitiveness to pollution. The Tolerance Score is based on the North Carolina biotic index of Lenat (1993):

$$\text{Tolerance Score} = \frac{\sum TV_i \cdot N_i}{\sum N_i}$$

where TVi is the tolerance value of the ith taxa, and Ni is the abundance of the ith taxa. Tolerance values for each taxa from Llanso (2002).

[6] The Tanypodinae to Chironomidae percent abundance ratio is a measure of the relative contribution of midges in the subfamily Tanypodinae to all the midges (Class Insecta, family Chironomidae) found in a sample.

[7] As only Tanypodinae were collected in this sample, the ratio of Tanypodinae to Chironomidae cannot be calculated.

Table 4: Summary of Benthic Metrics and B-IBI Scores in Baseline 3 (2012) Monitoring Event
SSC Pacific
Quantico, Virginia

Within Cap Placement Area?	Within										Outside	
	QB 1		QB 2		QB 3		QB 4		QB 5		QB 6	
Metric	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Total Abundance of B-IBI Taxa (number/m^2)	1,203	5	2,043	5	2,391	5	348	3	971	5	507	5
Abundance of Pollution-indicative taxa (%)	36%	3	32%	3	20%	5	42%	3	39%	3	26%	5
Abundance of Pollution-sensitive taxa (%)	1.2%	3	0.0%	1	0.0%	1	0.0%	1	0.0%	1	2.9%	3
Abundance of carnivore and omnivores (%)	72%	5	55%	5	28%	3	42%	5	33%	3	9%	1
Tolerance Score	7.1	3	7.8	3	7.9	3	7.5	3	7.4	3	8.8	3
Tanypodinae to Chironomidae percent abundance ratio (%)	0%	5	0%	5	8%	5	150%	1	1800%	1	NC[2]	1
B-IBI Value [1]	4.0		3.7		3.7		2.7		2.7		3.0	

Notes:

1) B-IBI values are calculated as the average of scored metrics. B-IBI values > 3 indicate a station 'meets restoration goals', scores from 2.7 to 2.9 indicate marginal degradation, scores from 2.1 to 2.6 indicate degradation, and scores < 2.0 indicate severe degradation.
2) As only Tanypodinae were collected in this sample, the ratio of Tanypodinae to Chironomidae cannot be calculated and a score of 1 was assigned.

Table 5. Summary of Benthic Community Health Metrics in Baseline 3 (2012) Monitoring Event
SSC Pacific
Quantico, Virginia

Within Cap Placement Area?	Within					Outside
Station ID	**QB 1**	**QB 2**	**QB 3**	**QB 4**	**QB 5**	**QB 6**
Total Abundance [1]	1,348	2,232	2,478	362	1,029	551
Species Richness [2]	14	14	15	6	8	9
Shannon-Wiener Diversity Index [3]	2.01	2.15	1.60	1.51	1.31	1.35
Pielou's Eveness [4]	0.76	0.81	0.59	0.85	0.63	0.61
B-IBI Value [5]	4.0	3.7	3.7	2.7	2.7	3.4

Notes:

1. Total Abundance is the number of individuals divided by the sample area (US EPA 1987) - 3 x 0.023m^2 grab samples.
2. Species Richness is the number of different taxon collected in each composite sample.
3. Shannon-Wiener Diversity (H') is calculated as the sum of $p_i \times \ln(p_i)$ for each species in each sample (Becker et al. 2011, USEPA 1987).
4. Pielou's Evenness (J') is calculated as H' divided by the natural logarithm of the number of taxa (Becker et al. 2011, USEPA 1987).
5. B-IBI values are calculated as the average of scored metrics. B-IBI values > 3 indicate a station 'meets restoration goals', scores from 2.7 to 2.9 indicate marginal degradation, scores from 2.1 to 2.6 indicate degradation, and scores < 2.0 indicate severe degradation.

Table 1: Counts, Abundance and Species Richness of Benthic Invertebrates in 2-Month Post Cap Monitoring Event
SSC Pacific
Quantico, Virginia

Taxonomic Group			Benthic sampling results (number of individuals found in three 0.023-m^2 grabs)						
			QT2-1	QT2-2	QT2-3	QT2-4	QT2-5	QT2-6	QT2-7
Nematoda	--	--	10	3	3	8	2		
Trepaxonemata	Planariidae	*Dugesia sp.*							19
Oligochaeta	Tubificidae	*Branchiura sowerbyi*				5	1	7	6
		Limnodrilus sp.	188	45	71	68	60	13	23
		Aulodrilus sp.	4	9	5	1	1	7	6
		Rhyacodrilus sp.	3	3	19	26	18	33	2
	Naididae	*Nais sp.*	6						
		Dero sp.	1		1				
	Lumbriculidae indet.	--							3
Polychaeta	Spionidae	*Marenzelleria viridis*				1		6	2
Veneroidea	Mactridae	*Rangia cuneata*						1	
	Corbiculidae	*Corbicula fluminea*	11	8	15	2	4		3
	Sphaeriidae	*Musculium sp.*		6					
	Unionoida	*Unionidae indet. (juvenile)*		1					
Gastropoda	Physidae	*Physella heterostropha*							2
	Pleuroceridae	*Pleurocera sp.*			1				
	Planorbidae	*Gyraulus sp.*							1
Amphipoda	Gammaridae	*Gammarus sp.*			2				264
Isopoda	Anthuridae	*Cyathura polita*	14	4	5	5	9		3
Decapoda	Palaemonidae	*Palaemonetes sp.*							1
Cumacea	Nannastacidae	*Almyracuma proximoculi*	5	7	7	4	3		
Acariformes	Limnesiidae	*Limnesia sp.*		1			1		
Trichoptera	Leptoceridae	*Oecetis sp.*	6	10	8	3	10		
	Hydroptilidae	*Othrotrichia sp.*							11
Lepidoptera	Pyralidae indet. (early instar lacking gills)								1
Ephemeroptera	Caenidae	*Caenis sp.*							5
Odonata	Coenagrionidae	*Enallagma sp.*							2
Diptera	Ceratopogonidae	*Probezzia sp.*		1					
		Sphaeromias sp.		1				1	
	Chaoboridae	*Chaoborus sp.*		1				8	
	Chironomidae	*Coelotanypus sp.*	7	52	50	51	2	75	29
		Einfeldia sp.		4	8	5			
		Polypedilum sp.	39	34	140	32	75	2	
		Microchironomus sp.		2	3	3			
		Djalmabatista sp.					1		
		Rheotanytarsus sp.	16	50	15	22	13		
		Cryptochironomus sp.	8	5	8	3	7	6	1
		Chironomus sp.	1	1	1	11			2
		Pseudochironomus sp.	7	7	6	1	8		
		Dicrotendipes sp.			1	2		2	9
		Orthocladius sp.	1	3	2				
		Tanytarsus sp.	1		2		2	2	10
		Nanocladius sp.							27
		Procladius sp.	4	14	13	6	9	2	6
		Microspectra sp.	2	1			2		
		Glyptotendipes sp.			3		3		
Total Number of Individuals [2]			334	273	389	259	231	165	438
Total Abundance (individuals per m^2) [3]			4,841	3,957	5,638	3,754	3,348	2,391	6,348
Species Richness (total number of taxa) [4]			20	25	24	20	20	14	24

Notes

1. Samples were collected in October 2014 by ENVIRON International Corporation. Benthic macroinvertebrate were identified to the lowest taxonomic level.
2. Number of Individuals is the total number of identifiable benthic invertebrate collected in each composite sample.
3. Total Abundance is the number of individuals divided by the sample area (US EPA 1987). Area sampled at each station was 0.069 m^2 (0.023 m^2 multiplied by three grab samples).
4. Species Richness is the number of different taxon collected in each composite sample.

Table 2. Calculation of Shannon-Wiener Diversity and Pielou's Evenness in 2-Month Post Cap Monitoring Event
SSC Pacific
Quantico, Virginia

Taxonomic Group			$p_i \times \ln(p_i)$ [1]						
			QT2-1	QT2-2	QT2-3	QT2-4	QT2-5	QT2-6	QT2-7
Nematoda	--	--	-0.11	-0.05	-0.04	-0.11	-0.04		
Trepaxonemata	Planariidae	*Dugesia sp.*							-0.14
Oligochaeta	Tubificidae	*Branchiura sowerbyi*				-0.08	-0.02	-0.13	-0.06
		Limnodrilus sp.	-0.32	-0.30	-0.31	-0.35	-0.35	-0.20	-0.15
		Aulodrilus sp.	-0.05	-0.11	-0.06	-0.02	-0.02	-0.13	-0.06
		Rhyacodrilus sp.	-0.04	-0.05	-0.15	-0.23	-0.20	-0.32	-0.02
	Naididae	*Nais sp.*	-0.07						
		Dero sp.	-0.02		-0.02				
	Lumbriculidae indet.	--							-0.03
Polychaeta	Spionidae	*Marenzelleria viridis*				-0.02		-0.12	-0.02
Veneroidea	Mactridae	*Rangia cuneata*						-0.03	
	Corbiculidae	*Corbicula fluminea*	-0.11	-0.10	-0.13	-0.04	-0.07		-0.03
	Sphaeriidae	*Musculium sp.*		-0.08					
	Unionoida	*Unionidae indet. (juvenile)*		-0.02					
Gastropoda	Physidae	*Physella heterostropha*							-0.02
	Pleuroceridae	*Pleurocera sp.*			-0.02				
	Planorbidae	*Gyraulus sp.*							-0.01
Amphipoda	Gammaridae	*Gammarus sp.*			-0.03				-0.31
Isopoda	Anthuridae	*Cyathura polita*	-0.13	-0.06	-0.06	-0.08	-0.13		-0.03
Decapoda	Palaemonidae	*Palaemonetes sp.*							-0.01
Cumacea	Nannastacidae	*Almyracuma proximoculi*	-0.06	-0.09	-0.07	-0.06	-0.06		
Acariformes	Limnesiidae	*Limnesia sp.*		-0.02			-0.02		
Trichoptera	Leptoceridae	*Oecetis sp.*	-0.07	-0.12	-0.08	-0.05	-0.14		
	Hydroptilidae	*Othrotrichia sp.*							-0.09
Lepidoptera	Pyralidae indet. (early instar lacking gills)								-0.01
Ephemeroptera	Caenidae	*Caenis sp.*							-0.05
Odonata	Coenagrionidae	*Enallagma sp.*							-0.02
Diptera	Ceratopogonidae	*Probezzia sp.*		-0.02					
		Sphaeromias sp.		-0.02				-0.03	
	Chaoboridae	*Chaoborus sp.*		-0.02				-0.15	
	Chironomidae	*Coelotanypus sp.*	-0.08	-0.32	-0.26	-0.32	-0.04	-0.36	-0.18
		Einfeldia sp.		-0.06	-0.08	-0.08			
		Polypedilum sp.	-0.25	-0.26	-0.37	-0.26	-0.37	-0.05	
		Microchironomus sp.		-0.04	-0.04	-0.05			
		Djalmabatista sp.					-0.02		
		Rheotanytarsus sp.	-0.15	-0.31	-0.13	-0.21	-0.16		
		Cryptochironomus sp.	-0.09	-0.07	-0.08	-0.05	-0.11	-0.12	-0.01
		Chironomus sp.	-0.02	-0.02	-0.02	-0.13			-0.02
		Pseudochironomus sp.	-0.08	-0.09	-0.06	-0.02	-0.12		
		Dicrotendipes sp.			-0.02	-0.04		-0.05	-0.08
		Orthocladius sp.	-0.02	-0.05	-0.03				
		Tanytarsus sp.	-0.02		-0.03		-0.04	-0.05	-0.09
		Nanocladius sp.							-0.17
		Procladius sp.	-0.05	-0.15	-0.11	-0.09	-0.13	-0.05	-0.06
		Microspectra sp.	-0.03	-0.02			-0.04		
		Glyptotendipes sp.			-0.04		-0.06		
Shannon-Weiner Diversity (H') [2]			**1.78**	**2.47**	**2.20**	**2.29**	**2.13**	**1.81**	**1.71**
Pielou's Evenness (J') [3]			**0.59**	**0.77**	**0.69**	**0.76**	**0.71**	**0.69**	**0.54**

Notes
1. p_i is the proportion of individuals in species *i* to the total number of individuals in each sample. Ln is the natural logarithm of p_i.
2. Shannon-Wiener Diversity (H') is calculated as the sum of $p_i \times \ln(p_i)$ for each species in each sample (Becker et al. 2011, USEPA 1987).
3. Pielou's Evenness (J') is calculated as H' divided by the natural logarithm of the number of taxa (Becker et al. 2011, USEPA 1987).

Table 3. Calculation of Metrics Used in the Benthic Index of Biotic Integrity (B-IBI) in 2-Month Post Cap Monitoring Event
SSC Pacific
Quantico, Virginia

Taxonomic Group			Benthic sampling results (number of individuals found in three 0.023-m^2 grabs)							Exclude from B-IBI Calculations? [1]	Oligohaline pollution-indicative taxa [2]	Oligohaline pollution-sensitive taxa [3]	Species classified as carnivores-omnivores [4]	Tolerance Values [5]	Tanypodinae or Chironomidae [6]	Tolerance Scores [5]											
																QT2-1		QT2-2		QT2-3		QT2-4		QT2-5		QT2-6		QT2-7	
Order	Family	Genus/Species	QT2-1	QT2-2	QT2-3	QT2-4	QT2-5	QT2-6	QT2-7							TV*i* x N*i*	N*i*	TV*i* x N*i*	N*i*	TV*i* x N*i*	N*i*	TV*i* x N*i*	N*i*	TV*i* x N*i*	N*i*	TV*i* x N*i*	N*i*	TV*i* x N*i*	N*i*
Nematoda	--	--	10	3	3	8	2			X																			
Trepaxonemata	Planariidae	*Dugesia sp.*							19																				
Oligochaeta	Tubificidae	*Branchiura sowerbyi*				5	1	7	6		X			8.4								609	72	122	14	852	101	730	87
		Limnodrilus sp.	188	45	71	68	60	13	23		X			10		27,246	2,725	6,522	652	10,290	1,029	9,855	986	8,696	870	1,884	188	3,333	333
		Aulodrilus sp.	4	9	5	1	1	7	6		X			4.7		272	58	613	130	341	72	68	14	68	14	477	101	409	87
		Rhyacodrilus sp.	3	3	19	26	18	33	2																				
	Naididae	*Nais sp.*	6											8		696	87												
		Dero sp.	1		1									10		145	14			145	14								
	Lumbriculidae indet.	--							3					7.3														317	43
Polychaeta	Spionidae	*Marenzelleria viridis*				1		6	2			X																	
Veneroidea	Mactridae	*Rangia cuneata*						1						6												87	14		
	Corbiculidae	*Corbicula fluminea*	11	8	15	2	4		3		X			6.3		1,004	159	730	116	1,370	217	183	29	365	58			274	43
	Sphaeriidae	*Musculium sp.*		6										7.7				670	87										
	Unionoida	*Unionidae indet. (juvenile)*		1										3.6				52	14										
Gastropoda	Physidae	*Physella heterostropha*							2	X																			
	Pleuroceridae	*Pleurocera sp.*			1					X																			
	Planorbidae	*Gyraulus sp.*							1	X																			
Amphipoda	Gammaridae	*Gammarus sp.*			2				264	X																			
Isopoda	Anthuridae	*Cyathura polita*	14	4	5	5	9		3				X																
Decapoda	Palaemonidae	*Palaemonetes sp.*							1	X																			
Cumacea	Nannastacidae	*Almyracuma proximoculi*	5	7	7	4	3																						
Acariformes	Limnesiidae	*Limnesia sp.*		1			1																						
Trichoptera	Leptoceridae	*Oecetis sp.*	6	10	8	3	10			X																			
	Hydroptilidae	*Othrotrichia sp.*							11	X																			
Lepidoptera	Pyralidae indet. (early instar lacking gills)								1																				
Ephemeroptera	Caenidae	*Caenis sp.*							5	X																			
Odonata	Coenagrionidae	*Enallagma sp.*							2																				
Diptera	Ceratopogonidae	*Probezzia sp.*		1									X	6				87	14										
		Sphaeromias sp.		1				1					X																
	Chaoboridae	*Chaoborus sp.*		1				8					X	8.5				123	14							986	116		
	Chironomidae	*Coelotanypus sp.*	7	52	50	51	2	75	29		X		X	6.2	T	629	101	4,672	754	4,493	725	4,583	739	180	29	6,739	1,087	2,606	420
		Einfeldia sp.		4	8	5							X		C														
		Polypedilum sp.	39	34	140	32	75	2			X		X	6.7	C	3,787	565	3,301	493	13,594	2,029	3,107	464	7,283	1,087	194	29		
		Microchironomus sp.		2	3	3							X	8	C			232	29	348	43	348	43						
		Djalmabatista sp.					1						X		C														
		Rheotanytarsus sp.	16	50	15	22	13						X	6.4	C	1,484	232	4,638	725	1,391	217	2,041	319	1,206	188				
		Cryptochironomus sp.	8	5	8	3	7	6	1				X	7.3	C	846	116	529	72	846	116	317	43	741	101	635	87	106	14
		Chironomus sp.	1	1	1	11			2		X		X	9.8	C	142	14	142	14	142	14	1,562	159					284	29
		Pseudochironomus sp.	7	7	6	1	8						X	4.2	C	426	101	426	101	365	87	61	14	487	116				
		Dicrotendipes sp.			1	2		2	9				X	7.9	C					114	14	229	29			229	29	1,030	130
		Orthocladius sp.	1	3	2								X	6	C	87	14	261	43	174	29								
		Tanytarsus sp.	1		2		2	2	10				X	6.7	C	97	14			194	29			194	29	194	29	971	145
		Nanocladius sp.							27				X	7.2	C													2,817	391
		Procladius sp.	4	14	13	6	9	2	6		X		X	9.3	T	539	58	1,887	203	1,752	188	809	87	1,213	130	270	29	809	87
		Microspectra sp.	2	1			2						X		C														
		Glyptotendipes sp.			3		3				X		X	8.5	C					370	43			370	43				
Total Abundance of B-IBI Taxa (number/m^2)			**4,609**	**3,768**	**5,435**	**3,594**	**3,174**	**2,391**	**2,232**																				
Abundance of pollution-indicative taxa (number/m^2)			**3,681**	**2,362**	**4,319**	**2,551**	**2,246**	**1,536**	**1,087**																				
Abundance of pollution-indicative taxa (%)			**80%**	**63%**	**79%**	**71%**	**71%**	**64%**	**48.7%**																				
Abundance of pollution-sensitive taxa (number/m^2)			**0**	**0**	**0**	**14.5**	**0**	**87.0**	**29.0**																				
Abundance of pollution-sensitive taxa (%)			**0%**	**0%**	**0%**	**0.4%**	**0%**	**3.6%**	**1.3%**																				
Abundance of carnivore and omnivores (number/m^2)			**1,449**	**2,609**	**3,725**	**2,043**	**1,899**	**1,420**	**1,261**																				
Abundance of carnivore and omnivores (%)			**31%**	**69%**	**69%**	**57%**	**60%**	**59%**	**56%**																				
															Tolerance Scores	**8.78**		**7.18**		**7.38**		**7.92**		**7.80**		**6.93**		**7.56**	
Tanypodinae to Chironomidae abundance ratio (%)			**15%**	**62%**	**33%**	**72%**	**10%**	**642%**	**71%**																				

Notes
1. Species excluded from IBI calculations based on Llanso (2002).
2. Percent abundance of pollution-indicative taxa is the percent abundance contribution of taxa classified as pollution-indicative to the total abundance of organisms in a sample.
3. Percent abundance of pollution-sensitive taxa is the percent abundance contribution of taxa classified as pollution-sensitive to the total abundance of organisms in a sample.
4. Percent abundance of carnivore and omnivores is the percent abundance contribution of taxa currently classified as carnivores or omnivores to the total abundance of organisms in a sample.
5. The Tolerance Score is a weighted abundance average for taxa classified according to their sensitiveness to pollution. The Tolerance Score is based on the North Carolina biotic index of Lenat (1993):

$$\text{Tolerance Score} = \frac{\sum TV_i \cdot N_i}{\sum N_i}$$

where TVi is the tolerance value of the ith taxa, and Ni is the abundance of the ith taxa. Tolerance values for each taxa from Llanso (2002).

6. The Tanypodinae to Chironomidae percent abundance ratio is a measure of the relative contribution of midges in the subfamily Tanypodinae to all the midges (Class Insecta, family Chironomidae) found in a sample.

Table 4. Calculation of Benthic Index of Biotic Integrity (B-IBI) in 2-Month Post Cap Monitoring Event
SSC Pacific
Quantico, Virginia

Within Cap Placement Area?	Within										Outside			
	QT2-1		QT2-2		QT2-3		QT2-4		QT2-5		QT2-6		QT2-7	
Metric	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Total Abundance of B-IBI Taxa (number/m^2)	4,609	1	3,768	3	5,435	1	3,594	3	3,174	5	2,391	5	2,232	5
Abundance of Pollution-Indicative Taxa (%)	80%	3	63%	3	79%	3	71%	3	71%	3	64%	3	49%	3
Abundance of Pollution-Sensitive Taxa (%)	0%	1	0%	1	0%	1	0.4%	3	0%	1	3.6%	3	1.3%	3
Abundance of Carnivore and Omnivores (%)	31%	3	69%	5	69%	5	57%	5	60%	5	59%	5	56%	5
Tolerance Score	8.78	3	7.18	3	7.38	3	7.92	3	7.80	3	6.93	3	7.56	3
Tanypodinae to Chironomidae Percent Abundance Ratio (%)	15%	5	62%	3	33%	3	72%	1	10%	5	642%	1	71%	1
B-IBI Value [1]		2.7		3.0		2.7		3.0		3.7		3.3		3.3

Notes:

1. B-IBI Value is calculated as the average of scored metrics. B-IBI values > 3 indicate a station 'meets restoration goals', scores from 2.7 to 2.9 indicate scores from 2.1 to 2.6 indicate degradation, and scores <2.0 indicate severe

Table 5. Summary of Benthic Community Health Metrics in 2-Month Post Cap Monitoring Event
SSC Pacific
Quantico, Virginia

Within Cap Placement Area?	Within					Outside	
Station ID	**QT2-1**	**QT2-2**	**QT2-3**	**QT2-4**	**QT2-5**	**QT2-6**	**QT2-7**
Total Abundance [1]	4,841	3,957	5,638	3,754	3,348	2,391	6,348
Species Richness [2]	20	25	24	20	20	14	24
Shannon-Wiener Diversity Index [3]	1.78	2.47	2.20	2.29	2.13	1.81	1.71
Pielou's Eveness [4]	0.59	0.77	0.69	0.76	0.71	0.69	0.54
B-IBI Score [5]	2.7	3.0	2.7	3.0	3.7	3.3	3.3

Notes:

1. Total Abundance is the number of individuals divided by the sample area (US EPA 1987) - 3 x 0.023m^2 grab samples.
2. Species Richness is the number of different taxon collected in each composite sample.
3. Shannon-Wiener Diversity (H') is calculated as the sum of $p_i \times \ln(p_i)$ for each species in each sample (Becker et al. 2011, USEPA 1987).
4. Pielou's Evenness (J') is calculated as H' divided by the natural logarithm of the number of taxa (Becker et al. 2011, USEPA 1987).
5. B-IBI values are calculated as the average of scored metrics. B-IBI values > 3 indicate a station 'meets restoration goals', scores from 2.7 to 2.9 indicate marginal degradation, scores from 2.1 to 2.6 indicate degradation, and scores < 2.0 indicate severe degradation.

Table 1: Counts, Abundance and Species Richness of Benthic Invertebrates in 14-Month Post Cap Monitoring Event
SSC Pacific
Quantico, Virginia

Taxonomic Group			Benthic sampling results (number of individuals found in three 0.023-m^2 grabs)						
			QT14-1	QT14-2	QT14-3	QT14-4	QT14-5	QT14-6	QT14-7
Nematoda	--	--	18	15	11	43	31		1
Cnidaria	Olindiidae	*Craspedacusta sowerbyi (hydromedusae polyp)*						1	
Oligochaeta	Tubificidae	*Branchiura sowerbyi*						11	9
		Aulodrilus spp.		4	2	2	8	22	2
		Limnodrilus spp.	31	119	81	44	119	24	17
		Rhyacodrilus spp.	7	6	3	2	3	4	
	Naididae	*Nais spp.*	29	19	14	22	10	1	
		Paranais spp.	16	12	28	15	11		
		Pristina longiseta	1		1				1
Polychaeta	Spionidae	*Marenzelleria viridis*	7	5	4	10	12	6	2
Veneroidea	Mactridae	*Rangia cuneata*				1			
	Corbiculidae	*Corbicula fluminea*	4	4	6	3	7	1	1
	Sphaeriidae	*Musculium sp.*	4	1	5	5	3	6	
Amphipoda	Gammaridae	*Gammarus sp.*	1	1	1	1	13	13	
	Hyalellidae	*Hyalella spp.*	1	3	3	4	1		
Isopoda	Anthuridae	*Cyathura polita*	5	12	8	13	17	1	1
Cumacea	Nannastacidae	*Almyracuma proximoculi*		20	33	3	10		
Cladocera	-	-	101				2		
Ostracoda	-	-	4	5	7	6	2	3	
Acariformes	Hydrachnidae indet.	-	1		1	1			
	Limnesiidae	*Limnesia sp.*	1					1	
Trichoptera	Leptoceridae	*Oecetis sp.*			3	3	3		
Ephemeroptera	Caenidae	*Caenis sp.*	1				1		
	Baetidae	*Centroptilum spp.*	3						
Diptera	Chironomidae	*Coelotanypus sp.*						19	5
		Polypedilum sp.	91	90	118	122	125		
		Rheotanytarsus sp.	42	37	27	35	37	1	
		Cryptochironomus sp.	9	8	5	6	8	3	
		Chironomus sp.		1		11	3	6	
		Pseudochironomus sp.	2						
		Orthocladius sp.					2	1	
		Paratanytarsus sp.	1	1	1				
		Tanytarsus sp.	3		1				
		Procladius sp.	1	2		3	8	4	
		Microspectra sp.					1		
Total Number of Individuals [2]			384	365	363	355	437	128	39
Total Abundance (individuals per m^2) [3]			5,565	5,290	5,261	5,145	6,333	1,855	565
Species Richness (total number of taxa) [4]			25	20	22	22	24	19	9

Notes

1. Samples were collected in October 2015 by Ramboll Environ US Corp. Benthic macroinvertebrate were identified to the lowest taxonomic level.
2. Number of Individuals is the total number of identifiable benthic invertebrate collected in each composite sample.
3. Total Abundance is the number of individuals divided by the sample area (US EPA 1987). Area sampled at each station was 0.069 m^2 (0.023 m^2 multiplied by three grab samples).
4. Species Richness is the number of different taxon collected in each composite sample.

Table 2. Calculation of Shannon-Wiener Diversity and Pielou's Evenness in 14-Month Post Cap Monitoring Event
SSC Pacific
Quantico, Virginia

Taxonomic Group			$p_i \times \ln(p_i)$ [1]						
			QT14-1	QT14-2	QT14-3	QT14-4	QT14-5	QT14-6	QT14-7
Nematoda	--	--	-0.14	-0.13	-0.11	-0.26	-0.19		-0.09
Cnidaria	Olindiidae	*Craspedacusta sowerbyi (hydromedusae polyp)*						-0.04	
Oligochaeta	Tubificidae	*Branchiura sowerbyi*						-0.21	-0.34
		Aulodrilus spp.		-0.05	-0.03	-0.03	-0.07	-0.30	-0.15
		Limnodrilus spp.	-0.20	-0.37	-0.33	-0.26	-0.35	-0.31	-0.36
		Rhyacodrilus spp.	-0.07	-0.07	-0.04	-0.03	-0.03	-0.11	
	Naididae	*Nais spp.*	-0.20	-0.15	-0.13	-0.17	-0.09	-0.04	
		Paranais spp.	-0.13	-0.11	-0.20	-0.13	-0.09		
		Pristina longiseta	-0.02		-0.02				-0.09
Polychaeta	Spionidae	*Marenzelleria viridis*	-0.07	-0.06	-0.05	-0.10	-0.10	-0.14	-0.15
Veneroidea	Mactridae	*Rangia cuneata*				-0.02			
	Corbiculidae	*Corbicula fluminea*	-0.05	-0.05	-0.07	-0.04	-0.07	-0.04	-0.09
	Sphaeriidae	*Musculium sp.*	-0.05	-0.02	-0.06	-0.06	-0.03	-0.14	
Amphipoda	Gammaridae	*Gammarus sp.*	-0.02	-0.02	-0.02	-0.02	-0.10	-0.23	
	Hyalellidae	*Hyalella spp.*	-0.02	-0.04	-0.04	-0.05	-0.01		
Isopoda	Anthuridae	*Cyathura polita*	-0.06	-0.11	-0.08	-0.12	-0.13	-0.04	-0.09
Cumacea	Nannastacidae	*Almyracuma proximoculi*		-0.16	-0.22	-0.04	-0.09		
Cladocera	-	-	-0.35				-0.02		
Ostracoda	-	-	-0.05	-0.06	-0.08	-0.07	-0.02	-0.09	
Acariformes	Hydrachnidae indet.	-	-0.02		-0.02	-0.02			
	Limnesiidae	*Limnesia sp.*	-0.02					-0.04	
Trichoptera	Leptoceridae	*Oecetis sp.*			-0.04	-0.04	-0.03		
Ephemeroptera	Caenidae	*Caenis sp.*	-0.02				-0.01		
	Baetidae	*Centroptilum spp.*	-0.04						
Diptera	Chironomidae	*Coelotanypus spp.*						-0.28	-0.26
		Polypedilum spp.	-0.34	-0.35	-0.37	-0.37	-0.36		
		Rheotanytarsus spp.	-0.24	-0.23	-0.19	-0.23	-0.21	-0.04	
		Cryptochironomus spp.	-0.09	-0.08	-0.06	-0.07	-0.07	-0.09	
		Chironomus spp.		-0.02		-0.11	-0.03	-0.14	
		Pseudochironomus spp.	-0.03						
		Orthocladius spp.					-0.02	-0.04	
		Paratanytarsus spp.	-0.02	-0.02	-0.02				
		Tanytarsus spp.	-0.04		-0.02				
		Procladius spp.	-0.02	-0.03		-0.04	-0.07	-0.11	
		Microspectra sp.					-0.01		
Shannon-Weiner Diversity (H') [2]			**2.27**	**2.11**	**2.16**	**2.26**	**2.24**	**2.43**	**1.64**
Pielou's Evenness (J') [3]			**0.70**	**0.70**	**0.70**	**0.73**	**0.71**	**0.83**	**0.75**

Notes
1. p*i* is the proportion of individuals in species *i* to the total number of individuals in each sample. Ln is the natural logarithm of p*i*.
2. Shannon-Wiener Diversity (H') is calculated as the sum of p*i* ×ln(p*i*) for each species in each sample (Becker et al. 2011, USEPA 1987).
3. Pielou's Evenness (J') is calculated as H' divided by the natural logarithm of the number of taxa (Becker et al. 2011, USEPA 1987).

Table 3. Calculation of Metrics Used in the Benthic Index of Biotic Integrity (B-IBI)in 14-Month Post Cap Monitoring Event
SSC Pacific
Quantico, Virginia

Taxonomic Group			Benthic sampling results (number of individuals found in three 0.023-m^2 grabs)							Exclude from B-IBI Calculations? [1]	Oligohaline pollution-indicative taxa [2]	Oligohaline pollution-sensitive taxa [3]	Species classified as carnivores-omnivores [4]	Tolerance Values [5]	Tanypodinae or Chironomidae [6]	Tolerance Scores [5]												
																QT14-1		QT14-2		QT14-3		QT14-4		QT14-5		QT14-6		QT14-7	
Order	Family	Genus/Species	QT14-1	QT14-2	QT14-3	QT14-4	QT14-5	QT14-6	QT14-7							TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni
Nematoda	--	--	18	15	11	43	31		1	X																		
Cnidaria	Olindiidae	*Craspedacusta sowerbyi (hydromedusae polyp)*						1		X																		
Oligochaeta	Tubificidae	*Branchiura sowerbyi*						11	9		X			8.4												1,339	159	1,096	130
		Aulodrilus spp.		4	2	2	8	22	2		X			4.7				272	58	136	29	136	29	545	116	1,499	319	136	29
		Limnodrilus spp.	31	119	81	44	119	24	17		X			10		4,493	449	####	1,725	####	1,174	6,377	638	####	1,725	3,478	348	2,464	246
		Rhyacodrilus spp.	7	6	3	2	3	4																				
	Naididae	*Nais spp.*	29	19	14	22	10	1						8		3,362	420	2,203	275	1,623	203	2,551	319	1,159	145	116	14		
		Paranais spp.	16	12	28	15	11																						
		Pristina longiseta	1		1				1																				
Polychaeta	Spionidae	*Marenzelleria viridis*	7	5	4	10	12	6	2			X																	
Veneroidea	Mactridae	*Rangia cuneata*				1								6								87	14						
	Corbiculidae	*Corbicula fluminea*	4	4	6	3	7	1	1		X			6.3		365	58	365	58	548	87	274	43	639	101	91	14	91	14
	Sphaeriidae	*Musculium sp.*	4	1	5	5	3	6						7.7		446	58	112	14	558	72	558	72	335	43	670	87		
Amphipoda	Gammaridae	*Gammarus sp.*	1	1	1	1	13	13		X																			
	Hyalellidae	*Hyalella spp.*	1	3	3	4	1																						
Isopoda	Anthuridae	*Cyathura polita*	5	12	8	13	17	1	1			X																	
Cumacea	Nannastacidae	*Almyracuma proximoculi*		20	33	3	10																						
Cladocera	-	-	101				2																						
Ostracoda	-	-	4	5	7	6	2	3																					
Acariformes	Hydrachnidae indet.	-	1		1	1																							
	Limnesiidae	*Limnesia sp.*	1					1																					
Trichoptera	Leptoceridae	*Oecetis sp.*			3	3	3			X																			
Ephemeroptera	Caenidae	*Caenis sp.*	1				1			X																			
	Baetidae	*Centroptilum spp.*	3																										
Diptera	Chironomidae	*Coelotanypus spp.*						19	5		X		X	6.2	T											1,707	275	449	72
		Polypedilum spp.	91	90	118	122	125				X		X	6.7	C	8,836	1,319	8,739	1,304	####	1,710	####	1,768	####	1,812				
		Rheotanytarsus spp.	42	37	27	35	37	1					X	6.4	C	3,896	609	3,432	536	2,504	391	3,246	507	3,432	536	93	14		
		Cryptochironomus spp.	9	8	5	6	8	3					X	7.3	C	952	130	846	116	529	72	635	87	846	116	317	43		
		Chironomus spp.		1		11	3	6			X		X	9.8	C			142	14			1,562	159	426	43	852	87		
		Pseudochironomus spp.	2										X	4.2	C	122	29												
		Orthocladius spp.					2	1					X	6	C									174	29	87	14		
		Paratanytarsus spp.	1	1	1								X		C														
		Tanytarsus spp.	3		1								X	6.7	C	291	43			97	14								
		Procladius spp.	1	2		3	8	4			X		X	9.3	T	135	14	270	29			404	43	1,078	116	539	58		
		Microspectra sp.					1						X		C														
Total Abundance of B-IBI Taxa (number/m^2)			**5,275**	**5,058**	**5,043**	**4,464**	**5,638**	**1,652**	**551**																				
Abundance of pollution-indicative taxa (number/m^2)			**1,841**	**3,188**	**3,000**	**2,681**	**3,913**	**1,261**	**493**																				
Abundance of pollution-indicative taxa (%)			**35%**	**63%**	**59%**	**60%**	**69%**	**76%**	**89%**																				
Abundance of pollution-sensitive taxa (number/m^2)			**174**	**246**	**174**	**333.3**	**420**	**101.4**	**43.5**																				
Abundance of pollution-sensitive taxa (%)			**3%**	**5%**	**3%**	**7.5%**	**7%**	**6.1%**	**7.9%**																				
Abundance of carnivore and omnivores (number/m^2)			**2,159**	**2,014**	**2,203**	**2,565**	**2,667**	**493**	**72**																				
Abundance of carnivore and omnivores (%)			**41%**	**40%**	**44%**	**57%**	**47%**	**30%**	**13%**																				
															Tolerance Scores	**7.31**		**8.14**		**7.78**		**7.52**		**7.95**		**7.52**		**8.60**	
Tanypodinae to Chironomidae abundance ratio (%)			**1%**	**1%**	**0%**	**2%**	**5%**	**209%**	**NC [7]**																				

Notes
1. Species excluded from IBI calculations based on Llanso (2002).
2. Percent abundance of pollution-indicative taxa is the percent abundance contribution of taxa classified as pollution-indicative to the total abundance of organisms in a sample.
3. Percent abundance of pollution-sensitive taxa is the percent abundance contribution of taxa classified as pollution-sensitive to the total abundance of organisms in a sample.
4. Percent abundance of carnivore and omnivores is the percent abundance contribution of taxa currently classified as carnivores or omnivores to the total abundance of organisms in a sample.
5. The Tolerance Score is a weighted abundance average for taxa classified according to their sensitiveness to pollution. The Tolerance Score is based on the North Carolina biotic index of Lenat (1993):

$$\text{Tolerance Score} = \frac{\sum TV_i \cdot N_i}{\sum N_i}$$ where TVi is the tolerance value of the ith taxa, and Ni is the abundance of the ith taxa. Tolerance values for each taxa from Llanso (2002).

6. The Tanypodinae to Chironomidae percent abundance ratio is a measure of the relative contribution of midges in the subfamily Tanypodinae to all the midges (Class Insecta, family Chironomidae) found in a sample.
7. As only Tanypodinae were identified in QT14-7, the Tanypodinae to Chironomidae percent abundance ratio could not be calculated.

Table 4. Calculation of Benthic Index of Biotic Integrity (B-IBI) in 14-Month Post Cap Monitoring Event
SSC Pacific
Quantico, Virginia

Within Cap Placement Area?	Within										Outside			
Metric	QT14-1		QT14-2		QT14-3		QT14-4		QT14-5		QT14-6		QT14-7	
	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Total Abundance of B-IBI Taxa (number/m^2)	5,275	1	5,058	1	5,043	1	4,464	1	5,638	1	1,652	5	551	5
Abundance of Pollution-Indicative Taxa (%)	35%	3	63%	3	59%	3	60%	3	69%	3	76%	3	89%	3
Abundance of Pollution-Sensitive Taxa (%)	3.3%	3	4.9%	3	3.4%	3	7.5%	3	7.5%	3	6.1%	3	7.9%	3
Abundance of Carnivore and Omnivores (%)	41%	5	40%	5	44%	5	57%	5	47%	5	30%	3	13%	1
Tolerance Score	7.31	3	8.14	3	7.78	3	7.52	3	7.95	3	7.52	3	8.60	3
Tanypodinae to Chironomidae Percent Abundance Ratio (%)	1%	5	1%	5	0%	5	2%	5	5%	5	209%	1	NC [2]	1
B-IBI Value [1]		3.3		3.3		3.3		3.3		3.3		3.0		2.7

Notes:
1. B-IBI Value is calculated as the average of scored metrics. B-IBI values > 3 indicate a station 'meets restoration goals', scores from 2.7 to 2.9 indicate scores from 2.1 to 2.6 indicate degradation, and scores <2.0 indicate severe
2. As only Tanypodinae were identified in QT14-7, the Tanypodinae to Chironomidae percent abundance ratio could not be calculated and a score of 1 was assigned.

Table 5. Summary of Benthic Community Health Metrics in 14-Month Post Cap Monitoring Event
SSC Pacific
Quantico, Virginia

Within Cap Placement Area?	Within					Outside	
Station ID	**QT14-1**	**QT14-2**	**QT14-3**	**QT14-4**	**QT14-5**	**QT14-6**	**QT14-7**
Total Abundance [1]	5,565	5,290	5,261	5,145	6,333	1,855	565
Species Richness [2]	25	20	22	22	24	19	9
Shannon-Wiener Diversity Index [3]	2.27	2.11	2.16	2.26	2.24	2.43	1.64
Pielou's Eveness [4]	0.70	0.70	0.70	0.73	0.71	0.83	0.75
B-IBI Score [5]	3.3	3.3	3.3	3.3	3.3	3.0	2.7

Notes:

1. Total Abundance is the number of individuals divided by the sample area (US EPA 1987) - 3 x 0.023m^2 grab samples.
2. Species Richness is the number of different taxon collected in each composite sample.
3. Shannon-Wiener Diversity (H') is calculated as the sum of $p_i \times \ln(p_i)$ for each species in each sample (Becker et al. 2011, USEPA 1987).
4. Pielou's Evenness (J') is calculated as H' divided by the natural logarithm of the number of taxa (Becker et al. 2011, USEPA 1987).
5. B-IBI values are calculated as the average of scored metrics. B-IBI values > 3 indicate a station 'meets restoration goals', scores from 2.7 to 2.9 indicate marginal degradation, scores from 2.1 to 2.6 indicate degradation, and scores < 2.0 indicate severe degradation.

Table 1: Counts, Abundance and Species Richness of Benthic Invertebrates in 25-Month Post Cap Monitoring Event
SSC Pacific
Quantico, Virginia

Taxonomic Group			Number of Individuals per Sample						
			QT25-1	QT25-2	QT25-3	QT25-4	QT25-5	QT25-6	QT25-7
Nematoda	--	--	2	6	9	5	2		
Oligochaeta	Tubificidae	*Branchiura sowerbyi*			1			3	1
		Aulodrilus spp.	20	7	15			1	
		Limnodrilus spp.	109	76	68	25		1	5
		Rhyacodrilus spp.		8					
	Naididae	*Nais spp.*	2	4	2				
		Dero spp.			1				
Polychaeta	Spionidae	*Marenzelleria viridis*			3				
Veneroida	Corbiculidae	*Corbicula fluminea*				1	2		1
	Sphaeriidae	*Musculium spp.*		9	7				
Gastropoda	Planorbidae	*Gyraulus sp.*				1			
Unionoida	Unionidae indet. (juvenile)	--	1						
Amphipoda	Gammaridae	*Gammarus spp.*	1		3				
Isopoda	Anthuridae	*Cyathura polita*	22	28	12	11	18		1
Ostracoda	--	--	9	11	17		1		
Decapoda	Panopeidae	*Rhithropanopeus harrisii*	1		1	1			
Acariformes	Limnesiidae	*Limnesia spp.*	2		5				
	Unionicolidae	*Unionicola sp.*			1				
Trichoptera	Leptoceridae	*Oecetis spp.*	2		1	1			
Ephemeroptera	Caenidae	*Caenis sp.*			1				
	Baetidae	*Centroptilum spp.*				1			
Coleoptera	Hydrophilidae	*Berosus spp.*			2				
Odonata	Coenagrionidae	*Enallagma sp.*							1
Diptera	Ceratopogonidae	*Probezzia spp.*	2		2	1			
	Chironomidae	*Coelotanypus spp.*	1		17			4	11
		Cladotanytarsus spp.	9	118	6	2	79		
		Polypedilum spp.	8	80	1	16	47		
		Rheotanytarsus spp.	1						
		Cryptochironomus spp.	4		5			1	
		Dicrotendipes sp.			1				
		Glyptotendipes sp.			1				
		Pseudochironomus spp.	1	1					
		Tanytarsus spp.	12		13		1		
		Procladius spp.	4	1	18	3			1
		Microtendipes sp.	1						
		Nanocladius spp.	1		5	1			
		Parachironomus spp.	14		8				
		Thienemanniella spp.	5		2				
		Rheocricotopus sp.		1					
Total Number of Individuals [2]			234	350	228	69	150	10	21
Total Abundance (individuals per m^2) [3]			3,391	5,072	3,304	1,000	2,174	145	304
Species Richness (total number of taxa) [4]			24	13	29	13	7	5	7

Notes

1. Samples were collected in August 2016 by Ramboll Environ US Corp. Benthic macroinvertebrate were identified to the lowest taxonomic level.
2. Number of Individuals is the total number of identifiable benthic invertebrate collected in each composite sample.
3. Total Abundance is the number of individuals divided by the sample area (US EPA 1987). Area sampled at each station was 0.069 m^2 (0.023 m^2 multiplied by three grab samples).
4. Species Richness is the number of different taxon collected in each composite sample.

Table 2. Calculation of Shannon-Wiener Diversity and Pielou's Evenness in 25-Month Post Cap Monitoring Event
SSC Pacific
Quantico, Virginia

Taxonomic Group			$p_i \times \ln(p_i)$ [1]						
			QT25-1	QT25-2	QT25-3	QT25-4	QT25-5	QT25-6	QT25-7
Nematoda	--	--	-0.04	-0.07	-0.13	-0.19	-0.06		
Oligochaeta	Tubificidae	*Branchiura sowerbyi*			-0.02			-0.36	-0.14
		Aulodrilus spp.	-0.21	-0.08	-0.18			-0.23	
		Limnodrilus spp.	-0.36	-0.33	-0.36	-0.37		-0.23	-0.34
		Rhyacodrilus spp.		-0.09					
	Naididae	*Nais spp.*	-0.04	-0.05	-0.04				
		Dero spp.			-0.02				
Polychaeta	Spionidae	*Marenzelleria viridis*			-0.06				
Veneroida	Corbiculidae	*Corbicula fluminea*				-0.06	-0.06		-0.14
	Sphaeriidae	*Musculium spp.*		-0.09	-0.11				
Gastropoda	Planorbidae	*Gyraulus sp.*				-0.06			
Unionoida	Unionidae indet. (juvenile)	--	-0.02						
Amphipoda	Gammaridae	*Gammarus spp.*	-0.02		-0.06				
Isopoda	Anthuridae	*Cyathura polita*	-0.22	-0.20	-0.15	-0.29	-0.25		-0.14
Ostracoda	--	--	-0.13	-0.11	-0.19		-0.03		
Decapoda	Panopeidae	*Rhithropanopeus harrisii*	-0.02		-0.02	-0.06			
Acariformes	Limnesiidae	*Limnesia spp.*	-0.04		-0.08				
	Unionicolidae	*Unionicola sp.*			-0.02				
Trichoptera	Leptoceridae	*Oecetis spp.*	-0.04		-0.02	-0.06			
Ephemeroptera	Caenidae	*Caenis sp.*			-0.02				
	Baetidae	*Centroptilum spp.*				-0.06			
Coleoptera	Hydrophilidae	*Berosus spp.*			-0.04				
Odonata	Coenagrionidae	*Enallagma sp.*							-0.14
Diptera	Ceratopogonidae	*Probezzia spp.*	-0.04		-0.04	-0.06			
	Chironomidae	*Coelotanypus spp.*	-0.02		-0.19			-0.37	-0.34
		Cladotanytarsus spp.	-0.13	-0.37	-0.10	-0.10	-0.34		
		Polypedilum spp.	-0.12	-0.34	-0.02	-0.34	-0.36		
		Rheotanytarsus spp.	-0.02						
		Cryptochironomus spp.	-0.07		-0.08			-0.23	
		Dicrotendipes sp.			-0.02				
		Glyptotendipes sp.			-0.02				
		Pseudochironomus spp.	-0.02	-0.02					
		Tanytarsus spp.	-0.15		-0.16		-0.03		
		Procladius spp.	-0.07	-0.02	-0.20	-0.14			-0.14
		Microtendipes sp.	-0.02						
		Nanocladius spp.	-0.02		-0.08	-0.06			
		Parachironomus spp.	-0.17		-0.12				
		Thienemanniella spp.	-0.08		-0.04				
		Rheocricotopus sp.		-0.02					
Shannon-Weiner Diversity (H') [2]			**2.09**	**1.78**	**2.64**	**1.86**	**1.14**	**1.42**	**1.41**
Pielou's Evenness (J') [3]			**0.66**	**0.69**	**0.78**	**0.72**	**0.58**	**0.88**	**0.72**

Notes
1. p_i is the proportion of individuals in species *i* to the total number of individuals in each sample. Ln is the natural logarithm of p_i.
2. Shannon-Wiener Diversity (H') is calculated as the sum of $p_i \times \ln(p_i)$ for each species in each sample (Becker et al. 2011, USEPA 1987).
3. Pielou's Evenness (J') is calculated as H' divided by the natural logarithm of the number of taxa (Becker et al. 2011, USEPA 1987).

Table 3. Calculation of Metrics Used in the Benthic Index of Biotic Integrity (B-IBI) in 25-Month Post Cap Monitoring Event
SSC Pacific
Quantico, Virginia

Taxonomic Group			Benthic sampling results (number of individuals found in three 0.023-m^2 grabs)							Exclude from B-IBI Calculations? [1]	Oligohaline pollution-indicative taxa [2]	Oligohaline pollution-sensitive taxa [3]	Species classified as carnivores-omnivores [4]	Tolerance Values [5]	Tanypodinae or Chironomidae [6]	Tolerance Scores [5]												
																QT25-1		QT25-2		QT25-3		QT25-4		QT25-5		QT25-6		QT25-7	
Order	Family	Genus/Species	QT25-1	QT25-2	QT25-3	QT25-4	QT25-5	QT25-6	QT25-7							TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni	TVi x Ni	Ni
Nematoda	--	--	2	6	9	5	2			X																		
Oligochaeta	Tubificidae	*Branchiura sowerbyi*			1			3	1		X			8.4						122	14					365	43	122	14
		Aulodrilus spp.	20	7	15			1			X			4.7		1,362	290	477	101	1,022	217					68	14		
		Limnodrilus spp.	109	76	68	25		1	5		X			10		####	1,580	####	1,101	9,855	986	3,623	362			145	14	725	72
		Rhyacodrilus spp.		8																								
	Naididae	*Nais spp.*	2	4	2									8		232	29	464	58	232	29								
		Dero spp.			1									10						145	14								
Polychaeta	Spionidae	*Marenzelleria viridis*			3							X																
Veneroida	Corbiculidae	*Corbicula fluminea*				1	2		1		X			6.3								91	14	183	29			91	14
	Sphaeriidae	*Musculium spp.*		9	7									7.7				1,004	130	781	101								
Gastropoda	Planorbidae	*Gyraulus sp.*				1																							
Unionoida	Unionidae indet. (juvenile)	--	1											3.6		52	14												
Amphipoda	Gammaridae	*Gammarus spp.*	1		3					X																			
Isopoda	Anthuridae	*Cyathura polita*	22	28	12	11	18		1			X																	
Ostracoda	--	--	9	11	17		1																						
Decapoda	Panopeidae	*Rhithropanopeus harrisii*	1		1	1																							
Acariformes	Limnesiidae	*Limnesia spp.*	2		5																								
	Unionicolidae	*Unionicola sp.*			1																								
Trichoptera	Leptoceridae	*Oecetis spp.*	2		1	1				X																			
Ephemeroptera	Caenidae	*Caenis sp.*			1					X																			
	Baetidae	*Centroptilum spp.*				1																							
Coleoptera	Hydrophilidae	*Berosus spp.*			2					X																			
Odonata	Coenagrionidae	*Enallagma sp.*							1																				
Diptera	Ceratopogonidae	*Probezzia spp.*	2		2	1							X																
	Chironomidae	*Coelotanypus spp.*	1		17			4	11		X		X	6.2	T	90	14			1,528	246					359	58	988	159
		Cladotanytarsus spp.	9	118	6	2	79				X		X	3.7	C	483	130	6,328	1,710	322	87	107	29	4,236	1,145				
		Polypedilum spp.	8	80	1	16	47				X		X	6.7	C	777	116	7,768	1,159	97	14	1,554	232	4,564	681				
		Rheotanytarsus spp.	1										X	6.4	C	93	14												
		Cryptochironomus spp.	4		5			1					X	7.3	C	423	58			529	72					106	14		
		Dicrotendipes sp.			1								X	7.9	C					114	14								
		Glyptotendipes sp.			1						X		X	8.5	C					123	14								
		Pseudochironomus spp.	1	1									X	4.2	C	61	14	61	14										
		Tanytarsus spp.	12		13		1						X	6.7	C	1,165	174			1,262	188			97	14				
		Procladius spp.	4	1	18	3			1		X		X	9.3	T	539	58	135	14	2,426	261	404	43					135	14
		Microtendipes sp.	1										X		C														
		Nanocladius spp.	1		5	1							X		C														
		Parachironomus spp.	14		8								X	9.2	C	1,867	203			1,067	116								
		Thienemanniella spp.	5		2								X		C														
		Rheocricotopus sp.		1									X		C														
Total Abundance of B-IBI Taxa (number/m^2)			**3,319**	**4,986**	**3,072**	**913**	**2,145**	**145**	**304**																				
Abundance of pollution-indicative taxa (number/m^2)			**2,188**	**4,087**	**1,841**	**681**	**1,855**	**130**	**275**																				
Abundance of pollution-indicative taxa (%)			**66%**	**82%**	**60%**	**75%**	**86%**	**90%**	**90%**																				
Abundance of pollution-sensitive taxa (number/m^2)			**319**	**406**	**217**	**159**	**261**	**0**	**14**																				
Abundance of pollution-sensitive taxa (%)			**10%**	**8%**	**7%**	**17%**	**12%**	**0%**	**5%**																				
Abundance of carnivore and omnivores (number/m^2)			**913**	**2,913**	**1,145**	**333**	**1,841**	**72**	**174**																				
Abundance of carnivore and omnivores (%)			**28%**	**58%**	**37%**	**37%**	**86%**	**50%**	**57%**																				
														Tolerance Scores		**8.51**		**6.35**		**8.26**		**8.49**		**4.86**		**7.20**		**7.48**	
Tanypodinae to Chironomidae abundance ratio (%)			**9%**	**1%**	**83%**	**16%**	**0%**	**400%**	**NC [7]**																				

Notes

1. Species excluded from IBI calculations based on Llanso (2002).
2. Percent abundance of pollution-indicative taxa is the percent abundance contribution of taxa classified as pollution-indicative to the total abundance of organisms in a sample.
3. Percent abundance of pollution-sensitive taxa is the percent abundance contribution of taxa classified as pollution-sensitive to the total abundance of organisms in a sample.
4. Percent abundance of carnivore and omnivores is the percent abundance contribution of taxa currently classified as carnivores or omnivores to the total abundance of organisms in a sample.
5. The Tolerance Score is a weighted abundance average for taxa classified according to their sensitiveness to pollution. The Tolerance Score is based on the North Carolina biotic index of Lenat (1993):

$$\text{Tolerance Score} = \frac{\sum TV_i \cdot N_i}{\sum N_i}$$

where TVi is the tolerance value of the ith taxa, and Ni is the abundance of the ith taxa. Tolerance values for each taxa from Llanso (2002).

6. The Tanypodinae to Chironomidae percent abundance ratio is a measure of the relative contribution of midges in the subfamily Tanypodinae to all the midges (Class Insecta, family Chironomidae) found in a sample.
7. As only Tanypodinae were identified in QT25-7, the Tanypodinae to Chironomidae percent abundance ratio could not be calculated.

Table 4. Calculation of Benthic Index of Biotic Integrity (B-IBI) in 25-Month Post Cap Monitoring Event
SSC Pacific
Quantico, Virginia

Within Cap Placement Area?	Within										Outside			
	QT25-1		QT25-2		QT25-3		QT25-4		QT25-5		QT25-6		QT25-7	
Metric	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Total Abundance of B-IBI Taxa (number/m^2)	3,319	5	4,986	1	3,072	5	913	5	2,145	5	145	1	304	3
Abundance of Pollution-Indicative Taxa (%)	66%	3	82%	3	60%	3	75%	3	86%	3	90%	3	90%	3
Abundance of Pollution-Sensitive Taxa (%)	9.6%	3	8.1%	3	7.1%	3	17.5%	3	12.2%	3	0.0%	1	4.8%	3
Abundance of Carnivore and Omnivores (%)	28%	3	58%	5	37%	5	37%	5	86%	5	50%	5	57%	5
Tolerance Score	8.51	3	6.35	3	8.26	3	8.49	3	4.86	5	7.20	3	7.48	3
Tanypodinae to Chironomidae Percent Abundance Ratio (%)	9%	5	1%	5	83%	1	16%	5	0%	5	400%	1	NC [2]	1
B-IBI Value [1]		3.7		3.3		3.3		4.0		4.3		2.3		3.0

Notes:
1. B-IBI Value is calculated as the average of scored metrics. B-IBI values > 3 indicate a station 'meets restoration goals', scores from 2.7 to 2.9 indicate marginal degradation, scores from 2.1 to 2.6 indicate degradation, and scores <2.0 indicate severe degradation.
2. As only Tanypodinae were identified in QT25-7, the Tanypodinae to Chironomidae percent abundance ratio could not be calculated and a score of 1 was assigned.

Table 5. Summary of Benthic Community Health Metrics in 25-Month Post Cap Monitoring Event
SSC Pacific
Quantico, Virginia

Within Cap Placement Area?	Within					Outside	
Station ID	**QT25-1**	**QT25-2**	**QT25-3**	**QT25-4**	**QT25-5**	**QT25-6**	**QT25-7**
Total Abundance [1]	3,391	5,072	3,304	1,000	2,174	145	304
Species Richness [2]	24	13	29	13	7	5	7
Shannon-Wiener Diversity Index [3]	2.09	1.78	2.64	1.86	1.14	1.42	1.41
Pielou's Eveness [4]	0.66	0.69	0.78	0.72	0.58	0.88	0.72
B-IBI Score [5]	3.7	3.3	3.3	4.0	4.3	2.3	3.0

Notes:

1. Total Abundance is the number of individuals divided by the sample area (US EPA 1987) - 3 x 0.023m^2 grab samples.
2. Species Richness is the number of different taxon collected in each composite sample.
3. Shannon-Wiener Diversity (H') is calculated as the sum of $p_i \times \ln(p_i)$ for each species in each sample (Becker et al. 2011, USEPA 1987).
4. Pielou's Evenness (J') is calculated as H' divided by the natural logarithm of the number of taxa (Becker et al. 2011, USEPA 1987).
5. B-IBI values are calculated as the average of scored metrics. B-IBI values > 3 indicate a station 'meets restoration goals', scores from 2.7 to 2.9 indicate marginal degradation, scores from 2.1 to 2.6 indicate degradation, and scores < 2.0 indicate severe degradation.

Appendix E-4

Sediment - Physical and Chemical Characterization

Data Compilation and Lab Reports

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
Baseline 2	CAP3	2	0-2	Sample	In Cap	B2-CAP3-0002	In Cap	2,4´-DDD	21.54	24,410	882.4
Baseline 2	CAP3	2	0-2	Sample	In Cap	B2-CAP3-0002	In Cap	2,4´-DDE	1.46	24,410	59.8
Baseline 2	CAP3	2	0-2	Sample	In Cap	B2-CAP3-0002	In Cap	2,4´-DDT	1.15	24,410	47.1
Baseline 2	CAP3	2	0-2	Sample	In Cap	B2-CAP3-0002	In Cap	4,4´-DDD	93.66	24,410	3837.0
Baseline 2	CAP3	2	0-2	Sample	In Cap	B2-CAP3-0002	In Cap	4,4´-DDE	20.85	24,410	854.2
Baseline 2	CAP3	2	0-2	Sample	In Cap	B2-CAP3-0002	In Cap	4,4´-DDT	29.92	24,410	1225.7
Baseline 2	CAP3	2	0-2	Sample	In Cap	B2-CAP3-0002	In Cap	Total DDX	168.58	24,410	6906.2
Baseline 2	CAP3	2	2-5	Sample	In Cap	B2-CAP3-0205	In Cap	2,4´-DDD	18.18	9,331	1948.3
Baseline 2	CAP3	2	2-5	Sample	In Cap	B2-CAP3-0205	In Cap	2,4´-DDE	0.96	9,331	102.9
Baseline 2	CAP3	2	2-5	Sample	In Cap	B2-CAP3-0205	In Cap	2,4´-DDT	<0.23	9,331	24.6
Baseline 2	CAP3	2	2-5	Sample	In Cap	B2-CAP3-0205	In Cap	4,4´-DDD	48.85	9,331	5235.2
Baseline 2	CAP3	2	2-5	Sample	In Cap	B2-CAP3-0205	In Cap	4,4´-DDE	17.36	9,331	1860.5
Baseline 2	CAP3	2	2-5	Sample	In Cap	B2-CAP3-0205	In Cap	4,4´-DDT	3.92	9,331	420.1
Baseline 2	CAP3	2	2-5	Sample	In Cap	B2-CAP3-0205	In Cap	Total DDX	89.5	9,331	9591.7
Baseline 2	CAP3	2	5-7	Sample	In Cap	B2-CAP3-0507	In Cap	2,4´-DDD	17.35	15,332	1131.6
Baseline 2	CAP3	2	5-7	Sample	In Cap	B2-CAP3-0507	In Cap	2,4´-DDE	1.29	15,332	84.1
Baseline 2	CAP3	2	5-7	Sample	In Cap	B2-CAP3-0507	In Cap	2,4´-DDT	1.67	15,332	108.9
Baseline 2	CAP3	2	5-7	Sample	In Cap	B2-CAP3-0507	In Cap	4,4´-DDD	43.64	15,332	2846.3
Baseline 2	CAP3	2	5-7	Sample	In Cap	B2-CAP3-0507	In Cap	4,4´-DDE	18.45	15,332	1203.4
Baseline 2	CAP3	2	5-7	Sample	In Cap	B2-CAP3-0507	In Cap	4,4´-DDT	6.92	15,332	451.3
Baseline 2	CAP3	2	5-7	Sample	In Cap	B2-CAP3-0507	In Cap	Total DDX	89.32	15,332	5825.7
Baseline 2	CAP3	2	0-10	Sample	In Cap	B2-CAP3-GRAB	In Cap	2,4´-DDD	13.69	17,100	800.6
Baseline 2	CAP3	2	0-10	Sample	In Cap	B2-CAP3-GRAB	In Cap	2,4´-DDE	0.73	17,100	42.7
Baseline 2	CAP3	2	0-10	Sample	In Cap	B2-CAP3-GRAB	In Cap	2,4´-DDT	1.83	17,100	107.0
Baseline 2	CAP3	2	0-10	Sample	In Cap	B2-CAP3-GRAB	In Cap	4,4´-DDD	58.22	17,100	3404.7
Baseline 2	CAP3	2	0-10	Sample	In Cap	B2-CAP3-GRAB	In Cap	4,4´-DDE	17.5	17,100	1023.4
Baseline 2	CAP3	2	0-10	Sample	In Cap	B2-CAP3-GRAB	In Cap	4,4´-DDT	6.18	17,100	361.4
Baseline 2	CAP3	2	0-10	Sample	In Cap	B2-CAP3-GRAB	In Cap	Total DDX	98.15	17,100	5739.8
Baseline 2	CAP2	3	0-2	Sample	In Cap	B2-CAP2-0002	In Cap	2,4´-DDD	36.79	67,084	548.4
Baseline 2	CAP2	3	0-2	Sample	In Cap	B2-CAP2-0002	In Cap	2,4´-DDE	3.39	67,084	50.5
Baseline 2	CAP2	3	0-2	Sample	In Cap	B2-CAP2-0002	In Cap	2,4´-DDT	8.81	67,084	131.3
Baseline 2	CAP2	3	0-2	Sample	In Cap	B2-CAP2-0002	In Cap	4,4´-DDD	1091.85	67,084	16275.9
Baseline 2	CAP2	3	0-2	Sample	In Cap	B2-CAP2-0002	In Cap	4,4´-DDE	47.4	67,084	706.6
Baseline 2	CAP2	3	0-2	Sample	In Cap	B2-CAP2-0002	In Cap	4,4´-DDT	48.02	67,084	715.8
Baseline 2	CAP2	3	0-2	Sample	In Cap	B2-CAP2-0002	In Cap	Total DDX	1236.26	67,084	18428.5
Baseline 2	CAP2	3	2-5	Sample	In Cap	B2-CAP2-0205	In Cap	2,4´-DDD	34.97	40,727	858.6
Baseline 2	CAP2	3	2-5	Sample	In Cap	B2-CAP2-0205	In Cap	2,4´-DDE	2.45	40,727	60.2
Baseline 2	CAP2	3	2-5	Sample	In Cap	B2-CAP2-0205	In Cap	2,4´-DDT	3.12	40,727	76.6
Baseline 2	CAP2	3	2-5	Sample	In Cap	B2-CAP2-0205	In Cap	4,4´-DDD	112.62	40,727	2765.2
Baseline 2	CAP2	3	2-5	Sample	In Cap	B2-CAP2-0205	In Cap	4,4´-DDE	31.85	40,727	782.0
Baseline 2	CAP2	3	2-5	Sample	In Cap	B2-CAP2-0205	In Cap	4,4´-DDT	8.05	40,727	197.7
Baseline 2	CAP2	3	2-5	Sample	In Cap	B2-CAP2-0205	In Cap	Total DDX	193.06	40,727	4740.3
Baseline 2	CAP2	3	5-7	Sample	In Cap	B2-CAP2-0507	In Cap	2,4´-DDD	47.79	43,556	1097.2
Baseline 2	CAP2	3	5-7	Sample	In Cap	B2-CAP2-0507	In Cap	2,4´-DDE	3.13	43,556	71.9
Baseline 2	CAP2	3	5-7	Sample	In Cap	B2-CAP2-0507	In Cap	2,4´-DDT	6.17	43,556	141.7
Baseline 2	CAP2	3	5-7	Sample	In Cap	B2-CAP2-0507	In Cap	4,4´-DDD	5902.16	43,556	135507.4
Baseline 2	CAP2	3	5-7	Sample	In Cap	B2-CAP2-0507	In Cap	4,4´-DDE	38.15	43,556	875.9
Baseline 2	CAP2	3	5-7	Sample	In Cap	B2-CAP2-0507	In Cap	4,4´-DDT	70.12	43,556	1609.9
Baseline 2	CAP2	3	5-7	Sample	In Cap	B2-CAP2-0507	In Cap	Total DDX	6067.52	43,556	139303.9
Baseline 2	CAP2	3	0-10	Sample	In Cap	B2-CAP2-GRAB	In Cap	2,4´-DDD	40.33	90,193	447.2
Baseline 2	CAP2	3	0-10	Sample	In Cap	B2-CAP2-GRAB	In Cap	2,4´-DDE	3.79	90,193	42.0
Baseline 2	CAP2	3	0-10	Sample	In Cap	B2-CAP2-GRAB	In Cap	2,4´-DDT	5.01	90,193	55.5
Baseline 2	CAP2	3	0-10	Sample	In Cap	B2-CAP2-GRAB	In Cap	4,4´-DDD	143.2	90,193	1587.7

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
Baseline 2	CAP2	3	0-10	Sample	In Cap	B2-CAP2-GRAB	In Cap	4,4´-DDE	50.8	90,193	563.2
Baseline 2	CAP2	3	0-10	Sample	In Cap	B2-CAP2-GRAB	In Cap	4,4´-DDT	11.67	90,193	129.4
Baseline 2	CAP2	3	0-10	Sample	In Cap	B2-CAP2-GRAB	In Cap	Total DDX	254.8	90,193	2825.1
Baseline 2	CAP1	5	0-2	Primary	In Cap	B2-CAP1-0002	In Cap	2,4´-DDD	40.94	50,280	814.2
Baseline 2	CAP1	5	0-2	Primary	In Cap	B2-CAP1-0002	In Cap	2,4´-DDE	11.83	50,280	235.3
Baseline 2	CAP1	5	0-2	Primary	In Cap	B2-CAP1-0002	In Cap	2,4´-DDT	13.07	50,280	259.9
Baseline 2	CAP1	5	0-2	Primary	In Cap	B2-CAP1-0002	In Cap	4,4´-DDD	201.01	50,280	3997.8
Baseline 2	CAP1	5	0-2	Primary	In Cap	B2-CAP1-0002	In Cap	4,4´-DDE	60.78	50,280	1208.8
Baseline 2	CAP1	5	0-2	Primary	In Cap	B2-CAP1-0002	In Cap	4,4´-DDT	18.15	50,280	361.0
Baseline 2	CAP1	5	0-2	Primary	In Cap	B2-CAP1-0002	In Cap	Total DDX	345.78	50,280	6877.1
Baseline 2	CAP1	5	0-2	Sample	In Cap	B2-CAP1-0002-Avg	In Cap	2,4´-DDD	33.325	57,855	201.5
Baseline 2	CAP1	5	0-2	Sample	In Cap	B2-CAP1-0002-Avg	In Cap	2,4´-DDE	7.935	57,855	603.6
Baseline 2	CAP1	5	0-2	Sample	In Cap	B2-CAP1-0002-Avg	In Cap	2,4´-DDT	11.215	57,855	909.9
Baseline 2	CAP1	5	0-2	Sample	In Cap	B2-CAP1-0002-Avg	In Cap	4,4´-DDD	175.18	57,855	3140.2
Baseline 2	CAP1	5	0-2	Sample	In Cap	B2-CAP1-0002-Avg	In Cap	4,4´-DDE	50.375	57,855	148.5
Baseline 2	CAP1	5	0-2	Sample	In Cap	B2-CAP1-0002-Avg	In Cap	4,4´-DDT	137.035	57,855	2136.2
Baseline 2	CAP1	5	0-2	Sample	In Cap	B2-CAP1-0002-Avg	In Cap	Total DDX	415.065	57,855	7139.8
Baseline 2	CAP1	5	2-5	Primary	In Cap	B2-CAP1-0205	In Cap	2,4´-DDD	33.22	44,450	747.4
Baseline 2	CAP1	5	2-5	Primary	In Cap	B2-CAP1-0205	In Cap	2,4´-DDE	3.69	44,450	83.0
Baseline 2	CAP1	5	2-5	Primary	In Cap	B2-CAP1-0205	In Cap	2,4´-DDT	15.63	44,450	351.6
Baseline 2	CAP1	5	2-5	Primary	In Cap	B2-CAP1-0205	In Cap	4,4´-DDD	149.73	44,450	3368.5
Baseline 2	CAP1	5	2-5	Primary	In Cap	B2-CAP1-0205	In Cap	4,4´-DDE	43.68	44,450	982.7
Baseline 2	CAP1	5	2-5	Primary	In Cap	B2-CAP1-0205	In Cap	4,4´-DDT	9.94	44,450	223.6
Baseline 2	CAP1	5	2-5	Primary	In Cap	B2-CAP1-0205	In Cap	Total DDX	255.89	44,450	5756.8
Baseline 2	CAP1	5	2-5	Sample	In Cap	B2-CAP1-0205-Avg	In Cap	2,4´-DDD	28.88	49,291	177.9
Baseline 2	CAP1	5	2-5	Sample	In Cap	B2-CAP1-0205-Avg	In Cap	2,4´-DDE	3.325	49,291	600.4
Baseline 2	CAP1	5	2-5	Sample	In Cap	B2-CAP1-0205-Avg	In Cap	2,4´-DDT	7.93	49,291	814.4
Baseline 2	CAP1	5	2-5	Sample	In Cap	B2-CAP1-0205-Avg	In Cap	4,4´-DDD	120.8	49,291	2532.8
Baseline 2	CAP1	5	2-5	Sample	In Cap	B2-CAP1-0205-Avg	In Cap	4,4´-DDE	39.33	49,291	68.8
Baseline 2	CAP1	5	2-5	Sample	In Cap	B2-CAP1-0205-Avg	In Cap	4,4´-DDT	9.65	49,291	198.3
Baseline 2	CAP1	5	2-5	Sample	In Cap	B2-CAP1-0205-Avg	In Cap	Total DDX	209.915	49,291	4392.7
Baseline 2	CAP1	5	5-7	Primary	In Cap	B2-CAP1-0507	In Cap	2,4´-DDD	24	65,988	363.7
Baseline 2	CAP1	5	5-7	Primary	In Cap	B2-CAP1-0507	In Cap	2,4´-DDE	4.13	65,988	62.6
Baseline 2	CAP1	5	5-7	Primary	In Cap	B2-CAP1-0507	In Cap	2,4´-DDT	6.92	65,988	104.9
Baseline 2	CAP1	5	5-7	Primary	In Cap	B2-CAP1-0507	In Cap	4,4´-DDD	96.73	65,988	1465.9
Baseline 2	CAP1	5	5-7	Primary	In Cap	B2-CAP1-0507	In Cap	4,4´-DDE	38.31	65,988	580.6
Baseline 2	CAP1	5	5-7	Primary	In Cap	B2-CAP1-0507	In Cap	4,4´-DDT	13.48	65,988	204.3
Baseline 2	CAP1	5	5-7	Primary	In Cap	B2-CAP1-0507	In Cap	Total DDX	183.57	65,988	2781.9
Baseline 2	CAP1	5	5-7	Sample	In Cap	B2-CAP1-0507-Avg	In Cap	2,4´-DDD	28.205	59,638	102.7
Baseline 2	CAP1	5	5-7	Sample	In Cap	B2-CAP1-0507-Avg	In Cap	2,4´-DDE	4.43	59,638	486.0
Baseline 2	CAP1	5	5-7	Sample	In Cap	B2-CAP1-0507-Avg	In Cap	2,4´-DDT	6.14	59,638	815.1
Baseline 2	CAP1	5	5-7	Sample	In Cap	B2-CAP1-0507-Avg	In Cap	4,4´-DDD	129.24	59,638	2250.6
Baseline 2	CAP1	5	5-7	Sample	In Cap	B2-CAP1-0507-Avg	In Cap	4,4´-DDE	47.12	59,638	75.7
Baseline 2	CAP1	5	5-7	Sample	In Cap	B2-CAP1-0507-Avg	In Cap	4,4´-DDT	67.655	59,638	1245.3
Baseline 2	CAP1	5	5-7	Sample	In Cap	B2-CAP1-0507-Avg	In Cap	Total DDX	282.79	59,638	4975.3
Baseline 2	CAP1	5	0-10	Sample	In Cap	B2-CAP1-GRAB	In Cap	2,4´-DDD	26.7	59,154	451.4
Baseline 2	CAP1	5	0-10	Sample	In Cap	B2-CAP1-GRAB	In Cap	2,4´-DDE	3.8	59,154	64.2
Baseline 2	CAP1	5	0-10	Sample	In Cap	B2-CAP1-GRAB	In Cap	2,4´-DDT	4.42	59,154	74.7
Baseline 2	CAP1	5	0-10	Sample	In Cap	B2-CAP1-GRAB	In Cap	4,4´-DDD	80.18	59,154	1355.4
Baseline 2	CAP1	5	0-10	Sample	In Cap	B2-CAP1-GRAB	In Cap	4,4´-DDE	35	59,154	591.7
Baseline 2	CAP1	5	0-10	Sample	In Cap	B2-CAP1-GRAB	In Cap	4,4´-DDT	13.47	59,154	227.7
Baseline 2	CAP1	5	0-10	Sample	In Cap	B2-CAP1-GRAB	In Cap	Total DDX	163.57	59,154	2765.2
Baseline 2	CAPX	5	0-2	Duplicate	In Cap	B2-CAPX-0002	In Cap	2,4´-DDD	25.71	65,430	392.9

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
Baseline 2	CAPX	5	0-2	Duplicate	In Cap	B2-CAPX-0002	In Cap	2,4´-DDE	4.04	65,430	61.7
Baseline 2	CAPX	5	0-2	Duplicate	In Cap	B2-CAPX-0002	In Cap	2,4´-DDT	9.36	65,430	143.1
Baseline 2	CAPX	5	0-2	Duplicate	In Cap	B2-CAPX-0002	In Cap	4,4´-DDD	149.35	65,430	2282.6
Baseline 2	CAPX	5	0-2	Duplicate	In Cap	B2-CAPX-0002	In Cap	4,4´-DDE	39.97	65,430	610.9
Baseline 2	CAPX	5	0-2	Duplicate	In Cap	B2-CAPX-0002	In Cap	4,4´-DDT	255.92	65,430	3911.4
Baseline 2	CAPX	5	0-2	Duplicate	In Cap	B2-CAPX-0002	In Cap	Total DDX	484.35	65,430	7402.6
Baseline 2	CAPX	5	2-5	Duplicate	In Cap	B2-CAPX-0205	In Cap	2,4´-DDD	24.54	54,131	453.3
Baseline 2	CAPX	5	2-5	Duplicate	In Cap	B2-CAPX-0205	In Cap	2,4´-DDE	2.96	54,131	54.7
Baseline 2	CAPX	5	2-5	Duplicate	In Cap	B2-CAPX-0205	In Cap	2,4´-DDT	<0.23	54,131	4.2
Baseline 2	CAPX	5	2-5	Duplicate	In Cap	B2-CAPX-0205	In Cap	4,4´-DDD	91.87	54,131	1697.2
Baseline 2	CAPX	5	2-5	Duplicate	In Cap	B2-CAPX-0205	In Cap	4,4´-DDE	34.98	54,131	646.2
Baseline 2	CAPX	5	2-5	Duplicate	In Cap	B2-CAPX-0205	In Cap	4,4´-DDT	9.36	54,131	172.9
Baseline 2	CAPX	5	2-5	Duplicate	In Cap	B2-CAPX-0205	In Cap	Total DDX	163.94	54,131	3028.6
Baseline 2	CAPX	5	5-7	Duplicate	In Cap	B2-CAPX-0507	In Cap	2,4´-DDD	32.41	53,288	608.2
Baseline 2	CAPX	5	5-7	Duplicate	In Cap	B2-CAPX-0507	In Cap	2,4´-DDE	4.73	53,288	88.8
Baseline 2	CAPX	5	5-7	Duplicate	In Cap	B2-CAPX-0507	In Cap	2,4´-DDT	5.36	53,288	100.6
Baseline 2	CAPX	5	5-7	Duplicate	In Cap	B2-CAPX-0507	In Cap	4,4´-DDD	161.75	53,288	3035.4
Baseline 2	CAPX	5	5-7	Duplicate	In Cap	B2-CAPX-0507	In Cap	4,4´-DDE	55.93	53,288	1049.6
Baseline 2	CAPX	5	5-7	Duplicate	In Cap	B2-CAPX-0507	In Cap	4,4´-DDT	121.83	53,288	2286.3
Baseline 2	CAPX	5	5-7	Duplicate	In Cap	B2-CAPX-0507	In Cap	Total DDX	382.01	53,288	7168.8
Baseline 2	OFF2	6	0-10	Sample	Off Cap	B2-OFF2-GRAB	Off Cap	2,4´-DDD	3.48	20,535	169.5
Baseline 2	OFF2	6	0-10	Sample	Off Cap	B2-OFF2-GRAB	Off Cap	2,4´-DDE	<0.08	20,535	3.9
Baseline 2	OFF2	6	0-10	Sample	Off Cap	B2-OFF2-GRAB	Off Cap	2,4´-DDT	1.93	20,535	94.0
Baseline 2	OFF2	6	0-10	Sample	Off Cap	B2-OFF2-GRAB	Off Cap	4,4´-DDD	14.5	20,535	706.1
Baseline 2	OFF2	6	0-10	Sample	Off Cap	B2-OFF2-GRAB	Off Cap	4,4´-DDE	5.77	20,535	281.0
Baseline 2	OFF2	6	0-10	Sample	Off Cap	B2-OFF2-GRAB	Off Cap	4,4´-DDT	3.72	20,535	181.2
Baseline 2	OFF2	6	0-10	Sample	Off Cap	B2-OFF2-GRAB	Off Cap	Total DDX	29.48	20,535	1435.6
Baseline 2	OFF1	7	0-10	Sample	Off Cap	B2-OFF1-GRAB	Off Cap	2,4´-DDD	5.79	31,755	182.3
Baseline 2	OFF1	7	0-10	Sample	Off Cap	B2-OFF1-GRAB	Off Cap	2,4´-DDE	<0.08	31,755	2.5
Baseline 2	OFF1	7	0-10	Sample	Off Cap	B2-OFF1-GRAB	Off Cap	2,4´-DDT	<0.23	31,755	7.2
Baseline 2	OFF1	7	0-10	Sample	Off Cap	B2-OFF1-GRAB	Off Cap	4,4´-DDD	21.14	31,755	665.7
Baseline 2	OFF1	7	0-10	Sample	Off Cap	B2-OFF1-GRAB	Off Cap	4,4´-DDE	12.57	31,755	395.8
Baseline 2	OFF1	7	0-10	Sample	Off Cap	B2-OFF1-GRAB	Off Cap	4,4´-DDT	3.32	31,755	104.6
Baseline 2	OFF1	7	0-10	Sample	Off Cap	B2-OFF1-GRAB	Off Cap	Total DDX	43.13	31,755	1358.2
Baseline 3	1	1	0-10	Sample	In Cap	B3-QB1-0010-Grab	In Cap	4,4´-DDD	527	12,000	43916.7
Baseline 3	1	1	0-10	Sample	In Cap	B3-QB1-0010-Grab	In Cap	4,4´-DDE	27	12,000	2250.0
Baseline 3	1	1	0-10	Sample	In Cap	B3-QB1-0010-Grab	In Cap	4,4´-DDT	9.44	12,000	786.7
Baseline 3	1	1	0-10	Sample	In Cap	B3-QB1-0010-Grab	In Cap	Total DDX	563.44	12,000	46953
Baseline 3	2	2	0-10	Sample	In Cap	B3-QB2-0010-Grab	In Cap	4,4´-DDD	122	30,000	4066.7
Baseline 3	2	2	0-10	Sample	In Cap	B3-QB2-0010-Grab	In Cap	4,4´-DDE	22.9	30,000	763.3
Baseline 3	2	2	0-10	Sample	In Cap	B3-QB2-0010-Grab	In Cap	4,4´-DDT	8.4	30,000	280.0
Baseline 3	2	2	0-10	Sample	In Cap	B3-QB2-0010-Grab	In Cap	Total DDX	153.3	30,000	5110
Baseline 3	3	3	0-10	Sample	In Cap	B3-QB3-0010-Grab	In Cap	4,4´-DDD	216	67,000	3223.9
Baseline 3	3	3	0-10	Sample	In Cap	B3-QB3-0010-Grab	In Cap	4,4´-DDE	48.3	67,000	720.9
Baseline 3	3	3	0-10	Sample	In Cap	B3-QB3-0010-Grab	In Cap	4,4´-DDT	6.45	67,000	96.3
Baseline 3	3	3	0-10	Sample	In Cap	B3-QB3-0010-Grab	In Cap	Total DDX	270.75	67,000	4041
Baseline 3	4	4	0-10	Sample	In Cap	B3-QB4-0010-Grab	In Cap	4,4´-DDD	134	82,000	1634.1
Baseline 3	4	4	0-10	Sample	In Cap	B3-QB4-0010-Grab	In Cap	4,4´-DDE	30.1	82,000	367.1
Baseline 3	4	4	0-10	Sample	In Cap	B3-QB4-0010-Grab	In Cap	4,4´-DDT	3.57	82,000	43.5
Baseline 3	4	4	0-10	Sample	In Cap	B3-QB4-0010-Grab	In Cap	Total DDX	167.67	82,000	2045
Baseline 3	5	5	0-10	Sample	In Cap	B3-QB5-0010-Grab	In Cap	4,4´-DDD	124	73,000	1698.6
Baseline 3	5	5	0-10	Sample	In Cap	B3-QB5-0010-Grab	In Cap	4,4´-DDE	37.3	73,000	511.0
Baseline 3	5	5	0-10	Sample	In Cap	B3-QB5-0010-Grab	In Cap	4,4´-DDT	4.38	73,000	60.0

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
Baseline 3	5	5	0-10	Sample	In Cap	B3-QB5-0010-Grab	In Cap	Total DDX	165.68	73,000	2270
Baseline 3	6	6	0-10	Sample	Off Cap	B3-QB6-0010-Grab	Off Cap	4,4´-DDD	9.81	8,900	1102.2
Baseline 3	6	6	0-10	Sample	Off Cap	B3-QB6-0010-Grab	Off Cap	4,4´-DDE	3.09	8,900	347.2
Baseline 3	6	6	0-10	Sample	Off Cap	B3-QB6-0010-Grab	Off Cap	4,4´-DDT	0.9	8,900	101.1
Baseline 3	6	6	0-10	Sample	Off Cap	B3-QB6-0010-Grab	Off Cap	Total DDX	13.8	8,900	1551
2-Month	1	1	0-2	Sample	In Cap	QT2-1-0002-SEDCHEM	In Cap	2,4´-DDD	36.3	3,100	11709.7
2-Month	1	1	0-2	Sample	In Cap	QT2-1-0002-SEDCHEM	In Cap	2,4´-DDE	20.7	3,100	6677.4
2-Month	1	1	0-2	Sample	In Cap	QT2-1-0002-SEDCHEM	In Cap	2,4´-DDT	29.8	3,100	9612.9
2-Month	1	1	0-2	Sample	In Cap	QT2-1-0002-SEDCHEM	In Cap	4,4´-DDD	1700	3,100	548387.1
2-Month	1	1	0-2	Sample	In Cap	QT2-1-0002-SEDCHEM	In Cap	4,4´-DDE	20.9	3,100	6741.9
2-Month	1	1	0-2	Sample	In Cap	QT2-1-0002-SEDCHEM	In Cap	4,4´-DDT	411	3,100	132580.6
2-Month	1	1	0-2	Sample	In Cap	QT2-1-0002-SEDCHEM	In Cap	Total DDX	2218.7	3,100	715709.7
2-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-1-0002-SEDCHEM-AI	In Cap	2,4´-DDD	4.71	2,400	1962.5
2-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-1-0002-SEDCHEM-AI	In Cap	2,4´-DDE	<0.06	2,400	<12.5
2-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-1-0002-SEDCHEM-AI	In Cap	2,4´-DDT	<0.06	2,400	<12.5
2-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-1-0002-SEDCHEM-AI	In Cap	4,4´-DDD	118	2,400	49166.7
2-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-1-0002-SEDCHEM-AI	In Cap	4,4´-DDE	3.28	2,400	1366.7
2-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-1-0002-SEDCHEM-AI	In Cap	4,4´-DDT	1.3	2,400	541.7
2-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-1-0002-SEDCHEM-AI	In Cap	Total DDX	127.29	2,400	53037.5
2-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0002-SEDCHEM-BI	In Cap	2,4´-DDD	24.1	26,000	926.9
2-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0002-SEDCHEM-BI	In Cap	2,4´-DDE	13.5	26,000	519.2
2-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0002-SEDCHEM-BI	In Cap	2,4´-DDT	<0.07	26,000	<1.3
2-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0002-SEDCHEM-BI	In Cap	4,4´-DDD	90.8	26,000	3492.3
2-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0002-SEDCHEM-BI	In Cap	4,4´-DDE	17.4	26,000	669.2
2-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0002-SEDCHEM-BI	In Cap	4,4´-DDT	10.9	26,000	419.2
2-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0002-SEDCHEM-BI	In Cap	Total DDX	156.7	26,000	6026.9
2-Month	1	1	2-5	Sample	In Cap	QT2-1-0205-SEDCHEM	In Cap	2,4´-DDD	3.44	2,400	1433.3
2-Month	1	1	2-5	Sample	In Cap	QT2-1-0205-SEDCHEM	In Cap	2,4´-DDE	1.92	2,400	800.0
2-Month	1	1	2-5	Sample	In Cap	QT2-1-0205-SEDCHEM	In Cap	2,4´-DDT	1.61	2,400	670.8
2-Month	1	1	2-5	Sample	In Cap	QT2-1-0205-SEDCHEM	In Cap	4,4´-DDD	9.22	2,400	3841.7
2-Month	1	1	2-5	Sample	In Cap	QT2-1-0205-SEDCHEM	In Cap	4,4´-DDE	2.98	2,400	1241.7
2-Month	1	1	2-5	Sample	In Cap	QT2-1-0205-SEDCHEM	In Cap	4,4´-DDT	2.03	2,400	845.8
2-Month	1	1	2-5	Sample	In Cap	QT2-1-0205-SEDCHEM	In Cap	Total DDX	21.2	2,400	8833.3
2-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0205-SEDCHEM-BI	In Cap	2,4´-DDD	39	31,000	1258.1
2-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0205-SEDCHEM-BI	In Cap	2,4´-DDE	19.9	31,000	641.9
2-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0205-SEDCHEM-BI	In Cap	2,4´-DDT	4.24	31,000	136.8
2-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0205-SEDCHEM-BI	In Cap	4,4´-DDD	149	31,000	4806.5
2-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0205-SEDCHEM-BI	In Cap	4,4´-DDE	28.8	31,000	929.0
2-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0205-SEDCHEM-BI	In Cap	4,4´-DDT	6.65	31,000	214.5
2-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0205-SEDCHEM-BI	In Cap	Total DDX	247.59	31,000	7986.8
2-Month	1	1	5-7	Sample	In Cap	QT2-1-0507-SEDCHEM	In Cap	2,4´-DDD	4.1	3,200	1281.3
2-Month	1	1	5-7	Sample	In Cap	QT2-1-0507-SEDCHEM	In Cap	2,4´-DDE	3.58	3,200	1118.8
2-Month	1	1	5-7	Sample	In Cap	QT2-1-0507-SEDCHEM	In Cap	2,4´-DDT	<0.06	3,200	<9.4
2-Month	1	1	5-7	Sample	In Cap	QT2-1-0507-SEDCHEM	In Cap	4,4´-DDD	12.5	3,200	3906.3
2-Month	1	1	5-7	Sample	In Cap	QT2-1-0507-SEDCHEM	In Cap	4,4´-DDE	3.27	3,200	1021.9
2-Month	1	1	5-7	Sample	In Cap	QT2-1-0507-SEDCHEM	In Cap	4,4´-DDT	<0.06	3,200	<9.4
2-Month	1	1	5-7	Sample	In Cap	QT2-1-0507-SEDCHEM	In Cap	Total DDX	23.45	3,200	7328.1
2-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0507-SEDCHEM-BI	In Cap	2,4´-DDD	52.8	55,000	960.0
2-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0507-SEDCHEM-BI	In Cap	2,4´-DDE	28.3	55,000	514.5
2-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0507-SEDCHEM-BI	In Cap	2,4´-DDT	13.4	55,000	243.6
2-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0507-SEDCHEM-BI	In Cap	4,4´-DDD	959	55,000	17436.4
2-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0507-SEDCHEM-BI	In Cap	4,4´-DDE	9.99	55,000	181.6
2-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0507-SEDCHEM-BI	In Cap	4,4´-DDT	16.8	55,000	305.5

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
2-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0507-SEDCHEM-BI	In Cap	Total DDX	1080.29	55,000	19641.6
2-Month	2	2	0-2	Sample	In Cap	QT2-2-0002-SEDCHEM	In Cap	2,4´-DDD	6.67	2,900	2300.0
2-Month	2	2	0-2	Sample	In Cap	QT2-2-0002-SEDCHEM	In Cap	2,4´-DDE	3.55	2,900	1224.1
2-Month	2	2	0-2	Sample	In Cap	QT2-2-0002-SEDCHEM	In Cap	2,4´-DDT	2.04	2,900	703.4
2-Month	2	2	0-2	Sample	In Cap	QT2-2-0002-SEDCHEM	In Cap	4,4´-DDD	23.6	2,900	8137.9
2-Month	2	2	0-2	Sample	In Cap	QT2-2-0002-SEDCHEM	In Cap	4,4´-DDE	0.66	2,900	227.6
2-Month	2	2	0-2	Sample	In Cap	QT2-2-0002-SEDCHEM	In Cap	4,4´-DDT	0.81	2,900	279.3
2-Month	2	2	0-2	Sample	In Cap	QT2-2-0002-SEDCHEM	In Cap	Total DDX	37.33	2,900	12872.4
2-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-2-0002-SEDCHEM-AI	In Cap	2,4´-DDD	2.55	2,600	980.8
2-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-2-0002-SEDCHEM-AI	In Cap	2,4´-DDE	1.73	2,600	665.4
2-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-2-0002-SEDCHEM-AI	In Cap	2,4´-DDT	<0.06	2,600	<11.5
2-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-2-0002-SEDCHEM-AI	In Cap	4,4´-DDD	8.69	2,600	3342.3
2-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-2-0002-SEDCHEM-AI	In Cap	4,4´-DDE	0.96	2,600	369.2
2-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-2-0002-SEDCHEM-AI	In Cap	4,4´-DDT	<0.06	2,600	<11.5
2-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-2-0002-SEDCHEM-AI	In Cap	Total DDX	13.93	2,600	5357.7
2-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0002-SEDCHEM-BI	In Cap	2,4´-DDD	20	18,000	1111.1
2-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0002-SEDCHEM-BI	In Cap	2,4´-DDE	10.1	18,000	561.1
2-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0002-SEDCHEM-BI	In Cap	2,4´-DDT	3.03	18,000	168.3
2-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0002-SEDCHEM-BI	In Cap	4,4´-DDD	78.9	18,000	4383.3
2-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0002-SEDCHEM-BI	In Cap	4,4´-DDE	12.6	18,000	700.0
2-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0002-SEDCHEM-BI	In Cap	4,4´-DDT	8.34	18,000	463.3
2-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0002-SEDCHEM-BI	In Cap	Total DDX	132.97	18,000	7387.2
2-Month	2	2	2-5	Sample	In Cap	QT2-2-0205-SEDCHEM	In Cap	2,4´-DDD	2.55	1,000	
2-Month	2	2	2-5	Sample	In Cap	QT2-2-0205-SEDCHEM	In Cap	2,4´-DDE	1.19	1,000	
2-Month	2	2	2-5	Sample	In Cap	QT2-2-0205-SEDCHEM	In Cap	2,4´-DDT	<0.06	1,000	
2-Month	2	2	2-5	Sample	In Cap	QT2-2-0205-SEDCHEM	In Cap	4,4´-DDD	5	1,000	
2-Month	2	2	2-5	Sample	In Cap	QT2-2-0205-SEDCHEM	In Cap	4,4´-DDE	0.92	1,000	
2-Month	2	2	2-5	Sample	In Cap	QT2-2-0205-SEDCHEM	In Cap	4,4´-DDT	<0.06	1,000	
2-Month	2	2	2-5	Sample	In Cap	QT2-2-0205-SEDCHEM	In Cap	Total DDX	9.66	1,000	
2-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0205-SEDCHEM-BI	In Cap	2,4´-DDD	24.3	18,000	1350.0
2-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0205-SEDCHEM-BI	In Cap	2,4´-DDE	13.2	18,000	733.3
2-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0205-SEDCHEM-BI	In Cap	2,4´-DDT	2.17	18,000	120.6
2-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0205-SEDCHEM-BI	In Cap	4,4´-DDD	90.6	18,000	5033.3
2-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0205-SEDCHEM-BI	In Cap	4,4´-DDE	20.3	18,000	1127.8
2-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0205-SEDCHEM-BI	In Cap	4,4´-DDT	17.9	18,000	994.4
2-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0205-SEDCHEM-BI	In Cap	Total DDX	168.47	18,000	9359.4
2-Month	2	2	5-7	Sample	In Cap	QT2-2-0507-SEDCHEM	In Cap	2,4´-DDD	1.84	1,100	
2-Month	2	2	5-7	Sample	In Cap	QT2-2-0507-SEDCHEM	In Cap	2,4´-DDE	0.94	1,100	
2-Month	2	2	5-7	Sample	In Cap	QT2-2-0507-SEDCHEM	In Cap	2,4´-DDT	<0.06	1,100	
2-Month	2	2	5-7	Sample	In Cap	QT2-2-0507-SEDCHEM	In Cap	4,4´-DDD	1.79	1,100	
2-Month	2	2	5-7	Sample	In Cap	QT2-2-0507-SEDCHEM	In Cap	4,4´-DDE	0.46	1,100	
2-Month	2	2	5-7	Sample	In Cap	QT2-2-0507-SEDCHEM	In Cap	4,4´-DDT	<0.06	1,100	
2-Month	2	2	5-7	Sample	In Cap	QT2-2-0507-SEDCHEM	In Cap	Total DDX	5.03	1,100	
2-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0507-SEDCHEM-BI	In Cap	2,4´-DDD	19.7	16,000	1231.3
2-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0507-SEDCHEM-BI	In Cap	2,4´-DDE	11.5	16,000	718.8
2-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0507-SEDCHEM-BI	In Cap	2,4´-DDT	3.91	16,000	244.4
2-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0507-SEDCHEM-BI	In Cap	4,4´-DDD	71.7	16,000	4481.3
2-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0507-SEDCHEM-BI	In Cap	4,4´-DDE	11.1	16,000	693.8
2-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0507-SEDCHEM-BI	In Cap	4,4´-DDT	3.02	16,000	188.8
2-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0507-SEDCHEM-BI	In Cap	Total DDX	120.93	16,000	7558.1
2-Month	3	3	0-2	Sample	In Cap	QT2-3-0002-SEDCHEM	In Cap	2,4´-DDD	13.8	6,900	2000.0
2-Month	3	3	0-2	Sample	In Cap	QT2-3-0002-SEDCHEM	In Cap	2,4´-DDE	9.44	6,900	1368.1
2-Month	3	3	0-2	Sample	In Cap	QT2-3-0002-SEDCHEM	In Cap	2,4´-DDT	<0.06	6,900	<4.3

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
2-Month	3	3	0-2	Sample	In Cap	QT2-3-0002-SEDCHEM	In Cap	4,4´-DDD	77.9	6,900	11289.9
2-Month	3	3	0-2	Sample	In Cap	QT2-3-0002-SEDCHEM	In Cap	4,4´-DDE	16	6,900	2318.8
2-Month	3	3	0-2	Sample	In Cap	QT2-3-0002-SEDCHEM	In Cap	4,4´-DDT	18.3	6,900	2652.2
2-Month	3	3	0-2	Sample	In Cap	QT2-3-0002-SEDCHEM	In Cap	Total DDX	135.44	6,900	19629.0
2-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-3-0002-SEDCHEM-AI	In Cap	2,4´-DDD	94.8	4,300	22046.5
2-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-3-0002-SEDCHEM-AI	In Cap	2,4´-DDE	33.2	4,300	7720.9
2-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-3-0002-SEDCHEM-AI	In Cap	2,4´-DDT	9.92	4,300	2307.0
2-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-3-0002-SEDCHEM-AI	In Cap	4,4´-DDD	389	4,300	90465.1
2-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-3-0002-SEDCHEM-AI	In Cap	4,4´-DDE	52	4,300	12093.0
2-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-3-0002-SEDCHEM-AI	In Cap	4,4´-DDT	14.2	4,300	3302.3
2-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-3-0002-SEDCHEM-AI	In Cap	Total DDX	593.12	4,300	137934.9
2-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0002-SEDCHEM-BI	In Cap	2,4´-DDD	7.38	35,000	210.9
2-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0002-SEDCHEM-BI	In Cap	2,4´-DDE	3.63	35,000	103.7
2-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0002-SEDCHEM-BI	In Cap	2,4´-DDT	1.69	35,000	48.3
2-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0002-SEDCHEM-BI	In Cap	4,4´-DDD	25	35,000	714.3
2-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0002-SEDCHEM-BI	In Cap	4,4´-DDE	2.1	35,000	60.0
2-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0002-SEDCHEM-BI	In Cap	4,4´-DDT	1.49	35,000	42.6
2-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0002-SEDCHEM-BI	In Cap	Total DDX	41.29	35,000	1179.7
2-Month	3	3	2-5	Sample	In Cap	QT2-3-0205-SEDCHEM	In Cap	2,4´-DDD	12.9	7,100	1816.9
2-Month	3	3	2-5	Sample	In Cap	QT2-3-0205-SEDCHEM	In Cap	2,4´-DDE	4.35	7,100	612.7
2-Month	3	3	2-5	Sample	In Cap	QT2-3-0205-SEDCHEM	In Cap	2,4´-DDT	2.23	7,100	314.1
2-Month	3	3	2-5	Sample	In Cap	QT2-3-0205-SEDCHEM	In Cap	4,4´-DDD	45.2	7,100	6366.2
2-Month	3	3	2-5	Sample	In Cap	QT2-3-0205-SEDCHEM	In Cap	4,4´-DDE	3.42	7,100	481.7
2-Month	3	3	2-5	Sample	In Cap	QT2-3-0205-SEDCHEM	In Cap	4,4´-DDT	1.45	7,100	204.2
2-Month	3	3	2-5	Sample	In Cap	QT2-3-0205-SEDCHEM	In Cap	Total DDX	69.55	7,100	9795.8
2-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0205-SEDCHEM-BI	In Cap	2,4´-DDD	93.7	87,000	1077.0
2-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0205-SEDCHEM-BI	In Cap	2,4´-DDE	55.3	87,000	635.6
2-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0205-SEDCHEM-BI	In Cap	2,4´-DDT	26.5	87,000	304.6
2-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0205-SEDCHEM-BI	In Cap	4,4´-DDD	4410	87,000	50689.7
2-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0205-SEDCHEM-BI	In Cap	4,4´-DDE	17.1	87,000	196.6
2-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0205-SEDCHEM-BI	In Cap	4,4´-DDT	64	87,000	735.6
2-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0205-SEDCHEM-BI	In Cap	Total DDX	4666.6	87,000	53639.1
2-Month	3	3	5-7	Sample	In Cap	QT2-3-0507-SEDCHEM	In Cap	2,4´-DDD	18.9	14,000	1350.0
2-Month	3	3	5-7	Sample	In Cap	QT2-3-0507-SEDCHEM	In Cap	2,4´-DDE	9.21	14,000	657.9
2-Month	3	3	5-7	Sample	In Cap	QT2-3-0507-SEDCHEM	In Cap	2,4´-DDT	2.75	14,000	196.4
2-Month	3	3	5-7	Sample	In Cap	QT2-3-0507-SEDCHEM	In Cap	4,4´-DDD	86.6	14,000	6185.7
2-Month	3	3	5-7	Sample	In Cap	QT2-3-0507-SEDCHEM	In Cap	4,4´-DDE	8.01	14,000	572.1
2-Month	3	3	5-7	Sample	In Cap	QT2-3-0507-SEDCHEM	In Cap	4,4´-DDT	1.97	14,000	140.7
2-Month	3	3	5-7	Sample	In Cap	QT2-3-0507-SEDCHEM	In Cap	Total DDX	127.44	14,000	9102.9
2-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0507-SEDCHEM-BI	In Cap	2,4´-DDD	99.1	100,000	991.0
2-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0507-SEDCHEM-BI	In Cap	2,4´-DDE	44.8	100,000	448.0
2-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0507-SEDCHEM-BI	In Cap	2,4´-DDT	5.19	100,000	51.9
2-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0507-SEDCHEM-BI	In Cap	4,4´-DDD	521	100,000	5210.0
2-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0507-SEDCHEM-BI	In Cap	4,4´-DDE	98.3	100,000	983.0
2-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0507-SEDCHEM-BI	In Cap	4,4´-DDT	15	100,000	150.0
2-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0507-SEDCHEM-BI	In Cap	Total DDX	783.39	100,000	7833.9
2-Month	4	4	0-2	Sample	In Cap	QT2-4-0002-SEDCHEM	In Cap	2,4´-DDD	1.36	4,200	323.8
2-Month	4	4	0-2	Sample	In Cap	QT2-4-0002-SEDCHEM	In Cap	2,4´-DDE	0.75	4,200	178.6
2-Month	4	4	0-2	Sample	In Cap	QT2-4-0002-SEDCHEM	In Cap	2,4´-DDT	<0.06	4,200	<7.1
2-Month	4	4	0-2	Sample	In Cap	QT2-4-0002-SEDCHEM	In Cap	4,4´-DDD	6.9	4,200	1642.9
2-Month	4	4	0-2	Sample	In Cap	QT2-4-0002-SEDCHEM	In Cap	4,4´-DDE	2.68	4,200	638.1
2-Month	4	4	0-2	Sample	In Cap	QT2-4-0002-SEDCHEM	In Cap	4,4´-DDT	1.06	4,200	252.4
2-Month	4	4	0-2	Sample	In Cap	QT2-4-0002-SEDCHEM	In Cap	Total DDX	12.75	4,200	3035.7

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
2-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-4-0002-SEDCHEM-AI	In Cap	2,4´-DDD	0.09	1,200	
2-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-4-0002-SEDCHEM-AI	In Cap	2,4´-DDE	0.14	1,200	
2-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-4-0002-SEDCHEM-AI	In Cap	2,4´-DDT	<0.06	1,200	
2-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-4-0002-SEDCHEM-AI	In Cap	4,4´-DDD	0.5	1,200	
2-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-4-0002-SEDCHEM-AI	In Cap	4,4´-DDE	0.16	1,200	
2-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-4-0002-SEDCHEM-AI	In Cap	4,4´-DDT	<0.06	1,200	
2-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-4-0002-SEDCHEM-AI	In Cap	Total DDX	0.89	1,200	
2-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0002-SEDCHEM-BI	In Cap	2,4´-DDD	7.63	26,000	293.5
2-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0002-SEDCHEM-BI	In Cap	2,4´-DDE	4.55	26,000	175.0
2-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0002-SEDCHEM-BI	In Cap	2,4´-DDT	0.82	26,000	31.5
2-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0002-SEDCHEM-BI	In Cap	4,4´-DDD	157	26,000	6038.5
2-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0002-SEDCHEM-BI	In Cap	4,4´-DDE	18.8	26,000	723.1
2-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0002-SEDCHEM-BI	In Cap	4,4´-DDT	4.92	26,000	189.2
2-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0002-SEDCHEM-BI	In Cap	Total DDX	193.72	26,000	7450.8
2-Month	4	4	2-5	Sample	In Cap	QT2-4-0205-SEDCHEM	In Cap	2,4´-DDD	0.73	1,400	
2-Month	4	4	2-5	Sample	In Cap	QT2-4-0205-SEDCHEM	In Cap	2,4´-DDE	0.54	1,400	
2-Month	4	4	2-5	Sample	In Cap	QT2-4-0205-SEDCHEM	In Cap	2,4´-DDT	<0.06	1,400	
2-Month	4	4	2-5	Sample	In Cap	QT2-4-0205-SEDCHEM	In Cap	4,4´-DDD	3.68	1,400	
2-Month	4	4	2-5	Sample	In Cap	QT2-4-0205-SEDCHEM	In Cap	4,4´-DDE	1.02	1,400	
2-Month	4	4	2-5	Sample	In Cap	QT2-4-0205-SEDCHEM	In Cap	4,4´-DDT	0.19	1,400	
2-Month	4	4	2-5	Sample	In Cap	QT2-4-0205-SEDCHEM	In Cap	Total DDX	6.16	1,400	
2-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0205-SEDCHEM-BI	In Cap	2,4´-DDD	8.09	24,000	337.1
2-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0205-SEDCHEM-BI	In Cap	2,4´-DDE	5.94	24,000	247.5
2-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0205-SEDCHEM-BI	In Cap	2,4´-DDT	<0.08	24,000	<1.7
2-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0205-SEDCHEM-BI	In Cap	4,4´-DDD	78.5	24,000	3270.8
2-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0205-SEDCHEM-BI	In Cap	4,4´-DDE	25.8	24,000	1075.0
2-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0205-SEDCHEM-BI	In Cap	4,4´-DDT	5.11	24,000	212.9
2-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0205-SEDCHEM-BI	In Cap	Total DDX	123.44	24,000	5143.3
2-Month	4	4	5-7	Sample	In Cap	QT2-4-0507-SEDCHEM	In Cap	2,4´-DDD	8.18	11,000	743.6
2-Month	4	4	5-7	Sample	In Cap	QT2-4-0507-SEDCHEM	In Cap	2,4´-DDE	3.72	11,000	338.2
2-Month	4	4	5-7	Sample	In Cap	QT2-4-0507-SEDCHEM	In Cap	2,4´-DDT	0.52	11,000	47.3
2-Month	4	4	5-7	Sample	In Cap	QT2-4-0507-SEDCHEM	In Cap	4,4´-DDD	47.6	11,000	4327.3
2-Month	4	4	5-7	Sample	In Cap	QT2-4-0507-SEDCHEM	In Cap	4,4´-DDE	11.2	11,000	1018.2
2-Month	4	4	5-7	Sample	In Cap	QT2-4-0507-SEDCHEM	In Cap	4,4´-DDT	2.21	11,000	200.9
2-Month	4	4	5-7	Sample	In Cap	QT2-4-0507-SEDCHEM	In Cap	Total DDX	73.43	11,000	6675.5
2-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0507-SEDCHEM-BI	In Cap	2,4´-DDD	7.66	25,000	306.4
2-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0507-SEDCHEM-BI	In Cap	2,4´-DDE	5.55	25,000	222.0
2-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0507-SEDCHEM-BI	In Cap	2,4´-DDT	<0.09	25,000	<1.8
2-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0507-SEDCHEM-BI	In Cap	4,4´-DDD	55.1	25,000	2204.0
2-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0507-SEDCHEM-BI	In Cap	4,4´-DDE	23.2	25,000	928.0
2-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0507-SEDCHEM-BI	In Cap	4,4´-DDT	4.18	25,000	167.2
2-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0507-SEDCHEM-BI	In Cap	Total DDX	95.69	25,000	3827.6
2-Month	5	5	0-2	Primary	In Cap	QT2-5-0002-SEDCHEM	In Cap	2,4´-DDD	3.15	6,100	516.4
2-Month	5	5	0-2	Primary	In Cap	QT2-5-0002-SEDCHEM	In Cap	2,4´-DDE	1.75	6,100	286.9
2-Month	5	5	0-2	Primary	In Cap	QT2-5-0002-SEDCHEM	In Cap	2,4´-DDT	<0.07	6,100	<5.7
2-Month	5	5	0-2	Primary	In Cap	QT2-5-0002-SEDCHEM	In Cap	4,4´-DDD	17.6	6,100	2885.2
2-Month	5	5	0-2	Primary	In Cap	QT2-5-0002-SEDCHEM	In Cap	4,4´-DDE	6.98	6,100	1144.3
2-Month	5	5	0-2	Primary	In Cap	QT2-5-0002-SEDCHEM	In Cap	4,4´-DDT	0.7	6,100	114.8
2-Month	5	5	0-2	Primary	In Cap	QT2-5-0002-SEDCHEM	In Cap	Total DDX	30.18	6,100	4947.5
2-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-AI	In Cap	2,4´-DDD	0.76	670	
2-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-AI	In Cap	2,4´-DDE	0.91	670	
2-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-AI	In Cap	2,4´-DDT	<0.06	670	
2-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-AI	In Cap	4,4´-DDD	3.48	670	

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
2-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-AI	In Cap	4,4´-DDE	1.14	670	
2-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-AI	In Cap	4,4´-DDT	0.47	670	
2-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-AI	In Cap	Total DDX	6.76	670	
2-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-AI-Avg	In Cap	2,4´-DDD	0.75	795	
2-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-AI-Avg	In Cap	2,4´-DDE	0.805	795	
2-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-AI-Avg	In Cap	2,4´-DDT	<0.06	795	
2-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-AI-Avg	In Cap	4,4´-DDD	3.61	795	
2-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-AI-Avg	In Cap	4,4´-DDE	1.215	795	
2-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-AI-Avg	In Cap	4,4´-DDT	0.415	795	
2-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-AI-Avg	In Cap	Total DDX	6.795	795	
2-Month	5	5	0-2	Sample	In Cap	QT2-5-0002-SEDCHEM-Avg	In Cap	2,4´-DDD	27.125	6,200	4313.8
2-Month	5	5	0-2	Sample	In Cap	QT2-5-0002-SEDCHEM-Avg	In Cap	2,4´-DDE	20.975	6,200	3333.9
2-Month	5	5	0-2	Sample	In Cap	QT2-5-0002-SEDCHEM-Avg	In Cap	2,4´-DDT	<0.07	6,200	<5.7
2-Month	5	5	0-2	Sample	In Cap	QT2-5-0002-SEDCHEM-Avg	In Cap	4,4´-DDD	172.3	6,200	27395.0
2-Month	5	5	0-2	Sample	In Cap	QT2-5-0002-SEDCHEM-Avg	In Cap	4,4´-DDE	39.84	6,200	6342.0
2-Month	5	5	0-2	Sample	In Cap	QT2-5-0002-SEDCHEM-Avg	In Cap	4,4´-DDT	9.05	6,200	1438.3
2-Month	5	5	0-2	Sample	In Cap	QT2-5-0002-SEDCHEM-Avg	In Cap	Total DDX	269.29	6,200	42823.0
2-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-BI	In Cap	2,4´-DDD	50.3	61,000	824.6
2-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-BI	In Cap	2,4´-DDE	30.2	61,000	495.1
2-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-BI	In Cap	2,4´-DDT	<0.08	61,000	<0.7
2-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-BI	In Cap	4,4´-DDD	239	61,000	3918.0
2-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-BI	In Cap	4,4´-DDE	73	61,000	1196.7
2-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-BI	In Cap	4,4´-DDT	7.09	61,000	116.2
2-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-BI	In Cap	Total DDX	399.59	61,000	6550.7
2-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-BI-Avg	In Cap	2,4´-DDD	48.15	59,500	808.8
2-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-BI-Avg	In Cap	2,4´-DDE	28	59,500	470.0
2-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-BI-Avg	In Cap	2,4´-DDT	<0.08	59,500	<0.7
2-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-BI-Avg	In Cap	4,4´-DDD	234	59,500	3933.2
2-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-BI-Avg	In Cap	4,4´-DDE	71.45	59,500	1200.9
2-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-BI-Avg	In Cap	4,4´-DDT	9.295	59,500	157.3
2-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0002-SEDCHEM-BI-Avg	In Cap	Total DDX	390.895	59,500	6570.2
2-Month	5	5	2-5	Primary	In Cap	QT2-5-0205-SEDCHEM	In Cap	2,4´-DDD	2.9	5,500	527.3
2-Month	5	5	2-5	Primary	In Cap	QT2-5-0205-SEDCHEM	In Cap	2,4´-DDE	1.79	5,500	325.5
2-Month	5	5	2-5	Primary	In Cap	QT2-5-0205-SEDCHEM	In Cap	2,4´-DDT	<0.07	5,500	<6.4
2-Month	5	5	2-5	Primary	In Cap	QT2-5-0205-SEDCHEM	In Cap	4,4´-DDD	17.2	5,500	3127.3
2-Month	5	5	2-5	Primary	In Cap	QT2-5-0205-SEDCHEM	In Cap	4,4´-DDE	7.04	5,500	1280.0
2-Month	5	5	2-5	Primary	In Cap	QT2-5-0205-SEDCHEM	In Cap	4,4´-DDT	20.2	5,500	3672.7
2-Month	5	5	2-5	Primary	In Cap	QT2-5-0205-SEDCHEM	In Cap	Total DDX	49.13	5,500	8932.7
2-Month	5	5	2-5	Sample	In Cap	QT2-5-0205-SEDCHEM-Avg	In Cap	2,4´-DDD	3.735	7,350	512.0
2-Month	5	5	2-5	Sample	In Cap	QT2-5-0205-SEDCHEM-Avg	In Cap	2,4´-DDE	2.29	7,350	314.4
2-Month	5	5	2-5	Sample	In Cap	QT2-5-0205-SEDCHEM-Avg	In Cap	2,4´-DDT	<0.07	7,350	<6.4
2-Month	5	5	2-5	Sample	In Cap	QT2-5-0205-SEDCHEM-Avg	In Cap	4,4´-DDD	22.8	7,350	3107.1
2-Month	5	5	2-5	Sample	In Cap	QT2-5-0205-SEDCHEM-Avg	In Cap	4,4´-DDE	8.97	7,350	1232.4
2-Month	5	5	2-5	Sample	In Cap	QT2-5-0205-SEDCHEM-Avg	In Cap	4,4´-DDT	11.26	7,350	1962.5
2-Month	5	5	2-5	Sample	In Cap	QT2-5-0205-SEDCHEM-Avg	In Cap	Total DDX	49.055	7,350	7128.3
2-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0205-SEDCHEM-BI	In Cap	2,4´-DDD	54	61,000	885.2
2-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0205-SEDCHEM-BI	In Cap	2,4´-DDE	39	61,000	639.3
2-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0205-SEDCHEM-BI	In Cap	2,4´-DDT	<0.08	61,000	<0.7
2-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0205-SEDCHEM-BI	In Cap	4,4´-DDD	385	61,000	6311.5
2-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0205-SEDCHEM-BI	In Cap	4,4´-DDE	85.9	61,000	1408.2
2-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0205-SEDCHEM-BI	In Cap	4,4´-DDT	14.5	61,000	237.7
2-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0205-SEDCHEM-BI	In Cap	Total DDX	578.4	61,000	9482.0
2-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0205-SEDCHEM-BI-Avg	In Cap	2,4´-DDD	62.5	63,500	980.5

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
2-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0205-SEDCHEM-BI-Avg	In Cap	2,4´-DDE	36.6	63,500	578.8
2-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0205-SEDCHEM-BI-Avg	In Cap	2,4´-DDT	<0.08	63,500	<0.7
2-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0205-SEDCHEM-BI-Avg	In Cap	4,4´-DDD	321.5	63,500	5110.3
2-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0205-SEDCHEM-BI-Avg	In Cap	4,4´-DDE	73.15	63,500	1161.7
2-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0205-SEDCHEM-BI-Avg	In Cap	4,4´-DDT	16.65	63,500	261.3
2-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0205-SEDCHEM-BI-Avg	In Cap	Total DDX	510.4	63,500	8092.5
2-Month	5	5	5-7	Primary	In Cap	QT2-5-0507-SEDCHEM	In Cap	2,4´-DDD	8.28	16,000	517.5
2-Month	5	5	5-7	Primary	In Cap	QT2-5-0507-SEDCHEM	In Cap	2,4´-DDE	5	16,000	312.5
2-Month	5	5	5-7	Primary	In Cap	QT2-5-0507-SEDCHEM	In Cap	2,4´-DDT	<0.08	16,000	<2.5
2-Month	5	5	5-7	Primary	In Cap	QT2-5-0507-SEDCHEM	In Cap	4,4´-DDD	47.7	16,000	2981.3
2-Month	5	5	5-7	Primary	In Cap	QT2-5-0507-SEDCHEM	In Cap	4,4´-DDE	16.3	16,000	1018.8
2-Month	5	5	5-7	Primary	In Cap	QT2-5-0507-SEDCHEM	In Cap	4,4´-DDT	3.31	16,000	206.9
2-Month	5	5	5-7	Primary	In Cap	QT2-5-0507-SEDCHEM	In Cap	Total DDX	80.59	16,000	5036.9
2-Month	5	5	5-7	Sample	In Cap	QT2-5-0507-SEDCHEM-Avg	In Cap	2,4´-DDD	8.34	17,000	492.1
2-Month	5	5	5-7	Sample	In Cap	QT2-5-0507-SEDCHEM-Avg	In Cap	2,4´-DDE	5.435	17,000	319.3
2-Month	5	5	5-7	Sample	In Cap	QT2-5-0507-SEDCHEM-Avg	In Cap	2,4´-DDT	<0.09	17,000	<2.5
2-Month	5	5	5-7	Sample	In Cap	QT2-5-0507-SEDCHEM-Avg	In Cap	4,4´-DDD	53.95	17,000	3162.8
2-Month	5	5	5-7	Sample	In Cap	QT2-5-0507-SEDCHEM-Avg	In Cap	4,4´-DDE	20.15	17,000	1176.0
2-Month	5	5	5-7	Sample	In Cap	QT2-5-0507-SEDCHEM-Avg	In Cap	4,4´-DDT	3.765	17,000	220.7
2-Month	5	5	5-7	Sample	In Cap	QT2-5-0507-SEDCHEM-Avg	In Cap	Total DDX	91.64	17,000	5370.9
2-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0507-SEDCHEM-BI	In Cap	2,4´-DDD	43.1	65,000	663.1
2-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0507-SEDCHEM-BI	In Cap	2,4´-DDE	30	65,000	461.5
2-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0507-SEDCHEM-BI	In Cap	2,4´-DDT	<0.09	65,000	<0.7
2-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0507-SEDCHEM-BI	In Cap	4,4´-DDD	248	65,000	3815.4
2-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0507-SEDCHEM-BI	In Cap	4,4´-DDE	86.1	65,000	1324.6
2-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0507-SEDCHEM-BI	In Cap	4,4´-DDT	17.5	65,000	269.2
2-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0507-SEDCHEM-BI	In Cap	Total DDX	424.7	65,000	6533.8
2-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0507-SEDCHEM-BI-Avg	In Cap	2,4´-DDD	42.95	68,000	632.9
2-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0507-SEDCHEM-BI-Avg	In Cap	2,4´-DDE	29.35	68,000	432.9
2-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0507-SEDCHEM-BI-Avg	In Cap	2,4´-DDT	<0.09	68,000	<0.7
2-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0507-SEDCHEM-BI-Avg	In Cap	4,4´-DDD	230.5	68,000	3407.7
2-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0507-SEDCHEM-BI-Avg	In Cap	4,4´-DDE	76.95	68,000	1139.8
2-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0507-SEDCHEM-BI-Avg	In Cap	4,4´-DDT	10.375	68,000	157.5
2-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0507-SEDCHEM-BI-Avg	In Cap	Total DDX	390.125	68,000	5770.8
2-Month	5	5	0-2	Duplicate	In Cap	QT2-5DUP-0002-SEDCHEM	In Cap	2,4´-DDD	51.1	6,300	8111.1
2-Month	5	5	0-2	Duplicate	In Cap	QT2-5DUP-0002-SEDCHEM	In Cap	2,4´-DDE	40.2	6,300	6381.0
2-Month	5	5	0-2	Duplicate	In Cap	QT2-5DUP-0002-SEDCHEM	In Cap	2,4´-DDT	<0.07	6,300	<5.6
2-Month	5	5	0-2	Duplicate	In Cap	QT2-5DUP-0002-SEDCHEM	In Cap	4,4´-DDD	327	6,300	51904.8
2-Month	5	5	0-2	Duplicate	In Cap	QT2-5DUP-0002-SEDCHEM	In Cap	4,4´-DDE	72.7	6,300	11539.7
2-Month	5	5	0-2	Duplicate	In Cap	QT2-5DUP-0002-SEDCHEM	In Cap	4,4´-DDT	17.4	6,300	2761.9
2-Month	5	5	0-2	Duplicate	In Cap	QT2-5DUP-0002-SEDCHEM	In Cap	Total DDX	508.4	6,300	80698.4
2-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT2-5DUP-0002-SEDCHEM-AI	In Cap	2,4´-DDD	0.74	920	
2-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT2-5DUP-0002-SEDCHEM-AI	In Cap	2,4´-DDE	0.7	920	
2-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT2-5DUP-0002-SEDCHEM-AI	In Cap	2,4´-DDT	<0.06	920	
2-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT2-5DUP-0002-SEDCHEM-AI	In Cap	4,4´-DDD	3.74	920	
2-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT2-5DUP-0002-SEDCHEM-AI	In Cap	4,4´-DDE	1.29	920	
2-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT2-5DUP-0002-SEDCHEM-AI	In Cap	4,4´-DDT	0.36	920	
2-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT2-5DUP-0002-SEDCHEM-AI	In Cap	Total DDX	6.83	920	
2-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0002-SEDCHEM-BI	In Cap	2,4´-DDD	46	58,000	793.1
2-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0002-SEDCHEM-BI	In Cap	2,4´-DDE	25.8	58,000	444.8
2-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0002-SEDCHEM-BI	In Cap	2,4´-DDT	<0.07	58,000	<0.6
2-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0002-SEDCHEM-BI	In Cap	4,4´-DDD	229	58,000	3948.3
2-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0002-SEDCHEM-BI	In Cap	4,4´-DDE	69.9	58,000	1205.2

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
2-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0002-SEDCHEM-BI	In Cap	4,4´-DDT	11.5	58,000	198.3
2-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0002-SEDCHEM-BI	In Cap	Total DDX	382.2	58,000	6589.7
2-Month	5	5	2-5	Duplicate	In Cap	QT2-5DUP-0205-SEDCHEM	In Cap	2,4´-DDD	4.57	9,200	496.7
2-Month	5	5	2-5	Duplicate	In Cap	QT2-5DUP-0205-SEDCHEM	In Cap	2,4´-DDE	2.79	9,200	303.3
2-Month	5	5	2-5	Duplicate	In Cap	QT2-5DUP-0205-SEDCHEM	In Cap	2,4´-DDT	<0.07	9,200	<3.8
2-Month	5	5	2-5	Duplicate	In Cap	QT2-5DUP-0205-SEDCHEM	In Cap	4,4´-DDD	28.4	9,200	3087.0
2-Month	5	5	2-5	Duplicate	In Cap	QT2-5DUP-0205-SEDCHEM	In Cap	4,4´-DDE	10.9	9,200	1184.8
2-Month	5	5	2-5	Duplicate	In Cap	QT2-5DUP-0205-SEDCHEM	In Cap	4,4´-DDT	2.32	9,200	252.2
2-Month	5	5	2-5	Duplicate	In Cap	QT2-5DUP-0205-SEDCHEM	In Cap	Total DDX	48.98	9,200	5323.9
2-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0205-SEDCHEM-BI	In Cap	2,4´-DDD	71	66,000	1075.8
2-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0205-SEDCHEM-BI	In Cap	2,4´-DDE	34.2	66,000	518.2
2-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0205-SEDCHEM-BI	In Cap	2,4´-DDT	<0.08	66,000	<0.6
2-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0205-SEDCHEM-BI	In Cap	4,4´-DDD	258	66,000	3909.1
2-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0205-SEDCHEM-BI	In Cap	4,4´-DDE	60.4	66,000	915.2
2-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0205-SEDCHEM-BI	In Cap	4,4´-DDT	18.8	66,000	284.8
2-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0205-SEDCHEM-BI	In Cap	Total DDX	442.4	66,000	6703.0
2-Month	5	5	5-7	Duplicate	In Cap	QT2-5DUP-0507-SEDCHEM	In Cap	2,4´-DDD	8.4	18,000	466.7
2-Month	5	5	5-7	Duplicate	In Cap	QT2-5DUP-0507-SEDCHEM	In Cap	2,4´-DDE	5.87	18,000	326.1
2-Month	5	5	5-7	Duplicate	In Cap	QT2-5DUP-0507-SEDCHEM	In Cap	2,4´-DDT	<0.09	18,000	<2.5
2-Month	5	5	5-7	Duplicate	In Cap	QT2-5DUP-0507-SEDCHEM	In Cap	4,4´-DDD	60.2	18,000	3344.4
2-Month	5	5	5-7	Duplicate	In Cap	QT2-5DUP-0507-SEDCHEM	In Cap	4,4´-DDE	24	18,000	1333.3
2-Month	5	5	5-7	Duplicate	In Cap	QT2-5DUP-0507-SEDCHEM	In Cap	4,4´-DDT	4.22	18,000	234.4
2-Month	5	5	5-7	Duplicate	In Cap	QT2-5DUP-0507-SEDCHEM	In Cap	Total DDX	102.69	18,000	5705.0
2-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0507-SEDCHEM-BI	In Cap	2,4´-DDD	42.8	71,000	602.8
2-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0507-SEDCHEM-BI	In Cap	2,4´-DDE	28.7	71,000	404.2
2-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0507-SEDCHEM-BI	In Cap	2,4´-DDT	<0.09	71,000	<0.6
2-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0507-SEDCHEM-BI	In Cap	4,4´-DDD	213	71,000	3000.0
2-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0507-SEDCHEM-BI	In Cap	4,4´-DDE	67.8	71,000	954.9
2-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0507-SEDCHEM-BI	In Cap	4,4´-DDT	3.25	71,000	45.8
2-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0507-SEDCHEM-BI	In Cap	Total DDX	355.55	71,000	5007.7
2-Month	6	6	0-10	Sample	Off Cap	QT2-6-GRAB-SEDCHEM	Off Cap	2,4´-DDD	1.6	24,000	66.7
2-Month	6	6	0-10	Sample	Off Cap	QT2-6-GRAB-SEDCHEM	Off Cap	2,4´-DDE	0.88	24,000	36.7
2-Month	6	6	0-10	Sample	Off Cap	QT2-6-GRAB-SEDCHEM	Off Cap	2,4´-DDT	<0.07	24,000	<1.5
2-Month	6	6	0-10	Sample	Off Cap	QT2-6-GRAB-SEDCHEM	Off Cap	4,4´-DDD	7.43	24,000	309.6
2-Month	6	6	0-10	Sample	Off Cap	QT2-6-GRAB-SEDCHEM	Off Cap	4,4´-DDE	3.21	24,000	133.8
2-Month	6	6	0-10	Sample	Off Cap	QT2-6-GRAB-SEDCHEM	Off Cap	4,4´-DDT	0.57	24,000	23.8
2-Month	6	6	0-10	Sample	Off Cap	QT2-6-GRAB-SEDCHEM	Off Cap	Total DDX	13.69	24,000	570.4
2-Month	7	7	0-10	Sample	Off Cap	QT2-7-GRAB-SEDCHEM	Off Cap	2,4´-DDD	2.3	35,000	65.7
2-Month	7	7	0-10	Sample	Off Cap	QT2-7-GRAB-SEDCHEM	Off Cap	2,4´-DDE	1.59	35,000	45.4
2-Month	7	7	0-10	Sample	Off Cap	QT2-7-GRAB-SEDCHEM	Off Cap	2,4´-DDT	<0.16	35,000	<2.3
2-Month	7	7	0-10	Sample	Off Cap	QT2-7-GRAB-SEDCHEM	Off Cap	4,4´-DDD	10.4	35,000	297.1
2-Month	7	7	0-10	Sample	Off Cap	QT2-7-GRAB-SEDCHEM	Off Cap	4,4´-DDE	6.41	35,000	183.1
2-Month	7	7	0-10	Sample	Off Cap	QT2-7-GRAB-SEDCHEM	Off Cap	4,4´-DDT	1.35	35,000	38.6
2-Month	7	7	0-10	Sample	Off Cap	QT2-7-GRAB-SEDCHEM	Off Cap	Total DDX	22.05	35,000	630.0
14-Month	1	1	0-2	Sample	In Cap	QT12-1-0002-SEDCHEM	In Cap	2,4´-DDD	20.2	587	
14-Month	1	1	0-2	Sample	In Cap	QT12-1-0002-SEDCHEM	In Cap	2,4´-DDE	12.2	587	
14-Month	1	1	0-2	Sample	In Cap	QT12-1-0002-SEDCHEM	In Cap	2,4´-DDT	6.23	587	
14-Month	1	1	0-2	Sample	In Cap	QT12-1-0002-SEDCHEM	In Cap	4,4´-DDD	60.2	587	
14-Month	1	1	0-2	Sample	In Cap	QT12-1-0002-SEDCHEM	In Cap	4,4´-DDE	24.5	587	
14-Month	1	1	0-2	Sample	In Cap	QT12-1-0002-SEDCHEM	In Cap	4,4´-DDT	9.02	587	
14-Month	1	1	0-2	Sample	In Cap	QT12-1-0002-SEDCHEM	In Cap	Total DDX	132.35	587	
14-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-1-0002-SEDCHEM-AI	In Cap	2,4´-DDD	0.26	< 79	
14-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-1-0002-SEDCHEM-AI	In Cap	2,4´-DDE	<0.07	< 79	

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
14-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-1-0002-SEDCHEM-AI	In Cap	2,4´-DDT	<0.07	< 79	
14-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-1-0002-SEDCHEM-AI	In Cap	4,4´-DDD	1.39	< 79	
14-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-1-0002-SEDCHEM-AI	In Cap	4,4´-DDE	0.24	< 79	
14-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-1-0002-SEDCHEM-AI	In Cap	4,4´-DDT	<0.07	< 79	
14-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-1-0002-SEDCHEM-AI	In Cap	Total DDX	1.89	< 79	
14-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0002-SEDCHEM-BI	In Cap	2,4´-DDD	<0.07	1,838	
14-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0002-SEDCHEM-BI	In Cap	2,4´-DDE	<0.07	1,838	
14-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0002-SEDCHEM-BI	In Cap	2,4´-DDT	<0.07	1,838	
14-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0002-SEDCHEM-BI	In Cap	4,4´-DDD	0.24	1,838	
14-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0002-SEDCHEM-BI	In Cap	4,4´-DDE	<0.07	1,838	
14-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0002-SEDCHEM-BI	In Cap	4,4´-DDT	<0.07	1,838	
14-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0002-SEDCHEM-BI	In Cap	Total DDX	0.24	1,838	
14-Month	1	1	2-5	Sample	In Cap	QT12-1-0205-SEDCHEM	In Cap	2,4´-DDD	0.98	596	
14-Month	1	1	2-5	Sample	In Cap	QT12-1-0205-SEDCHEM	In Cap	2,4´-DDE	<0.07	596	
14-Month	1	1	2-5	Sample	In Cap	QT12-1-0205-SEDCHEM	In Cap	2,4´-DDT	<0.07	596	
14-Month	1	1	2-5	Sample	In Cap	QT12-1-0205-SEDCHEM	In Cap	4,4´-DDD	4.25	596	
14-Month	1	1	2-5	Sample	In Cap	QT12-1-0205-SEDCHEM	In Cap	4,4´-DDE	0.96	596	
14-Month	1	1	2-5	Sample	In Cap	QT12-1-0205-SEDCHEM	In Cap	4,4´-DDT	<0.07	596	
14-Month	1	1	2-5	Sample	In Cap	QT12-1-0205-SEDCHEM	In Cap	Total DDX	6.19	596	
14-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0205-SEDCHEM-BI	In Cap	2,4´-DDD	5.52	6,989	789.8
14-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0205-SEDCHEM-BI	In Cap	2,4´-DDE	4.14	6,989	592.3
14-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0205-SEDCHEM-BI	In Cap	2,4´-DDT	<0.08	6,989	<5.7
14-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0205-SEDCHEM-BI	In Cap	4,4´-DDD	38	6,989	5436.9
14-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0205-SEDCHEM-BI	In Cap	4,4´-DDE	5.43	6,989	776.9
14-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0205-SEDCHEM-BI	In Cap	4,4´-DDT	8.71	6,989	1246.2
14-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0205-SEDCHEM-BI	In Cap	Total DDX	61.8	6,989	8842.2
14-Month	1	1	5-7	Sample	In Cap	QT12-1-0507-SEDCHEM	In Cap	2,4´-DDD	0.29	< 78	
14-Month	1	1	5-7	Sample	In Cap	QT12-1-0507-SEDCHEM	In Cap	2,4´-DDE	0.18	< 78	
14-Month	1	1	5-7	Sample	In Cap	QT12-1-0507-SEDCHEM	In Cap	2,4´-DDT	<0.07	< 78	
14-Month	1	1	5-7	Sample	In Cap	QT12-1-0507-SEDCHEM	In Cap	4,4´-DDD	1.41	< 78	
14-Month	1	1	5-7	Sample	In Cap	QT12-1-0507-SEDCHEM	In Cap	4,4´-DDE	0.4	< 78	
14-Month	1	1	5-7	Sample	In Cap	QT12-1-0507-SEDCHEM	In Cap	4,4´-DDT	0.11	< 78	
14-Month	1	1	5-7	Sample	In Cap	QT12-1-0507-SEDCHEM	In Cap	Total DDX	2.39	< 78	
14-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0507-SEDCHEM-BI	In Cap	2,4´-DDD	12.6	5,683	2217.0
14-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0507-SEDCHEM-BI	In Cap	2,4´-DDE	7.21	5,683	1268.6
14-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0507-SEDCHEM-BI	In Cap	2,4´-DDT	<0.08	5,683	<7
14-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0507-SEDCHEM-BI	In Cap	4,4´-DDD	64.3	5,683	11313.7
14-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0507-SEDCHEM-BI	In Cap	4,4´-DDE	15	5,683	2639.3
14-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0507-SEDCHEM-BI	In Cap	4,4´-DDT	3.39	5,683	596.5
14-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0507-SEDCHEM-BI	In Cap	Total DDX	102.5	5,683	18035.1
14-Month	2	2	0-2	Sample	In Cap	QT12-2-0002-SEDCHEM	In Cap	2,4´-DDD	30.2	834	
14-Month	2	2	0-2	Sample	In Cap	QT12-2-0002-SEDCHEM	In Cap	2,4´-DDE	15.2	834	
14-Month	2	2	0-2	Sample	In Cap	QT12-2-0002-SEDCHEM	In Cap	2,4´-DDT	<0.07	834	
14-Month	2	2	0-2	Sample	In Cap	QT12-2-0002-SEDCHEM	In Cap	4,4´-DDD	434	834	
14-Month	2	2	0-2	Sample	In Cap	QT12-2-0002-SEDCHEM	In Cap	4,4´-DDE	23.2	834	
14-Month	2	2	0-2	Sample	In Cap	QT12-2-0002-SEDCHEM	In Cap	4,4´-DDT	6.25	834	
14-Month	2	2	0-2	Sample	In Cap	QT12-2-0002-SEDCHEM	In Cap	Total DDX	508.85	834	
14-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-2-0002-SEDCHEM-AI	In Cap	2,4´-DDD	<0.07	< 79	
14-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-2-0002-SEDCHEM-AI	In Cap	2,4´-DDE	<0.07	< 79	
14-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-2-0002-SEDCHEM-AI	In Cap	2,4´-DDT	<0.07	< 79	
14-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-2-0002-SEDCHEM-AI	In Cap	4,4´-DDD	0.35	< 79	
14-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-2-0002-SEDCHEM-AI	In Cap	4,4´-DDE	<0.07	< 79	
14-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-2-0002-SEDCHEM-AI	In Cap	4,4´-DDT	<0.07	< 79	

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
14-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-2-0002-SEDCHEM-AI	In Cap	Total DDX	0.35	< 79	
14-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0002-SEDCHEM-BI	In Cap	2,4´-DDD	12.3	6,324	1944.9
14-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0002-SEDCHEM-BI	In Cap	2,4´-DDE	6.09	6,324	963.0
14-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0002-SEDCHEM-BI	In Cap	2,4´-DDT	<0.08	6,324	<6.3
14-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0002-SEDCHEM-BI	In Cap	4,4´-DDD	59.5	6,324	9408.4
14-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0002-SEDCHEM-BI	In Cap	4,4´-DDE	8.23	6,324	1301.4
14-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0002-SEDCHEM-BI	In Cap	4,4´-DDT	2.28	6,324	360.5
14-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0002-SEDCHEM-BI	In Cap	Total DDX	88.4	6,324	13978.3
14-Month	2	2	2-5	Sample	In Cap	QT12-2-0205-SEDCHEM	In Cap	2,4´-DDD	1.6	< 79	
14-Month	2	2	2-5	Sample	In Cap	QT12-2-0205-SEDCHEM	In Cap	2,4´-DDE	0.68	< 79	
14-Month	2	2	2-5	Sample	In Cap	QT12-2-0205-SEDCHEM	In Cap	2,4´-DDT	<0.07	< 79	
14-Month	2	2	2-5	Sample	In Cap	QT12-2-0205-SEDCHEM	In Cap	4,4´-DDD	6.66	< 79	
14-Month	2	2	2-5	Sample	In Cap	QT12-2-0205-SEDCHEM	In Cap	4,4´-DDE	0.93	< 79	
14-Month	2	2	2-5	Sample	In Cap	QT12-2-0205-SEDCHEM	In Cap	4,4´-DDT	<0.07	< 79	
14-Month	2	2	2-5	Sample	In Cap	QT12-2-0205-SEDCHEM	In Cap	Total DDX	9.87	< 79	
14-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0205-SEDCHEM-BI	In Cap	2,4´-DDD	3.06	10,630	287.9
14-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0205-SEDCHEM-BI	In Cap	2,4´-DDE	1.21	10,630	113.8
14-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0205-SEDCHEM-BI	In Cap	2,4´-DDT	<0.08	10,630	<3.8
14-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0205-SEDCHEM-BI	In Cap	4,4´-DDD	14.1	10,630	1326.4
14-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0205-SEDCHEM-BI	In Cap	4,4´-DDE	2.5	10,630	235.2
14-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0205-SEDCHEM-BI	In Cap	4,4´-DDT	<0.08	10,630	<3.8
14-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0205-SEDCHEM-BI	In Cap	Total DDX	20.87	10,630	1963.3
14-Month	2	2	5-7	Sample	In Cap	QT12-2-0507-SEDCHEM	In Cap	2,4´-DDD	0.7	< 76	
14-Month	2	2	5-7	Sample	In Cap	QT12-2-0507-SEDCHEM	In Cap	2,4´-DDE	0.27	< 76	
14-Month	2	2	5-7	Sample	In Cap	QT12-2-0507-SEDCHEM	In Cap	2,4´-DDT	<0.07	< 76	
14-Month	2	2	5-7	Sample	In Cap	QT12-2-0507-SEDCHEM	In Cap	4,4´-DDD	2.83	< 76	
14-Month	2	2	5-7	Sample	In Cap	QT12-2-0507-SEDCHEM	In Cap	4,4´-DDE	0.39	< 76	
14-Month	2	2	5-7	Sample	In Cap	QT12-2-0507-SEDCHEM	In Cap	4,4´-DDT	<0.07	< 76	
14-Month	2	2	5-7	Sample	In Cap	QT12-2-0507-SEDCHEM	In Cap	Total DDX	4.19	< 76	
14-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0507-SEDCHEM-BI	In Cap	2,4´-DDD	12.4	7,785	1592.8
14-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0507-SEDCHEM-BI	In Cap	2,4´-DDE	5.39	7,785	692.3
14-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0507-SEDCHEM-BI	In Cap	2,4´-DDT	<0.08	7,785	<5.1
14-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0507-SEDCHEM-BI	In Cap	4,4´-DDD	62.1	7,785	7976.6
14-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0507-SEDCHEM-BI	In Cap	4,4´-DDE	14.5	7,785	1862.5
14-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0507-SEDCHEM-BI	In Cap	4,4´-DDT	15.5	7,785	1990.9
14-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0507-SEDCHEM-BI	In Cap	Total DDX	109.89	7,785	14115.2
14-Month	3	3	0-2	Sample	In Cap	QT12-3-0002-SEDCHEM	In Cap	2,4´-DDD	61.9	3,586	17263.2
14-Month	3	3	0-2	Sample	In Cap	QT12-3-0002-SEDCHEM	In Cap	2,4´-DDE	22.3	3,586	6219.2
14-Month	3	3	0-2	Sample	In Cap	QT12-3-0002-SEDCHEM	In Cap	2,4´-DDT	<0.08	3,586	<11.2
14-Month	3	3	0-2	Sample	In Cap	QT12-3-0002-SEDCHEM	In Cap	4,4´-DDD	254	3,586	70837.8
14-Month	3	3	0-2	Sample	In Cap	QT12-3-0002-SEDCHEM	In Cap	4,4´-DDE	38.6	3,586	10765.1
14-Month	3	3	0-2	Sample	In Cap	QT12-3-0002-SEDCHEM	In Cap	4,4´-DDT	16.3	3,586	4545.9
14-Month	3	3	0-2	Sample	In Cap	QT12-3-0002-SEDCHEM	In Cap	Total DDX	393.1	3,586	109631.2
14-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-3-0002-SEDCHEM-AI	In Cap	2,4´-DDD	0.41	356	
14-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-3-0002-SEDCHEM-AI	In Cap	2,4´-DDE	0.21	356	
14-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-3-0002-SEDCHEM-AI	In Cap	2,4´-DDT	<0.07	356	
14-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-3-0002-SEDCHEM-AI	In Cap	4,4´-DDD	1.75	356	
14-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-3-0002-SEDCHEM-AI	In Cap	4,4´-DDE	0.37	356	
14-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-3-0002-SEDCHEM-AI	In Cap	4,4´-DDT	0.31	356	
14-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-3-0002-SEDCHEM-AI	In Cap	Total DDX	3.05	356	
14-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0002-SEDCHEM-BI	In Cap	2,4´-DDD	42.3	1,656	
14-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0002-SEDCHEM-BI	In Cap	2,4´-DDE	13.3	1,656	
14-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0002-SEDCHEM-BI	In Cap	2,4´-DDT	<0.08	1,656	

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
14-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0002-SEDCHEM-BI	In Cap	4,4´-DDD	182	1,656	
14-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0002-SEDCHEM-BI	In Cap	4,4´-DDE	26.2	1,656	
14-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0002-SEDCHEM-BI	In Cap	4,4´-DDT	6.59	1,656	
14-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0002-SEDCHEM-BI	In Cap	Total DDX	270.39	1,656	
14-Month	3	3	2-5	Sample	In Cap	QT12-3-0205-SEDCHEM	In Cap	2,4´-DDD	36.6	1,985	
14-Month	3	3	2-5	Sample	In Cap	QT12-3-0205-SEDCHEM	In Cap	2,4´-DDE	15.8	1,985	
14-Month	3	3	2-5	Sample	In Cap	QT12-3-0205-SEDCHEM	In Cap	2,4´-DDT	<0.07	1,985	
14-Month	3	3	2-5	Sample	In Cap	QT12-3-0205-SEDCHEM	In Cap	4,4´-DDD	133	1,985	
14-Month	3	3	2-5	Sample	In Cap	QT12-3-0205-SEDCHEM	In Cap	4,4´-DDE	22.6	1,985	
14-Month	3	3	2-5	Sample	In Cap	QT12-3-0205-SEDCHEM	In Cap	4,4´-DDT	13.3	1,985	
14-Month	3	3	2-5	Sample	In Cap	QT12-3-0205-SEDCHEM	In Cap	Total DDX	221.3	1,985	
14-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0205-SEDCHEM-BI	In Cap	2,4´-DDD	51.2	6,354	8058.4
14-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0205-SEDCHEM-BI	In Cap	2,4´-DDE	19.1	6,354	3006.2
14-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0205-SEDCHEM-BI	In Cap	2,4´-DDT	<0.08	6,354	<6.3
14-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0205-SEDCHEM-BI	In Cap	4,4´-DDD	275	6,354	43282.6
14-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0205-SEDCHEM-BI	In Cap	4,4´-DDE	43.4	6,354	6830.8
14-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0205-SEDCHEM-BI	In Cap	4,4´-DDT	10.5	6,354	1652.6
14-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0205-SEDCHEM-BI	In Cap	Total DDX	399.2	6,354	62830.6
14-Month	3	3	5-7	Sample	In Cap	QT12-3-0507-SEDCHEM	In Cap	2,4´-DDD	34.9	1,892	
14-Month	3	3	5-7	Sample	In Cap	QT12-3-0507-SEDCHEM	In Cap	2,4´-DDE	15.1	1,892	
14-Month	3	3	5-7	Sample	In Cap	QT12-3-0507-SEDCHEM	In Cap	2,4´-DDT	<0.08	1,892	
14-Month	3	3	5-7	Sample	In Cap	QT12-3-0507-SEDCHEM	In Cap	4,4´-DDD	134	1,892	
14-Month	3	3	5-7	Sample	In Cap	QT12-3-0507-SEDCHEM	In Cap	4,4´-DDE	26.3	1,892	
14-Month	3	3	5-7	Sample	In Cap	QT12-3-0507-SEDCHEM	In Cap	4,4´-DDT	30	1,892	
14-Month	3	3	5-7	Sample	In Cap	QT12-3-0507-SEDCHEM	In Cap	Total DDX	240.3	1,892	
14-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0507-SEDCHEM-BI	In Cap	2,4´-DDD	47.2	12,444	3793.1
14-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0507-SEDCHEM-BI	In Cap	2,4´-DDE	25	12,444	2009.0
14-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0507-SEDCHEM-BI	In Cap	2,4´-DDT	<0.09	12,444	<3.6
14-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0507-SEDCHEM-BI	In Cap	4,4´-DDD	231	12,444	18563.5
14-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0507-SEDCHEM-BI	In Cap	4,4´-DDE	54.4	12,444	4371.7
14-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0507-SEDCHEM-BI	In Cap	4,4´-DDT	11.9	12,444	956.3
14-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0507-SEDCHEM-BI	In Cap	Total DDX	369.5	12,444	29693.6
14-Month	4	4	0-2	Sample	In Cap	QT12-4-0002-SEDCHEM	In Cap	2,4´-DDD	1.02	1,161	
14-Month	4	4	0-2	Sample	In Cap	QT12-4-0002-SEDCHEM	In Cap	2,4´-DDE	<0.07	1,161	
14-Month	4	4	0-2	Sample	In Cap	QT12-4-0002-SEDCHEM	In Cap	2,4´-DDT	<0.07	1,161	
14-Month	4	4	0-2	Sample	In Cap	QT12-4-0002-SEDCHEM	In Cap	4,4´-DDD	4.43	1,161	
14-Month	4	4	0-2	Sample	In Cap	QT12-4-0002-SEDCHEM	In Cap	4,4´-DDE	1.13	1,161	
14-Month	4	4	0-2	Sample	In Cap	QT12-4-0002-SEDCHEM	In Cap	4,4´-DDT	0.53	1,161	
14-Month	4	4	0-2	Sample	In Cap	QT12-4-0002-SEDCHEM	In Cap	Total DDX	7.11	1,161	
14-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-4-0002-SEDCHEM-AI	In Cap	2,4´-DDD	<0.07	< 78	
14-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-4-0002-SEDCHEM-AI	In Cap	2,4´-DDE	<0.07	< 78	
14-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-4-0002-SEDCHEM-AI	In Cap	2,4´-DDT	<0.07	< 78	
14-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-4-0002-SEDCHEM-AI	In Cap	4,4´-DDD	0.08	< 78	
14-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-4-0002-SEDCHEM-AI	In Cap	4,4´-DDE	<0.07	< 78	
14-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-4-0002-SEDCHEM-AI	In Cap	4,4´-DDT	<0.07	< 78	
14-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-4-0002-SEDCHEM-AI	In Cap	Total DDX	0.08	< 78	
14-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0002-SEDCHEM-BI	In Cap	2,4´-DDD	11.4	13,176	865.2
14-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0002-SEDCHEM-BI	In Cap	2,4´-DDE	4.84	13,176	367.3
14-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0002-SEDCHEM-BI	In Cap	2,4´-DDT	<0.10	13,176	<3.8
14-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0002-SEDCHEM-BI	In Cap	4,4´-DDD	64.1	13,176	4865.0
14-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0002-SEDCHEM-BI	In Cap	4,4´-DDE	26.4	13,176	2003.7
14-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0002-SEDCHEM-BI	In Cap	4,4´-DDT	9.41	13,176	714.2
14-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0002-SEDCHEM-BI	In Cap	Total DDX	116.15	13,176	8815.5

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
14-Month	4	4	2-5	Sample	In Cap	QT12-4-0205-SEDCHEM	In Cap	2,4´-DDD	1.12	1,647	
14-Month	4	4	2-5	Sample	In Cap	QT12-4-0205-SEDCHEM	In Cap	2,4´-DDE	0.56	1,647	
14-Month	4	4	2-5	Sample	In Cap	QT12-4-0205-SEDCHEM	In Cap	2,4´-DDT	<0.07	1,647	
14-Month	4	4	2-5	Sample	In Cap	QT12-4-0205-SEDCHEM	In Cap	4,4´-DDD	5.36	1,647	
14-Month	4	4	2-5	Sample	In Cap	QT12-4-0205-SEDCHEM	In Cap	4,4´-DDE	1.37	1,647	
14-Month	4	4	2-5	Sample	In Cap	QT12-4-0205-SEDCHEM	In Cap	4,4´-DDT	0.57	1,647	
14-Month	4	4	2-5	Sample	In Cap	QT12-4-0205-SEDCHEM	In Cap	Total DDX	8.98	1,647	
14-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0205-SEDCHEM-BI	In Cap	2,4´-DDD	13.9	20,036	693.7
14-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0205-SEDCHEM-BI	In Cap	2,4´-DDE	<0.11	20,036	<2.7
14-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0205-SEDCHEM-BI	In Cap	2,4´-DDT	<0.11	20,036	<2.7
14-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0205-SEDCHEM-BI	In Cap	4,4´-DDD	73.9	20,036	3688.3
14-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0205-SEDCHEM-BI	In Cap	4,4´-DDE	31.9	20,036	1592.1
14-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0205-SEDCHEM-BI	In Cap	4,4´-DDT	4.28	20,036	213.6
14-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0205-SEDCHEM-BI	In Cap	Total DDX	123.98	20,036	6187.7
14-Month	4	4	5-7	Sample	In Cap	QT12-4-0507-SEDCHEM	In Cap	2,4´-DDD	1.13	938	
14-Month	4	4	5-7	Sample	In Cap	QT12-4-0507-SEDCHEM	In Cap	2,4´-DDE	0.55	938	
14-Month	4	4	5-7	Sample	In Cap	QT12-4-0507-SEDCHEM	In Cap	2,4´-DDT	<0.07	938	
14-Month	4	4	5-7	Sample	In Cap	QT12-4-0507-SEDCHEM	In Cap	4,4´-DDD	4.73	938	
14-Month	4	4	5-7	Sample	In Cap	QT12-4-0507-SEDCHEM	In Cap	4,4´-DDE	1.32	938	
14-Month	4	4	5-7	Sample	In Cap	QT12-4-0507-SEDCHEM	In Cap	4,4´-DDT	1.32	938	
14-Month	4	4	5-7	Sample	In Cap	QT12-4-0507-SEDCHEM	In Cap	Total DDX	9.05	938	
14-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0507-SEDCHEM-BI	In Cap	2,4´-DDD	17.6	17,040	1032.9
14-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0507-SEDCHEM-BI	In Cap	2,4´-DDE	8.91	17,040	522.9
14-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0507-SEDCHEM-BI	In Cap	2,4´-DDT	0.21	17,040	12.3
14-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0507-SEDCHEM-BI	In Cap	4,4´-DDD	90.6	17,040	5317.0
14-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0507-SEDCHEM-BI	In Cap	4,4´-DDE	27.5	17,040	1613.9
14-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0507-SEDCHEM-BI	In Cap	4,4´-DDT	5.09	17,040	298.7
14-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0507-SEDCHEM-BI	In Cap	Total DDX	149.91	17,040	8797.7
14-Month	5	5	0-2	Primary	In Cap	QT12-5-0002-SEDCHEM	In Cap	2,4´-DDD	0.61	1,118	
14-Month	5	5	0-2	Primary	In Cap	QT12-5-0002-SEDCHEM	In Cap	2,4´-DDE	<0.07	1,118	
14-Month	5	5	0-2	Primary	In Cap	QT12-5-0002-SEDCHEM	In Cap	2,4´-DDT	<0.07	1,118	
14-Month	5	5	0-2	Primary	In Cap	QT12-5-0002-SEDCHEM	In Cap	4,4´-DDD	2.36	1,118	
14-Month	5	5	0-2	Primary	In Cap	QT12-5-0002-SEDCHEM	In Cap	4,4´-DDE	1	1,118	
14-Month	5	5	0-2	Primary	In Cap	QT12-5-0002-SEDCHEM	In Cap	4,4´-DDT	0.49	1,118	
14-Month	5	5	0-2	Primary	In Cap	QT12-5-0002-SEDCHEM	In Cap	Total DDX	4.46	1,118	
14-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-AI	In Cap	2,4´-DDD	0.89	731	
14-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-AI	In Cap	2,4´-DDE	0.47	731	
14-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-AI	In Cap	2,4´-DDT	<0.07	731	
14-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-AI	In Cap	4,4´-DDD	4	731	
14-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-AI	In Cap	4,4´-DDE	1.19	731	
14-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-AI	In Cap	4,4´-DDT	0.57	731	
14-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-AI	In Cap	Total DDX	7.12	731	
14-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-AI-Avg	In Cap	2,4´-DDD	0.585	527	
14-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-AI-Avg	In Cap	2,4´-DDE	0.315	527	
14-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-AI-Avg	In Cap	2,4´-DDT	<0.07	527	
14-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-AI-Avg	In Cap	4,4´-DDD	2.53	527	
14-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-AI-Avg	In Cap	4,4´-DDE	0.745	527	
14-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-AI-Avg	In Cap	4,4´-DDT	0.465	527	
14-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-AI-Avg	In Cap	Total DDX	4.64	527	
14-Month	5	5	0-2	Sample	In Cap	QT12-5-0002-SEDCHEM-Avg	In Cap	2,4´-DDD	1.205	793	
14-Month	5	5	0-2	Sample	In Cap	QT12-5-0002-SEDCHEM-Avg	In Cap	2,4´-DDE	<0.07	793	
14-Month	5	5	0-2	Sample	In Cap	QT12-5-0002-SEDCHEM-Avg	In Cap	2,4´-DDT	<0.07	793	
14-Month	5	5	0-2	Sample	In Cap	QT12-5-0002-SEDCHEM-Avg	In Cap	4,4´-DDD	4.585	793	

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
14-Month	5	5	0-2	Sample	In Cap	QT12-5-0002-SEDCHEM-Avg	In Cap	4,4´-DDE	1.37	793	
14-Month	5	5	0-2	Sample	In Cap	QT12-5-0002-SEDCHEM-Avg	In Cap	4,4´-DDT	0.57	793	
14-Month	5	5	0-2	Sample	In Cap	QT12-5-0002-SEDCHEM-Avg	In Cap	Total DDX	7.73	793	
14-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-BI	In Cap	2,4´-DDD	12.7	12,006	1057.8
14-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-BI	In Cap	2,4´-DDE	8.03	12,006	668.8
14-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-BI	In Cap	2,4´-DDT	0.95	12,006	79.1
14-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-BI	In Cap	4,4´-DDD	77.6	12,006	6463.4
14-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-BI	In Cap	4,4´-DDE	39.1	12,006	3256.7
14-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-BI	In Cap	4,4´-DDT	13.2	12,006	1099.4
14-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-BI	In Cap	Total DDX	151.58	12,006	12625.3
14-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-BI-Avg	In Cap	2,4´-DDD	10.51	12,124	868.7
14-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-BI-Avg	In Cap	2,4´-DDE	5.725	12,124	474.1
14-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-BI-Avg	In Cap	2,4´-DDT	0.655	12,124	54.3
14-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-BI-Avg	In Cap	4,4´-DDD	56.2	12,124	4653.1
14-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-BI-Avg	In Cap	4,4´-DDE	26.95	12,124	2232.8
14-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-BI-Avg	In Cap	4,4´-DDT	8.54	12,124	708.2
14-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0002-SEDCHEM-BI-Avg	In Cap	Total DDX	108.58	12,124	8991.2
14-Month	5	5	2-5	Primary	In Cap	QT12-5-0205-SEDCHEM	In Cap	2,4´-DDD	0.46	795	
14-Month	5	5	2-5	Primary	In Cap	QT12-5-0205-SEDCHEM	In Cap	2,4´-DDE	<0.07	795	
14-Month	5	5	2-5	Primary	In Cap	QT12-5-0205-SEDCHEM	In Cap	2,4´-DDT	<0.07	795	
14-Month	5	5	2-5	Primary	In Cap	QT12-5-0205-SEDCHEM	In Cap	4,4´-DDD	1.87	795	
14-Month	5	5	2-5	Primary	In Cap	QT12-5-0205-SEDCHEM	In Cap	4,4´-DDE	0.79	795	
14-Month	5	5	2-5	Primary	In Cap	QT12-5-0205-SEDCHEM	In Cap	4,4´-DDT	0.47	795	
14-Month	5	5	2-5	Primary	In Cap	QT12-5-0205-SEDCHEM	In Cap	Total DDX	3.59	795	
14-Month	5	5	2-5	Sample	In Cap	QT12-5-0205-SEDCHEM-Avg	In Cap	2,4´-DDD	0.425	950	
14-Month	5	5	2-5	Sample	In Cap	QT12-5-0205-SEDCHEM-Avg	In Cap	2,4´-DDE	<0.07	950	
14-Month	5	5	2-5	Sample	In Cap	QT12-5-0205-SEDCHEM-Avg	In Cap	2,4´-DDT	<0.07	950	
14-Month	5	5	2-5	Sample	In Cap	QT12-5-0205-SEDCHEM-Avg	In Cap	4,4´-DDD	1.71	950	
14-Month	5	5	2-5	Sample	In Cap	QT12-5-0205-SEDCHEM-Avg	In Cap	4,4´-DDE	0.865	950	
14-Month	5	5	2-5	Sample	In Cap	QT12-5-0205-SEDCHEM-Avg	In Cap	4,4´-DDT	0.46	950	
14-Month	5	5	2-5	Sample	In Cap	QT12-5-0205-SEDCHEM-Avg	In Cap	Total DDX	3.46	950	
14-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0205-SEDCHEM-BI	In Cap	2,4´-DDD	35.2	12,191	2887.3
14-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0205-SEDCHEM-BI	In Cap	2,4´-DDE	16.3	12,191	1337.0
14-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0205-SEDCHEM-BI	In Cap	2,4´-DDT	0.75	12,191	61.5
14-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0205-SEDCHEM-BI	In Cap	4,4´-DDD	125	12,191	10253.2
14-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0205-SEDCHEM-BI	In Cap	4,4´-DDE	37.4	12,191	3067.7
14-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0205-SEDCHEM-BI	In Cap	4,4´-DDT	13.5	12,191	1107.3
14-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0205-SEDCHEM-BI	In Cap	Total DDX	228.15	12,191	18714.1
14-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0205-SEDCHEM-BI-Avg	In Cap	2,4´-DDD	37.85	12,831	2946.9
14-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0205-SEDCHEM-BI-Avg	In Cap	2,4´-DDE	16.6	12,831	1295.8
14-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0205-SEDCHEM-BI-Avg	In Cap	2,4´-DDT	0.795	12,831	61.9
14-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0205-SEDCHEM-BI-Avg	In Cap	4,4´-DDD	151	12,831	11696.4
14-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0205-SEDCHEM-BI-Avg	In Cap	4,4´-DDE	42.5	12,831	3300.7
14-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0205-SEDCHEM-BI-Avg	In Cap	4,4´-DDT	12.05	12,831	947.1
14-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0205-SEDCHEM-BI-Avg	In Cap	Total DDX	260.795	12,831	20248.8
14-Month	5	5	5-7	Primary	In Cap	QT12-5-0507-SEDCHEM	In Cap	2,4´-DDD	0.1	556	
14-Month	5	5	5-7	Primary	In Cap	QT12-5-0507-SEDCHEM	In Cap	2,4´-DDE	<0.07	556	
14-Month	5	5	5-7	Primary	In Cap	QT12-5-0507-SEDCHEM	In Cap	2,4´-DDT	<0.07	556	
14-Month	5	5	5-7	Primary	In Cap	QT12-5-0507-SEDCHEM	In Cap	4,4´-DDD	0.67	556	
14-Month	5	5	5-7	Primary	In Cap	QT12-5-0507-SEDCHEM	In Cap	4,4´-DDE	0.27	556	
14-Month	5	5	5-7	Primary	In Cap	QT12-5-0507-SEDCHEM	In Cap	4,4´-DDT	0.47	556	
14-Month	5	5	5-7	Primary	In Cap	QT12-5-0507-SEDCHEM	In Cap	Total DDX	1.51	556	
14-Month	5	5	5-7	Sample	In Cap	QT12-5-0507-SEDCHEM-Avg	In Cap	2,4´-DDD	0.24	673	

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
14-Month	5	5	5-7	Sample	In Cap	QT12-5-0507-SEDCHEM-Avg	In Cap	2,4´-DDE	<0.07	673	
14-Month	5	5	5-7	Sample	In Cap	QT12-5-0507-SEDCHEM-Avg	In Cap	2,4´-DDT	<0.07	673	
14-Month	5	5	5-7	Sample	In Cap	QT12-5-0507-SEDCHEM-Avg	In Cap	4,4´-DDD	1.04	673	
14-Month	5	5	5-7	Sample	In Cap	QT12-5-0507-SEDCHEM-Avg	In Cap	4,4´-DDE	0.455	673	
14-Month	5	5	5-7	Sample	In Cap	QT12-5-0507-SEDCHEM-Avg	In Cap	4,4´-DDT	0.435	673	
14-Month	5	5	5-7	Sample	In Cap	QT12-5-0507-SEDCHEM-Avg	In Cap	Total DDX	2.17	673	
14-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0507-SEDCHEM-BI	In Cap	2,4´-DDD	70.8	12,617	5611.6
14-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0507-SEDCHEM-BI	In Cap	2,4´-DDE	34.7	12,617	2750.3
14-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0507-SEDCHEM-BI	In Cap	2,4´-DDT	2.25	12,617	178.3
14-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0507-SEDCHEM-BI	In Cap	4,4´-DDD	788	12,617	62456.3
14-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0507-SEDCHEM-BI	In Cap	4,4´-DDE	70	12,617	5548.1
14-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0507-SEDCHEM-BI	In Cap	4,4´-DDT	75	12,617	5944.4
14-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0507-SEDCHEM-BI	In Cap	Total DDX	1040.75	12,617	82489.1
14-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0507-SEDCHEM-BI-Avg	In Cap	2,4´-DDD	58.3	13,474	4403.7
14-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0507-SEDCHEM-BI-Avg	In Cap	2,4´-DDE	28.65	13,474	2163.6
14-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0507-SEDCHEM-BI-Avg	In Cap	2,4´-DDT	1.55	13,474	118.8
14-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0507-SEDCHEM-BI-Avg	In Cap	4,4´-DDD	669	13,474	50417.0
14-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0507-SEDCHEM-BI-Avg	In Cap	4,4´-DDE	57.6	13,474	4351.1
14-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0507-SEDCHEM-BI-Avg	In Cap	4,4´-DDT	49.7	13,474	3823.5
14-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0507-SEDCHEM-BI-Avg	In Cap	Total DDX	864.8	13,474	65277.7
14-Month	5	5	0-2	Duplicate	In Cap	QT12-5DUP-0002-SEDCHEM	In Cap	2,4´-DDD	1.8	469	
14-Month	5	5	0-2	Duplicate	In Cap	QT12-5DUP-0002-SEDCHEM	In Cap	2,4´-DDE	<0.07	469	
14-Month	5	5	0-2	Duplicate	In Cap	QT12-5DUP-0002-SEDCHEM	In Cap	2,4´-DDT	<0.07	469	
14-Month	5	5	0-2	Duplicate	In Cap	QT12-5DUP-0002-SEDCHEM	In Cap	4,4´-DDD	6.81	469	
14-Month	5	5	0-2	Duplicate	In Cap	QT12-5DUP-0002-SEDCHEM	In Cap	4,4´-DDE	1.74	469	
14-Month	5	5	0-2	Duplicate	In Cap	QT12-5DUP-0002-SEDCHEM	In Cap	4,4´-DDT	0.65	469	
14-Month	5	5	0-2	Duplicate	In Cap	QT12-5DUP-0002-SEDCHEM	In Cap	Total DDX	11	469	
14-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT12-5DUP-0002-SEDCHEM-AI	In Cap	2,4´-DDD	0.28	322	
14-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT12-5DUP-0002-SEDCHEM-AI	In Cap	2,4´-DDE	0.16	322	
14-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT12-5DUP-0002-SEDCHEM-AI	In Cap	2,4´-DDT	<0.07	322	
14-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT12-5DUP-0002-SEDCHEM-AI	In Cap	4,4´-DDD	1.06	322	
14-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT12-5DUP-0002-SEDCHEM-AI	In Cap	4,4´-DDE	0.3	322	
14-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT12-5DUP-0002-SEDCHEM-AI	In Cap	4,4´-DDT	0.36	322	
14-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT12-5DUP-0002-SEDCHEM-AI	In Cap	Total DDX	2.16	322	
14-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0002-SEDCHEM-BI	In Cap	2,4´-DDD	8.32	12,242	679.6
14-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0002-SEDCHEM-BI	In Cap	2,4´-DDE	3.42	12,242	279.4
14-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0002-SEDCHEM-BI	In Cap	2,4´-DDT	0.36	12,242	29.4
14-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0002-SEDCHEM-BI	In Cap	4,4´-DDD	34.8	12,242	2842.8
14-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0002-SEDCHEM-BI	In Cap	4,4´-DDE	14.8	12,242	1209.0
14-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0002-SEDCHEM-BI	In Cap	4,4´-DDT	3.88	12,242	317.0
14-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0002-SEDCHEM-BI	In Cap	Total DDX	65.58	12,242	5357.1
14-Month	5	5	2-5	Duplicate	In Cap	QT12-5DUP-0205-SEDCHEM	In Cap	2,4´-DDD	0.39	1,105	
14-Month	5	5	2-5	Duplicate	In Cap	QT12-5DUP-0205-SEDCHEM	In Cap	2,4´-DDE	<0.07	1,105	
14-Month	5	5	2-5	Duplicate	In Cap	QT12-5DUP-0205-SEDCHEM	In Cap	2,4´-DDT	<0.07	1,105	
14-Month	5	5	2-5	Duplicate	In Cap	QT12-5DUP-0205-SEDCHEM	In Cap	4,4´-DDD	1.55	1,105	
14-Month	5	5	2-5	Duplicate	In Cap	QT12-5DUP-0205-SEDCHEM	In Cap	4,4´-DDE	0.94	1,105	
14-Month	5	5	2-5	Duplicate	In Cap	QT12-5DUP-0205-SEDCHEM	In Cap	4,4´-DDT	0.45	1,105	
14-Month	5	5	2-5	Duplicate	In Cap	QT12-5DUP-0205-SEDCHEM	In Cap	Total DDX	3.33	1,105	
14-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0205-SEDCHEM-BI	In Cap	2,4´-DDD	40.5	13,471	3006.5
14-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0205-SEDCHEM-BI	In Cap	2,4´-DDE	16.9	13,471	1254.6
14-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0205-SEDCHEM-BI	In Cap	2,4´-DDT	0.84	13,471	62.4
14-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0205-SEDCHEM-BI	In Cap	4,4´-DDD	177	13,471	13139.6
14-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0205-SEDCHEM-BI	In Cap	4,4´-DDE	47.6	13,471	3533.6

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
14-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0205-SEDCHEM-BI	In Cap	4,4´-DDT	10.6	13,471	786.9
14-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0205-SEDCHEM-BI	In Cap	Total DDX	293.44	13,471	21783.6
14-Month	5	5	5-7	Duplicate	In Cap	QT12-5DUP-0507-SEDCHEM	In Cap	2,4´-DDD	0.38	790	
14-Month	5	5	5-7	Duplicate	In Cap	QT12-5DUP-0507-SEDCHEM	In Cap	2,4´-DDE	<0.07	790	
14-Month	5	5	5-7	Duplicate	In Cap	QT12-5DUP-0507-SEDCHEM	In Cap	2,4´-DDT	<0.07	790	
14-Month	5	5	5-7	Duplicate	In Cap	QT12-5DUP-0507-SEDCHEM	In Cap	4,4´-DDD	1.41	790	
14-Month	5	5	5-7	Duplicate	In Cap	QT12-5DUP-0507-SEDCHEM	In Cap	4,4´-DDE	0.64	790	
14-Month	5	5	5-7	Duplicate	In Cap	QT12-5DUP-0507-SEDCHEM	In Cap	4,4´-DDT	0.4	790	
14-Month	5	5	5-7	Duplicate	In Cap	QT12-5DUP-0507-SEDCHEM	In Cap	Total DDX	2.83	790	
14-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0507-SEDCHEM-BI	In Cap	2,4´-DDD	45.8	14,331	3195.8
14-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0507-SEDCHEM-BI	In Cap	2,4´-DDE	22.6	14,331	1577.0
14-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0507-SEDCHEM-BI	In Cap	2,4´-DDT	0.85	14,331	59.3
14-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0507-SEDCHEM-BI	In Cap	4,4´-DDD	550	14,331	38377.8
14-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0507-SEDCHEM-BI	In Cap	4,4´-DDE	45.2	14,331	3154.0
14-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0507-SEDCHEM-BI	In Cap	4,4´-DDT	24.4	14,331	1702.6
14-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0507-SEDCHEM-BI	In Cap	Total DDX	688.85	14,331	48066.4
14-Month	6	6	0-10	Sample	Off Cap	QT12-6-GRAB-SEDCHEM	Off Cap	2,4´-DDD	<0.16	19,481	<4.1
14-Month	6	6	0-10	Sample	Off Cap	QT12-6-GRAB-SEDCHEM	Off Cap	2,4´-DDE	0.2	19,481	10.3
14-Month	6	6	0-10	Sample	Off Cap	QT12-6-GRAB-SEDCHEM	Off Cap	2,4´-DDT	<0.16	19,481	<4.1
14-Month	6	6	0-10	Sample	Off Cap	QT12-6-GRAB-SEDCHEM	Off Cap	4,4´-DDD	8.97	19,481	460.5
14-Month	6	6	0-10	Sample	Off Cap	QT12-6-GRAB-SEDCHEM	Off Cap	4,4´-DDE	5.72	19,481	293.6
14-Month	6	6	0-10	Sample	Off Cap	QT12-6-GRAB-SEDCHEM	Off Cap	4,4´-DDT	2.98	19,481	153.0
14-Month	6	6	0-10	Sample	Off Cap	QT12-6-GRAB-SEDCHEM	Off Cap	Total DDX	17.87	19,481	917.3
14-Month	7	7	0-10	Sample	Off Cap	QT12-7-GRAB-SEDCHEM	Off Cap	2,4´-DDD	2.85	23,433	121.6
14-Month	7	7	0-10	Sample	Off Cap	QT12-7-GRAB-SEDCHEM	Off Cap	2,4´-DDE	<0.16	23,433	<3.4
14-Month	7	7	0-10	Sample	Off Cap	QT12-7-GRAB-SEDCHEM	Off Cap	2,4´-DDT	<0.16	23,433	<3.4
14-Month	7	7	0-10	Sample	Off Cap	QT12-7-GRAB-SEDCHEM	Off Cap	4,4´-DDD	13.6	23,433	580.4
14-Month	7	7	0-10	Sample	Off Cap	QT12-7-GRAB-SEDCHEM	Off Cap	4,4´-DDE	7.71	23,433	329.0
14-Month	7	7	0-10	Sample	Off Cap	QT12-7-GRAB-SEDCHEM	Off Cap	4,4´-DDT	2.75	23,433	117.4
14-Month	7	7	0-10	Sample	Off Cap	QT12-7-GRAB-SEDCHEM	Off Cap	Total DDX	26.91	23,433	1148.4
25-Month	1	1	0-2	Sample	In Cap	QT25-1-0002-SedChem	In Cap	2,4´-DDD	20.4	2,379	8574.7
25-Month	1	1	0-2	Sample	In Cap	QT25-1-0002-SedChem	In Cap	2,4´-DDE	10.5	2,379	4413.5
25-Month	1	1	0-2	Sample	In Cap	QT25-1-0002-SedChem	In Cap	2,4´-DDT	0.24	2,379	100.9
25-Month	1	1	0-2	Sample	In Cap	QT25-1-0002-SedChem	In Cap	4,4´-DDD	23.6	2,379	9919.8
25-Month	1	1	0-2	Sample	In Cap	QT25-1-0002-SedChem	In Cap	4,4´-DDE	16.7	2,379	7019.5
25-Month	1	1	0-2	Sample	In Cap	QT25-1-0002-SedChem	In Cap	4,4´-DDT	46.1	2,379	19377.2
25-Month	1	1	0-2	Sample	In Cap	QT25-1-0002-SedChem	In Cap	Total DDX	117.54	2,379	49405.5
25-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-1-0002-SedChem-AI	In Cap	2,4´-DDD	3.34	<584.8	
25-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-1-0002-SedChem-AI	In Cap	2,4´-DDE	1.3	<584.8	
25-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-1-0002-SedChem-AI	In Cap	2,4´-DDT	<0.06	<584.8	
25-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-1-0002-SedChem-AI	In Cap	4,4´-DDD	14.6	<584.8	
25-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-1-0002-SedChem-AI	In Cap	4,4´-DDE	2.87	<584.8	
25-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-1-0002-SedChem-AI	In Cap	4,4´-DDT	0.48	<584.8	
25-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-1-0002-SedChem-AI	In Cap	Total DDX	22.59	<584.8	
25-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0002-SedChem-BI	In Cap	2,4´-DDD	21.8	1,860	
25-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0002-SedChem-BI	In Cap	2,4´-DDE	11.6	1,860	
25-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0002-SedChem-BI	In Cap	2,4´-DDT	<0.07	1,860	
25-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0002-SedChem-BI	In Cap	4,4´-DDD	685	1,860	
25-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0002-SedChem-BI	In Cap	4,4´-DDE	15.9	1,860	
25-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0002-SedChem-BI	In Cap	4,4´-DDT	8.52	1,860	
25-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0002-SedChem-BI	In Cap	Total DDX	742.82	1,860	
25-Month	1	1	2-5	Sample	In Cap	QT25-1-0205-SedChem	In Cap	2,4´-DDD	11.6	2,551	4546.5
25-Month	1	1	2-5	Sample	In Cap	QT25-1-0205-SedChem	In Cap	2,4´-DDE	3.74	2,551	1465.8

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
25-Month	1	1	2-5	Sample	In Cap	QT25-1-0205-SedChem	In Cap	2,4´-DDT	0.18	2,551	70.5
25-Month	1	1	2-5	Sample	In Cap	QT25-1-0205-SedChem	In Cap	4,4´-DDD	58.2	2,551	22810.6
25-Month	1	1	2-5	Sample	In Cap	QT25-1-0205-SedChem	In Cap	4,4´-DDE	11.4	2,551	4468.1
25-Month	1	1	2-5	Sample	In Cap	QT25-1-0205-SedChem	In Cap	4,4´-DDT	5.5	2,551	2155.6
25-Month	1	1	2-5	Sample	In Cap	QT25-1-0205-SedChem	In Cap	Total DDX	90.62	2,551	35517.2
25-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0205-SedChem-BI	In Cap	2,4´-DDD	12.4	2,202	5631.1
25-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0205-SedChem-BI	In Cap	2,4´-DDE	3.9	2,202	1771.1
25-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0205-SedChem-BI	In Cap	2,4´-DDT	1.54	2,202	699.3
25-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0205-SedChem-BI	In Cap	4,4´-DDD	52.7	2,202	23932.0
25-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0205-SedChem-BI	In Cap	4,4´-DDE	10.7	2,202	4859.1
25-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0205-SedChem-BI	In Cap	4,4´-DDT	3.96	2,202	1798.3
25-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0205-SedChem-BI	In Cap	Total DDX	85.2	2,202	38690.8
25-Month	1	1	5-7	Sample	In Cap	QT25-1-0507-SedChem	In Cap	2,4´-DDD	12.5	2,377	5258.4
25-Month	1	1	5-7	Sample	In Cap	QT25-1-0507-SedChem	In Cap	2,4´-DDE	5.73	2,377	2410.4
25-Month	1	1	5-7	Sample	In Cap	QT25-1-0507-SedChem	In Cap	2,4´-DDT	0.35	2,377	147.2
25-Month	1	1	5-7	Sample	In Cap	QT25-1-0507-SedChem	In Cap	4,4´-DDD	66.2	2,377	27848.4
25-Month	1	1	5-7	Sample	In Cap	QT25-1-0507-SedChem	In Cap	4,4´-DDE	12.2	2,377	5132.2
25-Month	1	1	5-7	Sample	In Cap	QT25-1-0507-SedChem	In Cap	4,4´-DDT	4.15	2,377	1745.8
25-Month	1	1	5-7	Sample	In Cap	QT25-1-0507-SedChem	In Cap	Total DDX	101.13	2,377	42542.4
25-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0507-SedChem-BI	In Cap	2,4´-DDD	7.58	2,205	3437.8
25-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0507-SedChem-BI	In Cap	2,4´-DDE	3.29	2,205	1492.1
25-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0507-SedChem-BI	In Cap	2,4´-DDT	<0.07	2,205	<15.9
25-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0507-SedChem-BI	In Cap	4,4´-DDD	29.7	2,205	13469.8
25-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0507-SedChem-BI	In Cap	4,4´-DDE	5.42	2,205	2458.1
25-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0507-SedChem-BI	In Cap	4,4´-DDT	1.02	2,205	462.6
25-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0507-SedChem-BI	In Cap	Total DDX	47.01	2,205	21320.4
25-Month	2	2	0-2	Sample	In Cap	QT25-2-0002-SedChem	In Cap	2,4´-DDD	1.01	524	
25-Month	2	2	0-2	Sample	In Cap	QT25-2-0002-SedChem	In Cap	2,4´-DDE	0.15	524	
25-Month	2	2	0-2	Sample	In Cap	QT25-2-0002-SedChem	In Cap	2,4´-DDT	<0.06	524	
25-Month	2	2	0-2	Sample	In Cap	QT25-2-0002-SedChem	In Cap	4,4´-DDD	3.93	524	
25-Month	2	2	0-2	Sample	In Cap	QT25-2-0002-SedChem	In Cap	4,4´-DDE	0.16	524	
25-Month	2	2	0-2	Sample	In Cap	QT25-2-0002-SedChem	In Cap	4,4´-DDT	0.09	524	
25-Month	2	2	0-2	Sample	In Cap	QT25-2-0002-SedChem	In Cap	Total DDX	5.34	524	
25-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-2-0002-SedChem-AI	In Cap	2,4´-DDD	0.1	123	
25-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-2-0002-SedChem-AI	In Cap	2,4´-DDE	0.14	123	
25-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-2-0002-SedChem-AI	In Cap	2,4´-DDT	<0.06	123	
25-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-2-0002-SedChem-AI	In Cap	4,4´-DDD	3.83	123	
25-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-2-0002-SedChem-AI	In Cap	4,4´-DDE	0.07	123	
25-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-2-0002-SedChem-AI	In Cap	4,4´-DDT	0.12	123	
25-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-2-0002-SedChem-AI	In Cap	Total DDX	4.26	123	
25-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0002-SedChem-BI	In Cap	2,4´-DDD	20.6	1,364	
25-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0002-SedChem-BI	In Cap	2,4´-DDE	22.7	1,364	
25-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0002-SedChem-BI	In Cap	2,4´-DDT	0.51	1,364	
25-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0002-SedChem-BI	In Cap	4,4´-DDD	159	1,364	
25-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0002-SedChem-BI	In Cap	4,4´-DDE	10.6	1,364	
25-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0002-SedChem-BI	In Cap	4,4´-DDT	16.5	1,364	
25-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0002-SedChem-BI	In Cap	Total DDX	229.91	1,364	
25-Month	2	2	2-5	Sample	In Cap	QT25-2-0205-SedChem	In Cap	2,4´-DDD	1.48	554	
25-Month	2	2	2-5	Sample	In Cap	QT25-2-0205-SedChem	In Cap	2,4´-DDE	0.53	554	
25-Month	2	2	2-5	Sample	In Cap	QT25-2-0205-SedChem	In Cap	2,4´-DDT	<0.06	554	
25-Month	2	2	2-5	Sample	In Cap	QT25-2-0205-SedChem	In Cap	4,4´-DDD	7.6	554	
25-Month	2	2	2-5	Sample	In Cap	QT25-2-0205-SedChem	In Cap	4,4´-DDE	0.99	554	
25-Month	2	2	2-5	Sample	In Cap	QT25-2-0205-SedChem	In Cap	4,4´-DDT	0.21	554	

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
25-Month	2	2	2-5	Sample	In Cap	QT25-2-0205-SedChem	In Cap	Total DDX	10.81	554	
25-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0205-SedChem-BI	In Cap	2,4´-DDD	39.5	3,615	10927.4
25-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0205-SedChem-BI	In Cap	2,4´-DDE	20	3,615	5532.8
25-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0205-SedChem-BI	In Cap	2,4´-DDT	<0.07	3,615	<9.7
25-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0205-SedChem-BI	In Cap	4,4´-DDD	257	3,615	71097.1
25-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0205-SedChem-BI	In Cap	4,4´-DDE	23.3	3,615	6445.8
25-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0205-SedChem-BI	In Cap	4,4´-DDT	21.4	3,615	5920.1
25-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0205-SedChem-BI	In Cap	Total DDX	361.2	3,615	99923.2
25-Month	2	2	5-7	Sample	In Cap	QT25-2-0507-SedChem	In Cap	2,4´-DDD	0.85	280	
25-Month	2	2	5-7	Sample	In Cap	QT25-2-0507-SedChem	In Cap	2,4´-DDE	0.34	280	
25-Month	2	2	5-7	Sample	In Cap	QT25-2-0507-SedChem	In Cap	2,4´-DDT	<0.06	280	
25-Month	2	2	5-7	Sample	In Cap	QT25-2-0507-SedChem	In Cap	4,4´-DDD	3.51	280	
25-Month	2	2	5-7	Sample	In Cap	QT25-2-0507-SedChem	In Cap	4,4´-DDE	0.54	280	
25-Month	2	2	5-7	Sample	In Cap	QT25-2-0507-SedChem	In Cap	4,4´-DDT	0.18	280	
25-Month	2	2	5-7	Sample	In Cap	QT25-2-0507-SedChem	In Cap	Total DDX	5.42	280	
25-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0507-SedChem-BI	In Cap	2,4´-DDD	25.5	2,583	9871.8
25-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0507-SedChem-BI	In Cap	2,4´-DDE	31.6	2,583	12233.3
25-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0507-SedChem-BI	In Cap	2,4´-DDT	1.32	2,583	511.0
25-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0507-SedChem-BI	In Cap	4,4´-DDD	2570	2,583	994920.8
25-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0507-SedChem-BI	In Cap	4,4´-DDE	17.3	2,583	6697.3
25-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0507-SedChem-BI	In Cap	4,4´-DDT	47.5	2,583	18388.6
25-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0507-SedChem-BI	In Cap	Total DDX	2693.22	2,583	1042622.8
25-Month	3	3	0-2	Sample	In Cap	QT25-3-0002-SedChem	In Cap	2,4´-DDD	11.2	3,382	3311.3
25-Month	3	3	0-2	Sample	In Cap	QT25-3-0002-SedChem	In Cap	2,4´-DDE	2.63	3,382	777.6
25-Month	3	3	0-2	Sample	In Cap	QT25-3-0002-SedChem	In Cap	2,4´-DDT	0.55	3,382	162.6
25-Month	3	3	0-2	Sample	In Cap	QT25-3-0002-SedChem	In Cap	4,4´-DDD	59	3,382	17443.5
25-Month	3	3	0-2	Sample	In Cap	QT25-3-0002-SedChem	In Cap	4,4´-DDE	10.3	3,382	3045.2
25-Month	3	3	0-2	Sample	In Cap	QT25-3-0002-SedChem	In Cap	4,4´-DDT	20.4	3,382	6031.3
25-Month	3	3	0-2	Sample	In Cap	QT25-3-0002-SedChem	In Cap	Total DDX	104.08	3,382	30771.5
25-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-3-0002-SedChem-AI	In Cap	2,4´-DDD	2.32	167	
25-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-3-0002-SedChem-AI	In Cap	2,4´-DDE	0.96	167	
25-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-3-0002-SedChem-AI	In Cap	2,4´-DDT	<0.06	167	
25-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-3-0002-SedChem-AI	In Cap	4,4´-DDD	7.55	167	
25-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-3-0002-SedChem-AI	In Cap	4,4´-DDE	1.49	167	
25-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-3-0002-SedChem-AI	In Cap	4,4´-DDT	0.44	167	
25-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-3-0002-SedChem-AI	In Cap	Total DDX	12.76	167	
25-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0002-SedChem-BI	In Cap	2,4´-DDD	65.1	678	
25-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0002-SedChem-BI	In Cap	2,4´-DDE	18.7	678	
25-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0002-SedChem-BI	In Cap	2,4´-DDT	0.99	678	
25-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0002-SedChem-BI	In Cap	4,4´-DDD	399	678	
25-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0002-SedChem-BI	In Cap	4,4´-DDE	19.8	678	
25-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0002-SedChem-BI	In Cap	4,4´-DDT	27	678	
25-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0002-SedChem-BI	In Cap	Total DDX	530.59	678	
25-Month	3	3	2-5	Sample	In Cap	QT25-3-0205-SedChem	In Cap	2,4´-DDD	10.8	1,992	
25-Month	3	3	2-5	Sample	In Cap	QT25-3-0205-SedChem	In Cap	2,4´-DDE	4.98	1,992	
25-Month	3	3	2-5	Sample	In Cap	QT25-3-0205-SedChem	In Cap	2,4´-DDT	0.25	1,992	
25-Month	3	3	2-5	Sample	In Cap	QT25-3-0205-SedChem	In Cap	4,4´-DDD	52.1	1,992	
25-Month	3	3	2-5	Sample	In Cap	QT25-3-0205-SedChem	In Cap	4,4´-DDE	11.1	1,992	
25-Month	3	3	2-5	Sample	In Cap	QT25-3-0205-SedChem	In Cap	4,4´-DDT	4.07	1,992	
25-Month	3	3	2-5	Sample	In Cap	QT25-3-0205-SedChem	In Cap	Total DDX	83.3	1,992	
25-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0205-SedChem-BI	In Cap	2,4´-DDD	31.2	868	
25-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0205-SedChem-BI	In Cap	2,4´-DDE	9.9	868	
25-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0205-SedChem-BI	In Cap	2,4´-DDT	0.14	868	

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
25-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0205-SedChem-BI	In Cap	4,4´-DDD	158	868	
25-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0205-SedChem-BI	In Cap	4,4´-DDE	16.8	868	
25-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0205-SedChem-BI	In Cap	4,4´-DDT	3.27	868	
25-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0205-SedChem-BI	In Cap	Total DDX	219.31	868	
25-Month	3	3	5-7	Sample	In Cap	QT25-3-0507-SedChem	In Cap	2,4´-DDD	21.1	2,141	9855.7
25-Month	3	3	5-7	Sample	In Cap	QT25-3-0507-SedChem	In Cap	2,4´-DDE	4.77	2,141	2228.1
25-Month	3	3	5-7	Sample	In Cap	QT25-3-0507-SedChem	In Cap	2,4´-DDT	0.28	2,141	130.8
25-Month	3	3	5-7	Sample	In Cap	QT25-3-0507-SedChem	In Cap	4,4´-DDD	98.2	2,141	45868.9
25-Month	3	3	5-7	Sample	In Cap	QT25-3-0507-SedChem	In Cap	4,4´-DDE	17.6	2,141	8220.9
25-Month	3	3	5-7	Sample	In Cap	QT25-3-0507-SedChem	In Cap	4,4´-DDT	2.89	2,141	1349.9
25-Month	3	3	5-7	Sample	In Cap	QT25-3-0507-SedChem	In Cap	Total DDX	144.84	2,141	67654.3
25-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0507-SedChem-BI	In Cap	2,4´-DDD	27.8	2,235	12440.9
25-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0507-SedChem-BI	In Cap	2,4´-DDE	13.4	2,235	5996.7
25-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0507-SedChem-BI	In Cap	2,4´-DDT	0.42	2,235	188.0
25-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0507-SedChem-BI	In Cap	4,4´-DDD	109	2,235	48779.0
25-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0507-SedChem-BI	In Cap	4,4´-DDE	25.2	2,235	11277.3
25-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0507-SedChem-BI	In Cap	4,4´-DDT	5.54	2,235	2479.2
25-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0507-SedChem-BI	In Cap	Total DDX	181.36	2,235	81161.1
25-Month	4	4	0-2	Sample	In Cap	QT25-4-0002-SedChem	In Cap	2,4´-DDD	4.72	720	
25-Month	4	4	0-2	Sample	In Cap	QT25-4-0002-SedChem	In Cap	2,4´-DDE	1.43	720	
25-Month	4	4	0-2	Sample	In Cap	QT25-4-0002-SedChem	In Cap	2,4´-DDT	<0.06	720	
25-Month	4	4	0-2	Sample	In Cap	QT25-4-0002-SedChem	In Cap	4,4´-DDD	19.1	720	
25-Month	4	4	0-2	Sample	In Cap	QT25-4-0002-SedChem	In Cap	4,4´-DDE	3.61	720	
25-Month	4	4	0-2	Sample	In Cap	QT25-4-0002-SedChem	In Cap	4,4´-DDT	0.51	720	
25-Month	4	4	0-2	Sample	In Cap	QT25-4-0002-SedChem	In Cap	Total DDX	29.37	720	
25-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-4-0002-SedChem-AI	In Cap	2,4´-DDD	1.11	187	
25-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-4-0002-SedChem-AI	In Cap	2,4´-DDE	0.57	187	
25-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-4-0002-SedChem-AI	In Cap	2,4´-DDT	<0.06	187	
25-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-4-0002-SedChem-AI	In Cap	4,4´-DDD	4.08	187	
25-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-4-0002-SedChem-AI	In Cap	4,4´-DDE	0.92	187	
25-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-4-0002-SedChem-AI	In Cap	4,4´-DDT	0.15	187	
25-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-4-0002-SedChem-AI	In Cap	Total DDX	6.83	187	
25-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0002-SedChem-BI	In Cap	2,4´-DDD	18.5	4,193	4412.1
25-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0002-SedChem-BI	In Cap	2,4´-DDE	5.55	4,193	1323.6
25-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0002-SedChem-BI	In Cap	2,4´-DDT	0.35	4,193	83.5
25-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0002-SedChem-BI	In Cap	4,4´-DDD	84	4,193	20033.2
25-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0002-SedChem-BI	In Cap	4,4´-DDE	20.3	4,193	4841.4
25-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0002-SedChem-BI	In Cap	4,4´-DDT	3.31	4,193	789.4
25-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0002-SedChem-BI	In Cap	Total DDX	132.01	4,193	31483.1
25-Month	4	4	2-5	Sample	In Cap	QT25-4-0205-SedChem	In Cap	2,4´-DDD	6.47	937	
25-Month	4	4	2-5	Sample	In Cap	QT25-4-0205-SedChem	In Cap	2,4´-DDE	1.79	937	
25-Month	4	4	2-5	Sample	In Cap	QT25-4-0205-SedChem	In Cap	2,4´-DDT	0.09	937	
25-Month	4	4	2-5	Sample	In Cap	QT25-4-0205-SedChem	In Cap	4,4´-DDD	22.4	937	
25-Month	4	4	2-5	Sample	In Cap	QT25-4-0205-SedChem	In Cap	4,4´-DDE	9.85	937	
25-Month	4	4	2-5	Sample	In Cap	QT25-4-0205-SedChem	In Cap	4,4´-DDT	0.65	937	
25-Month	4	4	2-5	Sample	In Cap	QT25-4-0205-SedChem	In Cap	Total DDX	41.25	937	
25-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0205-SedChem-BI	In Cap	2,4´-DDD	11.7	7,621	1535.3
25-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0205-SedChem-BI	In Cap	2,4´-DDE	4.73	7,621	620.7
25-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0205-SedChem-BI	In Cap	2,4´-DDT	0.33	7,621	43.3
25-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0205-SedChem-BI	In Cap	4,4´-DDD	72.9	7,621	9565.8
25-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0205-SedChem-BI	In Cap	4,4´-DDE	26.2	7,621	3437.9
25-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0205-SedChem-BI	In Cap	4,4´-DDT	5.47	7,621	717.8
25-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0205-SedChem-BI	In Cap	Total DDX	121.33	7,621	15920.7

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
25-Month	4	4	5-7	Sample	In Cap	QT25-4-0507-SedChem	In Cap	2,4´-DDD	4.69	447	
25-Month	4	4	5-7	Sample	In Cap	QT25-4-0507-SedChem	In Cap	2,4´-DDE	1.26	447	
25-Month	4	4	5-7	Sample	In Cap	QT25-4-0507-SedChem	In Cap	2,4´-DDT	0.06	447	
25-Month	4	4	5-7	Sample	In Cap	QT25-4-0507-SedChem	In Cap	4,4´-DDD	18.1	447	
25-Month	4	4	5-7	Sample	In Cap	QT25-4-0507-SedChem	In Cap	4,4´-DDE	3.37	447	
25-Month	4	4	5-7	Sample	In Cap	QT25-4-0507-SedChem	In Cap	4,4´-DDT	0.58	447	
25-Month	4	4	5-7	Sample	In Cap	QT25-4-0507-SedChem	In Cap	Total DDX	28.06	447	
25-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0507-SedChem-BI	In Cap	2,4´-DDD	12.9	8,740	1476.0
25-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0507-SedChem-BI	In Cap	2,4´-DDE	4.52	8,740	517.2
25-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0507-SedChem-BI	In Cap	2,4´-DDT	1.22	8,740	139.6
25-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0507-SedChem-BI	In Cap	4,4´-DDD	80.6	8,740	9222.3
25-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0507-SedChem-BI	In Cap	4,4´-DDE	36.4	8,740	4164.9
25-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0507-SedChem-BI	In Cap	4,4´-DDT	7.48	8,740	855.9
25-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0507-SedChem-BI	In Cap	Total DDX	143.12	8,740	16375.9
25-Month	5	5	0-2	Primary	In Cap	QT25-5-0002-SedChem	In Cap	2,4´-DDD	0.23	433	
25-Month	5	5	0-2	Primary	In Cap	QT25-5-0002-SedChem	In Cap	2,4´-DDE	0.07	433	
25-Month	5	5	0-2	Primary	In Cap	QT25-5-0002-SedChem	In Cap	2,4´-DDT	<0.06	433	
25-Month	5	5	0-2	Primary	In Cap	QT25-5-0002-SedChem	In Cap	4,4´-DDD	0.86	433	
25-Month	5	5	0-2	Primary	In Cap	QT25-5-0002-SedChem	In Cap	4,4´-DDE	0.37	433	
25-Month	5	5	0-2	Primary	In Cap	QT25-5-0002-SedChem	In Cap	4,4´-DDT	0.06	433	
25-Month	5	5	0-2	Primary	In Cap	QT25-5-0002-SedChem	In Cap	Total DDX	1.59	433	
25-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT25-5-0002-SedChem-AI	In Cap	2,4´-DDD	0.29	163	
25-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT25-5-0002-SedChem-AI	In Cap	2,4´-DDE	0.14	163	
25-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT25-5-0002-SedChem-AI	In Cap	2,4´-DDT	<0.06	163	
25-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT25-5-0002-SedChem-AI	In Cap	4,4´-DDD	1.05	163	
25-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT25-5-0002-SedChem-AI	In Cap	4,4´-DDE	0.26	163	
25-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT25-5-0002-SedChem-AI	In Cap	4,4´-DDT	0.06	163	
25-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT25-5-0002-SedChem-AI	In Cap	Total DDX	1.8	163	
25-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-5-0002-SedChem-AI-Avg	In Cap	2,4´-DDD	0.16	147	
25-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-5-0002-SedChem-AI-Avg	In Cap	2,4´-DDE	0.085	147	
25-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-5-0002-SedChem-AI-Avg	In Cap	2,4´-DDT	<0.06	147	
25-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-5-0002-SedChem-AI-Avg	In Cap	4,4´-DDD	0.58	147	
25-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-5-0002-SedChem-AI-Avg	In Cap	4,4´-DDE	0.145	147	
25-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-5-0002-SedChem-AI-Avg	In Cap	4,4´-DDT	0.045	147	
25-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-5-0002-SedChem-AI-Avg	In Cap	Total DDX	1.015	147	
25-Month	5	5	0-2	Sample	In Cap	QT25-5-0002-SedChem-Avg	In Cap	2,4´-DDD	0.255	550	
25-Month	5	5	0-2	Sample	In Cap	QT25-5-0002-SedChem-Avg	In Cap	2,4´-DDE	0.1	550	
25-Month	5	5	0-2	Sample	In Cap	QT25-5-0002-SedChem-Avg	In Cap	2,4´-DDT	<0.06	550	
25-Month	5	5	0-2	Sample	In Cap	QT25-5-0002-SedChem-Avg	In Cap	4,4´-DDD	1.005	550	
25-Month	5	5	0-2	Sample	In Cap	QT25-5-0002-SedChem-Avg	In Cap	4,4´-DDE	0.41	550	
25-Month	5	5	0-2	Sample	In Cap	QT25-5-0002-SedChem-Avg	In Cap	4,4´-DDT	0.065	550	
25-Month	5	5	0-2	Sample	In Cap	QT25-5-0002-SedChem-Avg	In Cap	Total DDX	1.835	550	
25-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0002-SedChem-BI	In Cap	2,4´-DDD	17.9	3,571	5012.0
25-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0002-SedChem-BI	In Cap	2,4´-DDE	8.29	3,571	2321.2
25-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0002-SedChem-BI	In Cap	2,4´-DDT	0.45	3,571	126.0
25-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0002-SedChem-BI	In Cap	4,4´-DDD	81.5	3,571	22820.0
25-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0002-SedChem-BI	In Cap	4,4´-DDE	20.2	3,571	5656.0
25-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0002-SedChem-BI	In Cap	4,4´-DDT	3.43	3,571	960.4
25-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0002-SedChem-BI	In Cap	Total DDX	131.77	3,571	36895.6
25-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0002-SedChem-BI-Avg	In Cap	2,4´-DDD	21.7	3,140	7213.7
25-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0002-SedChem-BI-Avg	In Cap	2,4´-DDE	11.195	3,140	3763.7
25-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0002-SedChem-BI-Avg	In Cap	2,4´-DDT	0.48	3,140	157.2
25-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0002-SedChem-BI-Avg	In Cap	4,4´-DDD	110.75	3,140	37256.2

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
25-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0002-SedChem-BI-Avg	In Cap	4,4´-DDE	23.95	3,140	7941.8
25-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0002-SedChem-BI-Avg	In Cap	4,4´-DDT	8.665	3,140	3046.4
25-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0002-SedChem-BI-Avg	In Cap	Total DDX	176.74	3,140	59378.9
25-Month	5	5	2-5	Primary	In Cap	QT25-5-0205-SedChem	In Cap	2,4´-DDD	0.38	255	
25-Month	5	5	2-5	Primary	In Cap	QT25-5-0205-SedChem	In Cap	2,4´-DDE	0.21	255	
25-Month	5	5	2-5	Primary	In Cap	QT25-5-0205-SedChem	In Cap	2,4´-DDT	<0.06	255	
25-Month	5	5	2-5	Primary	In Cap	QT25-5-0205-SedChem	In Cap	4,4´-DDD	1.7	255	
25-Month	5	5	2-5	Primary	In Cap	QT25-5-0205-SedChem	In Cap	4,4´-DDE	0.93	255	
25-Month	5	5	2-5	Primary	In Cap	QT25-5-0205-SedChem	In Cap	4,4´-DDT	0.27	255	
25-Month	5	5	2-5	Primary	In Cap	QT25-5-0205-SedChem	In Cap	Total DDX	3.49	255	
25-Month	5	5	2-5	Sample	In Cap	QT25-5-0205-SedChem-Avg	In Cap	2,4´-DDD	0.325	325	
25-Month	5	5	2-5	Sample	In Cap	QT25-5-0205-SedChem-Avg	In Cap	2,4´-DDE	0.165	325	
25-Month	5	5	2-5	Sample	In Cap	QT25-5-0205-SedChem-Avg	In Cap	2,4´-DDT	<0.06	325	
25-Month	5	5	2-5	Sample	In Cap	QT25-5-0205-SedChem-Avg	In Cap	4,4´-DDD	1.37	325	
25-Month	5	5	2-5	Sample	In Cap	QT25-5-0205-SedChem-Avg	In Cap	4,4´-DDE	0.705	325	
25-Month	5	5	2-5	Sample	In Cap	QT25-5-0205-SedChem-Avg	In Cap	4,4´-DDT	0.165	325	
25-Month	5	5	2-5	Sample	In Cap	QT25-5-0205-SedChem-Avg	In Cap	Total DDX	2.73	325	
25-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0205-SedChem-BI	In Cap	2,4´-DDD	62.2	4,558	13645.3
25-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0205-SedChem-BI	In Cap	2,4´-DDE	35.9	4,558	7875.6
25-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0205-SedChem-BI	In Cap	2,4´-DDT	1.16	4,558	254.5
25-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0205-SedChem-BI	In Cap	4,4´-DDD	286	4,558	62741.9
25-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0205-SedChem-BI	In Cap	4,4´-DDE	61.6	4,558	13513.6
25-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0205-SedChem-BI	In Cap	4,4´-DDT	15.6	4,558	3422.3
25-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0205-SedChem-BI	In Cap	Total DDX	462.46	4,558	101453.2
25-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0205-SedChem-BI-Avg	In Cap	2,4´-DDD	60	4,441	13508.3
25-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0205-SedChem-BI-Avg	In Cap	2,4´-DDE	32.4	4,441	7280.7
25-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0205-SedChem-BI-Avg	In Cap	2,4´-DDT	0.915	4,441	204.7
25-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0205-SedChem-BI-Avg	In Cap	4,4´-DDD	271.5	4,441	61097.9
25-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0205-SedChem-BI-Avg	In Cap	4,4´-DDE	61.25	4,441	13801.1
25-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0205-SedChem-BI-Avg	In Cap	4,4´-DDT	12.79	4,441	2865.5
25-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0205-SedChem-BI-Avg	In Cap	Total DDX	438.855	4,441	98758.1
25-Month	5	5	5-7	Primary	In Cap	QT25-5-0507-SedChem	In Cap	2,4´-DDD	0.2	218	
25-Month	5	5	5-7	Primary	In Cap	QT25-5-0507-SedChem	In Cap	2,4´-DDE	0.09	218	
25-Month	5	5	5-7	Primary	In Cap	QT25-5-0507-SedChem	In Cap	2,4´-DDT	<0.06	218	
25-Month	5	5	5-7	Primary	In Cap	QT25-5-0507-SedChem	In Cap	4,4´-DDD	0.82	218	
25-Month	5	5	5-7	Primary	In Cap	QT25-5-0507-SedChem	In Cap	4,4´-DDE	0.41	218	
25-Month	5	5	5-7	Primary	In Cap	QT25-5-0507-SedChem	In Cap	4,4´-DDT	0.09	218	
25-Month	5	5	5-7	Primary	In Cap	QT25-5-0507-SedChem	In Cap	Total DDX	1.61	218	
25-Month	5	5	5-7	Sample	In Cap	QT25-5-0507-SedChem-Avg	In Cap	2,4´-DDD	0.19	242	
25-Month	5	5	5-7	Sample	In Cap	QT25-5-0507-SedChem-Avg	In Cap	2,4´-DDE	0.09	242	
25-Month	5	5	5-7	Sample	In Cap	QT25-5-0507-SedChem-Avg	In Cap	2,4´-DDT	<0.06	242	
25-Month	5	5	5-7	Sample	In Cap	QT25-5-0507-SedChem-Avg	In Cap	4,4´-DDD	0.765	242	
25-Month	5	5	5-7	Sample	In Cap	QT25-5-0507-SedChem-Avg	In Cap	4,4´-DDE	0.435	242	
25-Month	5	5	5-7	Sample	In Cap	QT25-5-0507-SedChem-Avg	In Cap	4,4´-DDT	0.085	242	
25-Month	5	5	5-7	Sample	In Cap	QT25-5-0507-SedChem-Avg	In Cap	Total DDX	1.565	242	
25-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0507-SedChem-BI	In Cap	2,4´-DDD	30	4,241	7074.6
25-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0507-SedChem-BI	In Cap	2,4´-DDE	21.7	4,241	5117.3
25-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0507-SedChem-BI	In Cap	2,4´-DDT	0.47	4,241	110.8
25-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0507-SedChem-BI	In Cap	4,4´-DDD	205	4,241	48343.3
25-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0507-SedChem-BI	In Cap	4,4´-DDE	49.9	4,241	11767.5
25-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0507-SedChem-BI	In Cap	4,4´-DDT	8.45	4,241	1992.7
25-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0507-SedChem-BI	In Cap	Total DDX	315.52	4,241	74406.2
25-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0507-SedChem-BI-Avg	In Cap	2,4´-DDD	33.4	3,991	8454.2

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
25-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0507-SedChem-BI-Avg	In Cap	2,4´-DDE	24.4	3,991	6179.5
25-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0507-SedChem-BI-Avg	In Cap	2,4´-DDT	0.565	3,991	143.6
25-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0507-SedChem-BI-Avg	In Cap	4,4´-DDD	214	3,991	53966.7
25-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0507-SedChem-BI-Avg	In Cap	4,4´-DDE	47.6	3,991	11936.3
25-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0507-SedChem-BI-Avg	In Cap	4,4´-DDT	9.625	3,991	2439.3
25-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0507-SedChem-BI-Avg	In Cap	Total DDX	329.59	3,991	83119.5
25-Month	5	5	0-2	Duplicate	In Cap	QT25-5DUP-0002-SedChem	In Cap	2,4´-DDD	0.28	667	
25-Month	5	5	0-2	Duplicate	In Cap	QT25-5DUP-0002-SedChem	In Cap	2,4´-DDE	0.13	667	
25-Month	5	5	0-2	Duplicate	In Cap	QT25-5DUP-0002-SedChem	In Cap	2,4´-DDT	<0.06	667	
25-Month	5	5	0-2	Duplicate	In Cap	QT25-5DUP-0002-SedChem	In Cap	4,4´-DDD	1.15	667	
25-Month	5	5	0-2	Duplicate	In Cap	QT25-5DUP-0002-SedChem	In Cap	4,4´-DDE	0.45	667	
25-Month	5	5	0-2	Duplicate	In Cap	QT25-5DUP-0002-SedChem	In Cap	4,4´-DDT	0.07	667	
25-Month	5	5	0-2	Duplicate	In Cap	QT25-5DUP-0002-SedChem	In Cap	Total DDX	2.08	667	
25-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT25-5DUP-0002-SedChem-AI	In Cap	2,4´-DDD	<0.06	131	
25-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT25-5DUP-0002-SedChem-AI	In Cap	2,4´-DDE	<0.06	131	
25-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT25-5DUP-0002-SedChem-AI	In Cap	2,4´-DDT	<0.06	131	
25-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT25-5DUP-0002-SedChem-AI	In Cap	4,4´-DDD	0.11	131	
25-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT25-5DUP-0002-SedChem-AI	In Cap	4,4´-DDE	<0.06	131	
25-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT25-5DUP-0002-SedChem-AI	In Cap	4,4´-DDT	<0.06	131	
25-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT25-5DUP-0002-SedChem-AI	In Cap	Total DDX	0.11	131	
25-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0002-SedChem-BI	In Cap	2,4´-DDD	25.5	2,708	9415.4
25-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0002-SedChem-BI	In Cap	2,4´-DDE	14.1	2,708	5206.2
25-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0002-SedChem-BI	In Cap	2,4´-DDT	0.51	2,708	188.3
25-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0002-SedChem-BI	In Cap	4,4´-DDD	140	2,708	51692.3
25-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0002-SedChem-BI	In Cap	4,4´-DDE	27.7	2,708	10227.7
25-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0002-SedChem-BI	In Cap	4,4´-DDT	13.9	2,708	5132.3
25-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0002-SedChem-BI	In Cap	Total DDX	221.71	2,708	81862.2
25-Month	5	5	2-5	Duplicate	In Cap	QT25-5DUP-0205-SedChem	In Cap	2,4´-DDD	0.27	395	
25-Month	5	5	2-5	Duplicate	In Cap	QT25-5DUP-0205-SedChem	In Cap	2,4´-DDE	0.12	395	
25-Month	5	5	2-5	Duplicate	In Cap	QT25-5DUP-0205-SedChem	In Cap	2,4´-DDT	<0.06	395	
25-Month	5	5	2-5	Duplicate	In Cap	QT25-5DUP-0205-SedChem	In Cap	4,4´-DDD	1.04	395	
25-Month	5	5	2-5	Duplicate	In Cap	QT25-5DUP-0205-SedChem	In Cap	4,4´-DDE	0.48	395	
25-Month	5	5	2-5	Duplicate	In Cap	QT25-5DUP-0205-SedChem	In Cap	4,4´-DDT	0.06	395	
25-Month	5	5	2-5	Duplicate	In Cap	QT25-5DUP-0205-SedChem	In Cap	Total DDX	1.97	395	
25-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0205-SedChem-BI	In Cap	2,4´-DDD	57.8	4,323	13371.3
25-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0205-SedChem-BI	In Cap	2,4´-DDE	28.9	4,323	6685.7
25-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0205-SedChem-BI	In Cap	2,4´-DDT	0.67	4,323	155.0
25-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0205-SedChem-BI	In Cap	4,4´-DDD	257	4,323	59453.9
25-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0205-SedChem-BI	In Cap	4,4´-DDE	60.9	4,323	14088.5
25-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0205-SedChem-BI	In Cap	4,4´-DDT	9.98	4,323	2308.8
25-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0205-SedChem-BI	In Cap	Total DDX	415.25	4,323	96063.1
25-Month	5	5	5-7	Duplicate	In Cap	QT25-5DUP-0507-SedChem	In Cap	2,4´-DDD	0.18	266	
25-Month	5	5	5-7	Duplicate	In Cap	QT25-5DUP-0507-SedChem	In Cap	2,4´-DDE	0.09	266	
25-Month	5	5	5-7	Duplicate	In Cap	QT25-5DUP-0507-SedChem	In Cap	2,4´-DDT	<0.06	266	
25-Month	5	5	5-7	Duplicate	In Cap	QT25-5DUP-0507-SedChem	In Cap	4,4´-DDD	0.71	266	
25-Month	5	5	5-7	Duplicate	In Cap	QT25-5DUP-0507-SedChem	In Cap	4,4´-DDE	0.46	266	
25-Month	5	5	5-7	Duplicate	In Cap	QT25-5DUP-0507-SedChem	In Cap	4,4´-DDT	0.08	266	
25-Month	5	5	5-7	Duplicate	In Cap	QT25-5DUP-0507-SedChem	In Cap	Total DDX	1.52	266	
25-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0507-SedChem-BI	In Cap	2,4´-DDD	36.8	3,742	9833.7
25-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0507-SedChem-BI	In Cap	2,4´-DDE	27.1	3,742	7241.7
25-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0507-SedChem-BI	In Cap	2,4´-DDT	0.66	3,742	176.4
25-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0507-SedChem-BI	In Cap	4,4´-DDD	223	3,742	59590.0
25-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0507-SedChem-BI	In Cap	4,4´-DDE	45.3	3,742	12105.1

Table 1. Compilation of Sediment DDX and Total Organic Carbon Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval (cm)[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (µg/kg dw; ND=<DL)	TOC (mg/kg dw)	Result (µg/kg OC; DDx ND=<0.5 DL)[6]
25-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0507-SedChem-BI	In Cap	4,4´-DDT	10.8	3,742	2886.0
25-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0507-SedChem-BI	In Cap	Total DDX	343.66	3,742	91832.8
25-Month	6	6	0-10	Sample	Off Cap	QT25-6-GRAB-SedChem	Off Cap	2,4´-DDD	2.43	7,008	346.8
25-Month	6	6	0-10	Sample	Off Cap	QT25-6-GRAB-SedChem	Off Cap	2,4´-DDE	1.06	7,008	151.3
25-Month	6	6	0-10	Sample	Off Cap	QT25-6-GRAB-SedChem	Off Cap	2,4´-DDT	0.16	7,008	22.8
25-Month	6	6	0-10	Sample	Off Cap	QT25-6-GRAB-SedChem	Off Cap	4,4´-DDD	12.4	7,008	1769.5
25-Month	6	6	0-10	Sample	Off Cap	QT25-6-GRAB-SedChem	Off Cap	4,4´-DDE	5.61	7,008	800.6
25-Month	6	6	0-10	Sample	Off Cap	QT25-6-GRAB-SedChem	Off Cap	4,4´-DDT	0.81	7,008	115.6
25-Month	6	6	0-10	Sample	Off Cap	QT25-6-GRAB-SedChem	Off Cap	Total DDX	22.47	7,008	3206.5
25-Month	7	7	0-10	Sample	Off Cap	QT25-7-GRAB-SedChem	Off Cap	2,4´-DDD	2.08	13,090	158.9
25-Month	7	7	0-10	Sample	Off Cap	QT25-7-GRAB-SedChem	Off Cap	2,4´-DDE	0.77	13,090	58.8
25-Month	7	7	0-10	Sample	Off Cap	QT25-7-GRAB-SedChem	Off Cap	2,4´-DDT	1.94	13,090	148.2
25-Month	7	7	0-10	Sample	Off Cap	QT25-7-GRAB-SedChem	Off Cap	4,4´-DDD	7.91	13,090	604.3
25-Month	7	7	0-10	Sample	Off Cap	QT25-7-GRAB-SedChem	Off Cap	4,4´-DDE	5.15	13,090	393.4
25-Month	7	7	0-10	Sample	Off Cap	QT25-7-GRAB-SedChem	Off Cap	4,4´-DDT	0.73	13,090	55.8
25-Month	7	7	0-10	Sample	Off Cap	QT25-7-GRAB-SedChem	Off Cap	Total DDX	18.58	13,090	1419.4

Notes:

1. Sample collections dates: Baseline 2 (May, 2009), Baseline 3 (October, 2012), 2-Month (September, 2014), 14-Month (September, 2015) and 25-Month (August, 2016)
2. Comparison Station IDs align Baseline 2 IDs with subsequent events for analysis purposes.
3. Sample Interval measured relative to sediment water interface or cap-native sediment interface, Above Interface (AI) and Below Interface (BI), as stated in Sample Interface Column.
4. Sample ID's with -Avg suffix represented an average of primary and duplicate samples.
5. Total DDX represents the sum of detected congeners.
6. If DDX is ND, organic carbon basis is reported as < 0.5*DL divided by TOC. Organic carbon normalized DDX concentrations not calculated if TOC < 2,000 mg/kg.

AI: above cap-native sediment interface
BI: below cap-native sediment interface
cm: centimeter(s)
DL: detection limit
dw: dry weight
ND: not detected
T(OC): total (organic carbon)
µg/kg: microgram(s) per kilogram
mg/kg: milligram(s) per Kilogram

Table 2. Compilation of Sediment Grain Size Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Type	Within Cap Footprint?	Sample Interval (cm)[3]	Sample ID[4]	Fines (%)[5]	Sand (%)	Gravel (%)
Baseline 2	CAP3	2	Sample	On Cap	0-2	B2-CAP3-0002	16.0	84.0	0.0
Baseline 2	CAP3	2	Sample	On Cap	2-5	B2-CAP3-0205	14.0	86.0	0.0
Baseline 2	CAP3	2	Sample	On Cap	5-7	B2-CAP3-0507	24.6	75.4	0.0
Baseline 2	CAP2	3	Sample	On Cap	0-2	B2-CAP2-0002	32.7	67.3	0.0
Baseline 2	CAP2	3	Sample	On Cap	2-5	B2-CAP2-0205	29.0	71.0	0.0
Baseline 2	CAP2	3	Sample	On Cap	5-7	B2-CAP2-0507	25.3	74.7	0.0
Baseline 2	CAP1	5	Sample	On Cap	0-2	B2-0-2-Avg	52.5	47.6	0.0
Baseline 2	CAP1	5	Sample	On Cap	2-5	B2-2-5-Avg	63.2	36.8	0.0
Baseline 2	CAP1	5	Sample	On Cap	5-7	B2-5-7-Avg	61.5	38.5	0.0
Baseline 2	CAP1	5	Primary	On Cap	0-2	B2-CAP1-0002	45.5	54.5	0.0
Baseline 2	CAP1	5	Primary	On Cap	2-5	B2-CAP1-0205	60.7	39.3	0.0
Baseline 2	CAP1	5	Primary	On Cap	5-7	B2-CAP1-0507	54.1	45.9	0.0
Baseline 2	CAP1	5	Duplicate	On Cap	0-2	B2-CAPX-0002	59.4	40.6	0.0
Baseline 2	CAP1	5	Duplicate	On Cap	2-5	B2-CAPX-0205	65.7	34.3	0.0
Baseline 2	CAP1	5	Duplicate	On Cap	5-7	B2-CAPX-0507	68.9	31.1	0.0
Baseline 2	OFF CAP2	6	Sample	Off Cap	0-10	B2-OFF2-GRAB	49.1	50.9	0.0
Baseline 2	OFF CAP1	7	Sample	Off Cap	0-10	B2-OFF1-GRAB	76.9	23.1	0.0
2-Month	1	1	Sample	On Cap	2-5	QT2-1-0205-GS	3.1	96.2	0.7
2-Month	1	1	Sample	On Cap	5-7	QT2-1-0507-GS	5.0	95.0	0.0
2-Month	1	1	Sample	On Cap	0-2	QT2-1-0002-GS	3.1	96.9	0.0
2-Month	1	1	Sample	On Cap	0-2 AI	QT2-1-0002-GS-AI	1.9	96.3	1.8
2-Month	1	1	Sample	On Cap	0-2 BI	QT2-1-0002-GS-BI	9.7	90.3	0.0
2-Month	1	1	Sample	On Cap	2-5 BI	QT2-1-0205-GS-BI	24.4	75.6	0.0
2-Month	1	1	Sample	On Cap	5-7 BI	QT2-1-0507-GS-BI	29.5	70.5	0.0
2-Month	2	2	Sample	On Cap	2-5	QT2-2-0205-GS	2.5	92.5	5.0
2-Month	2	2	Sample	On Cap	5-7	QT2-2-0507-GS	2.8	89.9	7.3
2-Month	2	2	Sample	On Cap	0-2	QT2-2-0002-GS	2.6	93.4	4.0
2-Month	2	2	Sample	On Cap	0-2 AI	QT2-2-0002-GS-AI	1.4	95.1	3.5
2-Month	2	2	Sample	On Cap	0-2 BI	QT2-2-0002-GS-BI	22.0	74.8	3.2
2-Month	2	2	Sample	On Cap	2-5 BI	QT2-2-0205-GS-BI	21.9	75.8	2.3
2-Month	2	2	Sample	On Cap	5-7 BI	QT2-2-0507-GS-BI	15.4	83.3	1.3
2-Month	3	3	Sample	On Cap	2-5	QT2-3-0205-GS	1.8	96.8	1.4

Table 2. Compilation of Sediment Grain Size Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Type	Within Cap Footprint?	Sample Interval (cm)[3]	Sample ID[4]	Fines (%)[5]	Sand (%)	Gravel (%)
2-Month	3	3	Sample	On Cap	5-7	QT2-3-0507-GS	9.6	89.1	1.3
2-Month	3	3	Sample	On Cap	0-2	QT2-3-0002-GS	5.2	94.8	0.0
2-Month	3	3	Sample	On Cap	0-2 AI	QT2-3-0002-GS-AI	5.2	92.1	2.7
2-Month	3	3	Sample	On Cap	0-2 BI	QT2-3-0002-GS-BI	5.6	94.4	0.0
2-Month	3	3	Sample	On Cap	2-5 BI	QT2-3-0205-GS-BI	10.8	88.7	0.5
2-Month	3	3	Sample	On Cap	5-7 BI	QT2-3-0507-GS-BI	8.7	91.3	0.0
2-Month	4	4	Sample	On Cap	2-5	QT2-4-0205-GS	2.1	93.3	4.6
2-Month	4	4	Sample	On Cap	5-7	QT2-4-0507-GS	8.5	90.3	1.2
2-Month	4	4	Sample	On Cap	0-2	QT2-4-0002-GS	0.5	94.2	5.3
2-Month	4	4	Sample	On Cap	0-2 AI	QT2-4-0002-GS-AI	0.8	95.4	3.8
2-Month	4	4	Sample	On Cap	0-2 BI	QT2-4-0002-GS-BI	48.8	51.2	0.0
2-Month	4	4	Sample	On Cap	2-5 BI	QT2-4-0205-GS-BI	60.7	39.3	0.0
2-Month	4	4	Sample	On Cap	5-7 BI	QT2-4-0507-GS-BI	70.7	29.3	0.0
2-Month	5	5	Sample	On Cap	2-5	QT2-2-5-Avg	9.8	88.8	1.5
2-Month	5	5	Primary	On Cap	2-5	QT2-5-0205-GS	5.7	92.4	1.9
2-Month	5	5	Duplicate	On Cap	2-5	QT2-5DUP-0205-GS	13.9	85.1	1.0
2-Month	5	5	Primary	On Cap	5-7	QT2-5-0507-GS	7.2	92.8	0.0
2-Month	5	5	Sample	On Cap	5-7	QT2-5-7-Avg	20.1	78.9	1.0
2-Month	5	5	Duplicate	On Cap	5-7	QT2-5DUP-0507-GS	33.0	65.0	2.0
2-Month	5	5	Sample	On Cap	0-2	QT2-0-2-Avg	4.9	95.1	0.0
2-Month	5	5	Primary	On Cap	0-2	QT2-5-0002-GS	4.3	95.7	0.0
2-Month	5	5	Duplicate	On Cap	0-2	QT2-5DUP-0002-GS	5.5	94.5	0.0
2-Month	5	5	Sample	On Cap	0-2 AI	QT2-0-2 AI-Avg	3.9	96.1	0.0
2-Month	5	5	Primary	On Cap	0-2 AI	QT2-5-0002-GS-AI	1.3	98.7	0.0
2-Month	5	5	Duplicate	On Cap	0-2 AI	QT2-5DUP-0002-GS-AI	6.5	93.5	0.0
2-Month	5	5	Sample	On Cap	0-2 BI	QT2-0-2 BI-Avg	36.4	63.7	0.0
2-Month	5	5	Primary	On Cap	0-2 BI	QT2-5-0002-GS-BI	33.9	66.1	0.0
2-Month	5	5	Duplicate	On Cap	0-2 BI	QT2-5DUP-0002-GS-BI	38.8	61.2	0.0
2-Month	5	5	Sample	On Cap	2-5 BI	QT2-2-5 BI-Avg	48.9	51.1	0.0
2-Month	5	5	Primary	On Cap	2-5 BI	QT2-5-0205-GS-BI	50.5	49.5	0.0
2-Month	5	5	Duplicate	On Cap	2-5 BI	QT2-5DUP-0205-GS-BI	47.3	52.7	0.0
2-Month	5	5	Primary	On Cap	5-7 BI	QT2-5-0507-GS-BI	53.7	46.3	0.0

Table 2. Compilation of Sediment Grain Size Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Type	Within Cap Footprint?	Sample Interval (cm)[3]	Sample ID[4]	Fines (%)[5]	Sand (%)	Gravel (%)
2-Month	5	5	Sample	On Cap	5-7 BI	QT2-5-7 BI-Avg	56.2	43.9	0.0
2-Month	5	5	Duplicate	On Cap	5-7 BI	QT2-5DUP-0507-GS-BI	58.6	41.4	0.0
2-Month	6	6	Sample	Off Cap	0-10	QT2-6-GRAB-GS	46.3	51.5	2.2
2-Month	7	7	Sample	Off Cap	0-10	QT2-7-GRAB-GS	54.9	45.1	0.0
14-Month	1	1	Sample	On Cap	2-5	QT12-1-0205-GS	0.3	98.1	1.6
14-Month	1	1	Sample	On Cap	5-7	QT12-1-0507-GS	0.2	96.5	3.3
14-Month	1	1	Sample	On Cap	0-2	QT12-1-0002-GS	3.3	94.5	2.2
14-Month	1	1	Sample	On Cap	0-2 AI	QT12-1-0002-GS-AI	0.9	96.2	2.9
14-Month	1	1	Sample	On Cap	0-2 BI	QT12-1-0002-GS-BI	6.7	92.7	0.6
14-Month	1	1	Sample	On Cap	2-5 BI	QT12-1-0205-GS-BI	12.5	87.0	0.5
14-Month	1	1	Sample	On Cap	5-7 BI	QT12-1-0507-GS-BI	9.7	90.3	0.0
14-Month	2	2	Sample	On Cap	2-5	QT12-2-0205-GS	1.5	97.5	1.0
14-Month	2	2	Sample	On Cap	5-7	QT12-2-0507-GS	1.4	97.4	1.2
14-Month	2	2	Sample	On Cap	0-2	QT12-2-0002-GS	1.6	95.4	3.0
14-Month	2	2	Sample	On Cap	0-2 AI	QT12-2-0002-GS-AI	1.1	98.5	0.4
14-Month	2	2	Sample	On Cap	0-2 BI	QT12-2-0002-GS-BI	12.1	86.5	1.4
14-Month	2	2	Sample	On Cap	2-5 BI	QT12-2-0205-GS-BI	13.9	77.8	8.3
14-Month	2	2	Sample	On Cap	5-7 BI	QT12-2-0507-GS-BI	1.8	96.3	1.9
14-Month	3	3	Sample	On Cap	2-5	QT12-3-0205-GS	22.6	76.2	1.2
14-Month	3	3	Sample	On Cap	5-7	QT12-3-0507-GS	5.1	93.1	1.8
14-Month	3	3	Sample	On Cap	0-2	QT12-3-0002-GS	3.5	96.5	0.0
14-Month	3	3	Sample	On Cap	0-2 AI	QT12-3-0002-GS-AI	1.8	95.1	3.1
14-Month	3	3	Sample	On Cap	0-2 BI	QT12-3-0002-GS-BI	4.1	95.9	0.0
14-Month	3	3	Sample	On Cap	2-5 BI	QT12-3-0205-GS-BI	10.5	89.2	0.3
14-Month	3	3	Sample	On Cap	5-7 BI	QT12-3-0507-GS-BI	30.5	69	0.5
14-Month	4	4	Sample	On Cap	2-5	QT12-4-0205-GS	1.8	95.7	2.5
14-Month	4	4	Sample	On Cap	5-7	QT12-4-0507-GS	1.4	94.6	4.0
14-Month	4	4	Sample	On Cap	0-2	QT12-4-0002-GS	0.4	96.2	3.4
14-Month	4	4	Sample	On Cap	0-2 AI	QT12-4-0002-GS-AI	1.0	95.6	3.4
14-Month	4	4	Sample	On Cap	0-2 BI	QT12-4-0205-GS-BI	54.0	45.5	0.5
14-Month	4	4	Sample	On Cap	2-5 BI	QT12-4-0507-GS-BI	49.0	51.0	0.0
14-Month	4	4	Sample	On Cap	5-7 BI	QT12-4-0002-GS-BI	35.7	63.2	1.1
14-Month	5	5	Primary	On Cap	2-5	QT12-5-0205-GS	2.2	95.9	1.9

Table 2. Compilation of Sediment Grain Size Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Type	Within Cap Footprint?	Sample Interval (cm)[3]	Sample ID[4]	Fines (%)[5]	Sand (%)	Gravel (%)
14-Month	5	5	Duplicate	On Cap	2-5	QT12-5DUP-0205-GS	3.1	96.2	0.7
14-Month	5	5	Sample	On Cap	2-5	QT14-2-5-Avg	2.7	96.1	1.3
14-Month	5	5	Primary	On Cap	5-7	QT12-5-0507-GS	1.4	97.9	0.7
14-Month	5	5	Duplicate	On Cap	5-7	QT12-5DUP-0507-GS	0.9	99.1	0.0
14-Month	5	5	Sample	On Cap	5-7	QT14-5-7-Avg	1.2	98.5	0.4
14-Month	5	5	Primary	On Cap	0-2	QT12-5-0002-GS	0.5	99.5	0.0
14-Month	5	5	Duplicate	On Cap	0-2	QT12-5DUP-0002-GS	1.1	98.9	0.0
14-Month	5	5	Sample	On Cap	0-2	QT14-0-2-Avg	0.8	99.2	0.0
14-Month	5	5	Primary	On Cap	0-2 AI	QT12-5-0002-GS-AI	2.7	97.3	0.0
14-Month	5	5	Duplicate	On Cap	0-2 AI	QT12-5DUP-0002-GS-AI	1.5	98.5	0.0
14-Month	5	5	Sample	On Cap	0-2 AI	QT14-0-2 AI-Avg	2.1	97.9	0.0
14-Month	5	5	Primary	On Cap	0-2 BI	QT12-5-0002-GS-BI	41.3	58.7	0.0
14-Month	5	5	Duplicate	On Cap	0-2 BI	QT12-5DUP-0002-GS-BI	42.8	57.2	0.0
14-Month	5	5	Sample	On Cap	0-2 BI	QT14-0-2 BI-Avg	42.1	58.0	0.0
14-Month	5	5	Primary	On Cap	2-5 BI	QT12-5-0205-GS-BI	45.4	54.6	0.0
14-Month	5	5	Duplicate	On Cap	2-5 BI	QT12-5DUP-0205-GS-BI	48.0	52.0	0.0
14-Month	5	5	Sample	On Cap	2-5 BI	QT14-2-5 BI-Avg	46.7	53.3	0.0
14-Month	5	5	Primary	On Cap	5-7 BI	QT12-5-0507-GS-BI	35.1	64.9	0.0
14-Month	5	5	Duplicate	On Cap	5-7 BI	QT12-5DUP-0507-GS-BI	39.1	60.9	0.0
14-Month	5	5	Sample	On Cap	5-7 BI	QT14-5-7 BI-Avg	37.1	62.9	0.0
14-Month	6	6	Sample	Off Cap	0-10	QT12-6-GRAB-GS	51.9	46.8	1.3
14-Month	7	7	Sample	Off Cap	0-10	QT12-7-GRAB-GS	83.5	16.5	0.0
25-Month	1	1	Sample	On Cap	2-5	QT25-1-0205-GS	19.1	80.3	0.7
25-Month	1	1	Sample	On Cap	5-7	QT25-1-0507-GS	13.2	86.8	0.0
25-Month	1	1	Sample	On Cap	0-2	QT25-1-0002-GS	11.6	88.0	0.5
25-Month	1	1	Sample	On Cap	0-2 AI	QT25-1-0002-GS-AI	1.8	97.6	0.6
25-Month	1	1	Sample	On Cap	0-2 BI	QT25-1-0002-GS-BI	13.2	86.8	0.0
25-Month	1	1	Sample	On Cap	2-5 BI	QT25-1-0205-GS-BI	17.4	82.6	0.0
25-Month	1	1	Sample	On Cap	5-7 BI	QT25-1-0507-GS-BI	22.8	73.3	3.9
25-Month	2	2	Sample	On Cap	2-5	QT25-2-0205-GS	1.5	94.5	4.0
25-Month	2	2	Sample	On Cap	5-7	QT25-2-0507-GS	1.5	93.8	4.6
25-Month	2	2	Sample	On Cap	0-2	QT25-2-0002-GS	2.2	93.5	4.3

Table 2. Compilation of Sediment Grain Size Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Type	Within Cap Footprint?	Sample Interval (cm)[3]	Sample ID[4]	Fines (%)[5]	Sand (%)	Gravel (%)
25-Month	2	2	Sample	On Cap	0-2 AI	QT25-2-0002-GS-AI	0.5	91.4	8.1
25-Month	2	2	Sample	On Cap	0-2 BI	QT25-2-0002-GS-BI	9.2	86.7	4.2
25-Month	2	2	Sample	On Cap	2-5 BI	QT25-2-0205-GS-BI	16.4	83.3	0.3
25-Month	2	2	Sample	On Cap	5-7 BI	QT25-2-0507-GS-BI	16.3	82.8	0.9
25-Month	3	3	Sample	On Cap	2-5	QT25-3-0205-GS	12.0	79.6	8.4
25-Month	3	3	Sample	On Cap	5-7	QT25-3-0507-GS	14.1	83.2	2.6
25-Month	3	3	Sample	On Cap	0-2	QT25-3-0002-GS	21.6	67.6	10.8
25-Month	3	3	Sample	On Cap	0-2 AI	QT25-3-0002-GS-AI	0.9	96.4	2.7
25-Month	3	3	Sample	On Cap	0-2 BI	QT25-3-0002-GS-BI	16.8	80.4	2.8
25-Month	3	3	Sample	On Cap	2-5 BI	QT25-3-0205-GS-BI	19.7	79.2	1.1
25-Month	3	3	Sample	On Cap	5-7 BI	QT25-3-0507-GS-BI	15.7	81.8	2.5
25-Month	4	4	Sample	On Cap	2-5	QT25-4-0205-GS	4.5	93.2	2.3
25-Month	4	4	Sample	On Cap	5-7	QT25-4-0507-GS	2.9	95.3	1.8
25-Month	4	4	Sample	On Cap	0-2	QT25-4-0002-GS	5.3	93.3	1.4
25-Month	4	4	Sample	On Cap	0-2 AI	QT25-4-0002-GS-AI	1.1	97.3	1.6
25-Month	4	4	Sample	On Cap	0-2 BI	QT25-4-0002-GS-BI	32.8	65.6	1.5
25-Month	4	4	Sample	On Cap	2-5 BI	QT25-4-0205-GS-BI	69.7	30.3	0.0
25-Month	4	4	Sample	On Cap	5-7 BI	QT25-4-0507-GS-BI	80.7	19.3	0.0
25-Month	5	5	Sample	On Cap	2-5	QT25-2-5-Avg	1.5	96.4	2.1
25-Month	5	5	Primary	On Cap	2-5	QT25-5-0205-GS	1.1	97.4	1.5
25-Month	5	5	Duplicate	On Cap	2-5	QT25-5DUP-0205-GS	1.9	95.4	2.7
25-Month	5	5	Primary	On Cap	5-7	QT25-5-0507-GS	1.9	95.9	2.1
25-Month	5	5	Sample	On Cap	5-7	QT25-5-7-Avg	1.6	96.0	2.5
25-Month	5	5	Duplicate	On Cap	5-7	QT25-5DUP-0507-GS	1.2	96.0	2.8
25-Month	5	5	Sample	On Cap	0-2	QT25-0-2-Avg	2.4	95.9	1.7
25-Month	5	5	Primary	On Cap	0-2	QT25-5-0002-GS	2.5	96.3	1.2
25-Month	5	5	Duplicate	On Cap	0-2	QT25-5DUP-0002-GS	2.3	95.5	2.2
25-Month	5	5	Sample	On Cap	0-2 AI	QT25-0-2 AI-Avg	0.6	98.4	1.0
25-Month	5	5	Primary	On Cap	0-2 AI	QT25-5-0002-GS-AI	0.9	98.0	1.1
25-Month	5	5	Duplicate	On Cap	0-2 AI	QT25-5DUP-0002-GS-AI	0.3	98.8	0.9
25-Month	5	5	Sample	On Cap	0-2 BI	QT25-0-2 BI-Avg	27.2	70.5	2.3
25-Month	5	5	Primary	On Cap	0-2 BI	QT25-5-0002-GS-BI	27.8	69.8	2.4

Table 2. Compilation of Sediment Grain Size Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Type	Within Cap Footprint?	Sample Interval (cm)[3]	Sample ID[4]	Fines (%)[5]	Sand (%)	Gravel (%)
25-Month	5	5	Duplicate	On Cap	0-2 BI	QT25-5DUP-0002-GS-BI	26.6	71.3	2.1
25-Month	5	5	Sample	On Cap	2-5 BI	QT25-2-5 BI-Avg	51.5	48.5	0.1
25-Month	5	5	Primary	On Cap	2-5 BI	QT25-5-0205-GS-BI	49.3	50.6	0.1
25-Month	5	5	Duplicate	On Cap	2-5 BI	QT25-5DUP-0205-GS-BI	53.7	46.3	0.0
25-Month	5	5	Primary	On Cap	5-7 BI	QT25-5-0507-GS-BI	68.1	31.6	0.4
25-Month	5	5	Sample	On Cap	5-7 BI	QT25-5-7 BI-Avg	65.4	34.4	0.2
25-Month	5	5	Duplicate	On Cap	5-7 BI	QT25-5DUP-0507-GS-BI	62.8	37.2	0.0
25-Month	6	6	Sample	Off Cap	0-10	QT25-6-GRAB-GS	64.2	35.1	0.7
25-Month	7	7	Sample	Off Cap	0-10	QT25-7-GRAB-GS	91.6	8.4	0.0

Notes:
1. Sample collections dates: Baseline 2 (May, 2009), 2-Month (September, 2014), 14-Month (September, 2015) and 25-Month (August, 2016).
2. Comparison Station IDs align Baseline 2 IDs with subsequent events for analysis purposes.
3. Sample Interval measured relative to sediment water interface or cap-native sediment interface, Above Interface (AI) and Below Interface (BI).
4. Sample ID's with -Avg suffix represented an average of primary and duplicate samples.
5. Percent fines is summation of percent clay and silt.

AI: above cap-native sediment interface
BI: below cap-native sediment interface
cm: centimeter(s)

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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - Sediment Samples
Project Number: CG898574-0001

Client ID	B2-CAP1-0002	B2-CAP1-0205	B2-CAP1-0507	B2-CAPX-0002
Battelle ID	Q7988-P	Q7989-P	Q7990-P	Q7991-P
Sample Type	SA	SA	SA	SA
Collection Date	09/10/09	09/10/09	09/10/09	09/10/09
Extraction Date	09/15/09	09/15/09	09/15/09	09/15/09
Analysis Date	10/16/09	10/16/09	10/16/09	10/16/09
Analytical Instrument	MS	MS	MS	MS
% Moisture	53.22	50	48.21	50.66
% Lipid	NA	NA	NA	NA
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Size	4.78	5.87	6.00	5.50
Size Unit-Basis	G_DRY	G_DRY	G_DRY	G_DRY
Units	NG/G_DRY	NG/G_DRY	NG/G_DRY	NG/G_DRY
2,4'-DDE	11.83	3.69	4.13	4.04
4,4'-DDE	60.78 D	43.68 D	38.31 D	39.97
2,4'-DDD	40.94 D	33.22 D	24 D	25.71
4,4'-DDD	201.01 D	149.73 D	96.73 D	149.35
2,4'-DDT	13.07	15.63	6.92	9.36
4,4'-DDT	18.15	9.94	13.48	255.92
Surrogate Recoveries (%)				
Cl3(34)	63	60	59	61
Cl6(152)	74	75	81	79

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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - Sediment Samples
Project Number: CG898574-0001

Client ID		B2-CAPX-0205		B2-CAPX-0507		B2-CAP2-0002	
Battelle ID		Q7992-P		Q7993-P		Q7994-P	
Sample Type		SA		SA		SA	
Collection Date		09/10/09		09/10/09		09/10/09	
Extraction Date		09/15/09		09/15/09		09/15/09	
Analysis Date		10/16/09		10/16/09		10/19/09	
Analytical Instrument		MS		MS		MS	
% Moisture		49.38		48.29		40.2	
% Lipid		NA		NA		NA	
Matrix		SEDIMENT		SEDIMENT		SEDIMENT	
Sample Size		5.14		4.96		7.47	
Size Unit-Basis		G_DRY		G_DRY		G_DRY	
Units		NG/G_DRY		NG/G_DRY		NG/G_DRY	
2,4'-DDE		2.96		4.73		3.39	
4,4'-DDE	D	34.98	D	55.93	D	47.4	D
2,4'-DDD	D	24.54	D	32.41	D	36.79	D
4,4'-DDD	D	91.87	D	161.75	D	1091.85	D
2,4'-DDT		0.23	U	5.36		8.81	
4,4'-DDT	D	9.36		121.83	D	48.02	D
Surrogate Recoveries (%)							
Cl3(34)		71		66		69	
Cl6(152)		75		70		92	

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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - Sediment Samples
Project Number: CG898574-0001

Client ID	B2-CAP2-0205	B2-CAP2-0507	B2-CAP3-0002	B2-CAP3-0205
Battelle ID	Q7995-P	Q7996-P	Q7997-P	Q7998-P
Sample Type	SA	SA	SA	SA
Collection Date	09/10/09	09/10/09	09/10/09	09/10/09
Extraction Date	09/15/09	09/15/09	09/15/09	09/15/09
Analysis Date	10/19/09	10/19/09	10/19/09	10/19/09
Analytical Instrument	MS	MS	MS	MS
% Moisture	35.49	32.75	27.68	24.97
% Lipid	NA	NA	NA	NA
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Size	7.37	7.91	8.58	8.59
Size Unit-Basis	G_DRY	G_DRY	G_DRY	G_DRY
Units	NG/G_DRY	NG/G_DRY	NG/G_DRY	NG/G_DRY
2,4'-DDE	2.45	3.13	1.46	0.96
4,4'-DDE	31.85 D	38.15 D	20.85 D	17.36
2,4'-DDD	34.97 D	47.79 D	21.54 D	18.18
4,4'-DDD	112.62 D	5902.16 D	93.66 D	48.85
2,4'-DDT	3.12	6.17	1.15	0.23
4,4'-DDT	8.05	70.12 D	29.92 D	3.92
Surrogate Recoveries (%)				
Cl3(34)	62	62	63	66
Cl6(152)	89	83	75	86

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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - Sediment Samples
Project Number: CG898574-0001

Client ID		B2-CAP3-0507	B2-CAP1-GRAB	B2-CAP2-GRAB
Battelle ID		Q7999-P	Q8000-P	Q8001-P
Sample Type		SA	SA	SA
Collection Date		09/10/09	09/10/09	09/10/09
Extraction Date		09/15/09	09/15/09	09/15/09
Analysis Date		10/19/09	10/19/09	10/19/09
Analytical Instrument		MS	MS	MS
% Moisture		25.34	55.35	38.34
% Lipid		NA	NA	NA
Matrix		SEDIMENT	SEDIMENT	SEDIMENT
Sample Size		10.09	5.20	6.49
Size Unit-Basis		G_DRY	G_DRY	G_DRY
Units		NG/G_DRY	NG/G_DRY	NG/G_DRY
2,4'-DDE		1.29	3.8	3.79
4,4'-DDE		18.45	35 D	50.8 D
2,4'-DDD		17.35	26.7	40.33 D
4,4'-DDD	D	43.64 D	80.18 D	143.2 D
2,4'-DDT	U	1.67	4.42	5.01
4,4'-DDT		6.92	13.47	11.67
Surrogate Recoveries (%)				
Cl3(34)		66	68	57
Cl6(152)		92	80	80

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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - Sediment Samples
Project Number: CG898574-0001

Client ID	B2-CAP3-GRAB	B2-OFF1-GRAB	B2-OFF2-GRAB
Battelle ID	Q8002-P	Q8003-P	Q8004-P
Sample Type	SA	SA	SA
Collection Date	09/10/09	09/10/09	09/10/09
Extraction Date	09/15/09	09/15/09	09/15/09
Analysis Date	10/19/09	10/19/09	10/19/09
Analytical Instrument	MS	MS	MS
% Moisture	26.14	61.93	49.27
% Lipid	NA	NA	NA
Matrix	SEDIMENT	SEDIMENT	SEDIMENT
Sample Size	7.56	4.18	5.94
Size Unit-Basis	G_DRY	G_DRY	G_DRY
Units	NG/G_DRY	NG/G_DRY	NG/G_DRY
2,4'-DDE	0.73	0.08 U	0.08 U
4,4'-DDE	17.5	12.57	5.77
2,4'-DDD	13.69	5.79	3.48
4,4'-DDD	58.22 D	21.14	14.5
2,4'-DDT	1.83	0.23 U	1.93
4,4'-DDT	6.18	3.32	3.72
Surrogate Recoveries (%)			
Cl3(34)	69	79	71
Cl6(152)	86	86	78

Not Surrogate Corrected

Analyzed by Thorn, Jonathan

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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - Sediment Samples
Project Number: CG898574-0001

Client ID	Procedural Blank	
Battelle ID	BN285PB-P	
Sample Type	PB	
Collection Date	09/15/09	
Extraction Date	09/15/09	
Analysis Date	10/16/09	
Analytical Instrument	MS	
% Moisture	42.19	
% Lipid	NA	
Matrix	SEDIMENT	
Sample Size	5.86	
Size Unit-Basis	G_DRY	
Units	NG/G_DRY	
2,4'-DDE	0.08	U
4,4'-DDE	0.09	U
2,4'-DDD	0.18	U
4,4'-DDD	0.2	U
2,4'-DDT	0.23	U
4,4'-DDT	0.14	U

Surrogate Recoveries (%)

Cl3(34)	63
Cl6(152)	75

Not Surrogate Corrected

Analyzed by Thorn, Jonathan

Battelle
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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - Sediment Samples
Project Number: CG898574-0001

Client ID	090306-01: Sand, White Quartz			
Battelle ID	BN286LCS-P			
Sample Type	LCS			
Collection Date	09/15/09			
Extraction Date	09/15/09			
Analysis Date	10/16/09			
Analytical Instrument	MS			
% Moisture	NA			
% Lipid	NA			
Matrix	SEDIMENT			
Sample Size	9.86			
Size Unit-Basis	G_DRY			
Units	NG/G_DRY	Target	% Recovery	Qualifier
2,4'-DDE	3.11	3.82	81	
4,4'-DDE	3.43	3.80	90	
2,4'-DDD	3.41	3.81	90	
4,4'-DDD	3.58	3.81	94	
2,4'-DDT	3.34	3.82	87	
4,4'-DDT	3.32	3.81	87	
Surrogate Recoveries (%)				
Cl3(34)	75			
Cl6(152)	78			

Not Surrogate Corrected

Analyzed by Thorn, Jonathan

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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - Sediment Samples
Project Number: CG898574-0001

Client ID	B2-CAP3-GRAB		B2-CAP3-GRAB			
Battelle ID	Q8002-P		Q8002DUP-P			
Sample Type	SA		QADU			
Collection Date	09/10/09		9/10/2009			
Extraction Date	09/15/09		9/15/2009			
Analysis Date	10/19/09		10/19/2009			
Analytical Instrument	MS		MS			
% Moisture	26.14		25.79			
% Lipid	NA		NA			
Matrix	SEDIMENT		SEDIMENT			
Sample Size	7.56		7.55			
Size Unit-Basis	G_DRY		G_DRY			
Units	NG/G_DRY		NG/G_DRY		RPD	Qualifier
2,4'-DDE	0.73		0.82		11.6	
4,4'-DDE	17.5		19.04		8.4	
2,4'-DDD	13.69		14.95		8.8	
4,4'-DDD	58.22	D	45.78	D	23.9	
2,4'-DDT	1.83		1.39		27.3	
4,4'-DDT	6.18		4.59		29.5	
Surrogate Recoveries (%)						
Cl3(34)	69		74			
Cl6(152)	86		86			

Not Surrogate Corrected

Analyzed by Thorn, Jonathan

Battelle
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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - Sediment Samples
Project Number: CG898574-0001

Client ID	B2-OFF1-GRAB		B2-OFF1-GRAB			
Battelle ID	Q8003-P		Q8003MS-P			
Sample Type	SA		MS			
Collection Date	09/10/09		9/10/2009			
Extraction Date	09/15/09		9/15/2009			
Analysis Date	10/19/09		10/19/2009			
Analytical Instrument	MS		MS			
% Moisture	61.93		61.93			
% Lipid	NA		NA			
Matrix	SEDIMENT		SEDIMENT			
Sample Size	4.18		1.9			
Size Unit-Basis	G_DRY		G_DRY			
Units	NG/G_DRY		NG/G_DRY	Target	% Recovery	Qualifier
2,4'-DDE	0.08	U	18.25	19.83	92	
4,4'-DDE	12.57		28.39	19.75	80	
2,4'-DDD	5.79		21.37	19.77	79	
4,4'-DDD	21.14		35.82	19.75	74	
2,4'-DDT	0.23	U	19.78	19.83	100	
4,4'-DDT	3.32		21.81	19.75	94	
Surrogate Recoveries (%)						
Cl3(34)	79		78			
Cl6(152)	86		87			

Not Surrogate Corrected

Analyzed by Thorn, Jonathan

Battelle
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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - Sediment Samples
Project Number: CG898574-0001

Client ID	B2-OFF1-GRAB					
Battelle ID	Q8003MSD-P					
Sample Type	MSD					
Collection Date	9/10/2009					
Extraction Date	9/15/2009					
Analysis Date	10/19/2009					
Analytical Instrument	MS					
% Moisture	61.24					
% Lipid	NA					
Matrix	SEDIMENT					
Sample Size	1.91					
Size Unit-Basis	G_DRY					
Units	NG/G_DRY	Target	% Recovery	Qualifier	RPD (%)	Qualifier
2,4'-DDE	15.67	19.73	79		15.2	
4,4'-DDE	27.51	19.64	76		5.1	
2,4'-DDD	21.72	19.67	81		2.5	
4,4'-DDD	35.7	19.65	74		0.0	
2,4'-DDT	18.26	19.72	93		7.3	
4,4'-DDT	18.9	19.64	79		17.3	

Surrogate Recoveries (%)

Cl3(34)	79
Cl6(152)	98

Not Surrogate Corrected

Analyzed by Thorn, Jonathan

Aqua Survey, Inc.

Technical Report on the Physical Analysis of Sediment

Battelle Project Name: SPAWAR – Quantico Embayment
EMNR – CG898574-0001

Prepared for:

Battelle
397 Washington Street
Duxbury, MA 02332-4546

December 3, 2009

ASI Job No. 29-197

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www.aquasurvey.com

Aqua Survey, Inc.

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Information Page

Technical Report on the Physical Analysis of Sediment

Battelle Project Name: SPAWAR – Quantico Embayment
EMNR – CG898574-0001

STUDY INITIATION DATE

September 10, 2009

STUDY COMPLETION DATE

December 3, 2009

PERFORMING LABORATORY

Aqua Survey, Inc.
469 Point Breeze Road
Flemington, New Jersey 08822

SPONSOR

Battelle
397 Washington Street
Duxbury, MA 02332-4546

LABORATORY PROJECT ID

ASI STUDY No. 29-197

Signature Page

Technical Report on the Physical Analysis of Sediment

Battelle Project Name: SPAWAR – Quantico Embayment
EMNR – CG898574-0001

Prepared for

Battelle
397 Washington Street
Duxbury, MA 02332-4546

This report, as well as all records and raw data were audited and found to be an accurate reflection of the study. Copies of raw data will be maintained by Aqua Survey, Inc, 469 Point Breeze Road, Flemington, New Jersey, 08822.

Robert M. Fristrom
Quality Assurance Officer

12-3-09
Date

Michelle Thomas
Laboratory Manager

12-3-09
Date

Jon Doi, Ph.D.
Executive Vice President

12-3-09
Date

I. INTRODUCTION

The objective of this project was to conduct TOC analysis and grain size distribution for 20 sediment samples and moisture content and natural density for 12 sediment samples. Aqua Survey, Inc. (ASI) performed the TOC analysis and grain size distribution; Schnabel Engineering performed the moisture content and natural density analyses.

II. TEST ADMINISTRATION

A. Sponsor

Battelle
397 Washington Street
Duxbury, MA 02332-4546

B. Testing Facilities

Aqua Survey, Inc.
469 Point Breeze Road
Flemington, NJ 08822

Schnabel Engineering, LLC
510 East Gay Street
West Chester, PA 19380

C. Dates of Experimentation

Date of Study Initiation:	September 10, 2009
Date of Study Completion:	December 3, 2009

D. Study Participants

Jon Doi, Ph.D.	Executive Vice President
Robert Fristrom	Quality Assurance Officer
Liz Horn	Staff Scientist
G. Stephen Hornberger	Project Scientist
Michelle Thomas	Laboratory Manager

III. MATERIALS AND METHODS

A. Sample Receipt

Seventeen sediment samples were received at ASI on September 16, 2009; three sediment samples were received at ASI on October 14, 2009. All sediment samples were assigned unique ASI sample numbers and stored at 2-4° C prior to testing. Four cores were received at Schnabel Engineering on September 9, 2009. These cores were to be sectioned at varying depths for analysis; instructions for sectioning the cores can be found on the Chain of Custody, which are provided in Appendix A.

B. Homogenizing

Each sediment sample was carefully homogenized by manually mixing with a spoon. This procedure followed the specific guidelines found in ASI's standard operating procedure SOP/PRP/008. Samples were mixed until uniform in color and texture.

C. Grain Size Analysis

Sub-samples of each sediment sample were analyzed by ASI for grain size distribution in accordance with the *Standard Test Method for Particle Size Analysis* (ASTM D422-63, Reapproved 2002). See Appendix B for the grain size distribution raw data, calculations and graphs.

D. TOC Analysis

Total Organic Carbon (TOC) was also determined at ASI based on the guidance from EPA Office of Solids Waste and Emergency Response SW-846 Method No. 9060 (Volume IC, Chapter 5, Revision 0, 9/86). The instrument for this analysis was the Dohrmann TOC Boat Sampler, Model 183 (Serial number 98202003), which was connected to the Dohrmann Apollo 9000 TOC Analyzer. Appendix C provides the TOC raw data and Standard Reference Material control chart.

E. Natural Density and Moisture Content

Natural density and moisture content were determined by Schnabel Engineering based on ASTM D7263. The method requested was ASTM D2937 but the sampling method used did not pertain to that specification.

IV. PHYSICAL ANALYSIS RESULTS

The sample identification numbers, TOC analysis and grain size distribution results are shown in Table 1. The results of the moisture content and bulk density analysis are provided in Table 2.

Table 1 Sample Identification, Grain Size Distribution and TOC

Sample Name	ASI Sample ID	% Gravel	% Sand	% Silt	% Clay	TOC (ppm)	TOC % dry weight
B2-CAP1-0002	20091222	0.0	54.5	34.4	11.1	50,280	5.03
B2-CAP1-0205	20091223	0.0	39.3	43.8	16.9	44,450	4.45
B2-CAP1-0507	20091224	0.0	45.9	39.5	14.6	65,988	6.60
B2-CAPX-0002	20091225	0.0	40.6	43.6	15.8	65,430	6.54
B2-CAPX-0205	20091226	0.0	34.3	49.5	16.2	54,131	5.41
B2-CAPX-0507	20091227	0.0	31.1	50.2	18.7	53,288	5.33
B2-CAP2-0002	20091228	0.0	67.3	24.8	7.9	67,084	6.71
B2-CAP2-0205	20091229	0.0	71.0	22.9	6.1	40,727	4.07
B2-CAP2-0507	20091230	0.0	74.7	20.0	5.3	43,556	4.36
B2-CAP3-0002	20091231	0.0	84.0	12.9	3.1	24,410	2.44
B2-CAP3-0205	20091232	0.0	86.0	11.3	2.7	9,331	0.93
B2-CAP3-0507	20091233	0.0	75.4	19.1	5.5	15,332	1.53
B2-CAP3-0507	20091233 dup	0.0	77.8	17.5	4.7		
B2-CAP3-0507	20091233 trip	0.0	78.7	17.2	4.1		
B2-CAP1-GRAB	20091234	0.0	31.3	53.1	15.6	59,154	5.92
B2-CAP2-GRAB	20091235	0.0	62.7	29.6	7.7	90,193	9.02
B2-CAP3-GRAB	20091236	0.0	83.4	12.1	4.5	17,100	1.71
B2-CAP3-GRAB	20091236 dup	0.0	83.2	12.6	4.2		
B2-CAP3-GRAB	20091236 trip	0.0	79.3	17.1	3.6		
B2-OFF1-GRAB	20091237	0.0	23.1	54.8	22.1	31,755	3.18
B2-OFF2-GRAB	20091238	0.0	50.9	33.5	15.6	20,535	2.05
B2-CAP1-TRAP	20091255	0.0	11.8	48.6	39.6	45,750	4.57
B2-CAP2-TRAP	20091256	0.0	15.8	53.0	31.2	56,711	5.67
B2-CAP3-TRAP	20091257	0.0	4.6	54.2	41.2	47,275	4.73

Table 2 **Natural Density and Moisture Content**

SUMMARY OF LABORATORY DATA

SAMPLE ID	DEPTH (ft)	SOIL GROUP SYMBOL	GRAIN SIZE DISTRIBUTION			PLASTICITY				MOISTURE CONTENT w %	VOLUMETRIC				COMPACTION DATA			PERMEABILITY (E-6 CM/SEC)	FALLING/CONSTANT HEAD	CALIFORNIA BEARING RATIO (CBR) %	SHEAR STRENGTH		
			GRAVEL %	SAND %	SILT/CLAY %	LIQUID LIMIT w_l	PLASTIC LIMIT w_P	PLASTICITY INDEX I_P	LIQUIDITY INDEX I_L		NATURAL DENSITY (pcf)	DRY UNIT WEIGHT (pcf)	VOID RATIO (e)	DEGREE OF SATURATION %	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT %	STANDARD/MODIFIED				UNCONFINED COMPRESSIVE STRENGTH (tsf)	COHESION (tsf)	AXIAL STRAIN (%)
B2-CAP1-0002										122.3	79.3	35.7											
B2-CAP1-0205										93.9	84.3	43.5											
B2-CAP1-0507										76.0	88.8	50.4											
B2-CAPX-0002										139.6	76.8	32.1											
B2-CAPX-0205										124.8	78.9	35.1											
B2-CAPX-0507										110.6	81.4	38.7											
B2-CAP2-0002										90.6	84.4	44.3											
B2-CAP2-0205										58.3	95.0	60.0											
B2-CAP2-0507										51.9	97.2	64.0			Contained a 1.5" shell fragment								
B2-CAP3-0002										38.4	105.2	76.0											
B2-CAP3-0205										35.6	109.4	80.7											
B2-CAP3-0507										27.4	116.7	91.6											

Schnabel Engineering	DRAWN BY: LG	DATE: 9/16/2009	PROJECT: Aqua Survey Lab Testing
	CHECKED BY: MFN	DATE: 9/17/2009	LOCATION:
			JOB No.: 09150057

APPENDICES

Appendix A

Chains of Custody

29-197

Battelle
The Business of Innovation

Chain of Custody

Shipment No: SHP-090915-01

Proj. No:	Proj. Name:
CG898574-0001	SPAWAR - Quantico Embayment EMNR - CG898574-0001

SAMPLERS: Singature

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

DATE/TIME	BATTELLE ID	CLIENT ID	FIELD LOC ASI Sample #	MATRIX	OIL CODE	TOC	GS									Total No of Containers
09/10/09 14:15	Q7988	B2-CAP1-0002	20091222	SEDIMENT		☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
09/10/09 14:15	Q7989	B2-CAP1-0205	1223	SEDIMENT		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
09/10/09 14:15	Q7990	B2-CAP1-0507	1224	SEDIMENT		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
09/10/09 14:45	Q7991	B2-CAPX-0002	1225	SEDIMENT		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
09/10/09 14:45	Q7992	B2-CAPX-0205	1226	SEDIMENT		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
09/10/09 14:45	Q7993	B2-CAPX-0507	1227	SEDIMENT		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
09/10/09 15:15	Q7994	B2-CAP2-0002	1228	SEDIMENT		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
09/10/09 15:15	Q7995	B2-CAP2-0205	1229	SEDIMENT		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
09/10/09 15:15	Q7996	B2-CAP2-0507	1230	SEDIMENT		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
09/10/09 15:44	Q7997	B2-CAP3-0002	1231	SEDIMENT		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
09/10/09 15:44	Q7998	B2-CAP3-0205	1232	SEDIMENT		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
09/10/09 15:44	Q7999	B2-CAP3-0507	1233	SEDIMENT		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
09/10/09 13:15	Q8000	B2-CAP1-GRAB	1234	SEDIMENT		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
09/10/09 13:15	Q8001	B2-CAP2-GRAB	1235	SEDIMENT		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
09/10/09 10:15	Q8002	B2-CAP3-GRAB	1236	SEDIMENT		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
09/10/09 16:10	Q8003	B2-OFF1-GRAB	1237	SEDIMENT		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
09/10/09 16:10	Q8004	B2-OFF2-GRAB	1238	SEDIMENT		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
~~06/27/02 0:00~~	~~V6876~~	~~04-02-01-SM006B-TIS-01-S~~		~~TISSUE~~		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	~~1~~

① ② NA jd 9/15/09

Relinquished by:	Date/Time:		Received by:	Date/Time:	
Joanne Arsenault jd	9/15/2009	2:50 PM	A. Hamlyn ASI	9/16/09	11:00
Relinquished by:	Date/Time:		Received by:	Date/Time:	

Comments:

Battelle
The Business of Innovation

Chain of Custody

Shipment No: SHP-091013-01

Proj. No:	Proj. Name:
CG898574-0001	SPAWAR - Quantico Embayment EMNR - CG898574-0001

SAMPLERS: Singature

DATE/TIME	BATTELLE ID	CLIENT ID	FIELD LOC	MATRIX	OIL CODE	ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"										Total No of Containers
09/27/09 11:05	Q8291	B2-CAP1-TRAP		SEDIMENT TRAP		☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
09/27/09 10:42	Q8292	B2-CAP2-TRAP		SEDIMENT TRAP		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
09/27/09 10:25	Q8293	B2-CAP3-TRAP		SEDIMENT TRAP		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1

Relinquished by:	Date/Time:		Received by:	Date/Time:	
Jeannine Seyfert	10/13/2009	11:11 AM	S. Hornberger	10/14/09	1015
Relinquished by:	Date/Time:		Received by:	Date/Time:	

Comments:

Battelle

The Business of Innovation

Chain of Custody

397 Washington Street
Duxbury, MA 02332
Phone: 781-952-5200
Fax: 781-934-2124

Bulk Density ASTM D2937

Proj. No	Proj. Name
	Quantico Baseline 2

SAMPLERS: Signature: Jason Wells

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

DATE	TIME	BATTELLE ID	CLIENT ID	SAMPLE DESCRIPTION	~~PBST~~	PCB	TPH FINGERPRINT	PAH	VOA	TBT	METALS	OTHER	ACIDIFIED	PRESERVED	Total Number of Containers
9/9/09	1007		B2-CAP1	Core for Bulk density ASTM 2937	X										1
	1430		B2-CAP2	"											1
	1659		B2-CAP3	"											1
	1100		B2-CAPX	"											1
				cores to be sectioned @ 0-2 cm											
				2-5 cm											
				5-7 cm											
				for bulk density -											
				please see accompanying instructions											

Relinquished by:	Date/Time	Received by:	Date/Time
Jason Wells Jason Wells	9/10/09 1700		
Relinquished by:	Date/Time	Received by:	Date/Time

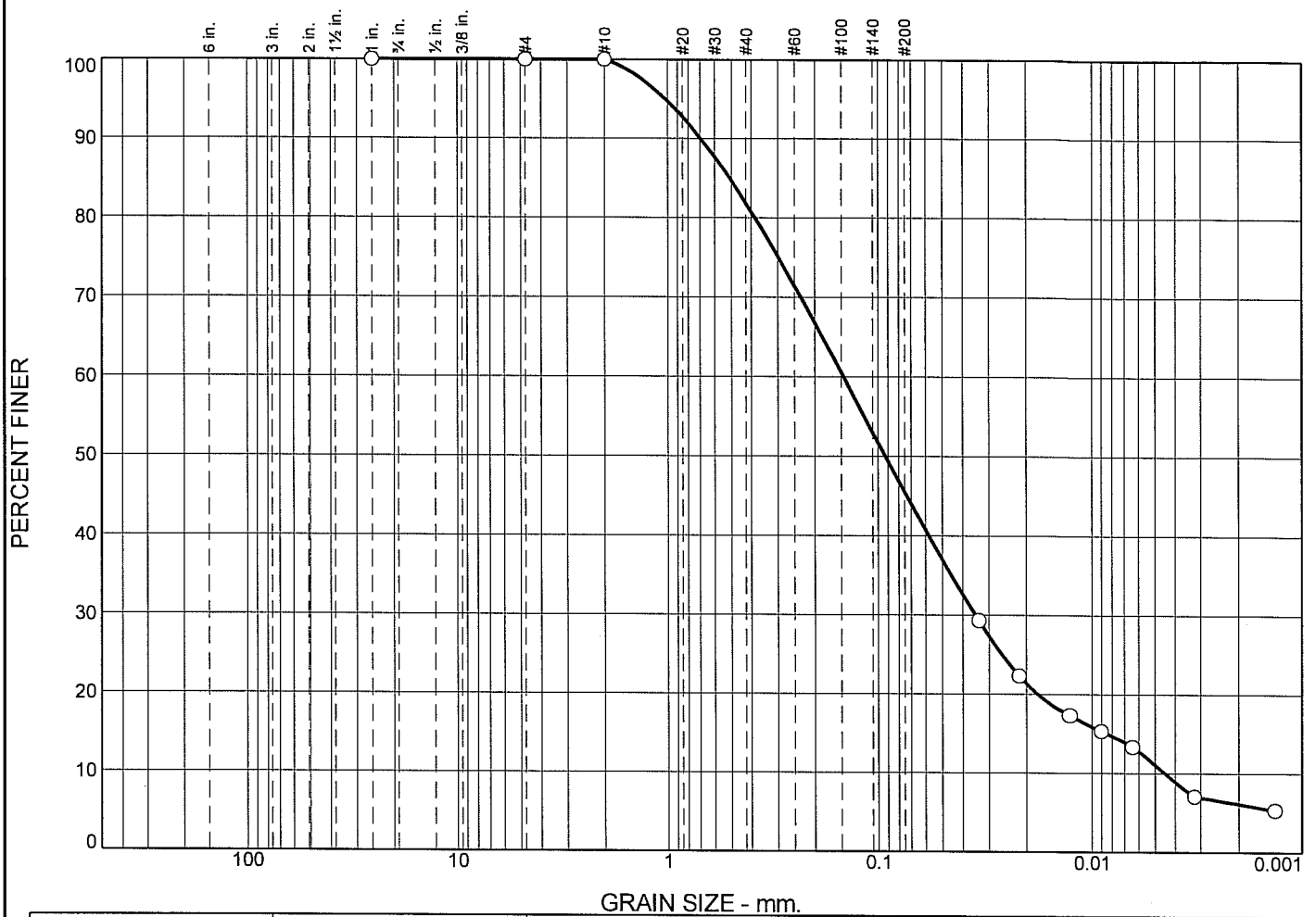
Comments: Contact: Jason Conder @ jconder@environcorp.com 949-798-3618
Jason Wells @ jwells@environcorp.com 734-277-1163

ORIGINAL

Appendix B

Grain Size Distribution Raw Data, Calculations and Graphs

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	18.2	36.3	34.4	11.1

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.5094	0.1462	0.0926	0.0348	0.0085	0.0045	1.85	32.61

Material Description	USCS	AASHTO
○ Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-CAP1-0002 **Sample Number:** 20091222

Remarks:

RF

Aqua Survey, Inc.

Flemington, NJ

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/1/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP1-0002
Sample Number: 20091222
Material Description: Sediment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
43.33	12.70	1	12.70	12.70	100.0
		#4	12.70	12.70	100.0
		#10	12.70	12.70	100.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	20.0	14.7	0.0132	20.0	13.0	0.0336	29.3
5.00	23.0	16.5	11.2	0.0132	16.5	13.6	0.0217	22.3
15.00	23.0	14.0	8.7	0.0132	14.0	14.0	0.0127	17.3
30.00	23.0	13.0	7.7	0.0132	13.0	14.2	0.0090	15.3
60.00	23.0	12.0	6.7	0.0132	12.0	14.3	0.0064	13.3
250.00	22.5	9.0	3.5	0.0132	9.0	14.8	0.0032	7.1
1440.00	23.0	8.0	2.7	0.0132	8.0	15.0	0.0013	5.3

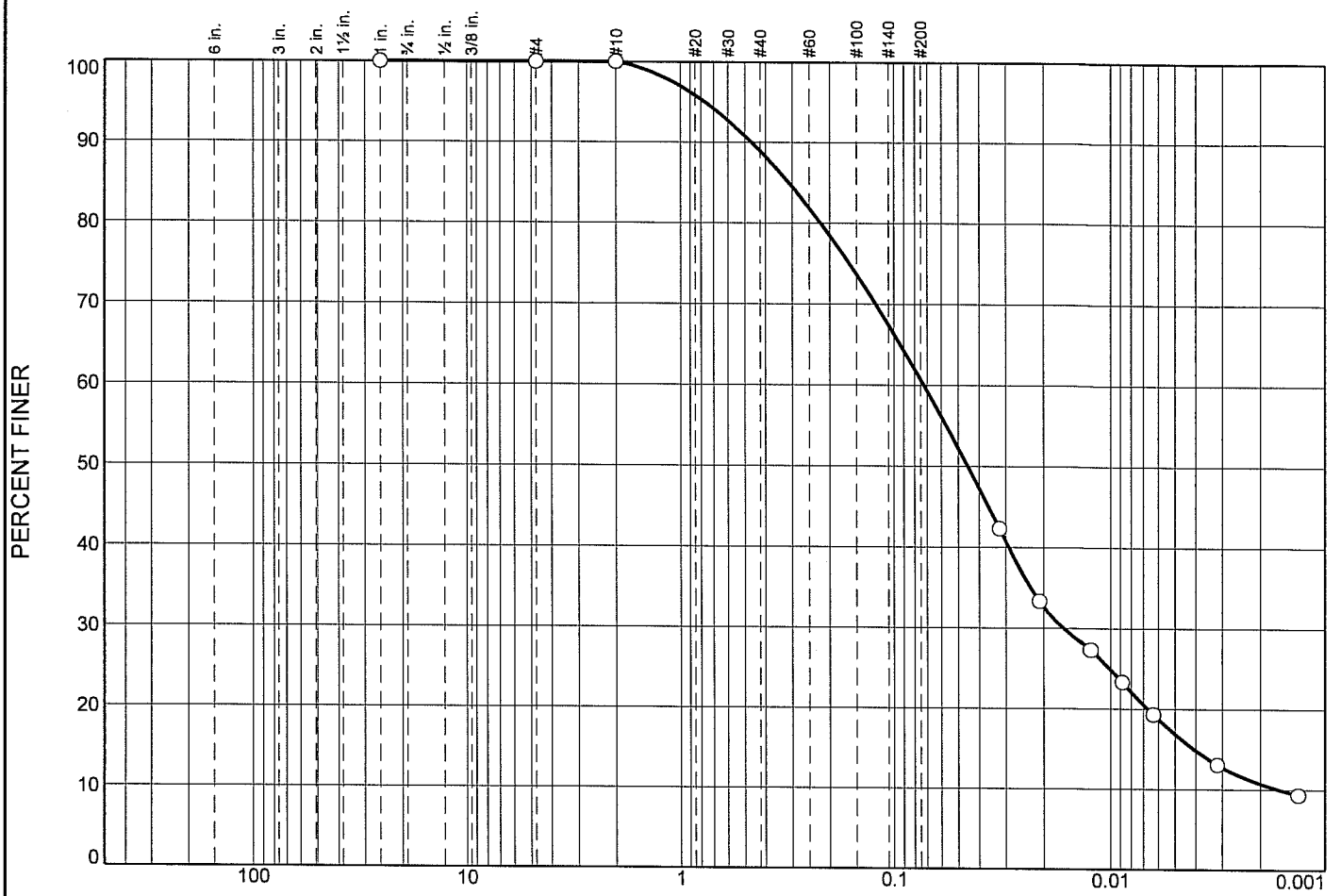
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	18.2	36.3	54.5	34.4	11.1	45.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0045	0.0085	0.0177	0.0348	0.0926	0.1462	0.3853	0.5094	0.6977	1.0256

Fineness Modulus	C_u	C_c
0.80	32.61	1.85

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	11.0	28.3	43.8	16.9

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.3115	0.0725	0.0452	0.0161	0.0041	0.0016	2.20	44.29

Material Description	USCS	AASHTO
○ Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-CAP1-0205 **Sample Number:** 20091223

Aqua Survey, Inc.

Flemington, NJ

Remarks:

RF

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/1/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP1-0205
Sample Number: 20091223
Material Description: Sediment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
63.58	12.61	1	12.61	12.61	100.0
		#4	12.61	12.61	100.0
		#10	12.61	12.61	100.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	26.5	21.2	0.0132	26.5	11.9	0.0322	42.3
5.00	23.0	22.0	16.7	0.0132	22.0	12.7	0.0210	33.3
15.00	23.0	19.0	13.7	0.0132	19.0	13.2	0.0123	27.3
30.00	23.0	17.0	11.7	0.0132	17.0	13.5	0.0088	23.3
60.00	23.0	15.0	9.7	0.0132	15.0	13.8	0.0063	19.3
250.00	22.5	12.0	6.5	0.0132	12.0	14.3	0.0032	13.1
1440.00	23.0	10.0	4.7	0.0132	10.0	14.7	0.0013	9.3

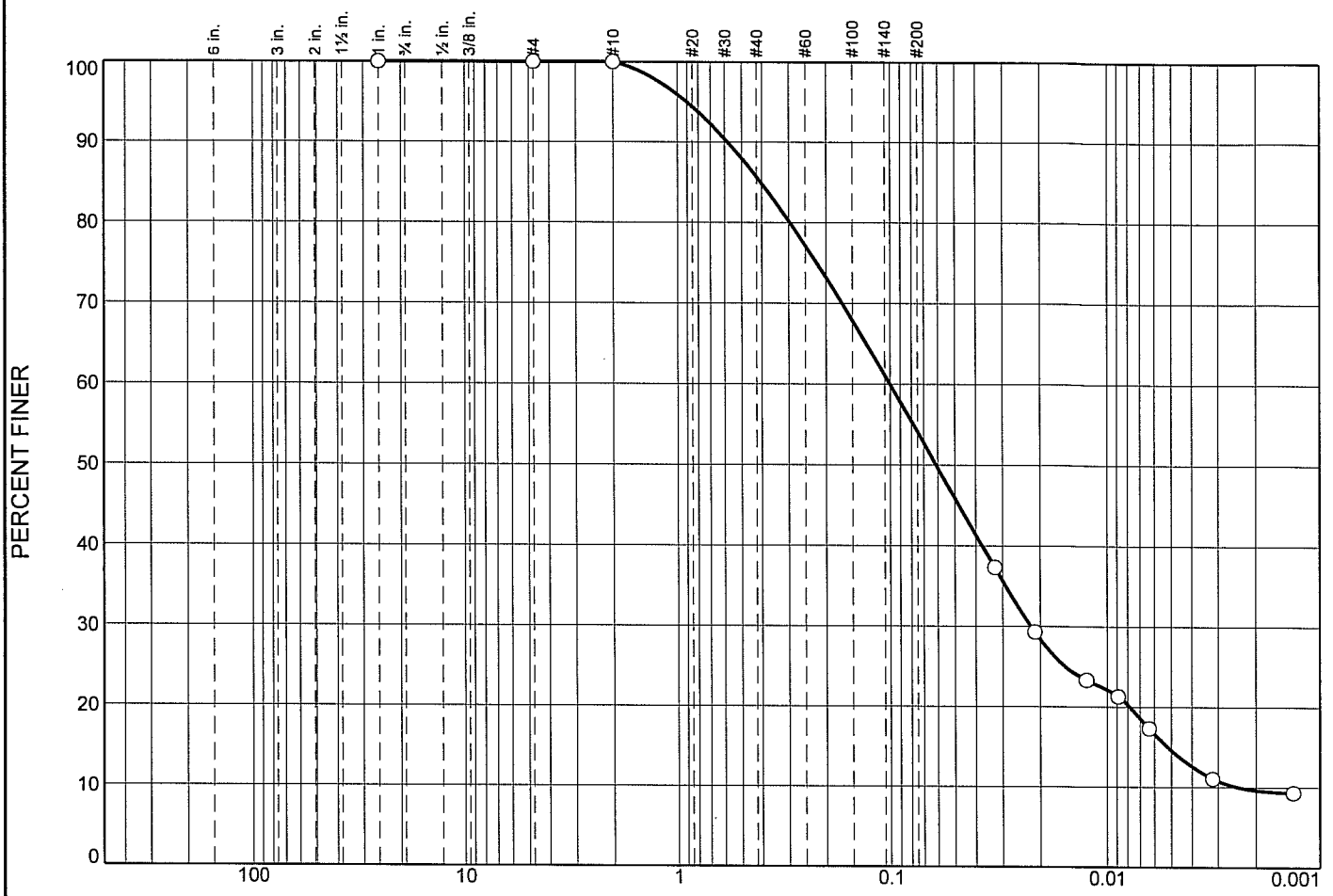
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	11.0	28.3	39.3	43.8	16.9	60.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0016	0.0041	0.0067	0.0161	0.0452	0.0725	0.2207	0.3115	0.4642	0.7685

Fineness Modulus	C_u	C_c
0.51	44.29	2.20

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	14.3	31.6	39.5	14.6

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.4056	0.1004	0.0612	0.0221	0.0052	0.0024	2.01	41.41

Material Description	USCS	AASHTO
○ Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-CAP1-0507 **Sample Number:** 20091224

Remarks:

RF

Aqua Survey, Inc.

Flemington, NJ

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/1/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP1-0507
Sample Number: 20091224
Material Description: Sediment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
69.60	12.75	1	12.75	12.75	100.0
		#4	12.75	12.75	100.0
		#10	12.75	12.75	100.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	24.0	18.7	0.0132	24.0	12.4	0.0327	37.3
5.00	23.0	20.0	14.7	0.0132	20.0	13.0	0.0212	29.3
15.00	23.0	17.0	11.7	0.0132	17.0	13.5	0.0125	23.3
30.00	23.0	16.0	10.7	0.0132	16.0	13.7	0.0089	21.3
60.00	23.0	14.0	8.7	0.0132	14.0	14.0	0.0064	17.3
250.00	22.5	11.0	5.5	0.0132	11.0	14.5	0.0032	11.1
1440.00	23.0	10.0	4.7	0.0132	10.0	14.7	0.0013	9.3

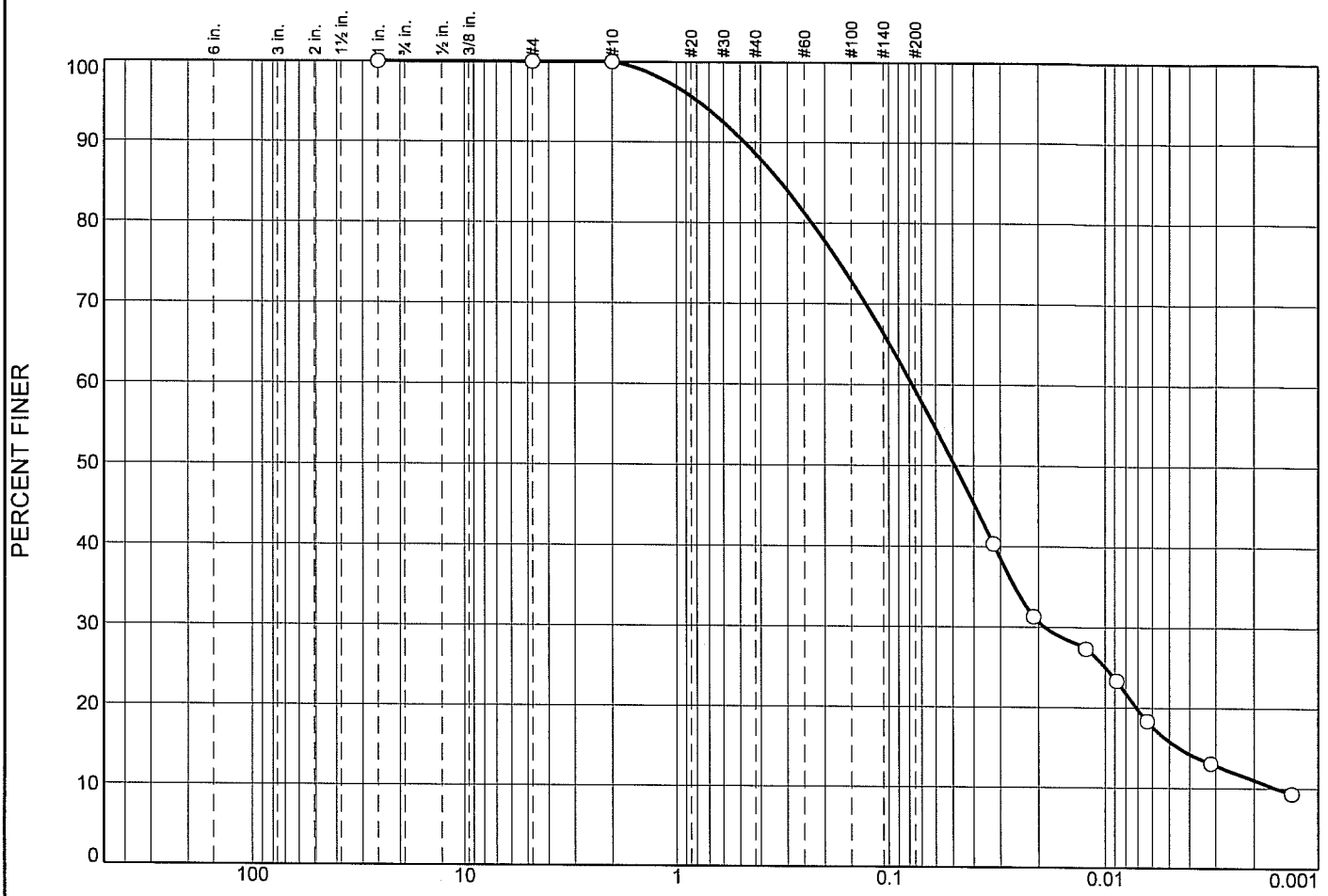
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	14.3	31.6	45.9	39.5	14.6	54.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0024	0.0052	0.0078	0.0221	0.0612	0.1004	0.2956	0.4056	0.5807	0.9042

Fineness Modulus	C_u	C_c
0.64	41.41	2.01

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	11.3	29.3	43.6	15.8

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.3214	0.0774	0.0489	0.0188	0.0045	0.0016	2.91	49.57

	Material Description	USCS	AASHTO
○	Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-CAPX-0002 **Sample Number:** 20091225

Remarks:

Aqua Survey, Inc.

Flemington, NJ

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAPX-0002
Sample Number: 20091225
Material Description: Sediment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
62.59	12.72	1	12.72	12.72	100.0
		#4	12.72	12.72	100.0
		#10	12.72	12.72	100.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	25.5	20.2	0.0132	25.5	12.1	0.0324	40.3
5.00	23.0	21.0	15.7	0.0132	21.0	12.9	0.0211	31.3
15.00	23.0	19.0	13.7	0.0132	19.0	13.2	0.0123	27.3
30.00	23.0	17.0	11.7	0.0132	17.0	13.5	0.0088	23.3
60.00	23.0	14.5	9.2	0.0132	14.5	13.9	0.0063	18.3
250.00	22.5	12.0	6.5	0.0132	12.0	14.3	0.0032	13.1
1440.00	23.0	10.0	4.7	0.0132	10.0	14.7	0.0013	9.3

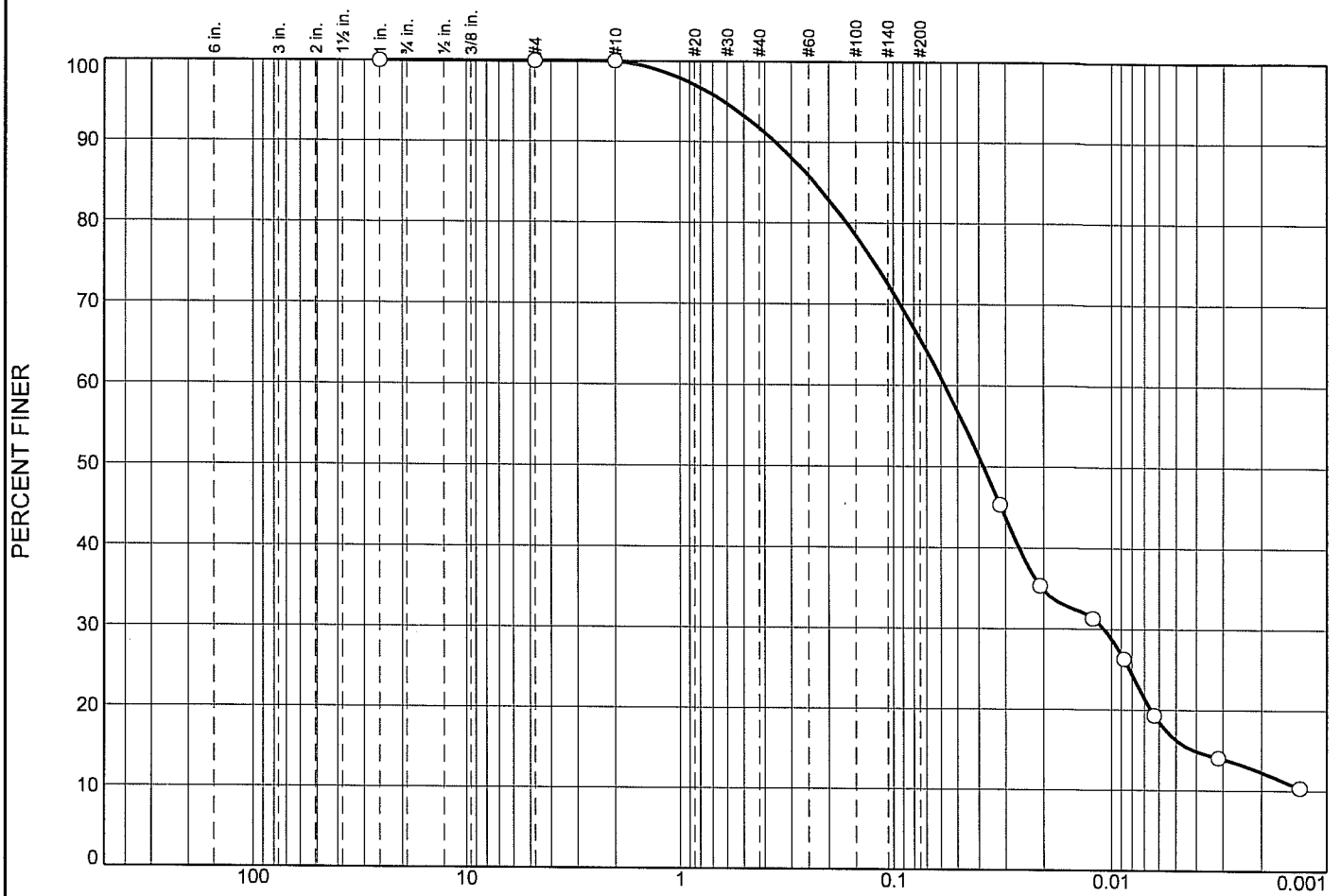
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	11.3	29.3	40.6	43.6	15.8	59.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0016	0.0045	0.0071	0.0188	0.0489	0.0774	0.2294	0.3214	0.4754	0.7805

Fineness Modulus	C_u	C_c
0.53	49.57	2.91

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	8.2	26.1	49.5	16.2

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.2343	0.0575	0.0380	0.0108	0.0041			

Material Description	USCS	AASHTO
○ Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-CAPX-0205 **Sample Number:** 20091226

Aqua Survey, Inc.

Flemington, NJ

Remarks:

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAPX-0205
Sample Number: 20091226
Material Description: Sediment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
78.79	12.73	1	12.73	12.73	100.0
		#4	12.73	12.73	100.0
		#10	12.73	12.73	100.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	28.0	22.7	0.0132	28.0	11.7	0.0318	45.3
5.00	23.0	23.0	17.7	0.0132	23.0	12.5	0.0208	35.3
15.00	23.0	21.0	15.7	0.0132	21.0	12.9	0.0122	31.3
30.00	23.0	18.5	13.2	0.0132	18.5	13.3	0.0087	26.3
60.00	23.0	15.0	9.7	0.0132	15.0	13.8	0.0063	19.3
250.00	22.5	12.5	7.0	0.0132	12.5	14.2	0.0032	14.1
1440.00	23.0	10.5	5.2	0.0132	10.5	14.6	0.0013	10.3

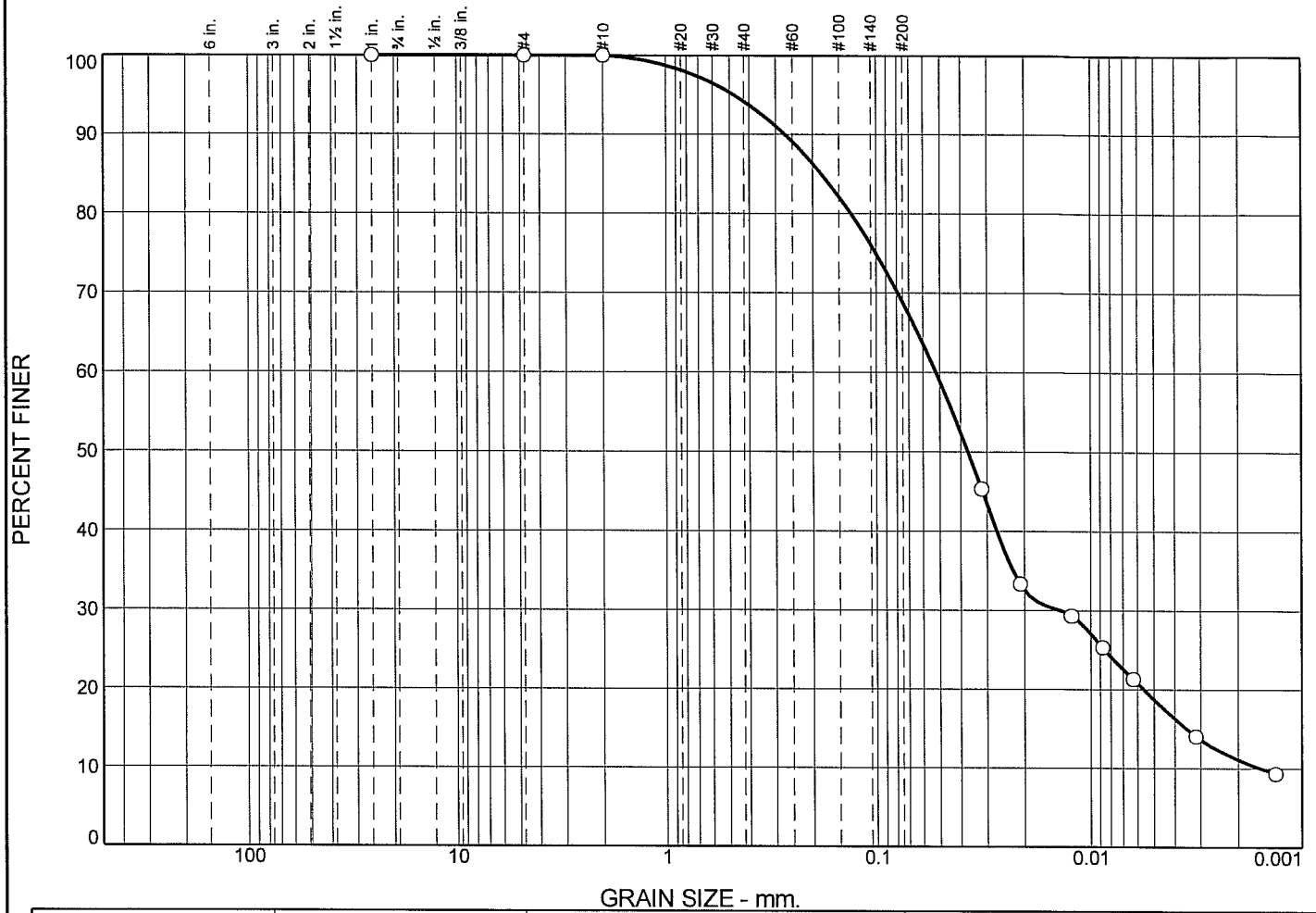
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	8.2	26.1	34.3	49.5	16.2	65.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0041	0.0065	0.0108	0.0380	0.0575	0.1652	0.2343	0.3565	0.6210

Fineness Modulus
0.40

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	5.8	25.3	50.2	18.7

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.1817	0.0523	0.0369	0.0137	0.0035	0.0016	2.31	33.37

	Material Description	USCS	AASHTO
○	Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-CAPX-0507 **Sample Number:** 20091227

Remarks:

Aqua Survey, Inc.

Flemington, NJ

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAPX-0507
Sample Number: 20091227
Material Description: Sediment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
99.67	10.94	1	10.94	10.94	100.0
		#4	10.94	10.94	100.0
		#10	10.94	10.94	100.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	28.0	22.7	0.0132	28.0	11.7	0.0318	45.3
5.00	23.0	22.0	16.7	0.0132	22.0	12.7	0.0210	33.3
15.00	23.0	20.0	14.7	0.0132	20.0	13.0	0.0123	29.3
30.00	23.0	18.0	12.7	0.0132	18.0	13.3	0.0088	25.3
60.00	23.0	16.0	10.7	0.0132	16.0	13.7	0.0063	21.3
250.00	22.5	12.5	7.0	0.0132	12.5	14.2	0.0032	14.1
1440.00	23.0	10.0	4.7	0.0132	10.0	14.7	0.0013	9.3

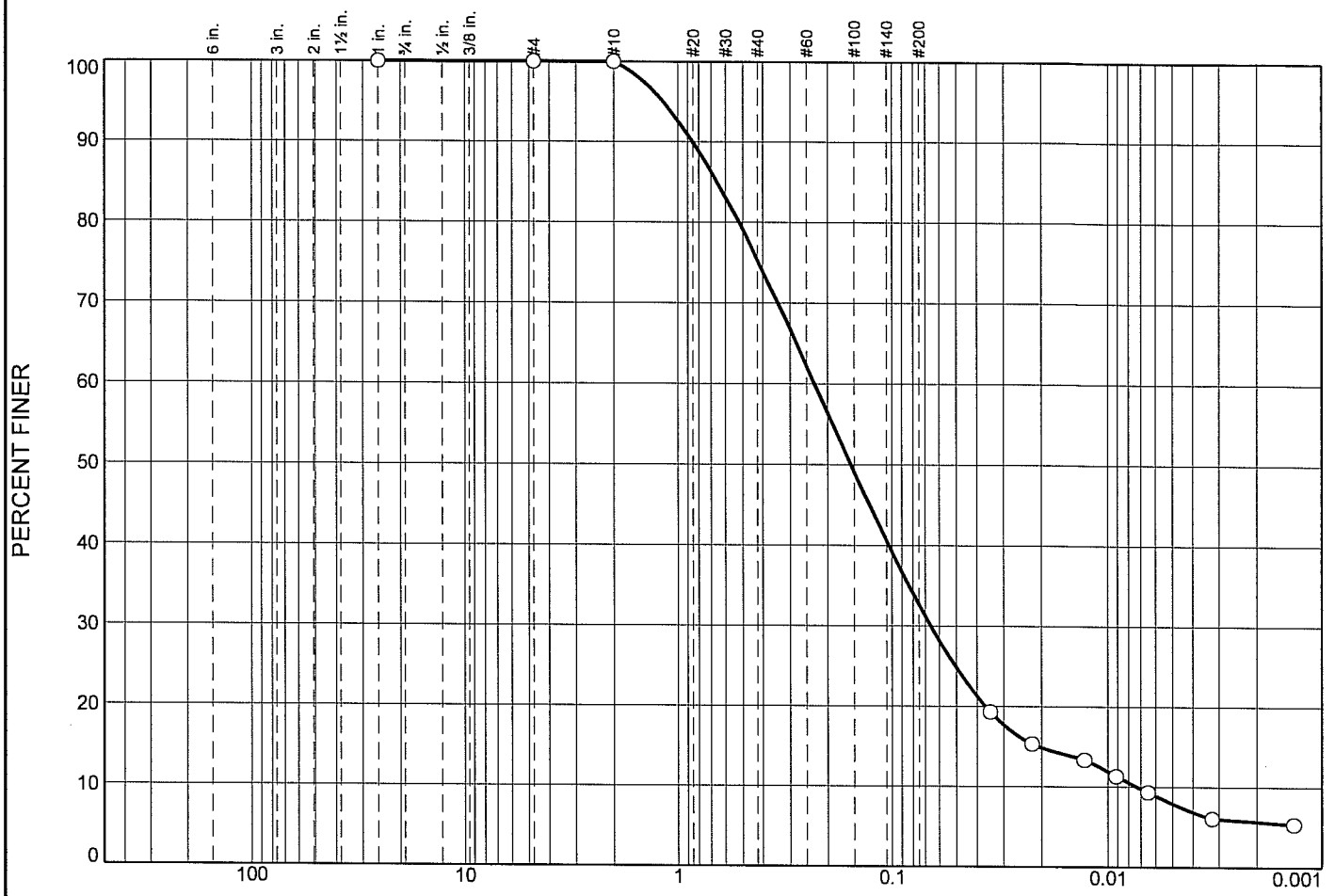
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	5.8	25.3	31.1	50.2	18.7	68.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0016	0.0035	0.0056	0.0137	0.0369	0.0523	0.1317	0.1817	0.2712	0.4745

Fineness Modulus	C_u	C_c
0.31	33.37	2.31

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	24.7	42.6	24.8	7.9

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.6572	0.2298	0.1555	0.0659	0.0207	0.0073	2.58	31.40

	Material Description	USCS	AASHTO
○	Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-CAP2-0002 **Sample Number:** 20091228

Aqua Survey, Inc.

Flemington, NJ

Remarks:

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP2-0002
Sample Number: 20091228
Material Description: Sediment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
54.67	12.82	1	12.82	12.82	100.0
		#4	12.82	12.82	100.0
		#10	12.82	12.82	100.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	15.0	9.7	0.0132	15.0	13.8	0.0346	19.3
5.00	23.0	13.0	7.7	0.0132	13.0	14.2	0.0221	15.3
15.00	23.0	12.0	6.7	0.0132	12.0	14.3	0.0129	13.3
30.00	23.0	11.0	5.7	0.0132	11.0	14.5	0.0091	11.3
60.00	23.0	10.0	4.7	0.0132	10.0	14.7	0.0065	9.3
250.00	22.5	8.5	3.0	0.0132	8.5	14.9	0.0032	6.1
1440.00	23.0	8.0	2.7	0.0132	8.0	15.0	0.0013	5.3

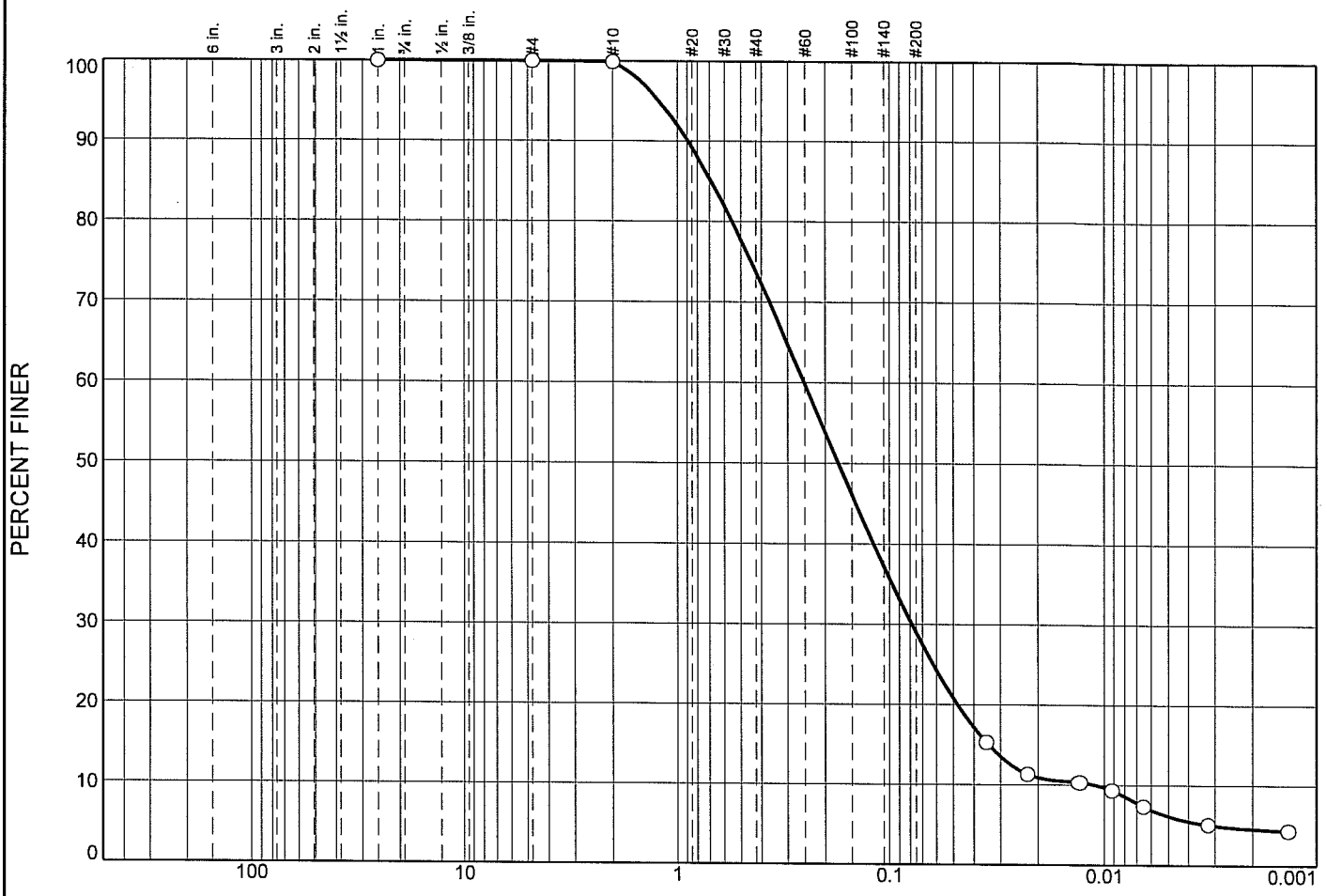
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	24.7	42.6	67.3	24.8	7.9	32.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0073	0.0207	0.0365	0.0659	0.1555	0.2298	0.5202	0.6572	0.8543	1.1755

Fineness Modulus	C_u	C_c
1.06	31.40	2.58

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	26.1	44.8	22.9	6.1

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.6902	0.2513	0.1735	0.0785	0.0341	0.0110	2.22	22.76

Material Description	USCS	AASHTO
○ Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-CAP2-0205 **Sample Number:** 20091229

Aqua Survey, Inc.

Flemington, NJ

Remarks:

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP2-0205
Sample Number: 20091229
Material Description: Sediment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
89.86	10.84	1	10.84	10.84	100.0
		#4	10.84	10.84	100.0
		#10	10.93	10.84	99.9

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.9
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	13.0	7.7	0.0132	13.0	14.2	0.0350	15.3
5.00	23.0	11.0	5.7	0.0132	11.0	14.5	0.0224	11.3
15.00	23.0	10.5	5.2	0.0132	10.5	14.6	0.0130	10.3
30.00	23.0	10.0	4.7	0.0132	10.0	14.7	0.0092	9.3
60.00	23.0	9.0	3.7	0.0132	9.0	14.8	0.0065	7.3
250.00	22.5	8.0	2.5	0.0132	8.0	15.0	0.0032	5.1
1440.00	23.0	7.5	2.2	0.0132	7.5	15.1	0.0013	4.3

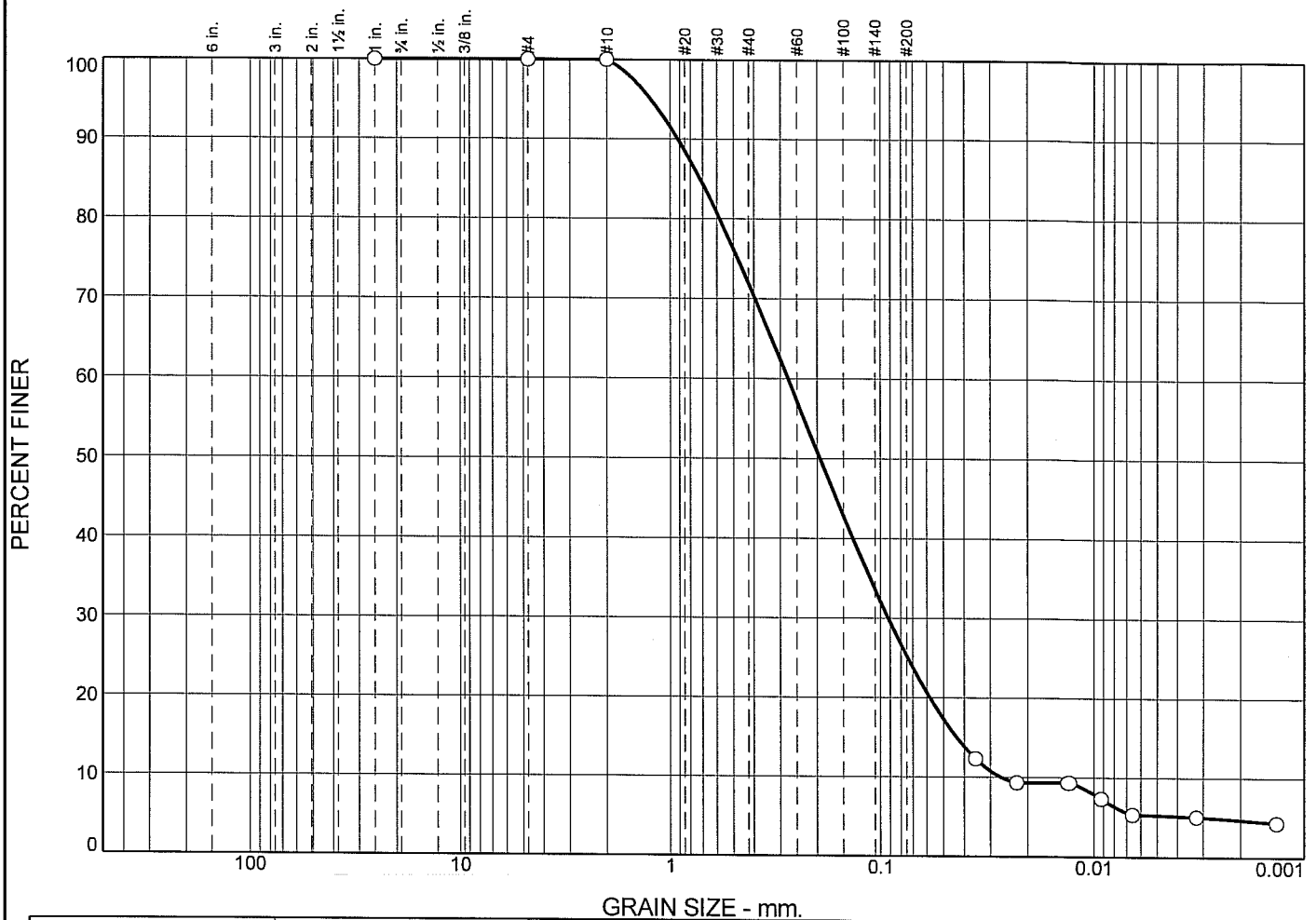
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	26.1	44.8	71.0	22.9	6.1	29.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0110	0.0341	0.0478	0.0785	0.1735	0.2513	0.5507	0.6902	0.8899	1.2133

Fineness Modulus	C_u	C_c
1.13	22.76	2.22

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	28.0	46.7	20.0	5.3

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.7210	0.2754	0.1937	0.0918	0.0434	0.0269	1.14	10.24

	Material Description	USCS	AASHTO
○	Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-CAP2-0507 **Sample Number:** 20091230

Aqua Survey, Inc.

Flemington, NJ

Remarks:

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/3/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP2-0507
Sample Number: 20091230
Material Description: Sediment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
104.89	12.74	1	12.74	12.74	100.0
		#4	12.74	12.74	100.0
		#10	12.74	12.74	100.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	11.5	6.2	0.0132	11.5	14.4	0.0353	12.3
5.00	23.0	10.0	4.7	0.0132	10.0	14.7	0.0225	9.3
15.00	23.0	10.0	4.7	0.0132	10.0	14.7	0.0130	9.3
30.00	23.0	9.0	3.7	0.0132	9.0	14.8	0.0092	7.3
60.00	23.0	8.0	2.7	0.0132	8.0	15.0	0.0066	5.3
250.00	22.5	8.0	2.5	0.0132	8.0	15.0	0.0032	5.1
1440.00	23.0	7.5	2.2	0.0132	7.5	15.1	0.0013	4.3

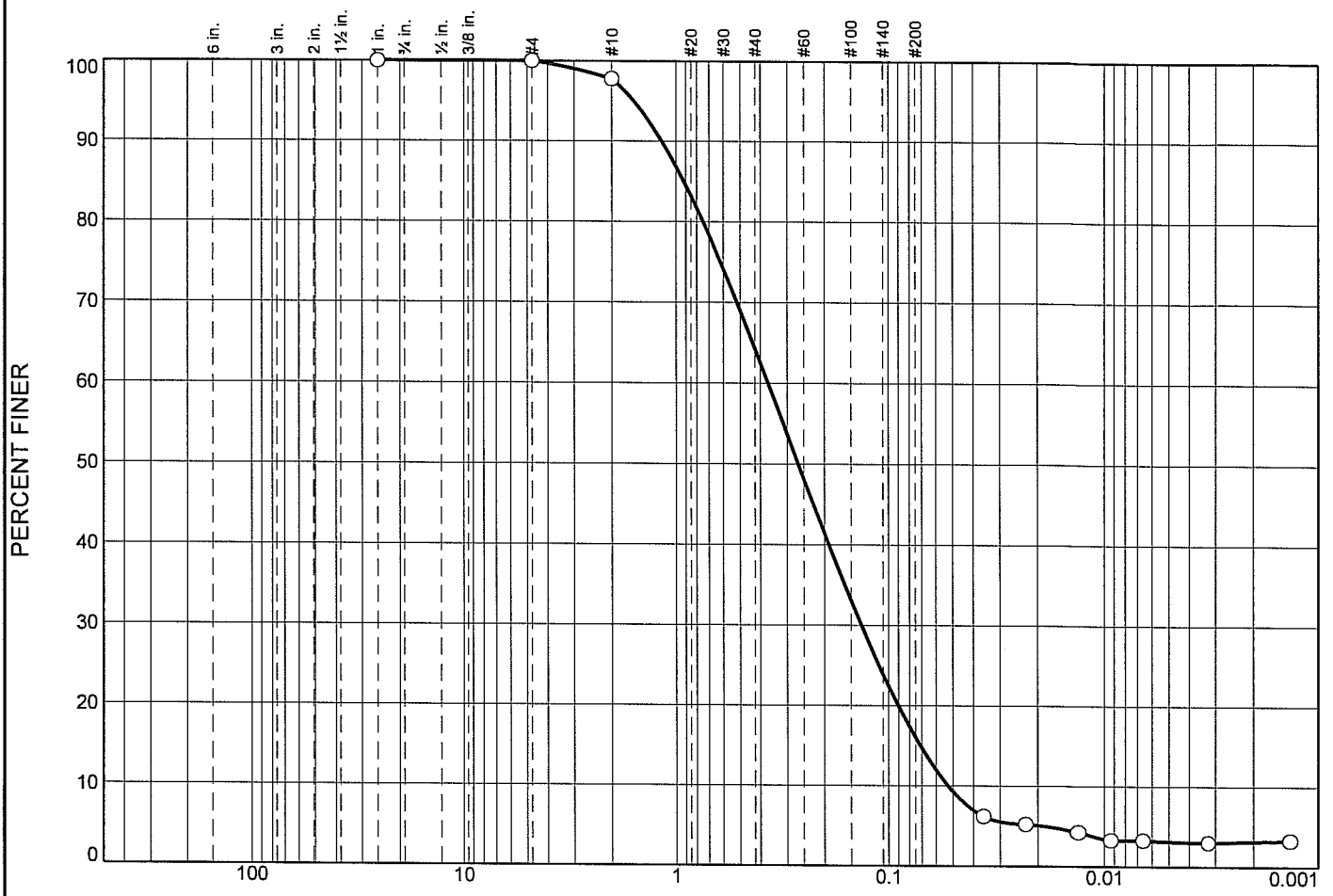
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	28.0	46.7	74.7	20.0	5.3	25.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0269	0.0434	0.0581	0.0918	0.1937	0.2754	0.5814	0.7210	0.9184	1.2329

Fineness Modulus	C_u	C_c
1.20	10.24	1.14

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	2.2	33.5	48.3	12.9	3.1

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.9200	0.3684	0.2654	0.1342	0.0711	0.0528	0.93	6.98

Material Description	USCS	AASHTO
○ Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-CAP3-0002 **Sample Number:** 20091231

Aqua Survey, Inc.

Flemington, NJ

Remarks:

○ material retained on #10 sieve contained shell fragment

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP3-0002
Sample Number: 20091231
Material Description: Sediment
Testing Remarks: material retained on #10 sieve contained shell fragment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
116.35	12.62	1	12.62	12.62	100.0
		#4	12.62	12.62	100.0
		#10	14.94	12.62	97.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 97.8
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	8.5	3.2	0.0132	8.5	14.9	0.0359	6.2
5.00	23.0	8.0	2.7	0.0132	8.0	15.0	0.0228	5.2
15.00	23.0	7.5	2.2	0.0132	7.5	15.1	0.0132	4.2
30.00	23.0	7.0	1.7	0.0132	7.0	15.1	0.0093	3.3
60.00	23.0	7.0	1.7	0.0132	7.0	15.1	0.0066	3.3
250.00	22.5	7.0	1.5	0.0132	7.0	15.1	0.0033	3.0
1440.00	23.0	7.0	1.7	0.0132	7.0	15.1	0.0013	3.3

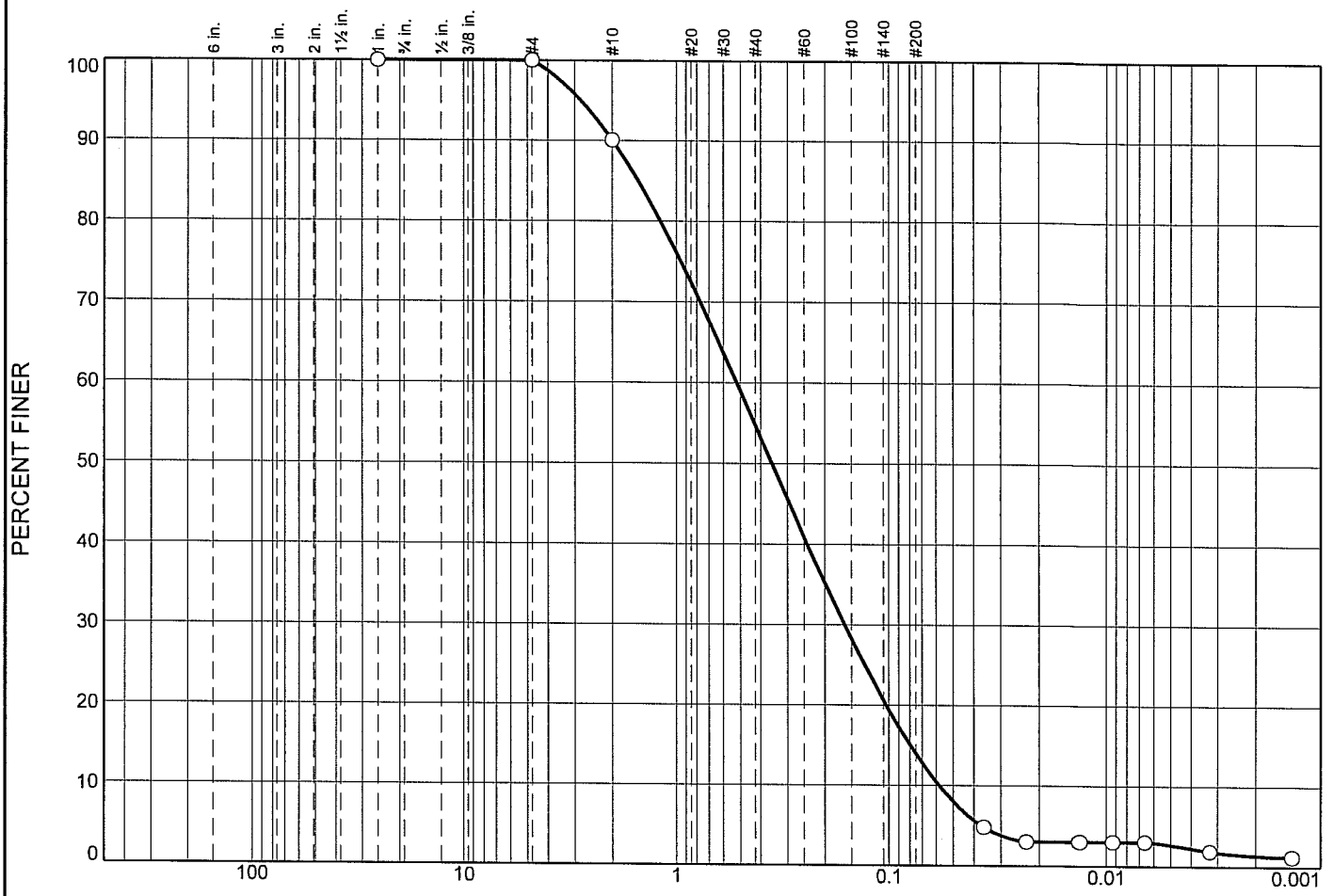
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	2.2	33.5	48.3	84.0	12.9	3.1	16.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0528	0.0711	0.0902	0.1342	0.2654	0.3684	0.7477	0.9200	1.1660	1.5725

Fineness Modulus	C_u	C_c
1.50	6.98	0.93

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	9.9	35.3	40.8	11.3	2.7

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			1.5103	0.5189	0.3543	0.1614	0.0794	0.0583	0.86	8.91

	Material Description	USCS	AASHTO
○	Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-CAP3-0205 **Sample Number:** 20091232

Aqua Survey, Inc.

Flemington, NJ

Remarks:

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/3/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP3-0205
Sample Number: 20091232
Material Description: Sediment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
84.65	12.61	1	12.61	12.61	100.0
		#4	12.61	12.61	100.0
		#10	19.76	12.61	90.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 90.1
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	8.0	2.7	0.0132	8.0	15.0	0.0360	4.8
5.00	23.0	7.0	1.7	0.0132	7.0	15.1	0.0229	3.0
15.00	23.0	7.0	1.7	0.0132	7.0	15.1	0.0132	3.0
30.00	23.0	7.0	1.7	0.0132	7.0	15.1	0.0093	3.0
60.00	23.0	7.0	1.7	0.0132	7.0	15.1	0.0066	3.0
250.00	22.5	6.5	1.0	0.0132	6.5	15.2	0.0033	1.9
1440.00	23.0	6.0	0.7	0.0132	6.0	15.3	0.0014	1.2

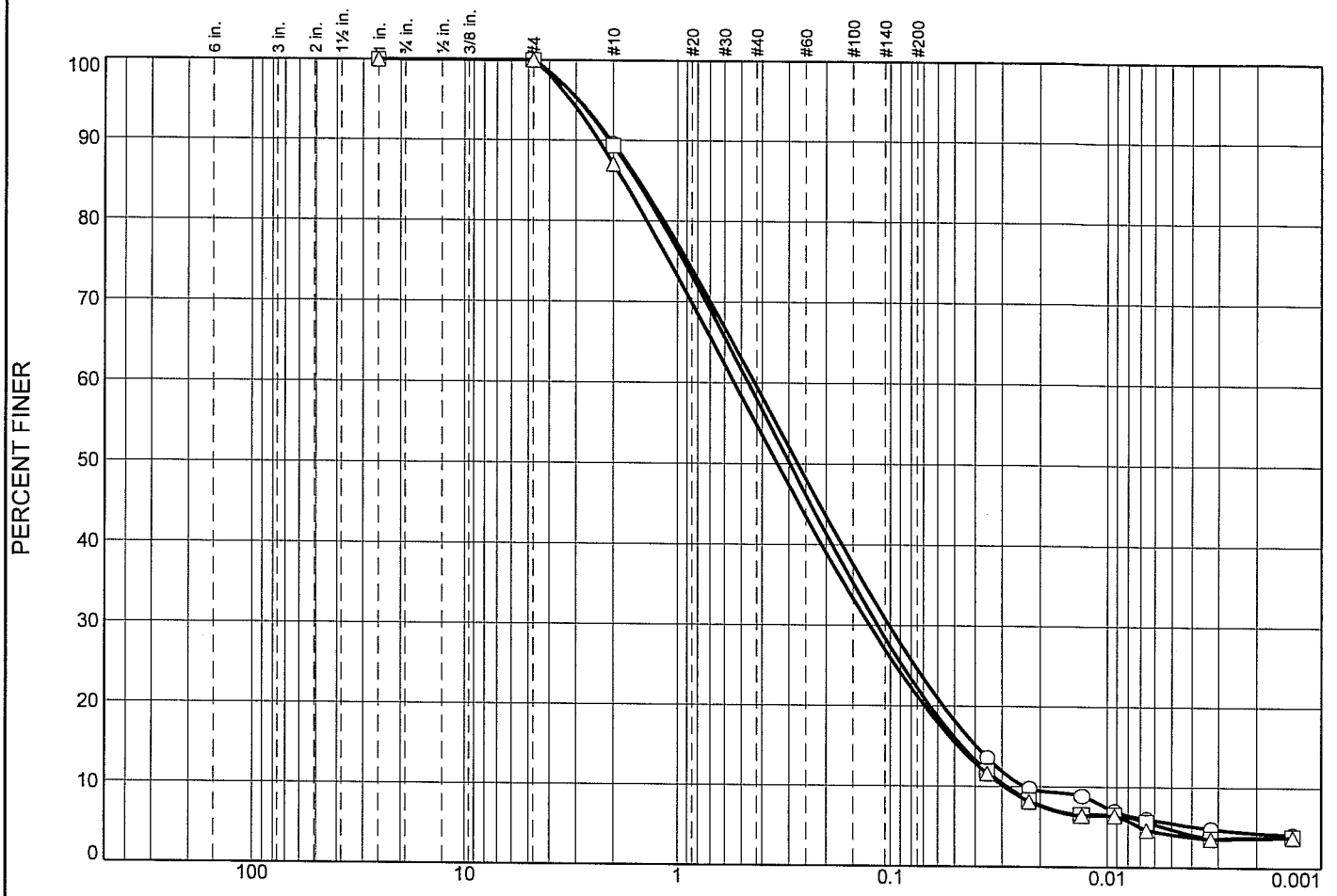
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	9.9	35.3	40.8	86.0	11.3	2.7	14.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0583	0.0794	0.1030	0.1614	0.3543	0.5189	1.1853	1.5103	1.9910	2.8067

Fineness Modulus	C_u	C_c
1.90	8.91	0.86

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	10.4	30.0	35.0	19.1	5.5
□	0.0	0.0	0.0	10.7	31.3	35.8	17.5	4.7
△	0.0	0.0	0.0	12.9	32.2	33.6	17.2	4.1

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			1.5199	0.4332	0.2718	0.1015	0.0395	0.0235	1.01	18.42
□			1.5538	0.4640	0.2966	0.1151	0.0460	0.0286	1.00	16.24
△			1.7932	0.5390	0.3391	0.1255	0.0479	0.0294	0.99	18.33

Material Description	USCS	AASHTO
○ Sediment		
□ Sediment		
△ Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-CAP3-0507 **Sample Number:** 20091233

□ **Source of Sample:** B2-CAP3-0507 **Sample Number:** 20091233 dup

△ **Source of Sample:** B2-CAP3-0507 **Sample Number:** 20091233 trip

Aqua Survey, Inc.

Flemington, NJ

Remarks:

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP3-0507
Sample Number: 20091233
Material Description: Sediment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
66.17	12.79	1	12.79	12.79	100.0
		#4	12.79	12.79	100.0
		#10	18.36	12.79	89.6

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 89.6
Weight of hydrometer sample =47.28
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	12.5	7.2	0.0132	12.5	14.2	0.0351	13.6
5.00	23.0	10.5	5.2	0.0132	10.5	14.6	0.0225	9.8
15.00	23.0	10.0	4.7	0.0132	10.0	14.7	0.0130	8.8
30.00	23.0	9.0	3.7	0.0132	9.0	14.8	0.0092	6.9
60.00	23.0	8.5	3.2	0.0132	8.5	14.9	0.0066	6.0
250.00	22.5	8.0	2.5	0.0132	8.0	15.0	0.0032	4.8
1440.00	23.0	7.5	2.2	0.0132	7.5	15.1	0.0013	4.1

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	10.4	30.0	35.0	75.4	19.1	5.5	24.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0235	0.0395	0.0565	0.1015	0.2718	0.4332	1.1542	1.5199	2.0548	2.9141

Fineness Modulus	C_u	C_c
1.71	18.42	1.01

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP3-0507
Sample Number: 20091233 dup
Material Description: Sediment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
81.45	12.63	1	12.63	12.63	100.0
		#4	12.63	12.63	100.0
		#10	19.96	12.63	89.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 89.3
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	12.0	6.7	0.0132	12.0	14.3	0.0352	11.9
5.00	23.0	10.0	4.7	0.0132	10.0	14.7	0.0225	8.3
15.00	23.0	9.0	3.7	0.0132	9.0	14.8	0.0131	6.5
30.00	23.0	9.0	3.7	0.0132	9.0	14.8	0.0092	6.5
60.00	23.0	8.5	3.2	0.0132	8.5	14.9	0.0066	5.7
250.00	22.5	7.5	2.0	0.0132	7.5	15.1	0.0032	3.6
1440.00	23.0	7.5	2.2	0.0132	7.5	15.1	0.0013	3.9

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	10.7	31.3	35.8	77.8	17.5	4.7	22.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0286	0.0460	0.0653	0.1151	0.2966	0.4640	1.1908	1.5538	2.0829	2.9334

Fineness Modulus	C_u	C_c
1.77	16.24	1.00

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP3-0507
Sample Number: 20091233 trip
Material Description: Sediment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
77.68	12.71	1	12.71	12.71	100.0
		#4	12.71	12.71	100.0
		#10	21.11	12.71	87.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 87.1
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	12.0	6.7	0.0132	12.0	14.3	0.0352	11.6
5.00	23.0	10.0	4.7	0.0132	10.0	14.7	0.0225	8.1
15.00	23.0	9.0	3.7	0.0132	9.0	14.8	0.0131	6.4
30.00	23.0	9.0	3.7	0.0132	9.0	14.8	0.0092	6.4
60.00	23.0	8.0	2.7	0.0132	8.0	15.0	0.0066	4.6
250.00	22.5	7.5	2.0	0.0132	7.5	15.1	0.0032	3.5
1440.00	23.0	7.5	2.2	0.0132	7.5	15.1	0.0013	3.8

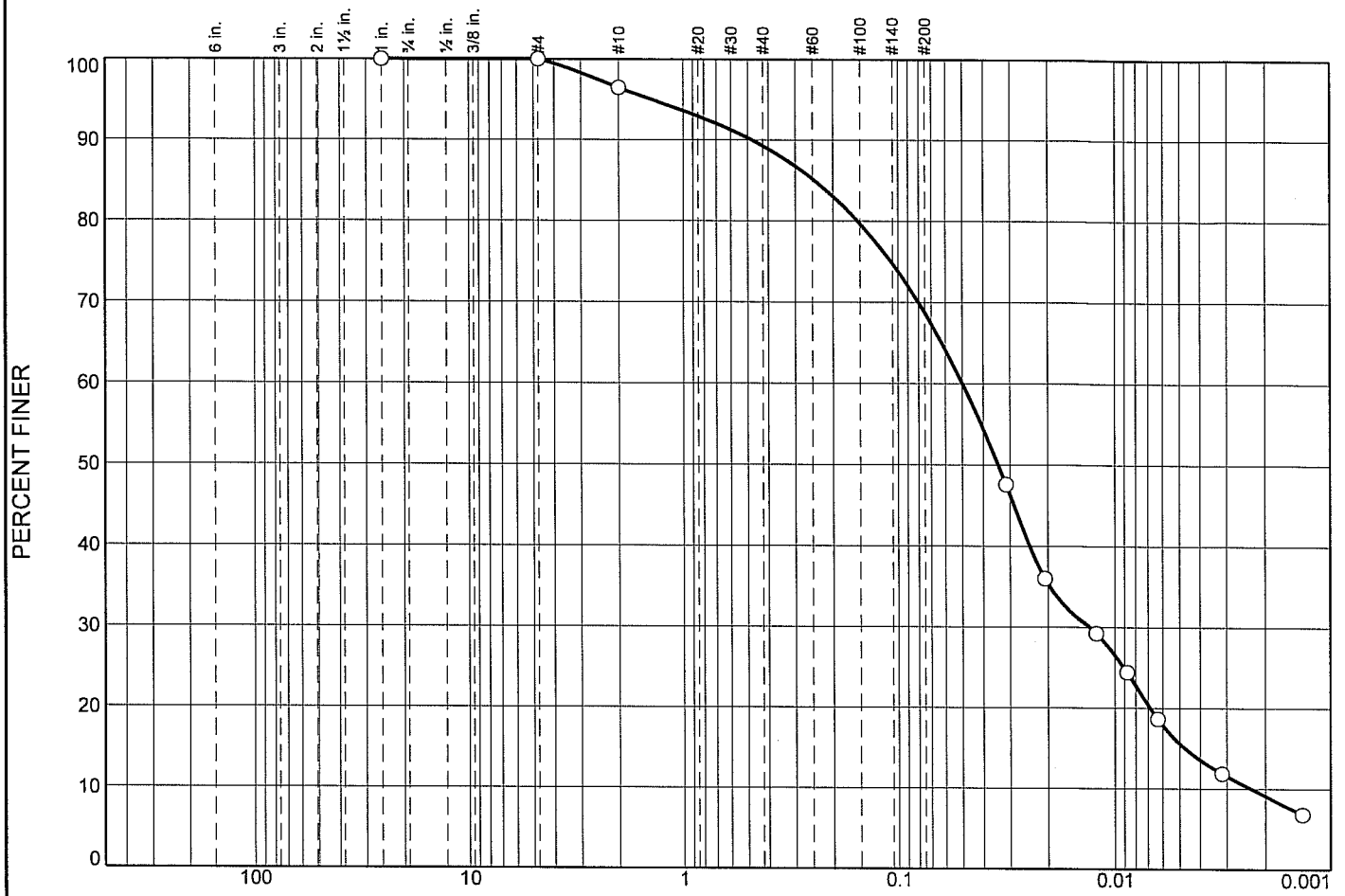
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	12.9	32.2	33.6	78.7	17.2	4.1	21.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0294	0.0479	0.0691	0.1255	0.3391	0.5390	1.3898	1.7932	2.3490	3.1788

Fineness Modulus	C_u	C_c
1.90	18.33	0.99

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	3.5	7.2	20.6	53.1	15.6

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○			0.2443	0.0499	0.0341	0.0131	0.0047	0.0023	1.47	21.45

Material Description	USCS	AASHTO
○ Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-CAP1-GRAB **Sample Number:** 20091234

Aqua Survey, Inc.

Flemington, NJ

Remarks:

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP1-GRAB
Sample Number: 20091234
Material Description: Sediment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
80.76	12.64	1	12.64	12.64	100.0
		#4	12.64	12.64	100.0
		#10	15.04	12.64	96.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 96.5
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	30.0	24.7	0.0132	30.0	11.4	0.0314	47.6
5.00	23.0	24.0	18.7	0.0132	24.0	12.4	0.0207	36.0
15.00	23.0	20.5	15.2	0.0132	20.5	12.9	0.0122	29.3
30.00	23.0	18.0	12.7	0.0132	18.0	13.3	0.0088	24.4
60.00	23.0	15.0	9.7	0.0132	15.0	13.8	0.0063	18.6
250.00	23.0	11.5	6.2	0.0132	11.5	14.4	0.0032	11.9
1440.00	22.5	9.0	3.5	0.0132	9.0	14.8	0.0013	6.8

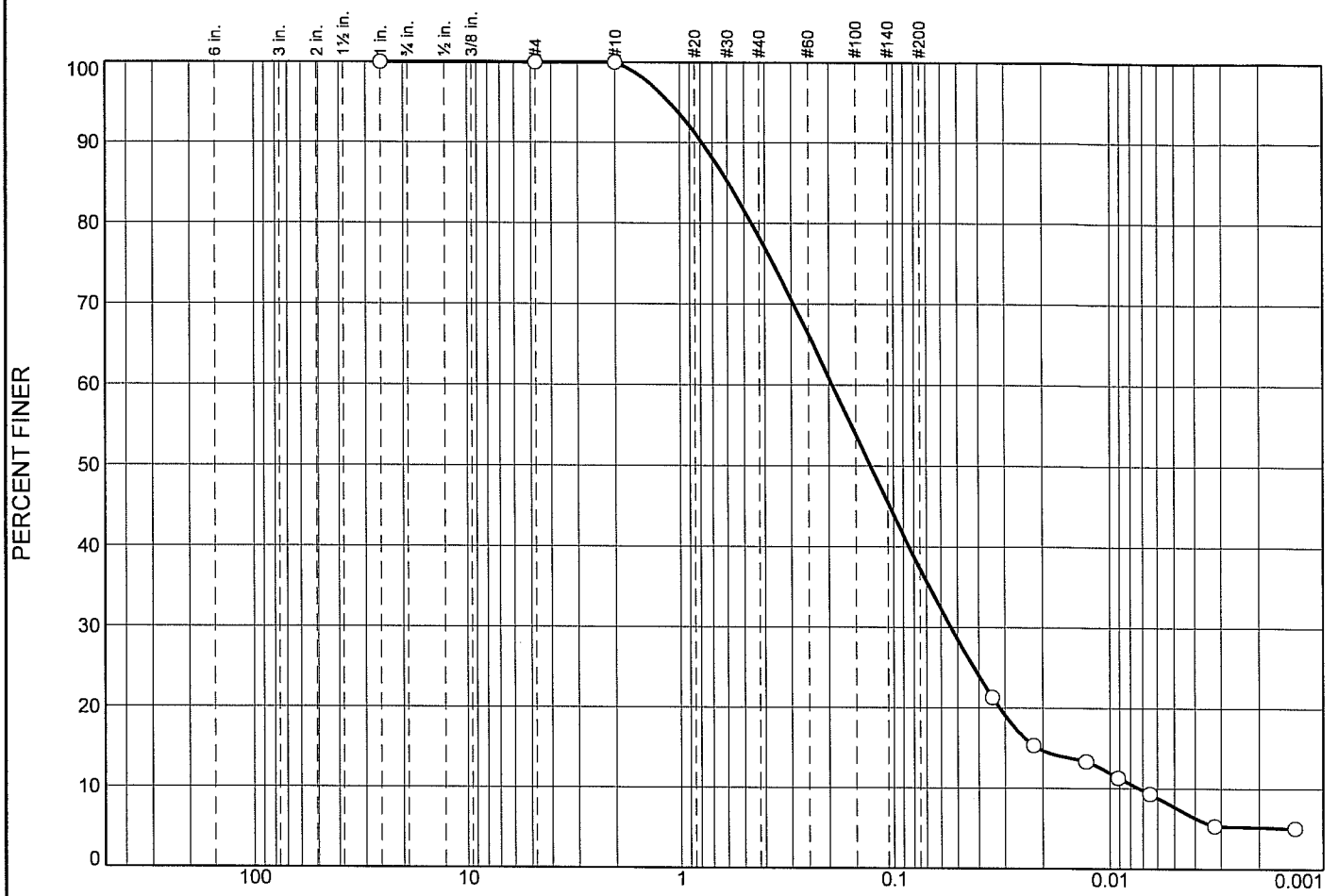
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	3.5	7.2	20.6	31.3	53.1	15.6	68.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0023	0.0047	0.0069	0.0131	0.0341	0.0499	0.1540	0.2443	0.4776	1.4060

Fineness Modulus	C_u	C_c
0.51	21.45	1.47

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	21.7	41.0	29.6	7.7

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.5920	0.1928	0.1281	0.0538	0.0212	0.0073	2.06	26.44

	Material Description	USCS	AASHTO
○	Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-CAP2-GRAB **Sample Number:** 20091235

Aqua Survey, Inc.

Flemington, NJ

Remarks:

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP2-GRAB
Sample Number: 20091235
Material Description: Sediment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
77.65	12.72	1	12.72	12.72	100.0
		#4	12.72	12.72	100.0
		#10	12.72	12.72	100.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	16.0	10.7	0.0132	16.0	13.7	0.0344	21.3
5.00	23.0	13.0	7.7	0.0132	13.0	14.2	0.0221	15.3
15.00	23.0	12.0	6.7	0.0132	12.0	14.3	0.0129	13.3
30.00	23.0	11.0	5.7	0.0132	11.0	14.5	0.0091	11.3
60.00	23.0	10.0	4.7	0.0132	10.0	14.7	0.0065	9.3
250.00	23.0	8.0	2.7	0.0132	8.0	15.0	0.0032	5.3
1440.00	22.5	8.0	2.5	0.0132	8.0	15.0	0.0013	5.1

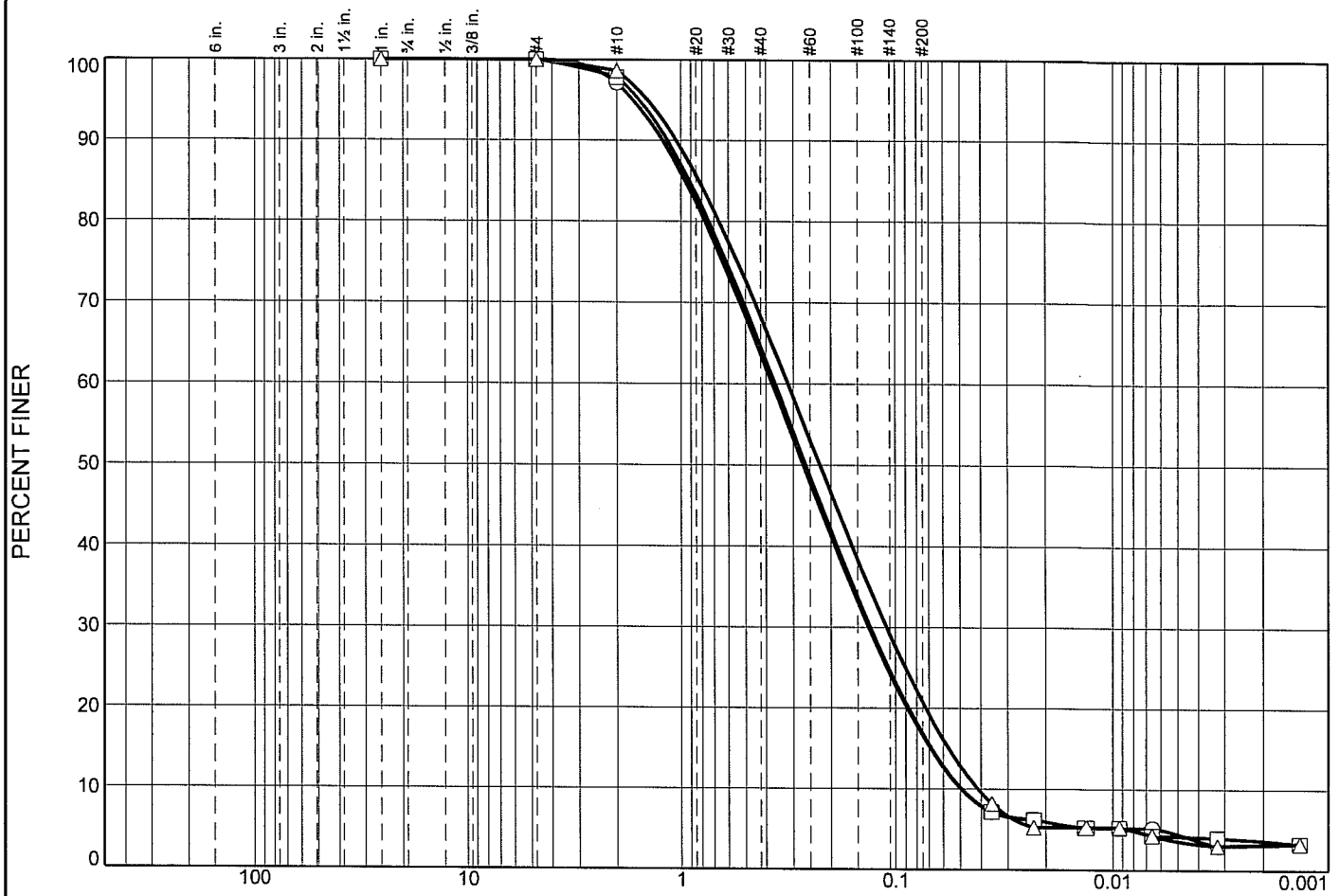
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	21.7	41.0	62.7	29.6	7.7	37.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0073	0.0212	0.0318	0.0538	0.1281	0.1928	0.4605	0.5920	0.7857	1.1107

Fineness Modulus	C_u	C_c
0.95	26.44	2.06

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	2.9	33.4	47.1	12.1	4.5
□	0.0	0.0	0.0	2.2	33.2	47.8	12.6	4.2
△	0.0	0.0	0.0	1.4	30.3	47.6	17.1	3.6

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.9565	0.3752	0.2683	0.1333	0.0688	0.0496	0.95	7.56
□			0.9127	0.3639	0.2615	0.1311	0.0682	0.0493	0.96	7.39
△			0.8236	0.3169	0.2248	0.1100	0.0566	0.0414	0.92	7.65

Material Description	USCS	AASHTO
○ Sediment		
□ Sediment		
△ Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-CAP3-GRAB **Sample Number:** 20091236

□ **Source of Sample:** B2-CAP3-GRAB **Sample Number:** 20091236 dup

△ **Source of Sample:** B2-CAP3-GRAB **Sample Number:** 20091236 trip

Aqua Survey, Inc.

Flemington, NJ

Remarks:

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP3-GRAB
Sample Number: 20091236
Material Description: Sediment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
65.72	12.85	1	12.85	12.85	100.0
		#4	12.85	12.85	100.0
		#10	14.38	12.85	97.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 97.1
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	9.0	3.7	0.0132	9.0	14.8	0.0358	7.1
5.00	23.0	8.5	3.2	0.0132	8.5	14.9	0.0227	6.1
15.00	23.0	8.0	2.7	0.0132	8.0	15.0	0.0131	5.2
30.00	23.0	8.0	2.7	0.0132	8.0	15.0	0.0093	5.2
60.00	23.0	8.0	2.7	0.0132	8.0	15.0	0.0066	5.2
250.00	22.5	7.0	1.5	0.0132	7.0	15.1	0.0033	3.0
1440.00	23.0	7.0	1.7	0.0132	7.0	15.1	0.0013	3.2

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	2.9	33.4	47.1	83.4	12.1	4.5	16.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0496	0.0688	0.0883	0.1333	0.2683	0.3752	0.7733	0.9565	1.2204	1.6660

Fineness Modulus	C_u	C_c
1.52	7.56	0.95

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP3-GRAB
Sample Number: 20091236 dup
Material Description: Sediment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
70.13	12.73	1	12.73	12.73	100.0
		#4	12.73	12.73	100.0
		#10	13.98	12.73	97.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 97.8
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	9.0	3.7	0.0132	9.0	14.8	0.0358	7.2
5.00	23.0	8.5	3.2	0.0132	8.5	14.9	0.0227	6.2
15.00	23.0	8.0	2.7	0.0132	8.0	15.0	0.0131	5.2
30.00	23.0	8.0	2.7	0.0132	8.0	15.0	0.0093	5.2
60.00	23.0	7.5	2.2	0.0132	7.5	15.1	0.0066	4.2
250.00	22.5	7.5	2.0	0.0132	7.5	15.1	0.0032	4.0
1440.00	23.0	7.0	1.7	0.0132	7.0	15.1	0.0013	3.3

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	2.2	33.2	47.8	83.2	12.6	4.2	16.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0493	0.0682	0.0872	0.1311	0.2615	0.3639	0.7412	0.9127	1.1574	1.5615

Fineness Modulus	C_u	C_c
1.49	7.39	0.96

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP3-GRAB
Sample Number: 20091236 trip
Material Description: Sediment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
79.49	12.73	1	12.73	12.73	100.0
		#4	12.73	12.73	100.0
		#10	13.67	12.73	98.6

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 98.6
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	9.5	4.2	0.0132	9.5	14.7	0.0357	8.2
5.00	23.0	8.0	2.7	0.0132	8.0	15.0	0.0228	5.3
15.00	23.0	8.0	2.7	0.0132	8.0	15.0	0.0131	5.3
30.00	23.0	8.0	2.7	0.0132	8.0	15.0	0.0093	5.3
60.00	23.0	7.5	2.2	0.0132	7.5	15.1	0.0066	4.3
250.00	22.5	7.0	1.5	0.0132	7.0	15.1	0.0033	3.0
1440.00	23.0	7.0	1.7	0.0132	7.0	15.1	0.0013	3.3

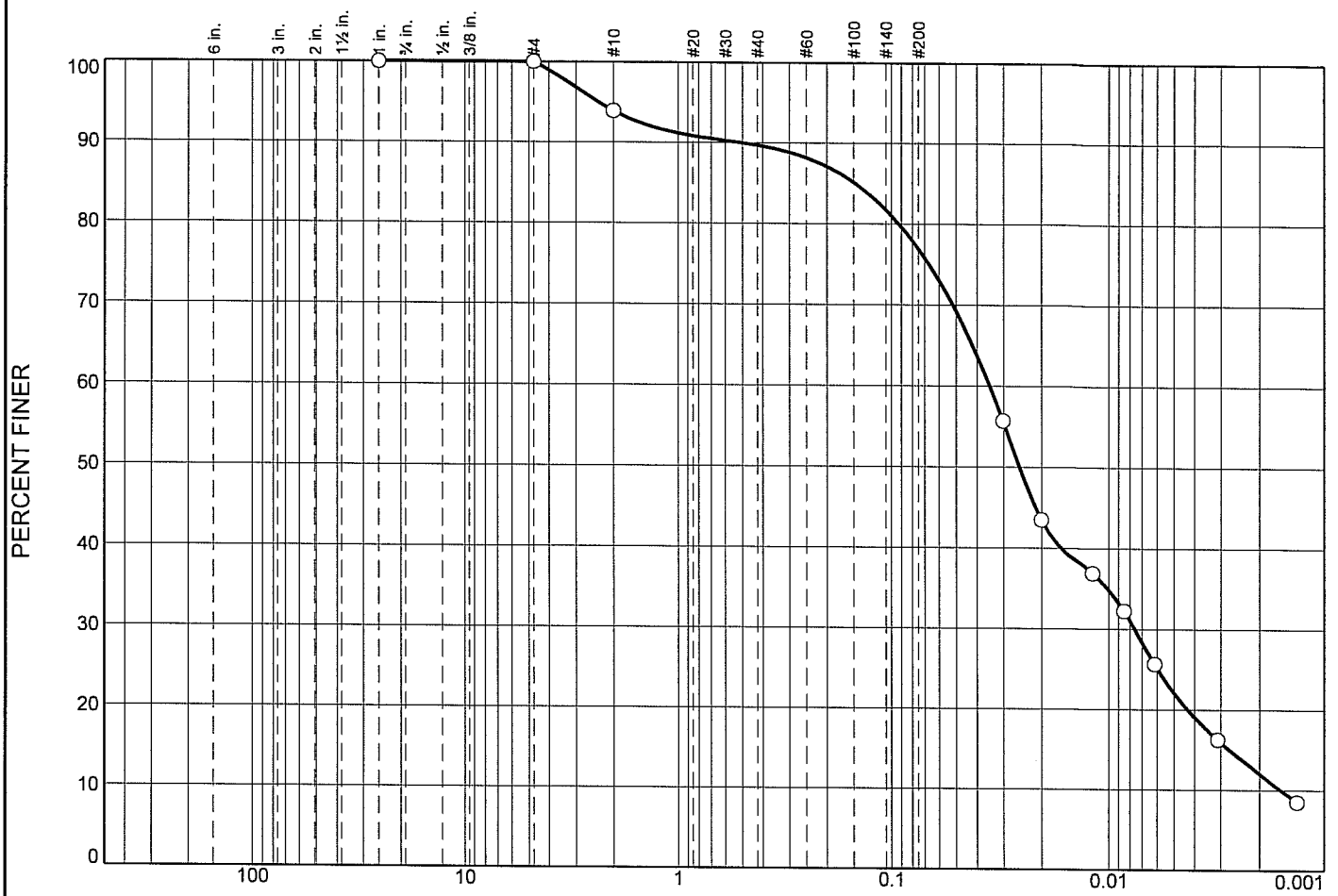
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	1.4	30.3	47.6	79.3	17.1	3.6	20.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0414	0.0566	0.0725	0.1100	0.2248	0.3169	0.6638	0.8236	1.0526	1.4292

Fineness Modulus	C_u	C_c
1.35	7.65	0.92

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	6.1	4.2	12.8	54.8	22.1

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.1477	0.0348	0.0253	0.0076	0.0027	0.0016	1.05	21.97

Material Description	USCS	AASHTO
○ Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-OFF1-GRAB **Sample Number:** 20091237

Aqua Survey, Inc.

Flemington, NJ

Remarks:

○ material retained on #10 sieve contained shell fragment

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-OFF1-GRAB
Sample Number: 20091237
Material Description: Sediment
Testing Remarks: material retained on #10 sieve contained shell fragment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
75.99	12.70	1	12.70	12.70	100.0
		#4	12.70	12.70	100.0
		#10	16.55	12.70	93.9

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 93.9
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	35.0	29.7	0.0132	35.0	10.6	0.0302	55.7
5.00	23.0	28.5	23.2	0.0132	28.5	11.6	0.0201	43.5
15.00	23.0	25.0	19.7	0.0132	25.0	12.2	0.0119	36.9
30.00	23.0	22.5	17.2	0.0132	22.5	12.6	0.0085	32.2
60.00	23.0	19.0	13.7	0.0132	19.0	13.2	0.0062	25.7
250.00	23.0	14.0	8.7	0.0132	14.0	14.0	0.0031	16.3
1440.00	22.5	10.0	4.5	0.0132	10.0	14.7	0.0013	8.5

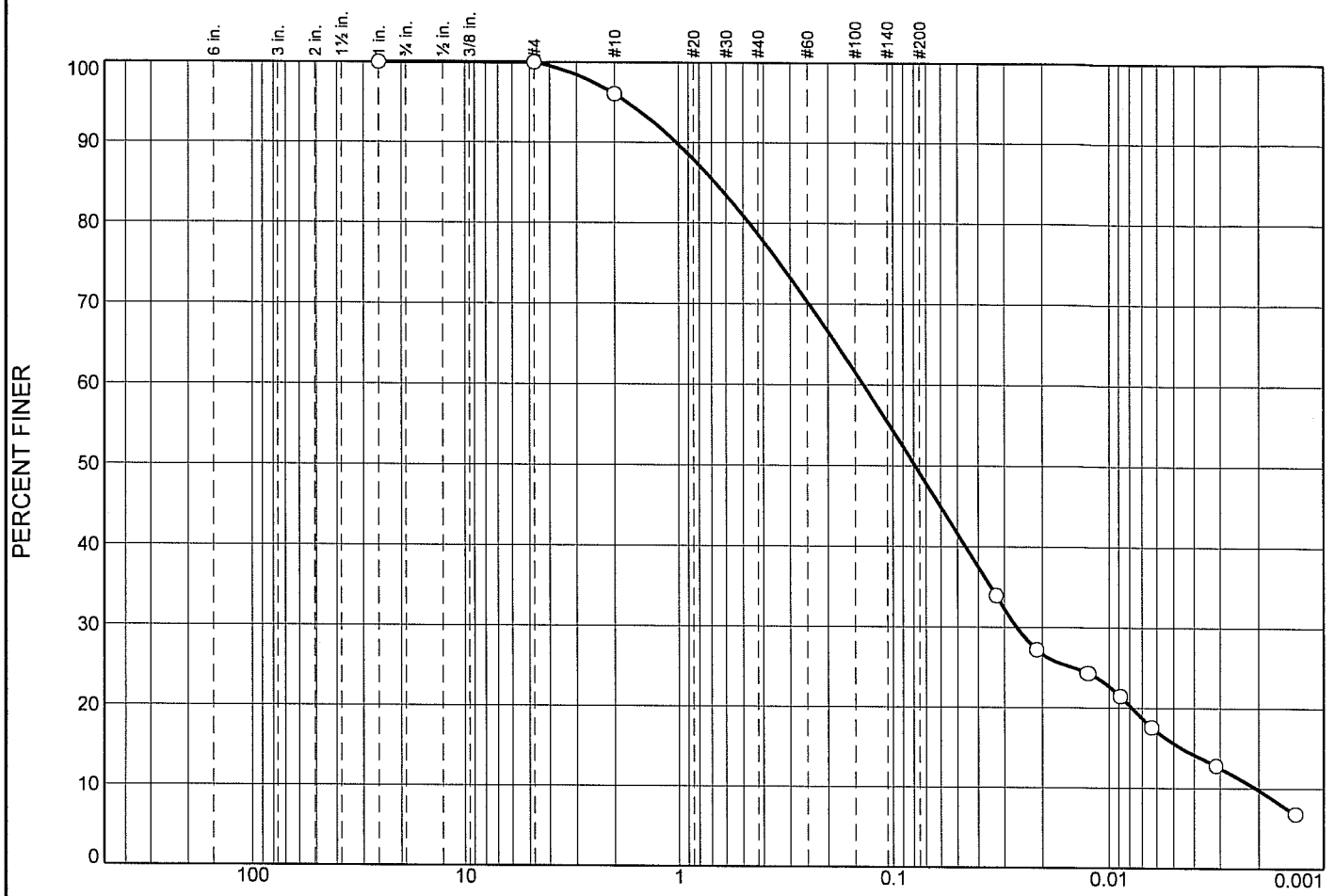
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	6.1	4.2	12.8	23.1	54.8	22.1	76.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0016	0.0027	0.0043	0.0076	0.0253	0.0348	0.0923	0.1477	0.5062	2.3542

Fineness Modulus	C_u	C_c
0.49	21.97	1.05

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	3.9	17.5	29.5	33.5	15.6

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.6727	0.1370	0.0788	0.0263	0.0046	0.0021	2.44	66.48

	Material Description	USCS	AASHTO
○	Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-OFF2-GRAB **Sample Number:** 20091238

Aqua Survey, Inc.

Flemington, NJ

Remarks:

○ material retained on #10 sieve contained shell fragment

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-OFF2-GRAB
Sample Number: 20091238
Material Description: Sediment
Testing Remarks: material retained on #10 sieve contained shell fragment
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
75.71	12.59	1	12.59	12.59	100.0
		#4	12.59	12.59	100.0
		#10	15.08	12.59	96.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 96.1
Weight of hydrometer sample =50.0
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	23.0	17.7	0.0132	23.0	12.5	0.0329	33.9
5.00	23.0	19.5	14.2	0.0132	19.5	13.1	0.0213	27.2
15.00	23.0	18.0	12.7	0.0132	18.0	13.3	0.0124	24.3
30.00	23.0	16.5	11.2	0.0132	16.5	13.6	0.0089	21.4
60.00	23.0	14.5	9.2	0.0132	14.5	13.9	0.0063	17.6
250.00	23.0	12.0	6.7	0.0132	12.0	14.3	0.0031	12.8
1440.00	22.5	9.0	3.5	0.0132	9.0	14.8	0.0013	6.8

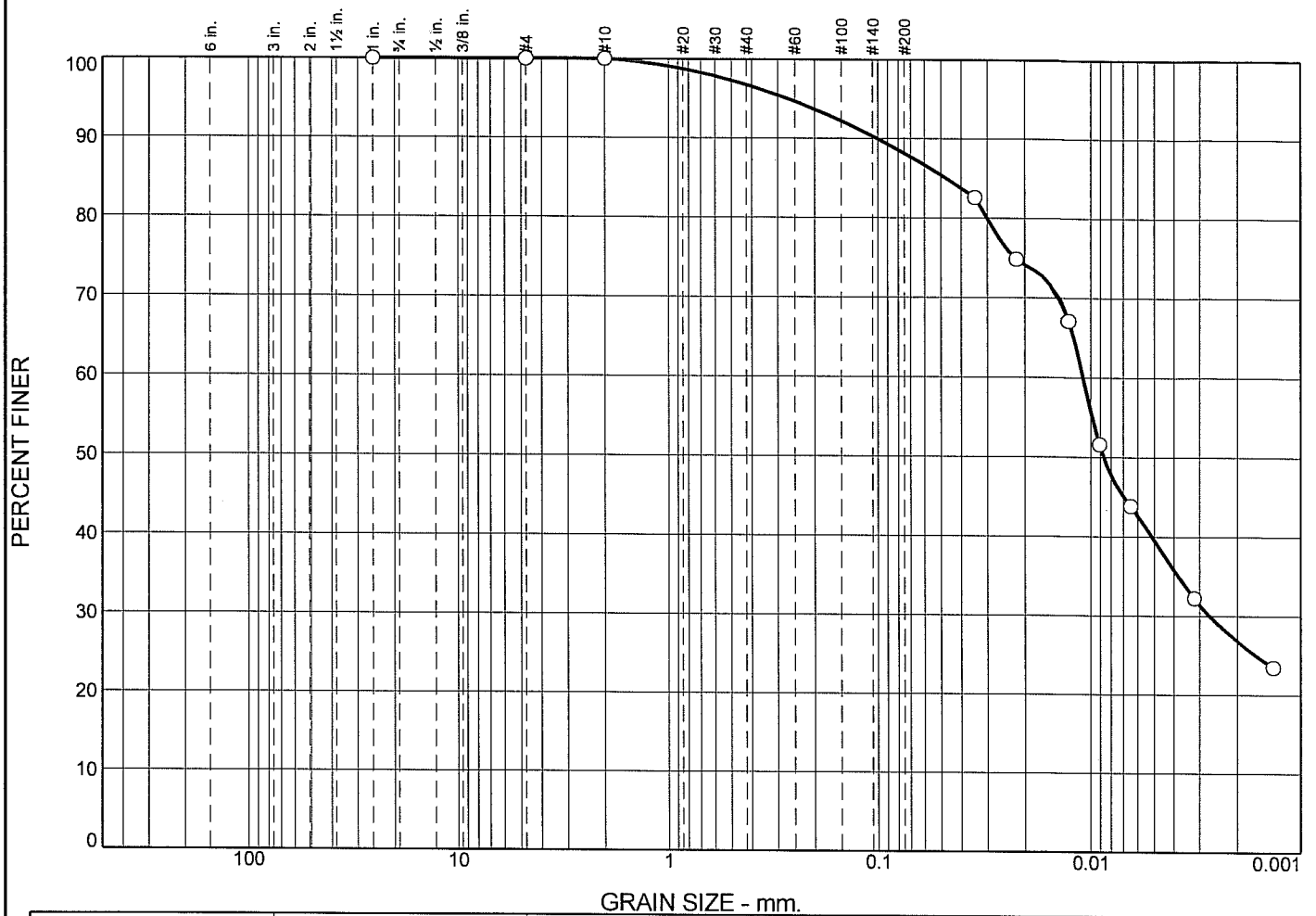
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	3.9	17.5	29.5	50.9	33.5	15.6	49.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0021	0.0046	0.0078	0.0263	0.0788	0.1370	0.4670	0.6727	1.0224	1.7354

Fineness Modulus	C_u	C_c
0.93	66.48	2.44

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	3.3	8.5	48.6	39.6

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.0474	0.0109	0.0087	0.0027				

Material Description	USCS	AASHTO
○ Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-CAP1-TRAP **Sample Number:** 20091255

Aqua Survey, Inc.

Flemington, NJ

Remarks:

○ less than 50 grams in hydrometer

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP1-TRAP
Sample Number: 20091255
Material Description: Sediment
Testing Remarks: less than 50 grams in hydrometer
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
25.81	12.78	1	12.78	12.78	100.0
		#4	12.78	12.78	100.0
		#10	12.78	12.78	100.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =12.913
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	16.0	10.7	0.0132	16.0	13.7	0.0344	82.6
5.00	23.0	15.0	9.7	0.0132	15.0	13.8	0.0219	74.8
15.00	23.0	14.0	8.7	0.0132	14.0	14.0	0.0127	67.1
30.00	23.0	12.0	6.7	0.0132	12.0	14.3	0.0091	51.6
60.00	23.0	11.0	5.7	0.0132	11.0	14.5	0.0065	43.9
250.00	23.0	9.5	4.2	0.0132	9.5	14.7	0.0032	32.2
1440.00	22.5	8.5	3.0	0.0132	8.5	14.9	0.0013	23.5

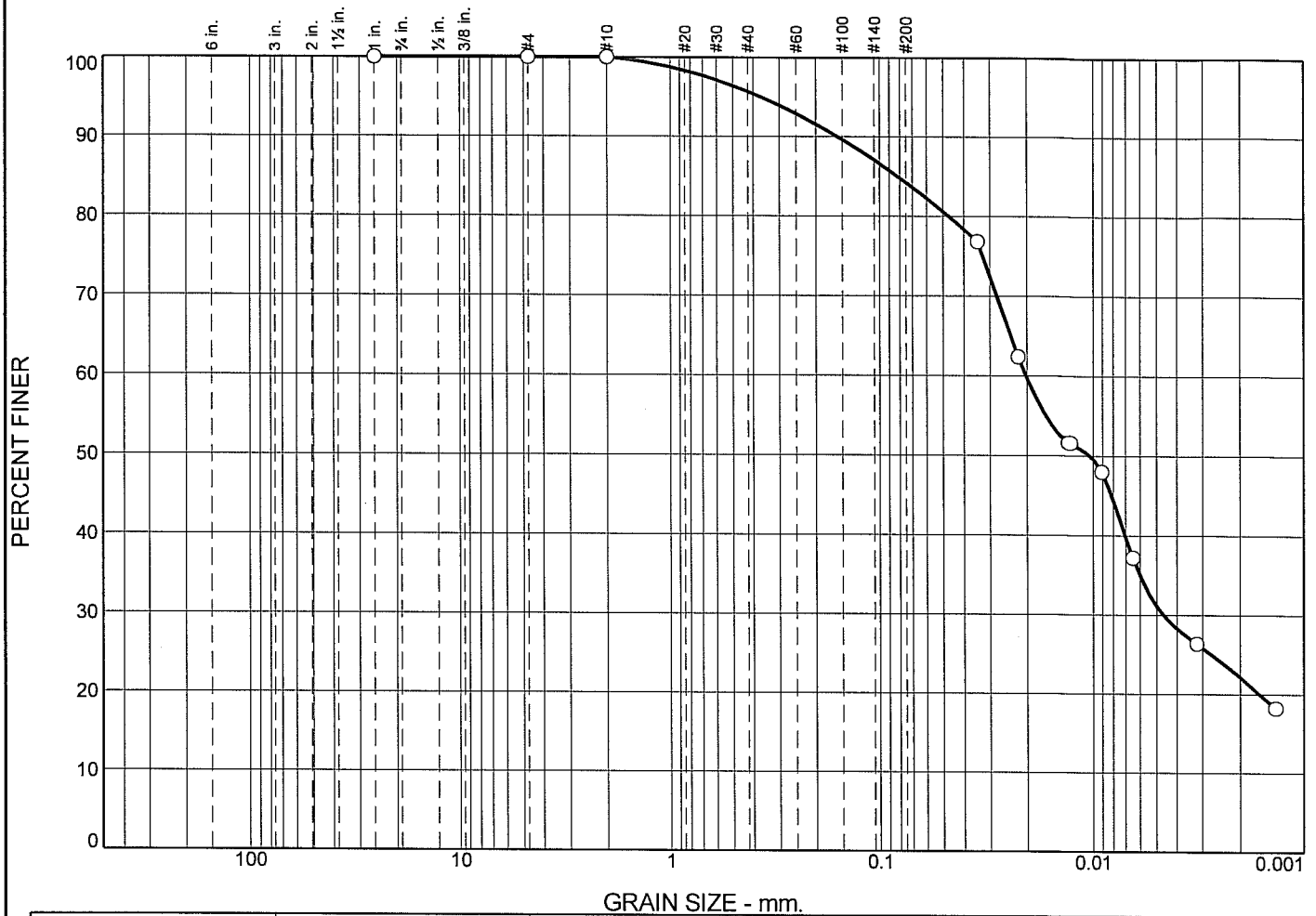
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	3.3	8.5	11.8	48.6	39.6	88.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0027	0.0087	0.0109	0.0302	0.0474	0.1010	0.2696

Fineness Modulus
0.15

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	4.3	11.5	53.0	31.2

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.0821	0.0202	0.0104	0.0046				

	Material Description	USCS	AASHTO
○	Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-CAP2-TRAP **Sample Number:** 20091256

Aqua Survey, Inc.

Flemington, NJ

Remarks:

○ less than 50 grams in hydrometer

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP2-TRAP
Sample Number: 20091256
Material Description: Sediment
Testing Remarks: less than 50 grams in hydrometer
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
26.60	12.61	1	12.61	12.61	100.0
		#4	12.61	12.61	100.0
		#10	12.61	12.61	100.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =13.881
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	16.0	10.7	0.0132	16.0	13.7	0.0344	76.8
5.00	23.0	14.0	8.7	0.0132	14.0	14.0	0.0220	62.4
15.00	23.0	12.5	7.2	0.0132	12.5	14.2	0.0128	51.6
30.00	23.0	12.0	6.7	0.0132	12.0	14.3	0.0091	48.0
60.00	23.0	10.5	5.2	0.0132	10.5	14.6	0.0065	37.2
250.00	23.0	9.0	3.7	0.0132	9.0	14.8	0.0032	26.4
1440.00	22.5	8.0	2.5	0.0132	8.0	15.0	0.0013	18.2

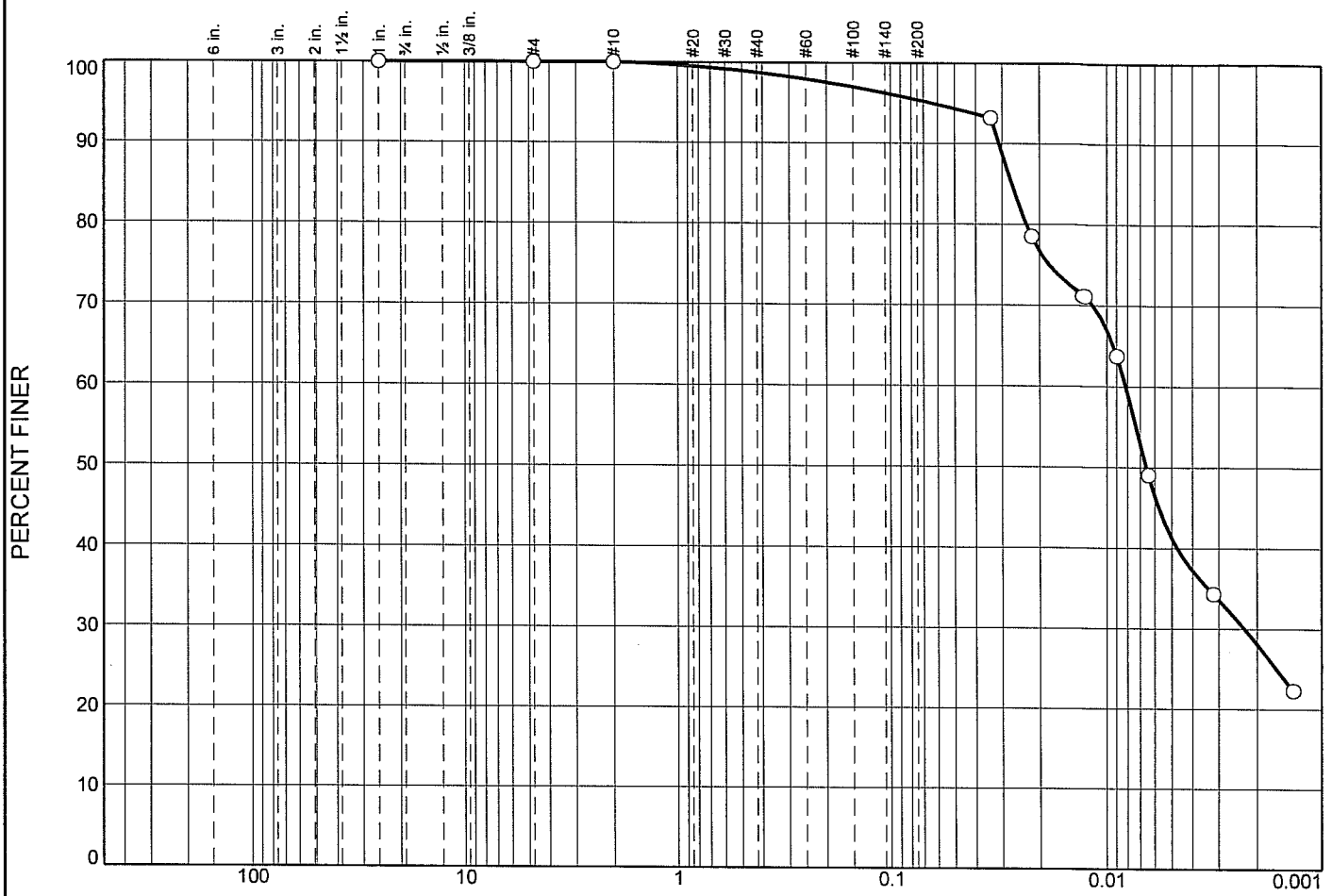
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	4.3	11.5	15.8	53.0	31.2	84.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0016	0.0046	0.0104	0.0202	0.0472	0.0821	0.1579	0.3688

Fineness Modulus
0.20

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	1.3	3.3	54.2	41.2

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○			0.0270	0.0082	0.0066	0.0023				

	Material Description	USCS	AASHTO
○	Sediment		

Project No. 29-197 **Client:** Battelle

Project: SPAWAR Quantico Embayment EMNR CG898574-0001

○ **Source of Sample:** B2-CAP3-TRAP **Sample Number:** 20091257

Aqua Survey, Inc.

Flemington, NJ

Remarks:

○ less than 50 grams in hydrometer

Figure

Tested By: S. Hornberger **Checked By:** R. Fristrom

GRAIN SIZE DISTRIBUTION TEST DATA

12/2/2009

Client: Battelle
Project: SPAWAR Quantico Embayment EMNR CG898574-0001
Project Number: 29-197
Location: B2-CAP3-TRAP
Sample Number: 20091257
Material Description: Sediment
Testing Remarks: less than 50 grams in hydrometer
Tested by: S. Hornberger **Checked by:** R. Fristrom

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
26.52	12.80	1	12.80	12.80	100.0
		#4	12.80	12.80	100.0
		#10	12.80	12.80	100.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =13.588
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	18.0	12.7	0.0132	18.0	13.3	0.0340	93.2
5.00	23.0	16.0	10.7	0.0132	16.0	13.7	0.0217	78.5
15.00	23.0	15.0	9.7	0.0132	15.0	13.8	0.0126	71.1
30.00	23.0	14.0	8.7	0.0132	14.0	14.0	0.0090	63.8
60.00	23.0	12.0	6.7	0.0132	12.0	14.3	0.0064	49.0
250.00	23.0	10.0	4.7	0.0132	10.0	14.7	0.0032	34.3
1440.00	22.5	8.5	3.0	0.0132	8.5	14.9	0.0013	22.3

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.3	3.3	4.6	54.2	41.2	95.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0023	0.0066	0.0082	0.0230	0.0270	0.0310	0.0641

Fineness Modulus
0.06

AQUA SURVEY, INC

PARTICLE SIZE BENCHSHEET

JOB #: 29-197

CLIENT: Battelle

Balance: Sart **Calibration: YES** ✓ **NO** ____

Sample ID	Container Mass (g) A	Sample and Container (g) B	Gravel Retained on #4 (4.75mm) and Container (g) C	Coarse Sand Retained on #10 (2.0mm) and Container (g) D	~~% Gravel~~ Mass g to hydrometer
2009 1222	12.695	43.328	12.695	12.695	
1223	12.614	63.577	12.614	12.614	
1224	12.746	69.596	12.746	12.746	
1225	12.720	62.590	12.720	12.720	
1226	12.729	78.788	12.729	12.729	
1227	10.936	99.670	10.936	10.936	
1228	12.818	54.670	12.818	12.818	
1229	10.842	89.860	10.842	10.928	
1230	12.736	104.893	12.736	12.736	
1231	12.616	116.347	12.616	14.935 *	
1232	12.614	84.650	12.614	19.764	
1233	12.790	66.169	12.790	18.355	
Dup 1233	12.627	81.452	12.627	19.962	
Trip 1233	12.705	77.679	12.705	21.110	
Date/ Initials 10/26 MM KM					

% Gravel = (C-A/B-A) * 100

* Shell

HYDROMETRIC READINGS FOR GRAIN SIZE ANALYSIS

Job #: 29-197 Client: BAT

Water Temp: 23, 22.5, 23

Sample: 20091222 Grams Used: 30.49 DC: 6

Clock Time	T	R_h	Initials/Date
9:00	0	XXXX	MH 10/27
9:02	2	20	
9:05	5	16.5	
9:15	15	14	
9:30	30	13	
10:00	60	12	
1:10	250	9Q MH	
9:00	1440	8	MH 10/28

Sample: 1225 Grams Used: 49.56 DC: 6

Clock Time	T	R_h	Initials/Date
9:12	0	XXXX	MH 10/27
9:14	2	25.5	
9:17	5	21	
9:27	15	19	
9:42	30	17	
10:12	60	14.5	
1:22	250	12	
9:12	1440	10	MH 10/28

Sample: 1223 Grams Used: 50.0 DC: 6

Clock Time	T	R_h	Initials/Date
9:04	0	XXXX	MH 10/27
9:06	2	26.5	
9:09	5	22	
9:19	15	19	
9:34	30	17	
10:04	60	15	
1:14	250	12	
9:04	1440	10	MH 10/28

Sample: 1226 Grams Used: 50.0 DC: 6

Clock Time	T	R_h	Initials/Date
9:16	0	XXXX	MH 10/27
9:18	2	28	
9:21	5	23	
9:31	15	21	
9:46	30	18.5	
10:16	60	15	
1:26	250	12.5	
9:16	1440	10.5	MH 10/28

Sample: 1224 Grams Used: 50.0 DC: 6

Clock Time	T	R_h	Initials/Date
9:08	0	XXXX	MH 10/27
9:10	2	24	
9:13	5	20	
9:23	15	17	
9:38	30	16	
10:08	60	14	
1:18	250	11	
9:08	1440	10	MH 10/28

DC= Dispersant Constant T= Time in minutes after initial mixing R_h= Hydrometer Reading

HYDROMETRIC READINGS FOR GRAIN SIZE ANALYSIS

Job #: 29-197

Client: BAT

Water Temp: 23, 22.5, 23.0

Sample: 1227 Grams Used: 50.0 DC: 6

Clock Time	T	R_h	Initials/Date
9:36	0	XXXX	MA 10/27
9:38	2	28	
9:41	5	27	
9:51	15	20	
10:06	30	18	
10:36	60	16	
1:46	250	12.5	
9:36	1440	10	MA 10/28

Sample: 1230 Grams Used: 50.0 DC: 6

Clock Time	T	R_h	Initials/Date
9:48	0	XXXX	MA 10/27
9:50	2	11.5	
9:53	5	10	
10:03	15	10	
10:18	30	9	
10:48	60	8	
1:58	250	8	
9:48	1440	7.5	MA 10/28

Sample: 1228 Grams Used: 41.61 DC: 6

Clock Time	T	R_h	Initials/Date
9:40	0	XXXX	MA 10/27
9:42	2	15	
9:45	5	13	
9:55	15	12	
10:10	30	11	
10:40	60	10	
1:50	250	8.5	
9:40	1440	8	MA 10/28

Sample: 1231 Grams Used: 50.0 DC: 6

Clock Time	T	R_h	Initials/Date
9:52	0	XXXX	MA 10/27
9:54	2	8.5	
9:57	5	8	
10:07	15	7.5	
10:22	30	7	
10:52	60	7	
2:02	250	7	
9:52	1440	7	MA 10/28

Sample: 1229 Grams Used: 50.0 DC: 6

Clock Time	T	R_h	Initials/Date
9:44	0	XXXX	MA 10/27
9:46	2	13	
9:49	5	11	
9:59	15	10.5	
10:14	30	10	
10:44	60	9	
1:54	250	8	
9:44	1440	7.5	MA 10/28

DC= Dispersant Constant T= Time in minutes after initial mixing R_h= Hydrometer Reading

HYDROMETRIC READINGS FOR GRAIN SIZE ANALYSIS

Job #: 29-197 Client: Bat.

Water Temp: 23, 22.5, 23.0

Sample: 1232 Grams Used: 50.0 DC: 6

Clock Time	T	R_h	Initials/Date
10:12	0	XXXX	MA 10/27
10:14	2	8	
10:17	5	7	
10:27	15	7	
10:42	30	7	
11:12	60	7	
2:22	250	6.5	
10:12	1440	6	

Sample: Dup 1233 Grams Used: 50.0 DC: 6

Clock Time	T	R_h	Initials/Date
10:24	0	XXXX	MA 10/27
10:26	2	12	
10:29	5	10	
10:39	15	9	
10:54	30	9	
11:24	60	8	
2:34	250	7.5	
10:24	1440	7.5	

Sample: 1233 Grams Used: 47.28 DC: 6

Clock Time	T	R_h	Initials/Date
10:16	0	XXXX	MA 10/27
10:18	2	12.5	
10:21	5	10.5	
10:31	15	10	
10:46	30	9	
11:16	60	8.5	
2:26	250	8	
10:16	1440	7.5	

Sample: Grams Used: DC:

Clock Time	T	R_h	Initials/Date
10:28	0	XXXX	
10:30	2		
10:33	5		
10:43	15		
10:58	30		
11:28	60		
2:38	250		
10:28	1440		

Sample: Dup 1233 Grams Used: 50.0 DC: 6

Clock Time	T	R_h	Initials/Date
10:20	0	XXXX	MA 10/27
10:22	2	12	
10:25	5	10	
10:35	15	9	
10:50	30	9	
11:20	60	8.5	
2:30	250	7.5	
10:20	1440	7.5	

DC= Dispersant Constant T= Time in minutes after initial mixing R_h= Hydrometer Reading

AQUA SURVEY, INC

PARTICLE SIZE BENCHSHEET

JOB #: 29-197

CLIENT: Battelle

Balance: Sart. **Calibration: YES** ✓ **NO** ____

Sample ID	Container Mass (g) A	Sample and Container (g) B	Gravel Retained on #4 (4.75mm) and Container (g) C	Coarse Sand Retained on #10 (2.0mm) and Container (g) D	% Gravel mass g to hydrometer
2009 1234	12.639	80.762	12.639	~~15~~ 15.044	50.0
1235	12.721	77.647	12.721	12.721	50.0
1236	12.846	65.716	12.846	14.385	50.0
DUP 1236	12.735	70.128	12.735	13.979	50.0
TRP 1236	12.731	79.488	12.731	13.668	50.0
1237	12.695	75.988	12.695	16.553 *	50.0
1238	12.591	75.708	12.591	15.078 *	50.0
1255	12.782	25.805	12.782	12.782	12.913
1256	12.613	26.600	12.613	12.613	13.881
1257	12.805	26.524	12.805	12.805	13.588
Date/ Initials 10/24 AA KM					

% Gravel = (C-A/B-A) * 100

* Shell

HYDROMETRIC READINGS FOR GRAIN SIZE ANALYSIS

Job #: 29-197 Client: BAT

Water Temp: 23, 23, 22.5

Sample: 1234 Grams Used: 50 DC: 6

Clock Time	T	R_h	Initials/Date
9:00	0	XXXX	MH 10/28
9:02	2	30	
9:05	5	24	
9:15	15	20.5	
9:30	30	18	
10:00	60	15	
1:10	250	11.5	
9:00	1440	9	MH 10/29

Sample: Dup 1236 Grams Used: 50 DC: 6

Clock Time	T	R_h	Initials/Date
9:12	0	XXXX	MH 10/28
9:14	2	~~8.5~~ 9	MH
9:17	5	8.5	
9:27	15	8	
9:42	30	8	
10:12	60	~~8~~ 7.5	MH
1:22	250	7.5	
9:12	1440	7	MH 10/29

Sample: 1235 Grams Used: 50 DC: 6

Clock Time	T	R_h	Initials/Date
9:04	0	XXXX	MH 10/28
9:06	2	16	
9:09	5	13	
9:19	15	12	
9:34	30	11	
10:04	60	10	
1:14	250	8	
9:04	1440	8	MH 10/29

Sample: Dup 1236 Grams Used: 50 DC: 6

Clock Time	T	R_h	Initials/Date
9:16	0	XXXX	MH 10/28
9:18	2	9.5	
9:21	5	8	
9:31	15	8	
9:46	30	8	
10:16	60	7.5	
1:26	250	7	
9:16	1440	7	MH 10/29

Sample: 1236 Grams Used: 50 DC: 6

Clock Time	T	R_h	Initials/Date
9:08	0	XXXX	MH 10/28
9:10	2	9	
9:13	5	8.5	
9:23	15	8	
9:38	30	8	
10:08	60	8	
1:18	250	7	
9:08	1440	7	MH 10/29

DC= Dispersant Constant T= Time in minutes after initial mixing R_h= Hydrometer Reading

HYDROMETRIC READINGS FOR GRAIN SIZE ANALYSIS

Job #: 29-197

Client: BAT

Water Temp: 23, 23, 22.5

Sample: 1237 Grams Used: 50 DC: 6

Clock Time	T	R_h	Initials/Date
9:36	0	XXXX	SM 10/28
9:38	2	35	
9:41	5	28.5	
9:51	15	25	
10:06	30	22.5	
10:36	60	19	
1:46	250	14	
9:36	1440	10	SM 10/29

Sample: 1256 Grams Used: 13.891 DC: 6

Clock Time	T	R_h	Initials/Date
9:48	0	XXXX	SM 10/28
9:50	2	16	
9:53	5	14	
10:03	15	12.5	
10:18	30	12	
10:48	60	10.5	
1:58	250	9	
9:48	1440	8	SM 10/29

Sample: 1238 Grams Used: 50 DC: 6

Clock Time	T	R_h	Initials/Date
9:40	0	XXXX	SM 10/28
9:42	2	23	
9:45	5	19.5	
9:55	15	18	
10:10	30	16.5	
10:40	60	14.5	
1:50	250	12	
9:40	1440	9	SM 10/29

Sample: 1257 Grams Used: ~~50~~ SM 13.588 DC: 6

Clock Time	T	R_h	Initials/Date
9:52	0	XXXX	SM 10/28
9:54	2	18	
9:57	5	16	
10:07	15	15	
10:22	30	14	
10:52	60	12	
2:02	250	10	
9:52	1440	8.5	SM 10/29

Sample: 1255 Grams Used: ~~50~~ SM 12.913 DC: 6

Clock Time	T	R_h	Initials/Date
9:44	0	XXXX	SM 10/28
9:46	2	16	
9:49	5	15	
9:59	15	14	
10:14	30	12	
10:44	60	11	
1:54	250	9.5	
9:44	1440	8.5	SM 10/29

DC= Dispersant Constant T= Time in minutes after initial mixing R_h= Hydrometer Reading

Appendix C

TOC Raw Data
and SRM Control Chart

Detailed Analysis Report Print Date/Time: 2009/10/07 16:13:12

29-732
197
10/8/09

Sample ID: 3000
Method: Boat Sampler
Cal. Curve: 100709
Operator ID: JH
Mode: TOC
Filename: 10070928
Timestamp: 2009/10/07 09:43
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			23151864	5.488	6.488	204
2			23278464	5.743	6.743	188

<<<Statistics>>> Mean: 23215164 Std Dev: 89520 RSD: 0.39

Sample ID: 2000
Method: Boat Sampler
Cal. Curve: 100709
Operator ID: JH
Mode: TOC
Filename: 10070945
Timestamp: 2009/10/07 09:57
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			15504476	5.779	6.777	165
2			15528536	5.681	6.679	174

<<<Statistics>>> Mean: 15516506 Std Dev: 17013 RSD: 0.11

Sample ID: 1000
Method: Boat Sampler
Cal. Curve: 100709
Operator ID: JH
Mode: TOC
Filename: 10070959
Timestamp: 2009/10/07 10:11
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			7865046	5.662	6.660	149
2			7916773	5.555	6.553	148

<<<Statistics>>> Mean: 7890910 Std Dev: 36577 RSD: 0.46

Sample ID: 500
Method: Boat Sampler
Cal. Curve: 100709
Operator ID: JH
Mode: TOC
Filename: 10071016
Timestamp: 2009/10/07 10:27
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			3952946	5.354	6.352	130
2			3992299	5.313	6.311	132

<<<Statistics>>> Mean: 3972622 Std Dev: 27827 RSD: 0.70

Sample ID: USGS
Method: Boat Sampler
Cal. Curve: 100709
Operator ID: JH
Mode: TOC
Filename: 10071032
Timestamp: 2009/10/07 11:14
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time

1	91663.4766	78.8306	15145370	5.545	6.545	185
2	96364.5391	83.8372	16107257	5.375	6.374	197
3	92706.1562	87.1438	16742546	5.299	6.298	193

<<<Statistics>>> Mean: 93578.0625 Std Dev: 2468.8369 RSD: 2.64

Sample ID: ICV 1000
Method: Boat Sampler
Cal. Curve: 100709
Operator ID: JH

Mode: TOC
Filename: 10071118
Timestamp: 2009/10/07 11:27
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1088.5048	43.5402	8365182	5.257	6.256	148

Sample ID: blank with acid
Method: Boat Sampler
Cal. Curve: 100709
Operator ID: JH

Mode: TOC
Filename: 10071142
Timestamp: 2009/10/07 12:00
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	34.9280	1.3971	268422	5.215	6.212	79
2	21.8975	0.8759	168283	5.202	6.200	73
3	48.0563	1.9223	369314	5.206	6.203	83

<<<Statistics>>> Mean: 34.9606 Std Dev: 13.0794 RSD: 37.41

Sample ID: 20091122 Comp CM6a 29-132
Method: Boat Sampler
Cal. Curve: 100709
Operator ID: JH

Mode: TOC
Filename: 10071220
Timestamp: 2009/10/07 12:51
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	46334.8555	78.7693	15133585	4.968	5.966	213
2	44299.3203	69.9929	13447428	4.850	5.848	207
3	48251.0742	56.9363	10938911	4.644	5.641	212

<<<Statistics>>> Mean: 46295.0820 Std Dev: 1976.1771 RSD: 4.27

Sample ID: 20091122 SPIKE
Method: Boat Sampler
Cal. Curve: 100709
Operator ID: JH

Mode: TOC
Filename: 10071255
Timestamp: 2009/10/07 13:20
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	65240.6758	66.5455	12785087	4.473	5.472	224
2	59395.8672	80.1844	15405474	4.630	5.629	206
3	62433.2734	116.1259	22310748	4.928	5.925	218

<<<Statistics>>> Mean: 62356.6055 Std Dev: 2923.1584 RSD: 4.69

Sample ID: ICV 1000
Method: Boat Sampler

Mode: TOC
Filename: 10071433

Cal. Curve: 100709
Operator ID: JH

Timestamp: 2009/10/07 14:38
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1050.6368	42.0255	8074166	4.794	5.790	148

Sample ID: 20091222 B2-CAP1-0002
Method: Boat Sampler
Cal. Curve: 100709
Operator ID: JH

Mode: TOC
Filename: 10071440
Timestamp: 2009/10/07 15:10
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	57193.1523	83.5020	16042867	4.912	5.910	215
2	47912.2578	93.9080	18042130	5.108	6.104	223
3	45733.5625	74.5457	14322133	5.423	6.419	218

<<<Statistics>>> Mean: 50279.6562 Std Dev: 6085.5557 RSD: 12.10

Sample ID: 20091223 B2-CAP1-0205
Method: Boat Sampler
Cal. Curve: 100709
Operator ID: JH

Mode: TOC
Filename: 10071523
Timestamp: 2009/10/07 15:44
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	41458.9805	68.4073	13142793	5.957	6.951	213
2	48142.5859	90.9895	17481404	6.008	7.007	233
3	43748.8438	73.4981	14120853	6.272	7.269	210

<<<Statistics>>> Mean: 44450.1367 Std Dev: 3396.5430 RSD: 7.64

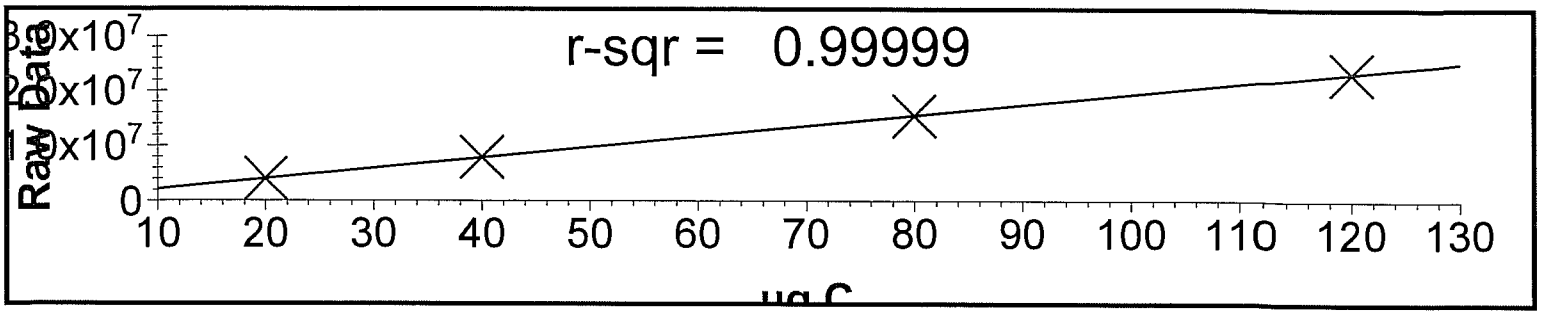
Sample ID: ICV
1000

Mode: TOC
Method: Boat Sampler
Cal. Curve: 100709
Operator ID: JH

Filename: 10071545
Timestamp: 2009/10/07 16:08
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1058.8923	42.3557	8137610	6.074	7.073	154
2	1062.7926	42.5117	8167584	5.872	6.869	158
3	1067.0770	42.6831	8200510	5.942	6.939	179

<<<Statistics>>> Mean: 1062.9208 Std Dev: 4.0938 RSD: 0.39


r-sqr = 0.99999
Raw Data
3.0x10^7
2.0x10^7
1.0x10^7
0
10 20 30 40 50 60 70 80 90 100 110 120 130

Calibration Report Print Date/Time: 2009/10/07 10:28:23

Cal. Curve ID: 100709
Created: 2009/10/07 10:28
Calibration Factor (m): 1.921e+05
Y Intercept (b): 160642
r-squared: 0.99999

Standard ID	Y Raw Data	X Expected ug C	Measured ug C	Message	Date & Time
3000	23215164	120.000	119.997		2009/10/07 09:43
2000	15516506	80.000	79.926		2009/10/07 09:57
1000	7890910	40.000	40.236		2009/10/07 10:11
500	3972623	20.000	19.841		2009/10/07 10:27

Detailed Analysis Report Print Date/Time: 2009/10/12 17:25:20

29-197

Sample ID: 3000 | Mode: TOC
Method: Boat Sampler | Filename: 10120820
Cal. Curve: 101209 | Timestamp: 2009/10/12 08:35
Operator ID: LH | Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			22538478	3.269	4.269	211
2			22996816	3.475	4.474	204

<<<Statistics>>> Mean: 22767648 Std Dev: 324094 RSD: 1.42

Sample ID: 2000 | Mode: TOC
Method: Boat Sampler | Filename: 10120837
Cal. Curve: 101209 | Timestamp: 2009/10/12 08:48
Operator ID: LH | Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			15694690	3.682	4.679	183
2			15728611	3.466	4.465	192

<<<Statistics>>> Mean: 15711650 Std Dev: 23986 RSD: 0.15

Sample ID: 1000 | Mode: TOC
Method: Boat Sampler | Filename: 10120849
Cal. Curve: 101209 | Timestamp: 2009/10/12 09:12
Operator ID: LH | Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			7925933	3.438	4.437	168
2			8227498	3.468	4.468	191

<<<Statistics>>> Mean: 8076716 Std Dev: 213239 RSD: 2.64

Sample ID: 500 | Mode: TOC
Method: Boat Sampler | Filename: 10120924
Cal. Curve: 101209 | Timestamp: 2009/10/12 09:38
Operator ID: LH | Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			4123731	4.204	5.201	153
2			4251282	4.545	5.543	146

<<<Statistics>>> Mean: 4187506 Std Dev: 90192 RSD: 2.15

Sample ID: USGS | Mode: TOC
Method: Boat Sampler | Filename: 10120948
Cal. Curve: 101209 | Timestamp: 2009/10/12 10:26
Operator ID: LH | Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time

1	100305.3203	111.3389	20711668	4.773	5.770	213
2	99887.2578	96.8906	18023948	4.730	5.728	206
3	96552.6953	72.4145	13470811	4.865	5.863	191

<<<Statistics>>> Mean: 98915.0938 Std Dev: 2056.5457 RSD: 2.08

Sample ID: ICV 1000
Method: Boat Sampler
Cal. Curve: 101209
Operator ID: LH

Mode: TOC
Filename: 10121042
Timestamp: 2009/10/12 10:48
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	978.9281	39.1571	7284150	4.791	5.789	162

Sample ID: Blank with acid
Method: Boat Sampler
Cal. Curve: 101209
Operator ID: LH

Mode: TOC
Filename: 10121107
Timestamp: 2009/10/12 11:21
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	8.5710	0.3428	63777	4.699	5.691	61
2	19.5132	0.7805	145197	4.711	5.708	70
3	9.9151	0.3966	73778	4.748	5.745	63

<<<Statistics>>> Mean: 12.6664 Std Dev: 5.9674 RSD: 47.11

Sample ID: ~20091224 B2-CAP1-0507 29-197
Method: Boat Sampler
Cal. Curve: 101209
Operator ID: LH

Mode: TOC
Filename: 10121124
Timestamp: ALT 2009/10/12 11:29
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	52636.9492	102.1157	18995928	4.786	5.783	231

---------> Sample was Altered <---------

Sample ID: 20091224 B2-CAP1-0507 29-197
Method: Boat Sampler
Cal. Curve: 101209
Operator ID: LH

Mode: TOC
Filename: 10121217
Timestamp: 2009/10/12 12:34
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	75516.0703	61.9232	11519174	4.532	5.527	221
2	80534.3281	74.0916	13782785	4.516	5.515	251

<<<Statistics>>> Mean: 78025.2031 Std Dev: 3548.4441 RSD: 4.55

AVG. ~~69562~~ RF

~~65844~~ RF

Average of 5 65,988 RF individuals

Sample ID: 20091224 B2-CAP1-0507 29-197
Method: Boat Sampler
Cal. Curve: 101209
Operator ID: LH

Mode: TOC
Filename: 10121248
Timestamp: 2009/10/12 12:54
Sample Type: Sample

RF

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	54689.5859	42.1110	7833637	4.963	5.959	212

Sample ID: 20091224 B2-CAP1-0507 29-197
Method: Boat Sampler
Cal. Curve: 101209
Operator ID: LH
Mode: TOC
Filename: 10121315
Timestamp: 2009/10/12 13:21
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	66564.2891	95.1869	17707020	4.807	5.803	233

Sample ID: ~20091224 SPK 29-197
Method: Boat Sampler
Cal. Curve: 101209
Operator ID: LH
Mode: TOC
Filename: 10121334
Timestamp: ALT 2009/10/12 13:52
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	80370.6094	119.7522	22276740	4.737	5.735	254
2	68535.8672	60.3116	11219375	4.756	5.754	199

---------> Sample was Altered <---------
<<<Statistics>>> Mean: 74453.2344 Std Dev: 8368.4268 RSD: 11.24

Sample ID: 20091224 SPK 29-197
Method: Boat Sampler
Cal. Curve: 101209
Operator ID: LH
Mode: TOC
Filename: 10121418
Timestamp: 2009/10/12 14:23
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	77473.8906	93.7434	17438488	4.868	5.865	216

Sample ID: ICV 1000
Method: Boat Sampler
Cal. Curve: 101209
Operator ID: LH
Mode: TOC
Filename: 10121433
Timestamp: 2009/10/12 14:39
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1009.5315	40.3813	7511869	4.576	5.572	166

Sample ID: 20091225 B2-CAPX-0002 29-197
Method: Boat Sampler
Cal. Curve: 101209
Operator ID: LH
Mode: TOC
Filename: 10121445
Timestamp: 2009/10/12 15:19
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	69239.5000	76.1635	14168201	4.490	5.489	237
2	85891.5781	42.0869	7829153	4.836	5.834	273
3	41159.3789	68.7362	12786550	4.653	5.651	220

<<<Statistics>>> Mean: 65430.1523 Std Dev: 22608.0898 RSD: 34.55

Sample ID: 20091226 B2-CAPX-0205 29-197
Method: Boat Sampler
Cal. Curve: 101209
Operator ID: LH

Mode: TOC
Filename: 10121556
Timestamp: 2009/10/12 16:20
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	49416.1484	36.5679	6802502	4.681	5.678	196
2	53333.8945	48.0005	8929228	4.834	5.834	211
3	59643.8555	74.5548	13868958	4.867	5.865	228

<<<Statistics>>> Mean: 54131.3008 Std Dev: 5160.2700 RSD: 9.53

Sample ID: 20091227 B2-CAPX-0507 29-197
Method: Boat Sampler
Cal. Curve: 101209
Operator ID: LH

Mode: TOC
Filename: 10121633
Timestamp: 2009/10/12 16:54
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	61800.4727	94.5547	17589412	5.109	6.106	271
2	46069.2227	63.1148	11740851	5.389	6.387	226
3	51995.4297	65.5142	12187196	5.570	6.568	220

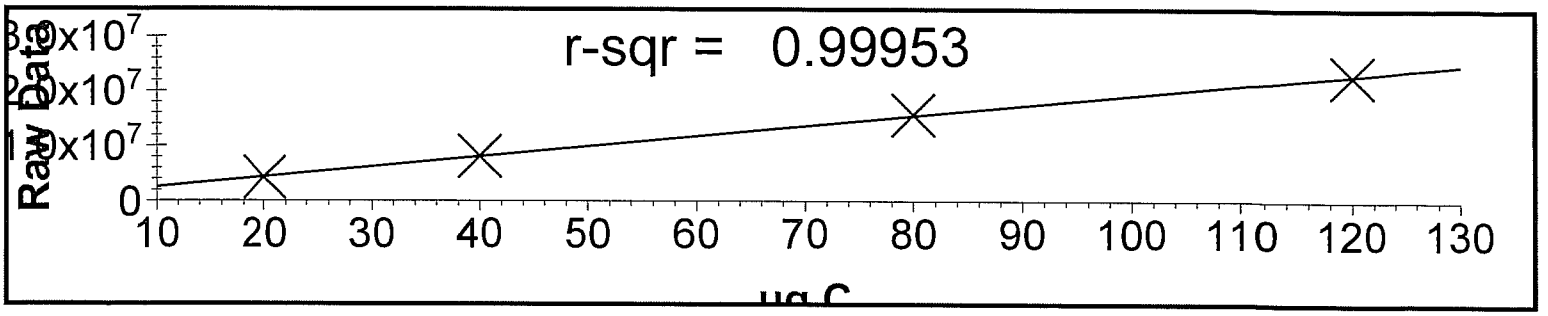
<<<Statistics>>> Mean: 53288.3750 Std Dev: 7944.9253 RSD: 14.91

Sample ID: ICV 1000
Method: Boat Sampler
Cal. Curve: 101209
Operator ID: LH

Mode: TOC
Filename: 10121710
Timestamp: 2009/10/12 17:25
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	941.5720	37.6629	7006185	5.394	6.393	159
2	1018.3219	40.7329	7577277	5.468	6.466	158
3	1114.5419	44.5817	8293245	5.442	6.441	163

<<<Statistics>>> Mean: 1024.8119 Std Dev: 86.6674 RSD: 8.46


r-sqr = 0.99953
Raw Data
3.0x10^7
2.0x10^7
1.0x10^7
0
10
20
30
40
50
60
70
80
90
100
110
120
130

Calibration Report Print Date/Time: 2009/10/12 17:25:30

Cal. Curve ID: 101209
Created: 2009/10/12 09:38
Calibration Factor (m): 1.860e+05
Y Intercept (b): 594345
r-squared: 0.99953

Standard ID	Y Raw Data	X Expected ug C	Measured ug C	Message	Date & Time
3000	22767646	120.000	119.196		2009/10/12 08:35
2000	15711651	80.000	81.266		2009/10/12 08:48
1000	8076716	40.000	40.223		2009/10/12 09:12
500	4187506	20.000	19.316		2009/10/12 09:38

Detailed Analysis Report Print Date/Time: 2009/10/13 17:13:45

29-197

Sample ID: 3000 | Mode: TOC
Method: Boat Sampler | Filename: 10130805
Cal. Curve: 101309 | Timestamp: 2009/10/13 08:21
Operator ID: LH | Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			23133212	3.072	4.069	235
2			23130424	3.449	4.448	234

<<<Statistics>>> Mean: 23131818 Std Dev: 1971 RSD: 0.01

Sample ID: 2000 | Mode: TOC
Method: Boat Sampler | Filename: 10130823
Cal. Curve: 101309 | Timestamp: 2009/10/13 08:34
Operator ID: LH | Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			15780698	3.892	4.890	213
2			16044803	4.165	5.162	210

<<<Statistics>>> Mean: 15912750 Std Dev: 186750 RSD: 1.17

Sample ID: 1000 | Mode: TOC
Method: Boat Sampler | Filename: 10130835
Cal. Curve: 101309 | Timestamp: 2009/10/13 08:58
Operator ID: LH | Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			7997111	4.290	5.290	171
2			8042750	4.198	5.196	186

<<<Statistics>>> Mean: 8019930 Std Dev: 32272 RSD: 0.40

Sample ID: 500 | Mode: TOC
Method: Boat Sampler | Filename: 10130859
Cal. Curve: 101309 | Timestamp: 2009/10/13 09:09
Operator ID: LH | Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			3943386	4.449	5.447	155
2			3868334	4.706	5.704	141

<<<Statistics>>> Mean: 3905860 Std Dev: 53070 RSD: 1.36

Sample ID: USGS | Mode: TOC
Method: Boat Sampler | Filename: 10130925
Cal. Curve: 101309 | Timestamp: 2009/10/13 10:05
Operator ID: LH | Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time

RF

1	98121.7734	107.9340	20757706	4.660	5.660	241
2	97339.8984	55.4837	10670555	4.929	5.928	194
3	96746.7422	82.2347	15815268	5.171	6.171	214

<<<Statistics>>> Mean: 97402.8047 Std Dev: 689.6707 RSD: 0.71

Sample ID: ICV 1000
Method: Boat Sampler
Cal. Curve: 101309
Operator ID: LH
Mode: TOC
Filename: 10131014
Timestamp: 2009/10/13 10:21
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1085.2625	43.4105	8348647	5.316	6.314	182

Sample ID: Blank with acid
Method: Boat Sampler
Cal. Curve: 101309
Operator ID: LH
Mode: TOC
Filename: 10131041
Timestamp: 2009/10/13 10:57
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	10.4322	0.4173	80252	5.519	6.513	65
2	6.9574	0.2783	53521	5.722	5.620	120
3	6.0906	0.2436	46853	5.729	5.650	120

Last Message: Low Sample Detected
<<<Statistics>>> Mean: 7.8267 Std Dev: 2.2976 RSD: 29.36

Sample ID: 20091228 B2-CAP2-0002 29-197
Method: Boat Sampler
Cal. Curve: 101309
Operator ID: LH
Mode: TOC
Filename: 10131059
Timestamp: 2009/10/13 11:31
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	61101.6016	62.3236	11985994	5.834	6.831	215
2	70133.3750	67.3280	12948434	5.842	6.840	225
3	70017.2266	94.5233	18178580	5.825	6.824	236

<<<Statistics>>> Mean: 67084.0625 Std Dev: 5181.2930 RSD: 7.72

Sample ID: 20091228 SPK 29-197
Method: Boat Sampler
Cal. Curve: 101309
Operator ID: LH
Mode: TOC
Filename: 10131139
Timestamp: 2009/10/13 11:58
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	101464.9531	74.0694	14244926	5.798	6.795	231
2	77161.7812	54.7849	10536148	5.941	6.940	204
3	54179.5625	55.8049	10732329	6.043	7.042	216

<<<Statistics>>> Mean: 77602.1016 Std Dev: 23645.7695 RSD: 30.47

Sample ID: ICV 1000
Mode: TOC

Method: Boat Sampler
Cal. Curve: 101309
Operator ID: LH
Filename: 10131317
Timestamp: 2009/10/13 13:22
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1097.5581	43.9023	8443234	4.703	5.702	186

Sample ID: ~20091229 B2-CAP2-0205 29-197
Method: Boat Sampler
Cal. Curve: 101309
Operator ID: LH
Mode: TOC
Filename: 10131342
Timestamp: ALT 2009/10/13 14:10
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	41582.3516	29.1076	5597941	5.592	6.587	196
2	39085.1055	52.3740	10072502	5.688	6.686	211

---------> Sample was Altered <---------
<<<Statistics>>> Mean: 40333.7266 Std Dev: 1765.8197 RSD: 4.38

Sample ID: 20091229 B2-CAP2-0205 29-197
Method: Boat Sampler
Cal. Curve: 101309
Operator ID: LH
Mode: TOC
Filename: 10131415
Timestamp: 2009/10/13 14:21
Sample Type: Sample

AVG. 40,726

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	41512.2539	52.3054	10059309	5.691	6.689	212

Sample ID: 20091230 B2-CAP2-0507 29-197
Method: Boat Sampler
Cal. Curve: 101309
Operator ID: LH
Mode: TOC
Filename: 10131427
Timestamp: 2009/10/13 14:53
Sample Type: Sample

Rep #	ppm C	ug C Raw Data	Beginning	Ending	Integration Baseline	Baseline	Time
1	47792.9648	53.0502	10202538		5.822	6.819	202
2	40311.1484	62.0792	11938979		6.010	7.008	213
3	42563.3242	66.3988	12769721		5.846	6.844	226

<<<Statistics>>> Mean: 43555.8125 Std Dev: 3838.3811 RSD: 8.81

Sample ID: ~20091231 B2-CAP3-0002 29-197
Method: Boat Sampler
Cal. Curve: 101309
Operator ID: LH
Mode: TOC
Filename: 10131503
Timestamp: ALT 2009/10/13 15:26
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	22744.0762	44.3509	8529512	5.773	6.771	215
2	26908.3379	31.7518	6106469	5.993	6.990	203

AVG. 24410

---------> Sample was Altered <---------
<<<Statistics>>> Mean: 24826.2070 Std Dev: 2944.5776 RSD: 11.86

RF

Sample ID: 20091231 B2-CAP3-0002 29-197 Mode: TOC
Method: Boat Sampler Filename: 10131542
Cal. Curve: 101309 Timestamp: 2009/10/13 15:48
Operator ID: LH Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	23576.9648	51.8693	9975435	5.996	6.994	224

Sample ID: ~20091232 B2-CAP3-0205 29-197 Mode: TOC
Method: Boat Sampler Filename: 10131555
Cal. Curve: 101309 Timestamp: ALT 2009/10/13 16:10
Operator ID: LH Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	10883.4160	51.2609	9858422	5.984	6.983	206
2	8455.1162	20.2077	3886322	5.923	6.917	176

---------> Sample was Altered <---------
<<<Statistics>>> Mean: 9669.2656 Std Dev: 1717.0673 RSD: 17.76

> AVG. 9331

Sample ID: 20091232 B2-CAP3-0205 29-197 Mode: TOC
Method: Boat Sampler Filename: 10131626
Cal. Curve: 101309 Timestamp: 2009/10/13 16:32
Operator ID: LH Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	8654.4707	52.4461	10086359	5.924	6.921	258

Sample ID: ~ICV 1000 Mode: TOC
Method: Boat Sampler Filename: 10131649
Cal. Curve: 101309 Timestamp: ALT 2009/10/13 17:08
Operator ID: LH Sample Type: Sample

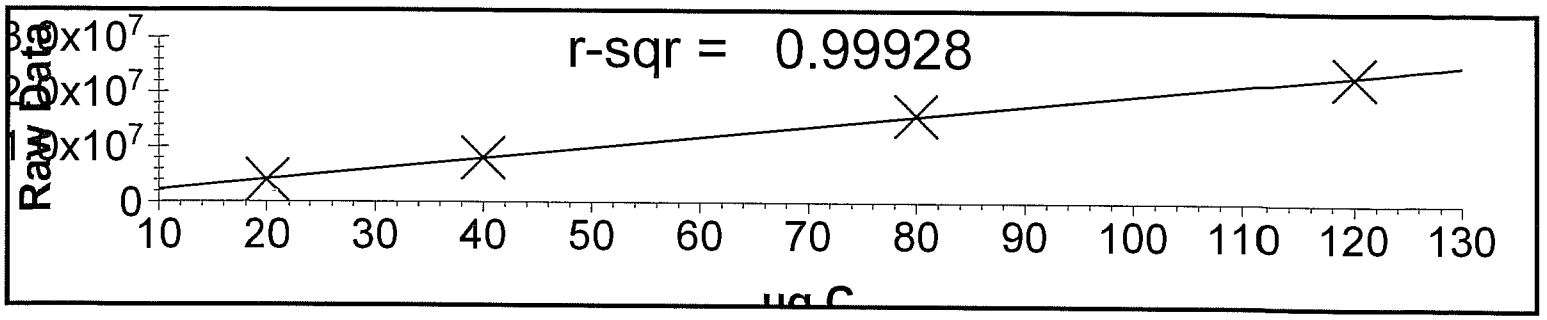
Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1099.0983	43.9639	8455081	6.067	7.065	174
2	1076.2787	43.0511	8279537	6.214	7.213	177

---------> Sample was Altered <---------
<<<Statistics>>> Mean: 1087.6885 Std Dev: 16.1359 RSD: 1.48

Sample ID: ICV 1000 Mode: TOC
Method: Boat Sampler Filename: 10131709
Cal. Curve: 101309 Timestamp: 2009/10/13 17:13
Operator ID: LH Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1052.0323	42.0813	8093016	6.411	7.409	163

RJ


r-sqr = 0.99928
Raw Data
0
10
20
30
40
50
60
70
80
90
100
110
120
130

Calibration Report Print Date/Time: 2009/10/13 17:13:53

Cal. Curve ID: 101309
Created: 2009/10/13 09:09
Calibration Factor (m): 1.923e+05
Y Intercept (b): 241881
r-squared: 0.99928

Standard ID	Y Raw Data	X Expected ug C	Measured ug C	Message	Date & Time
3000	23131820	120.000	119.021		2009/10/13 08:21
2000	15912750	80.000	81.484		2009/10/13 08:34
1000	8019930	40.000	40.444		2009/10/13 08:58
500	3905860	20.000	19.052		2009/10/13 09:09

Detailed Analysis Report Print Date/Time: 2009/10/14 16:49:55

29-197

Sample ID: 3000 | Mode: TOC
Method: Boat Sampler | Filename: 10140832
Cal. Curve: 101409 | Timestamp: 2009/10/14 08:46
Operator ID: | Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			23095292	2.787	3.787	248
2			23558642	3.068	4.067	232

<<<Statistics>>> Mean: 23326968 Std Dev: 327638 RSD: 1.40

Sample ID: 2000 | Mode: TOC
Method: Boat Sampler | Filename: 10140847
Cal. Curve: 101409 | Timestamp: 2009/10/14 09:00
Operator ID: | Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			16099799	3.383	4.381	202
2			16025378	3.372	4.372	209

<<<Statistics>>> Mean: 16062588 Std Dev: 52624 RSD: 0.33

Sample ID: 1000 | Mode: TOC
Method: Boat Sampler | Filename: 10140901
Cal. Curve: 101409 | Timestamp: 2009/10/14 09:12
Operator ID: | Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			8009236	3.507	4.506	170
2			8012114	3.650	4.647	171

<<<Statistics>>> Mean: 8010675 Std Dev: 2035 RSD: 0.03

Sample ID: 500 | Mode: TOC
Method: Boat Sampler | Filename: 10140912
Cal. Curve: 101409 | Timestamp: 2009/10/14 09:24
Operator ID: | Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			3995207	3.515	4.514	142
2			3999484	3.575	4.573	148

<<<Statistics>>> Mean: 3997346 Std Dev: 3024 RSD: 0.08

Sample ID: USGS | Mode: TOC
Method: Boat Sampler | Filename: 10140936
Cal. Curve: 101409 | Timestamp: 2009/10/14 10:13
Operator ID: | Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time

1	96177.7344	33.6622	6525757	4.083	5.081	171
2	91916.8125	64.3418	12473299	4.245	5.242	198
3	91734.7031	76.1398	14760467	4.285	5.284	206

<<<Statistics>>> Mean: 93276.4141 Std Dev: 2514.2642 RSD: 2.70

Sample ID: ICV 1000
Method: Boat Sampler
Cal. Curve: 101409
Operator ID:

Mode: TOC
Filename: 10141017
Timestamp: 2009/10/14 10:22
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1048.9143	41.9566	8133703	4.356	5.355	172

Sample ID: Blank with Acid
Method: Boat Sampler
Cal. Curve: 101409
Operator ID:

Mode: TOC
Filename: 10141038
Timestamp: 2009/10/14 10:55
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	7.1275	0.2851	55269	4.418	4.366	120
2	7.4160	0.2966	57507	4.576	5.576	61
3	6.9133	0.2765	53609	4.875	4.901	120

Last Message: Low Sample Detected
<<<Statistics>>> Mean: 7.1523 Std Dev: 0.2523 RSD: 3.53

Sample ID: 20091233 B2-CAP3-0507
Method: Boat Sampler
Cal. Curve: 101409
Operator ID:

Mode: TOC
Filename: 10141134
Timestamp: 2009/10/14 11:59
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	20381.3535	48.7114	9443202	5.867	6.865	203
2	11042.7539	51.5697	9997298	5.555	6.553	227
3	14572.6074	76.2147	14774994	5.505	6.504	214

<<<Statistics>>> Mean: 15332.2383 Std Dev: 4715.4150 RSD: 30.75

Sample ID: 20091233 SPK 29-197
Method: Boat Sampler
Cal. Curve: 101409
Operator ID:

Mode: TOC
Filename: 10141325
Timestamp: 2009/10/14 13:55
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	26075.3574	26.8576	5206620	4.457	5.456	171
2	16825.8145	44.5884	8643912	4.766	5.763	187
3	32538.9590	84.2759	16337732	4.615	5.615	225

<<<Statistics>>> Mean: 25146.7109 Std Dev: 7897.6274 RSD: 31.41

Sample ID: ICV 1000

Mode: TOC

Method: Boat Sampler
Cal. Curve: 101409
Operator ID:
Filename: 10141404
Timestamp: 2009/10/14 14:10
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1048.2850	41.9314	8128824	4.914	5.912	165

Sample ID: 20091234 B2-CAP1-GRAB 29-197
Method: Boat Sampler
Cal. Curve: 101409
Operator ID:
Mode: TOC
Filename: 10141411
Timestamp: 2009/10/14 14:40
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	51856.9648	89.1940	17291150	4.920	5.918	233
2	58832.4414	45.8893	8896104	4.767	5.765	210
3	66771.1953	42.0659	8154889	5.067	6.066	191

<<<Statistics>>> Mean: 59153.5312 Std Dev: 7462.2983 RSD: 12.62

Sample ID: 20091235 B2-CAP2-GRAB 29-197
Method: Boat Sampler
Cal. Curve: 101409
Operator ID:
Mode: TOC
Filename: 10141500
Timestamp: 2009/10/14 15:35
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	89861.4219	71.8891	13936432	5.668	6.666	217
2	74723.4844	53.0537	10284988	5.588	6.585	206
3	105993.2812	51.9367	10068453	5.663	6.662	201

<<<Statistics>>> Mean: 90192.7266 Std Dev: 15637.5312 RSD: 17.34

Sample ID: 20091236 B2-CAP3-GRAB 29-197
Method: Boat Sampler
Cal. Curve: 101409
Operator ID:
Mode: TOC
Filename: 10141546
Timestamp: 2009/10/14 16:10
Sample Type: Sample

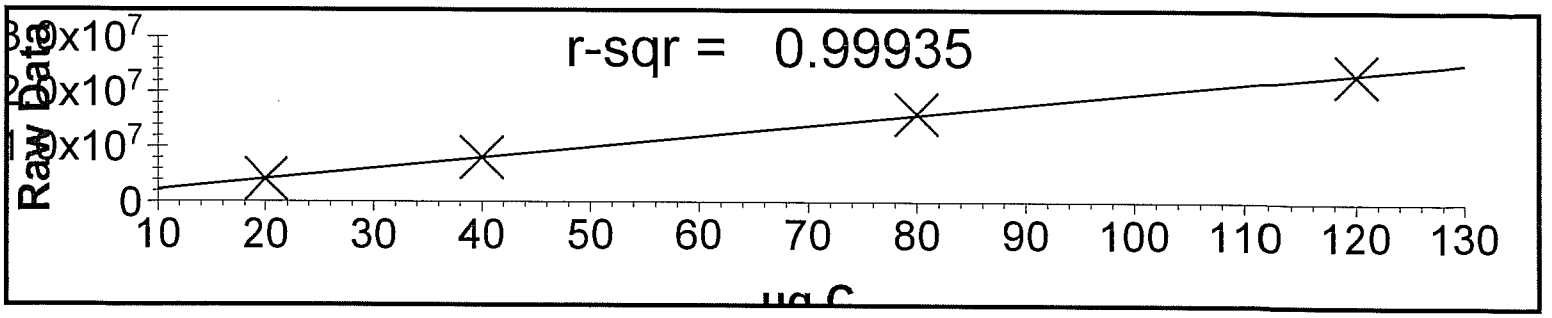
Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	18580.9980	28.6147	5547255	5.498	6.496	187
2	18286.6660	47.3625	9181691	5.689	6.689	208
3	14432.6113	45.7514	8869365	5.846	6.845	226

<<<Statistics>>> Mean: 17100.0918 Std Dev: 2314.7888 RSD: 13.54

Sample ID: ICV 1000
Method: Boat Sampler
Cal. Curve: 101409
Operator ID:
Mode: TOC
Filename: 10141632
Timestamp: 2009/10/14 16:49
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1043.8409	41.7536	8094362	5.646	6.646	166
2	1039.4663	41.5787	8060440	5.623	6.623	165
3	1039.2166	41.5687	8058503	5.630	6.629	161

<<<Statistics>>> Mean: 1040.8412 Std Dev: 2.6008 RSD: 0.25


r-sqr = 0.99935
Raw Data
0
10
20
30
40
50
60
70
80
90
100
110
120
130

Calibration Report Print Date/Time: 2009/10/14 16:50:06

Cal. Curve ID: 101409
Created: 2009/10/14 09:25
Calibration Factor (m): 1.939e+05
Y Intercept (b): 248490
r-squared: 0.99935

Standard ID	Y Raw Data	X Expected ug C	Measured ug C	Message	Date & Time
3000	23326966	120.000	119.047		2009/10/14 08:46
2000	16062589	80.000	81.575		2009/10/14 09:00
1000	8010675	40.000	40.040		2009/10/14 09:12
500	3997346	20.000	19.338		2009/10/14 09:24

Detailed Analysis Report Print Date/Time: 2009/10/15 16:26:10

29-197

Sample ID: 3000 | Mode: TOC
Method: Boat Sampler | Filename: 10150908
Cal. Curve: 101509 | Timestamp: 2009/10/15 09:22
Operator ID: LH | Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			22751232	3.319	4.319	234
2			22910588	3.537	4.535	247

<<<Statistics>>> Mean: 22830910 Std Dev: 112682 RSD: 0.49

Sample ID: 2000 | Mode: TOC
Method: Boat Sampler | Filename: 10150922
Cal. Curve: 101509 | Timestamp: 2009/10/15 09:35
Operator ID: LH | Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			15834637	3.947	4.946	214
2			15734003	4.030	5.029	216

<<<Statistics>>> Mean: 15784320 Std Dev: 71159 RSD: 0.45

Sample ID: 1000 | Mode: TOC
Method: Boat Sampler | Filename: 10150938
Cal. Curve: 101509 | Timestamp: 2009/10/15 09:51
Operator ID: LH | Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			7883680	4.092	5.089	165
2			7929122	4.125	5.124	180

<<<Statistics>>> Mean: 7906401 Std Dev: 32132 RSD: 0.41

Sample ID: 500 | Mode: TOC
Method: Boat Sampler | Filename: 10150951
Cal. Curve: 101509 | Timestamp: 2009/10/15 10:02
Operator ID: LH | Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			3903526	4.430	5.426	141
2			3913255	4.479	5.477	155

<<<Statistics>>> Mean: 3908390 Std Dev: 6879 RSD: 0.18

Sample ID: USGS | Mode: TOC
Method: Boat Sampler | Filename: 10151013
Cal. Curve: 101509 | Timestamp: 2009/10/15 10:46
Operator ID: LH | Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time

RF

1	91082.0391	56.4709	10709628	4.586	5.585	188
2	90477.5000	75.0963	14241923	4.643	5.641	179
3	90110.2109	66.6816	12646072	4.600	5.599	176

<<<Statistics>>> Mean: 90556.5859 Std Dev: 490.7169 RSD: 0.54

Sample ID: ICV 1000
Method: Boat Sampler
Cal. Curve: 101509
Operator ID: LH
Mode: TOC
Filename: 10151050
Timestamp: 2009/10/15 10:55
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1058.5641	42.3426	8030213	4.657	5.655	151

Sample ID: Blank with Acid
Method: Boat Sampler
Cal. Curve: 101509
Operator ID: LH
Mode: TOC
Filename: 10151107
Timestamp: 2009/10/15 11:23
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	6.9789	0.2792	52942	4.625	5.621	61
2	12.3350	0.4934	93573	4.662	5.654	66
3	6.8463	0.2739	51936	4.906	5.903	58

<<<Statistics>>> Mean: 8.7201 Std Dev: 3.1313 RSD: 35.91

Sample ID: 20091255 B2-CAP1-TRAP 29-197
Method: Boat Sampler
Cal. Curve: 101509
Operator ID: LH
Mode: TOC
Filename: 10151124
Timestamp: 2009/10/15 11:51
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	44892.7227	43.0970	8173294	5.022	6.021	170
2	46772.8477	39.7569	7539850	5.154	6.154	174
3	45583.6602	38.7461	7348151	5.246	6.245	166

<<<Statistics>>> Mean: 45749.7461 Std Dev: 951.0023 RSD: 2.08

Sample ID: 20091255 spk 29-197
Method: Boat Sampler
Cal. Curve: 101509
Operator ID: LH
Mode: TOC
Filename: 10151304
Timestamp: 2009/10/15 13:30
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	52892.1797	83.0407	15748567	4.204	5.203	202
2	61622.8984	56.0768	10634901	4.656	5.655	175
3	58458.0000	30.9827	5875837	5.446	6.443	149

<<<Statistics>>> Mean: 57657.6914 Std Dev: 4420.0376 RSD: 7.67

Sample ID: ICV 1000
Method: Boat Sampler
Mode: TOC
Filename: 10151344

Cal. Curve: 101509 Timestamp: 2009/10/15 13:49
Operator ID: LH Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1060.0597	42.4024	8041559	4.961	5.958	153

Sample ID: 20091256 B2-CAP2-TRAP 29-197 Mode: TOC
Method: Boat Sampler Filename: 10151351
Cal. Curve: 101509 Timestamp: 2009/10/15 14:19
Operator ID: LH Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	53958.2500	93.3478	17703286	5.017	6.017	214
2	56578.7852	72.9866	13841823	4.976	5.974	220
3	59597.1016	75.6883	14354194	5.077	6.075	196

<<<Statistics>>> Mean: 56711.3750 Std Dev: 2821.7632 RSD: 4.98

Sample ID: 20091257 B2-CAP3-TRAP 29-197 Mode: TOC
Method: Boat Sampler Filename: 10151424
Cal. Curve: 101509 Timestamp: 2009/10/15 14:58
Operator ID: LH Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	47259.7500	60.0199	11382695	4.889	5.888	181
2	45394.2852	70.8151	13429992	4.696	5.694	187
3	49171.4062	48.6797	9232042	4.825	5.823	171

<<<Statistics>>> Mean: 47275.1445 Std Dev: 1888.6077 RSD: 3.99

Sample ID: 2009123
7 B2-OFF1-GRAB 29-197 Mode: TOC
Method: Boat Sampler Filename: 10151502
Cal. Curve: 101509 Timestamp: 2009/10/15 15:31
Operator ID: LH Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	32370.6602	62.7991	11909766	5.034	6.031	201
2	29138.3848	39.6282	7515439	5.327	6.326	172
3	33756.7109	41.8583	7938377	5.350	6.348	168

<<<Statistics>>> Mean: 31755.2520 Std Dev: 2369.8691 RSD: 7.46

Sample ID: 20091238 B2-OFF2-GRAB 29-197 Mode: TOC
Method: Boat Sampler Filename: 10151537
Cal. Curve: 101509 Timestamp: 2009/10/15 15:56
Operator ID: LH Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	27007.2344	44.5619	8451115	6.089	7.086	182
2	15420.1992	40.4009	7661984	5.623	6.622	178
3	19176.6855	38.9287	7382773	5.603	6.600	185

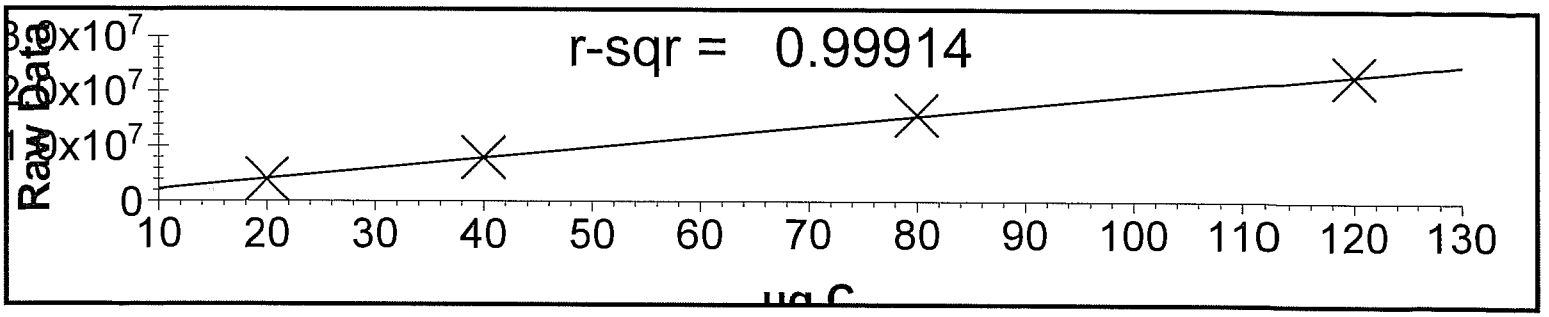
<<<Statistics>>> Mean: 20534.7051 Std Dev: 5911.6841 RSD: 28.79

Sample ID: ICV 1000
Method: Boat Sampler
Cal. Curve: 101509
Operator ID: LH

Mode: TOC
Filename: 10151608
Timestamp: 2009/10/15 16:24
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1060.6521	42.4261	8046053	5.554	6.553	154
2	1051.0737	42.0429	7973392	5.641	6.637	152
3	1056.2777	42.2511	8012869	5.833	6.831	152

<<<Statistics>>> Mean: 1056.0011 Std Dev: 4.7952 RSD: 0.45


r-sqr = 0.99914
Raw Data
3x10^7
2x10^7
1x10^7
0
10
20
30
40
50
60
70
80
90
100
110
120
130

Calibration Report Print Date/Time: 2009/10/15 16:27:05

Cal. Curve ID: 101509
Created: 2009/10/15 10:03
Calibration Factor (m): 1.896e+05
Y Intercept (b): 280337
r-squared: 0.99914

Standard ID	Y Raw Data	X Expected ug C	Measured ug C	Message	Date & Time
3000	22830908	120.000	118.907		2009/10/15 09:22
2000	15784320	80.000	81.751		2009/10/15 09:35
1000	7906401	40.000	40.212		2009/10/15 09:51
500	3908390	20.000	19.130		2009/10/15 10:02

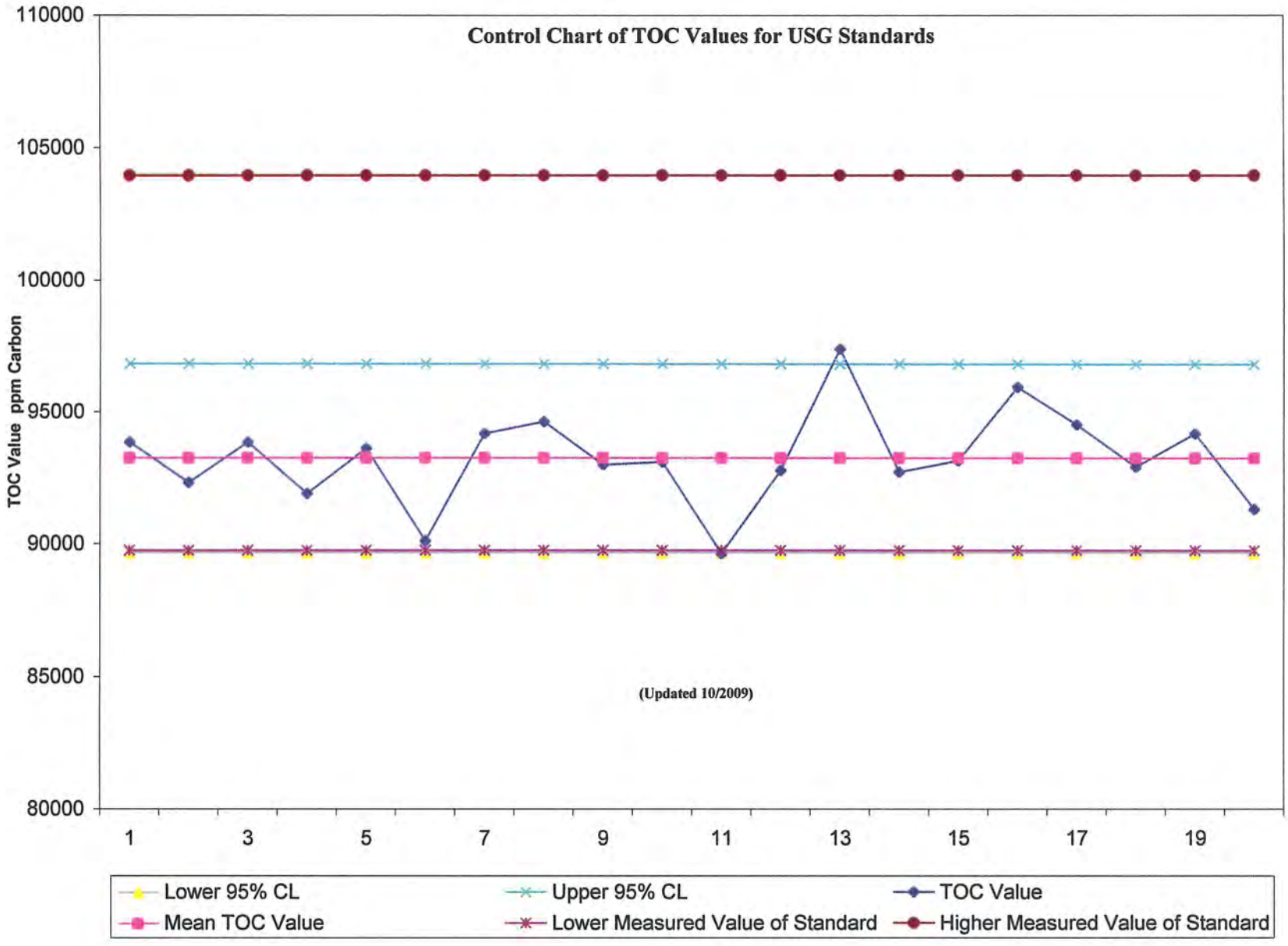

Control Chart of TOC Values for USG Standards
TOC Value ppm Carbon
110000
105000
100000
95000
90000
85000
80000
1
3
5
7
9
11
13
15
17
19
(Updated 10/2009)
Lower 95% CL
Upper 95% CL
TOC Value
Mean TOC Value
Lower Measured Value of Standard
Higher Measured Value of Standard

Table 1. Summary of constituent concentrations for USGS SDO-1 (CONTINUED)

	Average: percent in sample, as received		Average: ppm in sample, as received		Range: ppm in sample as received
LOI	21.7 ± 0.90	B	128 ± 11	Ag	0.094 - 0.17
S	5.35 ± 0.44	Be	3.3 ± 0.57	Au	0.002 - 0.0035
CO_2	1.01 ± 0.21	Cs	6.9 ± 1.2	Bi	2 - <10
C_{TOT}	9.95 ± 0.44	Cu	60.2 ± 9.6	Br	5
C_{org} measured	(range 8.98-10.4)	Er	3.6 ± 0.55	Cd	<2 - <10
C_{org} calculated	9.68 ± 0.45	F	697 ± 88.5	Ge	1.3
H_2O^- moisture	1.21 ± 0.50	Gd	7.4 ± 1.9	In	<0.2
H_{TOT}	1.34 ± 0.06	Hf	4.7 ± 0.75	Sb	4.1 - 4.8
N_{TOT}	0.347 ± 0.043	Hg	0.19 ± 0.08	Se	1.9 - 6.8
		Ho	1.2 ± 0.11	Tl	8.3
		Li	28.6 ± 5.5	W	3.3
		Lu	0.54 ± 0.14		
		Pb	27.9 ± 5.2		
		Sn	3.7 ± 1.2		
		Ta	1.1 ± 0.13		
		Tb	1.2 ± 0.24		
		Tm	0.45 ± 0.08		

Reference

Kane, J.S., Arbogast, B.F., and Leventhal, J.S., 1990, Characterization of Devonian Ohio Shale SDO-1 as a USGS geochemical reference sample: Geostandards Newsletter, v. 14, p. 169-196.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

10 January 2013

Gunther Rosen
Navy -- SPAWAR
Environmental Science and Applied System Branch, 536
San Diego, CA 92152

RE: Quantico

Enclosed are the results of analyses for samples received by the laboratory on 12-Oct-2012. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Patty Tuminello
Project Coordinator

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
QB1	2101204-01	Soil/Sediment	10-Oct-2012	12-Oct-2012
QB2	2101204-02	Soil/Sediment	11-Oct-2012	12-Oct-2012
QB3	2101204-03	Soil/Sediment	10-Oct-2012	12-Oct-2012
QB4	2101204-04	Soil/Sediment	10-Oct-2012	12-Oct-2012
QB5	2101204-05	Soil/Sediment	10-Oct-2012	12-Oct-2012
QB6	2101204-06	Soil/Sediment	11-Oct-2012	12-Oct-2012
QB0-Lv-1	2101204-07	Tissue	11-Oct-2012	12-Oct-2012
QB0-Lv-2	2101204-08	Tissue	11-Oct-2012	12-Oct-2012
QB0-Lv-3	2101204-09	Tissue	11-Oct-2012	12-Oct-2012
QB0-Cf-1	2101204-10	Tissue	11-Oct-2012	12-Oct-2012
QB0-Cf-2	2101204-11	Tissue	11-Oct-2012	12-Oct-2012
QB0-Cf-3	2101204-12	Tissue	11-Oct-2012	12-Oct-2012

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB1

2101204-01 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**527**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDD [2C]	**487**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDE	**27.0**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDE [2C]	**30.6**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDT	**9.44**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDT [2C]	**27.8**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*67.5 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*55.5 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*86.0 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*95.0 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Naphthalene	**10.2**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
2-Methylnaphthalene	**11.9**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
1-Methylnaphthalene	**8.52**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Acenaphthylene	**1.70**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Acenaphthene	**3.41**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Fluorene	**5.11**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Phenanthrene	**15.3**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Anthracene	**3.41**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Fluoranthene	**56.2**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Pyrene	**47.7**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) anthracene	**32.4**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB1

2101204-01 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Chrysene	**42.6**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (b) fluoranthene	**20.4**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (k) fluoranthene	**30.7**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) pyrene	**27.3**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Indeno (1,2,3-cd) pyrene	**18.7**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Dibenz (a,h) anthracene	**3.41**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Benzo (g,h,i) perylene	**17.0**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Surrogate: 2-Fluorobiphenyl		*55.0 %*	*45-105*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	
Surrogate: Terphenyl-dl4		*81.0 %*	*30-145*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	
Classical Chemistry Parameters								
% Solids	**75.7**	0.100	% Solids	1	27-Nov-2012	27-Nov-2012	% Calculation	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB2

2101204-02 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**122**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDD [2C]	**114**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDE	**22.9**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDE [2C]	**25.0**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDT	**8.40**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**23.8**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*65.5 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*62.0 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*94.5 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*95.5 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Naphthalene	**10.5**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
2-Methylnaphthalene	**12.3**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
1-Methylnaphthalene	**8.78**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Acenaphthylene	**1.76**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Acenaphthene	**3.51**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Fluorene	**5.27**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Phenanthrene	**19.3**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Anthracene	**3.51**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Fluoranthene	**49.2**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Pyrene	**35.1**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) anthracene	**24.6**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	

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Navy -- SPAWAR	Project: Quantico	
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San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB2

2101204-02 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Chrysene	**33.4**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (b) fluoranthene	**17.6**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (k) fluoranthene	**24.6**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) pyrene	**17.6**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Indeno (1,2,3-cd) pyrene	**14.0**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Dibenz (a,h) anthracene	**1.76**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Benzo (g,h,i) perylene	**14.0**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Surrogate: 2-Fluorobiphenyl		*54.0 %*	*45-105*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	
Surrogate: Terphenyl-dl4		*71.5 %*	*30-145*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	
Classical Chemistry Parameters								
% Solids	**74.1**	0.100	% Solids	1	27-Nov-2012	27-Nov-2012	% Calculation	

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San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

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2101204-03 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**216**	0.24	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDD [2C]	**212**	0.24	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDE	**48.3**	0.24	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDE [2C]	**58.4**	0.24	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDT	**6.45**	0.24	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**22.8**	0.24	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*105 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*62.5 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*93.0 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*99.0 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Naphthalene	**16.3**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
2-Methylnaphthalene	**25.3**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
1-Methylnaphthalene	**12.6**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Acenaphthylene	**1.81**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Acenaphthene	**5.42**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Fluorene	**10.8**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Phenanthrene	**56.0**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Anthracene	**16.3**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Fluoranthene	**444**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Pyrene	**247**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) anthracene	**199**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	

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2101204-03 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Chrysene	**191**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (b) fluoranthene	**99.4**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (k) fluoranthene	**139**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) pyrene	**123**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Indeno (1,2,3-cd) pyrene	**81.3**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Dibenz (a,h) anthracene	**10.8**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (g,h,i) perylene	**56.0**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Surrogate: 2-Fluorobiphenyl		*41.0 %*	*45-105*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	*S-GC*
Surrogate: Terphenyl-dl4		*90.0 %*	*30-145*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	
Classical Chemistry Parameters								
% Solids	**69.5**	0.100	% Solids	1	27-Nov-2012	27-Nov-2012	% Calculation	

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2101204-04 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**134**	0.41	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDD [2C]	**131**	0.41	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDE	**30.1**	0.41	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDE [2C]	**35.4**	0.41	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDT	**3.57**	0.41	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**12.9**	0.41	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*48.4 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*47.6 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*86.0 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*92.5 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Naphthalene	**9.48**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
2-Methylnaphthalene	**12.6**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
1-Methylnaphthalene	**6.32**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Acenaphthylene	ND	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	U
Acenaphthene	**3.16**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Fluorene	**9.48**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Phenanthrene	**28.4**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Anthracene	**6.32**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Fluoranthene	**123**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Pyrene	**85.3**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) anthracene	**34.7**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	

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2101204-04 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Chrysene	**44.2**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (b) fluoranthene	**25.3**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (k) fluoranthene	**31.6**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) pyrene	**19.0**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Indeno (1,2,3-cd) pyrene	**19.0**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Dibenz (a,h) anthracene	**3.16**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Benzo (g,h,i) perylene	**15.8**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Surrogate: 2-Fluorobiphenyl		*35.5 %*	*45-105*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	*S-GC*
Surrogate: Terphenyl-dl4		*67.5 %*	*30-145*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	
Classical Chemistry Parameters								
% Solids	**41.0**	0.100	% Solids	1	27-Nov-2012	27-Nov-2012	% Calculation	

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2101204-05 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**124**	0.43	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDD [2C]	**122**	0.43	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDE	**37.3**	0.43	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDE [2C]	**43.4**	0.43	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDT	**4.38**	0.43	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**19.1**	0.43	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*46.0 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*48.3 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*91.0 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*117 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Naphthalene	**17.3**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
2-Methylnaphthalene	**24.2**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
1-Methylnaphthalene	**13.9**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Acenaphthylene	ND	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	U
Acenaphthene	**20.8**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Fluorene	**27.7**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Phenanthrene	**249**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Anthracene	**86.6**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Fluoranthene	**596**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Pyrene	**409**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) anthracene	**242**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	

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2101204-05 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Chrysene	**253**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (b) fluoranthene	**83.1**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (k) fluoranthene	**135**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) pyrene	**100**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Indeno (1,2,3-cd) pyrene	**48.5**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Dibenz (a,h) anthracene	**6.93**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Benzo (g,h,i) perylene	**38.1**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Surrogate: 2-Fluorobiphenyl		*42.0 %*	*45-105*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	*S-GC*
Surrogate: Terphenyl-dl4		*86.0 %*	*30-145*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	
Classical Chemistry Parameters								
% Solids	**38.4**	0.100	% Solids	1	27-Nov-2012	27-Nov-2012	% Calculation	

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2101204-06 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**9.81**	0.33	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDD [2C]	**9.81**	0.33	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDE	**3.09**	0.33	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDE [2C]	**3.83**	0.33	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDT	**0.90**	0.33	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**1.85**	0.33	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*60.0 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*53.5 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*77.0 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*86.0 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Naphthalene	**2.57**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
2-Methylnaphthalene	**5.14**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
1-Methylnaphthalene	**2.57**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Acenaphthylene	ND	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	U
Acenaphthene	**2.57**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Fluorene	**5.14**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Phenanthrene	**12.9**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Anthracene	**5.14**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Fluoranthene	**79.7**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Pyrene	**56.6**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) anthracene	**18.0**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB6

2101204-06 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Chrysene	**28.3**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (b) fluoranthene	**18.0**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (k) fluoranthene	**20.6**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) pyrene	**20.6**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Indeno (1,2,3-cd) pyrene	**12.9**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Dibenz (a,h) anthracene	**2.57**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Benzo (g,h,i) perylene	**10.3**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Surrogate: 2-Fluorobiphenyl		*43.5 %*	*45-105*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	*S-GC*
Surrogate: Terphenyl-dl4		*108 %*	*30-145*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	
Classical Chemistry Parameters								
% Solids	**50.4**	0.100	% Solids	1	27-Nov-2012	27-Nov-2012	% Calculation	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB0-Lv-1

2101204-07 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**35.0**	0.274	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**33.1**	0.274	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**13.9**	0.274	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**15.0**	0.274	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**1.66**	0.274	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**5.35**	0.274	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*50.2 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*77.5 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*102 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*104 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.30**		% by Weight	1	17-Dec-2012	19-Dec-2012	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB0-Lv-2

2101204-08 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**7.98**	0.255	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**7.51**	0.255	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**5.12**	0.255	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**4.29**	0.255	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**0.174**	0.255	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	J
4,4'-DDT [2C]	**0.822**	0.255	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*45.3 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*46.0 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*84.2 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*78.5 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.80**		% by Weight	1	17-Dec-2012	19-Dec-2012	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB0-Lv-3

2101204-09 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**13.1**	0.229	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**11.3**	0.229	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**5.07**	0.229	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**5.18**	0.229	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**2.29**	0.229	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDT [2C]	**2.89**	0.229	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*57.2 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*80.2 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*105 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*96.0 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.20**		% by Weight	1	17-Dec-2012	19-Dec-2012	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB0-Cf-1

2101204-10 (Tissue)

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**22.3**	0.201	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**19.9**	0.201	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**7.72**	0.201	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**7.50**	0.201	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**0.705**	0.201	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDT [2C]	**2.23**	0.201	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*46.8 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*60.3 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*90.5 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*93.5 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.500**		% by Weight	1	17-Dec-2012	19-Dec-2012	Gravimetric Determination	

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USACE ERDC-EP-C
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Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB0-Cf-2

2101204-11 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**9.46**	0.214	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**8.76**	0.214	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**4.20**	0.214	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**3.72**	0.214	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**0.694**	0.214	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDT [2C]	**1.35**	0.214	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*30.5 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*41.8 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*43.2 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*47.3 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.400**		% by Weight	1	17-Dec-2012	19-Dec-2012	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB0-Cf-3

2101204-12 (Tissue)

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**1.14**	0.233	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**0.973**	0.233	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**1.04**	0.233	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**0.973**	0.233	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**0.103**	0.233	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	J
4,4'-DDT [2C]	**0.290**	0.233	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*5.75 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*10.5 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*12.3 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*13.4 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.700**		% by Weight	1	17-Dec-2012	19-Dec-2012	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B210094 - EPA 3545										
Blank (B210094-BLK1)				Prepared: 24-Oct-2012 Analyzed: 29-Oct-2012						
4,4´-DDD	ND	0.17	ug/kg wet							U
4,4'-DDD [2C]	ND	0.17	ug/kg wet							U
4,4´-DDE	ND	0.17	ug/kg wet							U
4,4'-DDE [2C]	ND	0.17	ug/kg wet							U
4,4´-DDT	ND	0.17	ug/kg wet							QR-05, U
4,4'-DDT [2C]	ND	0.17	ug/kg wet							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.23*		*ug/kg wet*	*2.667*		*83.5*	*40-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*2.27*		*ug/kg wet*	*2.667*		*85.0*	*40-125*			
Surrogate: Decachlorobiphenyl	*3.08*		*ug/kg wet*	*2.667*		*116*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*3.24*		*ug/kg wet*	*2.667*		*122*	*40-130*			
LCS (B210094-BS1)				Prepared: 24-Oct-2012 Analyzed: 29-Oct-2012						
4,4´-DDD	1.6	0.17	ug/kg wet	2.667		61.5	30-135			
4,4'-DDD [2C]	1.7	0.17	ug/kg wet	2.667		65.0	30-135			
4,4´-DDE	2.2	0.17	ug/kg wet	2.667		81.0	70-125			
4,4'-DDE [2C]	2.3	0.17	ug/kg wet	2.667		84.5	70-125			
4,4´-DDT	1.5	0.17	ug/kg wet	2.667		54.5	45-140			QR-05
4,4'-DDT [2C]	1.8	0.17	ug/kg wet	2.667		67.0	45-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.85*		*ug/kg wet*	*2.667*		*69.5*	*40-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*1.96*		*ug/kg wet*	*2.667*		*73.5*	*40-125*			
Surrogate: Decachlorobiphenyl	*2.80*		*ug/kg wet*	*2.667*		*105*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*2.81*		*ug/kg wet*	*2.667*		*106*	*40-130*			
Duplicate (B210094-DUP1)	**Source: 2101204-03**			Prepared: 24-Oct-2012 Analyzed: 29-Oct-2012						
4,4´-DDD	274	0.24	ug/kg dry		216			23.8	30	
4,4'-DDD [2C]	261	0.24	ug/kg dry		212			20.7	30	
4,4´-DDE	55.6	0.24	ug/kg dry		48.3			14.0	30	
4,4'-DDE [2C]	70.1	0.24	ug/kg dry		58.4			18.2	30	
4,4´-DDT	3.48	0.24	ug/kg dry		6.45			59.8	30	QR-05
4,4'-DDT [2C]	16.6	0.24	ug/kg dry		22.8			31.2	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.07*		*ug/kg dry*	*3.760*		*55.0*	*40-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*2.12*		*ug/kg dry*	*3.760*		*56.5*	*40-125*			
Surrogate: Decachlorobiphenyl	*3.33*		*ug/kg dry*	*3.760*		*88.5*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*3.18*		*ug/kg dry*	*3.760*		*84.5*	*40-130*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B210094 - EPA 3545										
Matrix Spike (B210094-MS1)	**Source: 2101204-02**			Prepared: 24-Oct-2012 Analyzed: 29-Oct-2012						
4,4´-DDD	ND	0.22	ug/kg dry	3.488	122	NR	30-135			QM-02, U
4,4'-DDD [2C]	ND	0.22	ug/kg dry	3.488	114	NR	30-135			QM-02, U
4,4´-DDE	ND	0.22	ug/kg dry	3.488	22.9	NR	70-125			QM-02, U
4,4'-DDE [2C]	ND	0.22	ug/kg dry	3.488	25.0	NR	70-125			QM-02, U
4,4´-DDT	ND	0.22	ug/kg dry	3.488	8.4	NR	45-140			QM-02, U
4,4'-DDT [2C]	ND	0.22	ug/kg dry	3.488	23.8	NR	45-140			QM-02, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.90*		*ug/kg dry*	*3.488*		*54.5*	*40-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*1.88*		*ug/kg dry*	*3.488*		*54.0*	*40-125*			
Surrogate: Decachlorobiphenyl	*1.90*		*ug/kg dry*	*3.488*		*54.5*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*1.88*		*ug/kg dry*	*3.488*		*54.0*	*40-130*			
Matrix Spike Dup (B210094-MSD1)	**Source: 2101204-02**			Prepared: 24-Oct-2012 Analyzed: 29-Oct-2012						
4,4´-DDD	ND	0.23	ug/kg dry	3.575	122	NR	30-135		30	QM-02, U
4,4'-DDD [2C]	ND	0.23	ug/kg dry	3.575	114	NR	30-135		30	QM-02, U
4,4´-DDE	ND	0.23	ug/kg dry	3.575	22.9	NR	70-125		30	QM-02, U
4,4'-DDE [2C]	ND	0.23	ug/kg dry	3.575	25.0	NR	70-125		30	QM-02, U
4,4´-DDT	ND	0.23	ug/kg dry	3.575	8.4	NR	45-140		30	QM-02, U
4,4'-DDT [2C]	ND	0.23	ug/kg dry	3.575	23.8	NR	45-140		30	QM-02, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.11*		*ug/kg dry*	*3.575*		*59.0*	*40-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*2.11*		*ug/kg dry*	*3.575*		*59.0*	*40-125*			
Surrogate: Decachlorobiphenyl	*2.57*		*ug/kg dry*	*3.575*		*72.0*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*2.75*		*ug/kg dry*	*3.575*		*77.0*	*40-130*			
Batch B211024 - Sonication (probe or bath)										
Blank (B211024-BLK1)				Prepared: 02-Nov-2012 Analyzed: 14-Nov-2012						
4,4´-DDD	ND	0.250	ug/kg							U
4,4'-DDD [2C]	ND	0.250	ug/kg							U
4,4´-DDE	ND	0.250	ug/kg							U
4,4'-DDE [2C]	ND	0.250	ug/kg							U
4,4´-DDT	ND	0.250	ug/kg							U
4,4'-DDT [2C]	ND	0.250	ug/kg							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.70*		*ug/kg*	*8.000*		*46.2*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*3.92*		*ug/kg*	*8.000*		*49.0*	*35-125*			
Surrogate: Decachlorobiphenyl	*6.18*		*ug/kg*	*8.000*		*77.2*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*6.02*		*ug/kg*	*8.000*		*75.2*	*40-130*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B211024 - Sonication (probe or bath)										
LCS (B211024-BS1)				Prepared: 02-Nov-2012 Analyzed: 14-Nov-2012						
4,4´-DDD	4.42	0.250	ug/kg	8.000		55.2	30-135			
4,4'-DDD [2C]	4.24	0.250	ug/kg	8.000		53.0	30-135			
4,4´-DDE	5.64	0.250	ug/kg	8.000		70.5	50-125			
4,4'-DDE [2C]	5.56	0.250	ug/kg	8.000		69.5	50-125			
4,4´-DDT	4.02	0.250	ug/kg	8.000		50.2	40-140			
4,4'-DDT [2C]	3.34	0.250	ug/kg	8.000		41.8	40-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.54*		*ug/kg*	*8.000*		*44.2*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*3.70*		*ug/kg*	*8.000*		*46.2*	*35-125*			
Surrogate: Decachlorobiphenyl	*5.64*		*ug/kg*	*8.000*		*70.5*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*5.60*		*ug/kg*	*8.000*		*70.0*	*40-130*			
LCS Dup (B211024-BSD1)				Prepared: 02-Nov-2012 Analyzed: 14-Nov-2012						
4,4´-DDD	4.36	0.250	ug/kg	8.000		54.5	30-135	1.37	30	
4,4'-DDD [2C]	3.56	0.250	ug/kg	8.000		44.5	30-135	17.4	30	
4,4´-DDE	5.38	0.250	ug/kg	8.000		67.2	50-125	4.72	30	
4,4'-DDE [2C]	5.02	0.250	ug/kg	8.000		62.8	50-125	10.2	30	
4,4´-DDT	3.98	0.250	ug/kg	8.000		49.8	40-140	1.00	30	
4,4'-DDT [2C]	3.58	0.250	ug/kg	8.000		44.8	40-140	6.94	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.20*		*ug/kg*	*8.000*		*40.0*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*5.70*		*ug/kg*	*8.000*		*71.2*	*35-125*			
Surrogate: Decachlorobiphenyl	*5.70*		*ug/kg*	*8.000*		*71.2*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*5.42*		*ug/kg*	*8.000*		*67.8*	*40-130*			
Matrix Spike (B211024-MS1)	**Source: 2102602-04**			Prepared: 02-Nov-2012 Analyzed: 14-Nov-2012						
4,4´-DDD	27.5	0.543	ug/kg	17.39		158	30-135			
4,4'-DDD [2C]	25.5	0.543	ug/kg	17.39		146	30-135			
4,4´-DDE	24.0	0.543	ug/kg	17.39		138	60-125			
4,4'-DDE [2C]	25.3	0.543	ug/kg	17.39		146	60-125			
4,4´-DDT	11.5	0.543	ug/kg	17.39		66.0	40-140			
4,4'-DDT [2C]	12.6	0.543	ug/kg	17.39		72.3	40-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*9.57*		*ug/kg*	*17.39*		*55.0*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*11.0*		*ug/kg*	*17.39*		*63.5*	*35-125*			
Surrogate: Decachlorobiphenyl	*17.1*		*ug/kg*	*17.39*		*98.5*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*16.8*		*ug/kg*	*17.39*		*96.8*	*40-130*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B211024 - Sonication (probe or bath)										
Matrix Spike Dup (B211024-MSD1)	**Source: 2102602-04**			Prepared: 02-Nov-2012 Analyzed: 14-Nov-2012						
4,4´-DDD	31.8	0.594	ug/kg	19.02		167	30-135	14.5	30	
4,4'-DDD [2C]	27.7	0.594	ug/kg	19.02		146	30-135	8.26	30	
4,4´-DDE	26.6	0.594	ug/kg	19.02		140	60-125	10.2	30	
4,4'-DDE [2C]	28.6	0.594	ug/kg	19.02		150	60-125	12.3	30	
4,4´-DDT	11.9	0.594	ug/kg	19.02		62.5	40-140	3.51	30	
4,4'-DDT [2C]	12.3	0.594	ug/kg	19.02		64.7	40-140	2.01	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*9.42*		*ug/kg*	*19.02*		*49.5*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*11.2*		*ug/kg*	*19.02*		*59.0*	*35-125*			
Surrogate: Decachlorobiphenyl	*16.5*		*ug/kg*	*19.02*		*86.8*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*17.0*		*ug/kg*	*19.02*		*89.5*	*40-130*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B211083 - EPA 3545										
Blank (B211083-BLK1)				Prepared: 19-Nov-2012 Analyzed: 04-Dec-2012						
Naphthalene	ND	3.40	ug/kg wet							U
2-Methylnaphthalene	ND	3.40	ug/kg wet							U
1-Methylnaphthalene	ND	3.40	ug/kg wet							U
Acenaphthylene	ND	3.40	ug/kg wet							U
Acenaphthene	ND	3.40	ug/kg wet							U
Fluorene	ND	3.40	ug/kg wet							U
Phenanthrene	ND	3.40	ug/kg wet							U
Anthracene	ND	3.40	ug/kg wet							U
Fluoranthene	ND	3.40	ug/kg wet							U
Pyrene	1.33	3.40	ug/kg wet							J
Benzo (a) anthracene	1.33	3.40	ug/kg wet							J
Chrysene	1.33	3.40	ug/kg wet							J
Benzo (b) fluoranthene	ND	3.40	ug/kg wet							U
Benzo (k) fluoranthene	ND	3.40	ug/kg wet							U
Benzo (a) pyrene	ND	3.40	ug/kg wet							U
Indeno (1,2,3-cd) pyrene	ND	3.40	ug/kg wet							U
Dibenz (a,h) anthracene	ND	3.40	ug/kg wet							U
Benzo (g,h,i) perylene	ND	3.40	ug/kg wet							U
Surrogate: 2-Fluorobiphenyl	*200*		*ug/kg wet*	*266.7*		*75.0*	*45-105*			
Surrogate: Terphenyl-dl4	*260*		*ug/kg wet*	*266.7*		*96.5*	*30-145*			
LCS (B211083-BS1)				Prepared: 19-Nov-2012 Analyzed: 04-Dec-2012						
Naphthalene	212	3.40	ug/kg wet	266.7		79.5	40-105			
2-Methylnaphthalene	219	3.40	ug/kg wet	266.7		82.0	0-200			
1-Methylnaphthalene	219	3.40	ug/kg wet	266.7		82.0	0-200			
Acenaphthylene	212	3.40	ug/kg wet	266.7		79.5	45-105			
Acenaphthene	231	3.40	ug/kg wet	266.7		86.5	45-110			
Fluorene	261	3.40	ug/kg wet	266.7		98.0	50-110			
Phenanthrene	248	3.40	ug/kg wet	266.7		93.0	50-110			
Anthracene	268	3.40	ug/kg wet	266.7		100	55-105			
Fluoranthene	172	3.40	ug/kg wet	266.7		64.5	55-120			
Pyrene	164	3.40	ug/kg wet	266.7		61.5	45-125			
Benzo (a) anthracene	240	3.40	ug/kg wet	266.7		90.0	50-120			
Chrysene	324	3.40	ug/kg wet	266.7		122	55-120			
Benzo (b) fluoranthene	279	3.40	ug/kg wet	266.7		104	45-115			
Benzo (k) fluoranthene	409	3.40	ug/kg wet	266.7		154	45-125			
Benzo (a) pyrene	288	3.40	ug/kg wet	266.7		108	50-110			
Indeno (1,2,3-cd) pyrene	287	3.40	ug/kg wet	266.7		108	40-120			
Dibenz (a,h) anthracene	323	3.40	ug/kg wet	266.7		121	40-125			
Benzo (g,h,i) perylene	289	3.40	ug/kg wet	266.7		108	40-125			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B211083 - EPA 3545										
LCS (B211083-BS1)				Prepared: 19-Nov-2012 Analyzed: 04-Dec-2012						
Surrogate: 2-Fluorobiphenyl	*220*		*ug/kg wet*	*266.7*		*82.5*	*45-105*			
Surrogate: Terphenyl-dl4	*190*		*ug/kg wet*	*266.7*		*72.5*	*30-145*			
Duplicate (B211083-DUP1)	**Source: 2101204-03**			Prepared: 19-Nov-2012 Analyzed: 04-Dec-2012						
Naphthalene	17.0	4.82	ug/kg dry		16.3			4.63	40	
2-Methylnaphthalene	20.8	4.82	ug/kg dry		25.3			19.4	40	
1-Methylnaphthalene	13.2	4.82	ug/kg dry		12.6			4.63	40	
Acenaphthylene	1.89	4.82	ug/kg dry		1.81			4.63	40	J
Acenaphthene	7.57	4.82	ug/kg dry		5.42			33.1	40	
Fluorene	13.2	4.82	ug/kg dry		10.8			20.0	40	
Phenanthrene	39.7	4.82	ug/kg dry		56.0			34.0	40	
Anthracene	9.46	4.82	ug/kg dry		16.3			52.9	40	
Fluoranthene	191	4.82	ug/kg dry		444			79.7	40	
Pyrene	127	4.82	ug/kg dry		247			64.5	40	
Benzo (a) anthracene	54.9	4.82	ug/kg dry		199			113	40	
Chrysene	66.2	4.82	ug/kg dry		191			97.2	40	
Benzo (b) fluoranthene	32.2	4.82	ug/kg dry		99.4			102	40	
Benzo (k) fluoranthene	49.2	4.82	ug/kg dry		139			95.5	40	
Benzo (a) pyrene	37.8	4.82	ug/kg dry		123			106	40	
Indeno (1,2,3-cd) pyrene	32.2	4.82	ug/kg dry		81.3			86.6	40	
Dibenz (a,h) anthracene	3.78	4.82	ug/kg dry		10.8			96.5	40	J
Benzo (g,h,i) perylene	26.5	4.82	ug/kg dry		56.0			71.6	40	
Surrogate: 2-Fluorobiphenyl	*180*		*ug/kg dry*	*378.4*		*48.0*	*45-105*			
Surrogate: Terphenyl-dl4	*290*		*ug/kg dry*	*378.4*		*77.0*	*30-145*			
Matrix Spike (B211083-MS1)	**Source: 2101204-02**			Prepared: 19-Nov-2012 Analyzed: 04-Dec-2012						
Naphthalene	194	4.46	ug/kg dry	349.4	10.5	52.5	40-105			
2-Methylnaphthalene	259	4.46	ug/kg dry	349.4	12.3	70.5	0-200			
1-Methylnaphthalene	266	4.46	ug/kg dry	349.4	8.78	73.5	0-200			
Acenaphthylene	171	4.46	ug/kg dry	349.4	1.76	48.5	45-105			
Acenaphthene	222	4.46	ug/kg dry	349.4	3.51	62.5	45-110			
Fluorene	278	4.46	ug/kg dry	349.4	5.27	78.0	50-110			
Phenanthrene	267	4.46	ug/kg dry	349.4	19.3	71.0	50-110			
Anthracene	262	4.46	ug/kg dry	349.4	3.51	74.0	55-105			
Fluoranthene	639	4.46	ug/kg dry	349.4	49.2	169	55-120			QM-07
Pyrene	423	4.46	ug/kg dry	349.4	35.1	111	45-125			
Benzo (a) anthracene	274	4.46	ug/kg dry	349.4	24.6	71.5	50-120			
Chrysene	267	4.46	ug/kg dry	349.4	33.4	67.0	55-120			
Benzo (b) fluoranthene	185	4.46	ug/kg dry	349.4	17.6	48.0	45-115			
Benzo (k) fluoranthene	257	4.46	ug/kg dry	349.4	24.6	66.5	45-125			
Benzo (a) pyrene	192	4.46	ug/kg dry	349.4	17.6	50.0	50-110			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B211083 - EPA 3545										
Matrix Spike (B211083-MS1)	**Source: 2101204-02**			Prepared: 19-Nov-2012 Analyzed: 04-Dec-2012						
Indeno (1,2,3-cd) pyrene	133	4.46	ug/kg dry	349.4	14.0	34.0	40-120			QM-07
Dibenz (a,h) anthracene	114	4.46	ug/kg dry	349.4	1.76	32.0	40-125			QM-07
Benzo (g,h,i) perylene	180	4.46	ug/kg dry	349.4	14.0	47.5	40-125			
Surrogate: 2-Fluorobiphenyl	*200*		*ug/kg dry*	*349.4*		*58.0*	*45-105*			
Surrogate: Terphenyl-dl4	*320*		*ug/kg dry*	*349.4*		*91.0*	*30-145*			
Matrix Spike Dup (B211083-MSD1)	**Source: 2101204-02**			Prepared: 19-Nov-2012 Analyzed: 04-Dec-2012						
Naphthalene	152	4.52	ug/kg dry	354.2	10.5	40.0	40-105	24.0	30	
2-Methylnaphthalene	181	4.52	ug/kg dry	354.2	12.3	47.5	0-200	35.5	200	
1-Methylnaphthalene	168	4.52	ug/kg dry	354.2	8.78	45.0	0-200	44.9	200	
Acenaphthylene	147	4.52	ug/kg dry	354.2	1.76	41.0	45-105	15.2	30	QM-07
Acenaphthene	182	4.52	ug/kg dry	354.2	3.51	50.5	45-110	19.5	30	
Fluorene	255	4.52	ug/kg dry	354.2	5.27	70.5	50-110	8.53	30	
Phenanthrene	237	4.52	ug/kg dry	354.2	19.3	61.5	50-110	11.9	30	
Anthracene	239	4.52	ug/kg dry	354.2	3.51	66.5	55-105	9.16	30	
Fluoranthene	475	4.52	ug/kg dry	354.2	49.2	120	55-120	29.6	30	
Pyrene	344	4.52	ug/kg dry	354.2	35.1	87.1	45-125	20.7	30	
Benzo (a) anthracene	264	4.52	ug/kg dry	354.2	24.6	67.6	50-120	3.86	30	
Chrysene	223	4.52	ug/kg dry	354.2	33.4	53.6	55-120	18.0	30	QM-07
Benzo (b) fluoranthene	151	4.52	ug/kg dry	354.2	17.6	37.5	45-115	20.6	30	QM-07
Benzo (k) fluoranthene	174	4.52	ug/kg dry	354.2	24.6	42.1	45-125	38.7	30	QM-07
Benzo (a) pyrene	142	4.52	ug/kg dry	354.2	17.6	35.0	50-110	30.2	30	QM-07
Indeno (1,2,3-cd) pyrene	86.8	4.52	ug/kg dry	354.2	14.0	20.5	40-120	41.9	30	QM-07
Dibenz (a,h) anthracene	72.6	4.52	ug/kg dry	354.2	1.76	20.0	40-125	44.0	30	QM-07
Benzo (g,h,i) perylene	122	4.52	ug/kg dry	354.2	14.0	30.5	40-125	38.2	30	QM-07
Surrogate: 2-Fluorobiphenyl	*340*		*ug/kg dry*	*354.2*		*95.5*	*45-105*			
Surrogate: Terphenyl-dl4	*500*		*ug/kg dry*	*354.2*		*141*	*30-145*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Classical Chemistry Parameters - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B211105 - % Solids										
Duplicate (B211105-DUP1)		**Source: 2102604-06**		Prepared & Analyzed: 27-Nov-2012						
% Solids	37.4	0.100	% Solids		39.2			4.86	20	

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Notes and Definitions

U	Analyte included in the analysis, but not detected
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
QR-05	RPD between primary and confirmation column values >40%.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM-02	The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

29 December 2014

Gunther Rosen
Navy -- SPAWAR
Environmental Science and Applied System Branch, 536(
San Diego, CA 92152

RE: Quantico

Enclosed are the results of analyses for samples received by the laboratory on 26-Sep-2014. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

DJ Rosado For Patty Tuminello
Project Coordinator

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
QT2-1-0002-SEDCHEM	4092606-01	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-1-0205-SEDCHEM	4092606-02	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-1-0507-SEDCHEM	4092606-03	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-1-0002-SEDCHEM-AI	4092606-04	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-1-0002-SEDCHEM-BI	4092606-05	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-1-0205-SEDCHEM-BI	4092606-06	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-1-0507-SEDCHEM-BI	4092606-07	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-2-0002-SEDCHEM	4092606-08	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-2-0205-SEDCHEM	4092606-09	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-2-0507-SEDCHEM	4092606-10	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-2-0002-SEDCHEM-AI	4092606-11	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-2-0002-SEDCHEM-BI	4092606-12	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-2-0205-SEDCHEM-BI	4092606-13	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-2-0507-SEDCHEM-BI	4092606-14	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-3-0002-SEDCHEM	4092606-15	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-3-0205-SEDCHEM	4092606-16	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-3-0507-SEDCHEM	4092606-17	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-3-0002-SEDCHEM-AI	4092606-18	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-3-0002-SEDCHEM-BI	4092606-19	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-3-0205-SEDCHEM-BI	4092606-20	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-3-0507-SEDCHEM-BI	4092606-21	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-4-0002-SEDCHEM	4092606-43	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-4-0205-SEDCHEM	4092606-44	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-4-0507-SEDCHEM	4092606-45	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-4-0002-SEDCHEM-AI	4092606-46	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-4-0002-SEDCHEM-BI	4092606-47	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-4-0205-SEDCHEM-BI	4092606-48	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-4-0507-SEDCHEM-BI	4092606-49	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-5-0002-SEDCHEM	4092606-50	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-5-0205-SEDCHEM	4092606-51	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-5-0507-SEDCHEM	4092606-52	Soil/Sediment	23-Sep-2014	26-Sep-2014

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
QT2-5-0002-SEDCHEM-AI	4092606-53	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-5-0002-SEDCHEM-BI	4092606-54	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-5-0205-SEDCHEM-BI	4092606-55	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-5-0507-SEDCHEM-BI	4092606-56	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-5DUP-0002-SEDCHEM	4092606-57	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-5DUP-0205-SEDCHEM	4092606-58	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-5DUP-0507-SEDCHEM	4092606-59	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-5DUP-0002-SEDCHEM-AI	4092606-60	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-5DUP-0002-SEDCHEM-BI	4092606-61	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-5DUP-0205-SEDCHEM-BI	4092606-62	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-5DUP-0507-SEDCHEM-BI	4092606-63	Soil/Sediment	23-Sep-2014	26-Sep-2014
QT2-6-GRAB-SEDCHEM	4092606-64	Soil/Sediment	22-Sep-2014	26-Sep-2014
QT2-7-GRAB-SEDCHEM	4092606-65	Soil/Sediment	22-Sep-2014	26-Sep-2014

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

Case Narrative

The last continued calibration check (CCV) for 2,4-DDT was above acceptable limits. The samples affected were 4092606 51-65. The nature of the deviation from initial calibration for this analyte resulted in the instrument becoming more sensitive. However, no 2,4-DDT was detected in these samples. The data was acceptable based on criteria for CCVs from EPA Method 8081B.

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

Notes and Definitions

U	Analyte included in the analysis, but not detected
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
RPD-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QM-11	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to inherent analyte concentration greater than the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

QT2-1-0002-SEDCHEM

4092606-01 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**82.6**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**20.9**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**20.7**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**36.3**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	**29.8**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDD	**1700**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**411**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.73**		*54.5 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.58**		*81.5 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

QT2-1-0205-SEDCHEM

4092606-02 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**83.1**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**2.98**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**1.92**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**3.44**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	**1.61**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDD	**9.22**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**2.03**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.63**		*85.5 %*	*40-125*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.15**		*102 %*	*40-130*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-1-0507-SEDCHEM

4092606-03 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**83.1**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**3.27**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**3.58**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**4.10**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**12.5**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	ND	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.67**		*84.0 %*	*40-125*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.10**		*97.5 %*	*40-130*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-1-0002-SEDCHEM-AI

4092606-04 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**82.2**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**3.28**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	ND	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
2,4´-DDD	**4.71**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**118**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**1.30**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.20**		*99.5 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.22**		*100 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-1-0002-SEDCHEM-BI

4092606-05 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**74.6**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**17.4**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**13.5**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**24.1**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**90.8**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**10.9**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.32**		*66.0 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.71**		*77.0 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

QT2-1-0205-SEDCHEM-BI

4092606-06 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**70.6**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**28.8**	0.07	0.23	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**19.9**	0.07	0.23	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**39.0**	0.07	0.23	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	**4.24**	0.07	0.23	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDD	**149**	0.07	0.23	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**6.65**	0.07	0.23	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.40**		*91.5 %*	*40-125*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.29**		*88.5 %*	*40-130*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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QT2-1-0507-SEDCHEM-BI

4092606-07 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**68.4**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**9.99**	0.07	0.23	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**28.3**	0.07	0.23	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**52.8**	0.07	0.23	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	**13.4**	0.07	0.23	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDD	**959**	0.07	0.23	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**16.8**	0.07	0.23	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.58**		*69.0 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**4.30**		*115 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
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San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

QT2-2-0002-SEDCHEM

4092606-08 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**87.8**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**0.66**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**3.55**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**6.67**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	**2.04**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDD	**23.6**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**0.81**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.78**		*92.0 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.46**		*114 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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QT2-2-0205-SEDCHEM

4092606-09 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**87.2**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**0.92**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**1.19**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**2.55**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**5.00**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	ND	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.75**		*91.5 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.84**		*94.5 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-2-0507-SEDCHEM

4092606-10 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**85.8**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**0.46**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**0.94**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**1.84**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**1.79**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	ND	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.62**		*87.0 %*	*40-125*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.08**		*102 %*	*40-130*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-2-0002-SEDCHEM-AI

4092606-11 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**84.2**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**0.96**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**1.73**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**2.55**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**8.69**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	ND	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.58**		*83.5 %*	*40-125*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.22**		*104 %*	*40-130*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-2-0002-SEDCHEM-BI

4092606-12 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**74.9**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**12.6**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**10.1**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**20.0**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	**3.03**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDD	**78.9**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**8.34**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.29**		*94.0 %*	*40-125*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**4.05**		*116 %*	*40-130*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

QT2-2-0205-SEDCHEM-BI

4092606-13 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**75.4**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**20.3**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**13.2**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**24.3**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	**2.17**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDD	**90.6**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**17.9**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.50**		*100 %*	*40-125*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.32**		*95.5 %*	*40-130*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-2-0507-SEDCHEM-BI

4092606-14 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**76.0**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**11.1**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**11.5**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**19.7**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	**3.91**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDD	**71.7**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**3.02**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**7.31**		*213 %*	*40-125*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	*S-GC*
Surrogate: Decachlorobiphenyl	**2.93**		*85.5 %*	*40-130*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-3-0002-SEDCHEM

4092606-15 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**82.4**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**16.0**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**9.44**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**13.8**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**77.9**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**18.3**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.84**		*60.0 %*	*40-125*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.52**		*114 %*	*40-130*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

QT2-3-0205-SEDCHEM

4092606-16 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**85.3**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**3.42**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**4.35**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**12.9**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	**2.23**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDD	**45.2**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**1.45**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.59**		*84.0 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.36**		*109 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

QT2-3-0507-SEDCHEM

4092606-17 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**85.0**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**8.01**	0.06	0.18	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**9.21**	0.06	0.18	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**18.9**	0.06	0.18	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	**2.75**	0.06	0.18	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDD	**86.6**	0.06	0.18	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**1.97**	0.06	0.18	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.81**		*95.0 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.51**		*85.0 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

QT2-3-0002-SEDCHEM-AI

4092606-18 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**76.3**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**52.0**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**33.2**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**94.8**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	**9.92**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDD	**389**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**14.2**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**4.04**		*117 %*	*40-125*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.78**		*110 %*	*40-130*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

QT2-3-0002-SEDCHEM-BI

4092606-19 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**86.2**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**2.10**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**3.63**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**7.38**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	**1.69**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDD	**25.0**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**1.49**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.64**		*87.5 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.29**		*109 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
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QT2-3-0205-SEDCHEM-BI

4092606-20 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**67.8**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**17.1**	0.08	0.24	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**55.3**	0.08	0.24	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**93.7**	0.08	0.24	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	**26.5**	0.08	0.24	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDD	**4410**	0.08	0.24	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**64.0**	0.08	0.24	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**10.4**		*275 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	*S-GC*
Surrogate: Decachlorobiphenyl	**4.32**		*114 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-3-0507-SEDCHEM-BI

4092606-21 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**62.2**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**98.3**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**44.8**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**99.1**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	**5.19**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDD	**521**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**15.0**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.62**		*87.0 %*	*40-125*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.56**		*85.5 %*	*40-130*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-4-0002-SEDCHEM

4092606-43 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**83.6**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**2.68**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**0.75**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**1.36**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**6.90**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**1.06**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.35**		*42.5 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.56**		*80.5 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

QT2-4-0205-SEDCHEM

4092606-44 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**90.0**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**1.02**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**0.54**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**0.73**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**3.68**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**0.19**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.18**		*73.5 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.09**		*70.5 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-4-0507-SEDCHEM

4092606-45 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**78.3**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**11.2**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**3.72**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**8.18**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	**0.52**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDD	**47.6**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**2.21**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.83**		*55.5 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.89**		*87.5 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-4-0002-SEDCHEM-AI

4092606-46 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**85.8**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**0.16**	0.06	0.18	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	J
2,4´-DDE	**0.14**	0.06	0.18	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	J
2,4´-DDD	**0.09**	0.06	0.18	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	J
2,4´-DDT	ND	0.06	0.18	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**0.50**	0.06	0.18	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	ND	0.06	0.18	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.81**		*61.5 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.76**		*93.5 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

QT2-4-0002-SEDCHEM-BI

4092606-47 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**60.4**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**18.8**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**4.55**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**7.63**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	**0.82**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDD	**157**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**4.92**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.63**		*37.2 %*	*40-125*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.39**		*77.5 %*	*40-130*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-4-0205-SEDCHEM-BI

4092606-48 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**61.0**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**25.8**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**5.94**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**8.09**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**78.5**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**5.11**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.54**		*61.0 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**4.44**		*106 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-4-0507-SEDCHEM-BI

4092606-49 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**60.7**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**23.2**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**5.55**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**7.66**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**55.1**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**4.18**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.57**		*60.0 %*	*40-125*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**4.57**		*106 %*	*40-130*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

QT2-5-0002-SEDCHEM

4092606-50 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**73.0**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**6.98**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**1.75**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**3.15**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**17.6**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**0.70**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.55**		*71.0 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.34**		*93.0 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-5-0205-SEDCHEM

4092606-51 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**79.2**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**7.04**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**1.79**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**2.90**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**17.2**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**20.2**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.20**		*66.0 %*	*40-125*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.89**		*86.5 %*	*40-130*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

QT2-5-0507-SEDCHEM

4092606-52 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**69.9**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**16.3**	0.08	0.24	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**5.00**	0.08	0.24	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**8.28**	0.08	0.24	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.08	0.24	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**47.7**	0.08	0.24	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**3.31**	0.08	0.24	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.33**		*61.5 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.35**		*88.5 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-5-0002-SEDCHEM-AI

4092606-53 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**83.1**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**1.14**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**0.91**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**0.76**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**3.48**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**0.47**	0.06	0.19	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.02**		*66.0 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.82**		*92.5 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-5-0002-SEDCHEM-BI

4092606-54 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**62.9**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**73.0**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**30.2**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**50.3**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**239**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**7.09**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.94**		*69.5 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.96**		*93.5 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-5-0205-SEDCHEM-BI

4092606-55 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**61.4**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**85.9**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**39.0**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**54.0**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**385**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**14.5**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.11**		*50.5 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.86**		*92.5 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-5-0507-SEDCHEM-BI

4092606-56 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**60.8**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**86.1**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**30.0**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**43.1**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**248**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**17.5**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.30**		*53.0 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.67**		*84.5 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-5DUP-0002-SEDCHEM

4092606-57 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**76.4**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**72.7**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**40.2**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**51.1**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**327**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**17.4**	0.07	0.21	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.60**		*47.8 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**4.01**		*120 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

QT2-5DUP-0205-SEDCHEM

4092606-58 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**72.6**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**10.9**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**2.79**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**4.57**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**28.4**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**2.32**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.13**		*61.0 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.15**		*90.5 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-5DUP-0507-SEDCHEM

4092606-59 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**60.8**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**24.0**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**5.87**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**8.40**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**60.2**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**4.22**	0.09	0.27	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.04**		*71.0 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**4.35**		*102 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-5DUP-0002-SEDCHEM-AI

4092606-60 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**84.6**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**1.29**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**0.70**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**0.74**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**3.74**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**0.36**	0.06	0.20	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.13**		*68.0 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.33**		*106 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-5DUP-0002-SEDCHEM-BI

4092606-61 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**67.3**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**69.9**	0.07	0.23	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**25.8**	0.07	0.23	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**46.0**	0.07	0.23	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.07	0.23	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**229**	0.07	0.23	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**11.5**	0.07	0.23	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.74**		*46.5 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.27**		*87.5 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-5DUP-0205-SEDCHEM-BI

4092606-62 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**60.6**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**60.4**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**34.2**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**71.0**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**258**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**18.8**	0.08	0.26	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.32**		*56.0 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.32**		*80.0 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-5DUP-0507-SEDCHEM-BI

4092606-63 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**57.3**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**67.8**	0.09	0.28	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**28.7**	0.09	0.28	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**42.8**	0.09	0.28	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.09	0.28	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**213**	0.09	0.28	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**3.25**	0.09	0.28	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**13.8**		*303 %*	*40-125*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	*S-GC*
Surrogate: Decachlorobiphenyl	**5.17**		*114 %*	*40-130*		*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-6-GRAB-SEDCHEM

4092606-64 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**75.6**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**3.21**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**0.88**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**1.60**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**7.43**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**0.57**	0.07	0.22	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.72**		*107 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.56**		*102 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

QT2-7-GRAB-SEDCHEM

4092606-65 (Soil/Sediment)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Solids	**33.9**	0.500	0.500	% Solids		30-Sep-2014	17-Oct-2014	% Calculation	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDE	**6.41**	0.16	0.49	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDE	**1.59**	0.16	0.49	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDD	**2.30**	0.16	0.49	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
2,4´-DDT	ND	0.16	0.49	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	U
4,4´-DDD	**10.4**	0.16	0.49	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
4,4´-DDT	**1.35**	0.16	0.49	ug/kg dry		09-Oct-2014	21-Oct-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**6.06**		*78.0 %*		*40-125*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**6.30**		*81.0 %*		*40-130*	*09-Oct-2014*	*21-Oct-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B410093 - EPA 3545											
Blank (B410093-BLK1)				Prepared: 09-Oct-2014 Analyzed: 21-Oct-2014							
4,4´-DDE	ND	0.05	0.17	ug/kg wet							U
2,4´-DDE	ND	0.05	0.17	ug/kg wet							U
2,4´-DDD	ND	0.05	0.17	ug/kg wet							U
2,4´-DDT	ND	0.05	0.17	ug/kg wet							U
4,4´-DDD	ND	0.05	0.17	ug/kg wet							U
4,4´-DDT	ND	0.05	0.17	ug/kg wet							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.73*			*ug/kg wet*	*2.667*		*65.0*	*40-125*			
Surrogate: Decachlorobiphenyl	*2.61*			*ug/kg wet*	*2.667*		*98.0*	*40-130*			
LCS (B410093-BS1)				Prepared: 09-Oct-2014 Analyzed: 21-Oct-2014							
4,4´-DDE	2.6	0.05	0.17	ug/kg wet	2.667		95.6	40-125			
2,4´-DDE	3.8	0.05	0.17	ug/kg wet	3.333		115	40-125			
2,4´-DDD	3.8	0.05	0.17	ug/kg wet	3.333		114	40-125			
2,4´-DDT	3.8	0.05	0.17	ug/kg wet	3.333		114	40-125			
4,4´-DDD	1.7	0.05	0.17	ug/kg wet	2.667		64.5	40-125			
4,4´-DDT	1.6	0.05	0.17	ug/kg wet	2.667		59.5	45-125			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.89*			*ug/kg wet*	*2.667*		*71.0*	*40-125*			
Surrogate: Decachlorobiphenyl	*3.12*			*ug/kg wet*	*2.667*		*117*	*40-130*			
Matrix Spike (B410093-MS1)		**Source: 4092606-10**		Prepared: 09-Oct-2014 Analyzed: 21-Oct-2014							
4,4´-DDE	5.5	0.18	0.56	ug/kg dry	8.933	0.5	56.9	40-125			
2,4´-DDE	7.3	0.18	0.56	ug/kg dry	11.17	0.9	56.8	40-125			
2,4´-DDD	9.0	0.18	0.56	ug/kg dry	11.17	1.8	64.4	40-125			
2,4´-DDT	7.6	0.18	0.56	ug/kg dry	11.17	ND	68.4	40-125			
4,4´-DDD	12.8	0.18	0.56	ug/kg dry	8.933	1.8	123	40-125			
4,4´-DDT	4.2	0.18	0.56	ug/kg dry	8.933	ND	47.0	45-125			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*4.06*			*ug/kg dry*	*8.933*		*45.5*	*40-125*			
Surrogate: Decachlorobiphenyl	*4.82*			*ug/kg dry*	*8.933*		*54.0*	*40-130*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
29-Dec-2014

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B410093 - EPA 3545											
Matrix Spike Dup (B410093-MSD1)	**Source: 4092606-10**				Prepared: 09-Oct-2014 Analyzed: 21-Oct-2014						
4,4´-DDE	5.5	0.17	0.54	ug/kg dry	8.651	0.5	58.7	40-125	0.0299	30	
2,4´-DDE	7.2	0.17	0.54	ug/kg dry	10.81	0.9	57.7	40-125	1.38	30	
2,4´-DDD	9.5	0.17	0.54	ug/kg dry	10.81	1.8	70.6	40-125	4.87	30	
2,4´-DDT	6.9	0.17	0.54	ug/kg dry	10.81	ND	64.0	40-125	9.85	30	
4,4´-DDD	13.3	0.17	0.54	ug/kg dry	8.651	1.8	133	40-125	3.86	30	QM-07
4,4´-DDT	10.0	0.17	0.54	ug/kg dry	8.651	ND	116	45-125	82.0	30	RPD-02
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.72*			*ug/kg dry*	*8.651*		*43.0*	*40-125*			
Surrogate: Decachlorobiphenyl	*4.23*			*ug/kg dry*	*8.651*		*49.0*	*40-130*			
Batch B410095 - EPA 3545											
Blank (B410095-BLK1)					Prepared: 09-Oct-2014 Analyzed: 21-Oct-2014						
4,4´-DDE	ND	0.05	0.17	ug/kg wet							U
2,4´-DDE	ND	0.05	0.17	ug/kg wet							U
2,4´-DDD	ND	0.05	0.17	ug/kg wet							U
2,4´-DDT	ND	0.05	0.17	ug/kg wet							U
4,4´-DDD	ND	0.05	0.17	ug/kg wet							U
4,4´-DDT	ND	0.05	0.17	ug/kg wet							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.33*			*ug/kg wet*	*2.667*		*87.5*	*40-125*			
Surrogate: Decachlorobiphenyl	*2.57*			*ug/kg wet*	*2.667*		*96.5*	*40-130*			
Blank (B410095-BLK2)					Prepared: 09-Oct-2014 Analyzed: 21-Oct-2014						
4,4´-DDE	ND	0.05	0.17	ug/kg wet							U
2,4´-DDE	ND	0.05	0.17	ug/kg wet							U
2,4´-DDD	ND	0.05	0.17	ug/kg wet							U
2,4´-DDT	ND	0.05	0.17	ug/kg wet							U
4,4´-DDD	ND	0.05	0.17	ug/kg wet							U
4,4´-DDT	ND	0.05	0.17	ug/kg wet							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.97*			*ug/kg wet*	*2.667*		*74.0*	*40-125*			
Surrogate: Decachlorobiphenyl	*2.75*			*ug/kg wet*	*2.667*		*103*	*40-130*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B410095 - EPA 3545											
LCS (B410095-BS1)					Prepared: 09-Oct-2014 Analyzed: 21-Oct-2014						
4,4´-DDE	2.1	0.05	0.17	ug/kg wet	2.667		80.0	40-125			
2,4´-DDE	2.5	0.05	0.17	ug/kg wet	3.333		73.6	40-125			
2,4´-DDD	3.1	0.05	0.17	ug/kg wet	3.333		92.8	40-125			
2,4´-DDT	2.1	0.05	0.17	ug/kg wet	3.333		64.4	40-125			
4,4´-DDD	2.6	0.05	0.17	ug/kg wet	2.667		98.5	40-125			
4,4´-DDT	1.9	0.05	0.17	ug/kg wet	2.667		70.0	45-125			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.48*			*ug/kg wet*	*2.667*		*55.5*	*40-125*			
Surrogate: Decachlorobiphenyl	*2.37*			*ug/kg wet*	*2.667*		*89.0*	*40-130*			
LCS (B410095-BS2)					Prepared: 09-Oct-2014 Analyzed: 21-Oct-2014						
4,4´-DDE	2.4	0.05	0.17	ug/kg wet	2.667		89.0	40-125			
2,4´-DDE	2.6	0.05	0.17	ug/kg wet	3.333		79.2	40-125			
2,4´-DDD	3.3	0.05	0.17	ug/kg wet	3.333		100	40-125			
2,4´-DDT	2.4	0.05	0.17	ug/kg wet	3.333		72.8	40-125			
4,4´-DDD	2.7	0.05	0.17	ug/kg wet	2.667		102	40-125			
4,4´-DDT	2.0	0.05	0.17	ug/kg wet	2.667		75.0	45-125			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.76*			*ug/kg wet*	*2.667*		*66.0*	*40-125*			
Surrogate: Decachlorobiphenyl	*2.56*			*ug/kg wet*	*2.667*		*96.0*	*40-130*			
Matrix Spike (B410095-MS1)		**Source: 4092606-21**			Prepared: 09-Oct-2014 Analyzed: 21-Oct-2014						
4,4´-DDE	122	0.23	0.71	ug/kg dry	11.39	98.3	207	40-125			QM-11
2,4´-DDE	66.1	0.23	0.71	ug/kg dry	14.24	44.8	150	40-125			QM-07
2,4´-DDD	134	0.23	0.71	ug/kg dry	14.24	99.1	244	40-125			QM-11
2,4´-DDT	13.3	0.23	0.71	ug/kg dry	14.24	5.2	56.8	40-125			
4,4´-DDD	741	0.23	0.71	ug/kg dry	11.39	521	NR	40-125			QM-11
4,4´-DDT	30.7	0.23	0.71	ug/kg dry	11.39	15.0	138	45-125			QM-07
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*6.15*			*ug/kg dry*	*11.39*		*54.0*	*40-125*			
Surrogate: Decachlorobiphenyl	*9.46*			*ug/kg dry*	*11.39*		*83.0*	*40-130*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	29-Dec-2014

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B410095 - EPA 3545											
Matrix Spike (B410095-MS2)	**Source: 4092606-62**				Prepared: 09-Oct-2014 Analyzed: 21-Oct-2014						
4,4´-DDE	76.1	0.26	0.81	ug/kg dry	12.90	60.4	122	40-125			
2,4´-DDE	44.0	0.26	0.81	ug/kg dry	16.13	34.2	60.4	40-125			
2,4´-DDD	58.9	0.26	0.81	ug/kg dry	16.13	71.0	NR	40-125			QM-11
2,4´-DDT	16.2	0.26	0.81	ug/kg dry	16.13	ND	100	40-125			
4,4´-DDD	278	0.26	0.81	ug/kg dry	12.90	258	152	40-125			QM-11
4,4´-DDT	45.4	0.26	0.81	ug/kg dry	12.90	18.8	206	45-125			QM-07
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*6.77*			*ug/kg dry*	*12.90*		*52.5*	*40-125*			
Surrogate: Decachlorobiphenyl	*9.74*			*ug/kg dry*	*12.90*		*75.5*	*40-130*			
Matrix Spike Dup (B410095-MSD1)	**Source: 4092606-21**				Prepared: 09-Oct-2014 Analyzed: 21-Oct-2014						
4,4´-DDE	119	0.24	0.75	ug/kg dry	11.99	98.3	175	40-125	2.17	30	QM-11
2,4´-DDE	58.5	0.24	0.75	ug/kg dry	14.99	44.8	91.7	40-125	12.2	30	
2,4´-DDD	117	0.24	0.75	ug/kg dry	14.99	99.1	119	40-125	13.5	30	
2,4´-DDT	13.4	0.24	0.75	ug/kg dry	14.99	5.2	54.6	40-125	0.705	30	
4,4´-DDD	564	0.24	0.75	ug/kg dry	11.99	521	358	40-125	27.1	30	QM-11
4,4´-DDT	25.8	0.24	0.75	ug/kg dry	11.99	15.0	90.1	45-125	17.3	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*6.29*			*ug/kg dry*	*11.99*		*52.5*	*40-125*			
Surrogate: Decachlorobiphenyl	*9.53*			*ug/kg dry*	*11.99*		*79.5*	*40-130*			
Matrix Spike Dup (B410095-MSD2)	**Source: 4092606-62**				Prepared: 09-Oct-2014 Analyzed: 21-Oct-2014						
4,4´-DDE	89.2	0.26	0.81	ug/kg dry	12.93	60.4	223	40-125	15.8	30	QM-11
2,4´-DDE	44.1	0.26	0.81	ug/kg dry	16.16	34.2	60.8	40-125	0.196	30	
2,4´-DDD	59.0	0.26	0.81	ug/kg dry	16.16	71.0	NR	40-125	0.196	30	QM-11
2,4´-DDT	16.2	0.26	0.81	ug/kg dry	16.16	ND	100	40-125	0.195	30	
4,4´-DDD	278	0.26	0.81	ug/kg dry	12.93	258	154	40-125	0.103	30	QM-11
4,4´-DDT	45.5	0.26	0.81	ug/kg dry	12.93	18.8	206	45-125	0.196	30	QM-07
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*6.79*			*ug/kg dry*	*12.93*		*52.5*	*40-125*			
Surrogate: Decachlorobiphenyl	*9.76*			*ug/kg dry*	*12.93*		*75.5*	*40-130*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ENVIRON — CHAIN-of-CUSTODY № 10504

☐ 18100 Von Karman Ave., Suite 600, Irvine, CA 92612, (949) 261-5151, (949) 261-6202 (fax)
☐ 707 Wilshire Blvd., Suite 4950, Los Angeles, Calif. 90017, (213) 943-6300, (213) 943-6301 (fax)
☐ 1702 E Highland Avenue, Suite 412, Phoenix, AZ 85016, (602) 734-7700, (602) 734-7701 (fax)

MSA#: — WO#: —

PROJECT NAME / FACILITY ID: Quantico 2-Month Post Cap

PROJECT NUMBER: 04MKJC14 DATE: 9-25-14

PROJECT LOCATION: Quantico, VA

FIELD PERSON: M. Grover / J. Conder

PROJECT MANAGER: J. Conder

LABORATORY: ~~SPAWAR~~ ERDC

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #: _____

SAMPLER: M. Grover

SIGNATURE:

SAMPLE I.D. NUMBER	SAMPLE DATE (YEAR 2014)	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: OD× EPA 8081A	TOC EPA 9060	COMMENTS
QT2-1-0002-SEDCHEM	9/23	9:31	X	X	S	1	U	NO	X	X	Contact Victoria Kirtay with questions at victoria.kirtay@navy.mil
QT2-1-0205-SEDCHEM											
QT2-1-0507-SEDCHEM											
QT2-1-0002-SEDCHEM-AI											
QT2-1-0002-SEDCHEM-BI											
QT2-1-0205-SEDCHEM-BI		↓									
QT2-1-0507-SEDCHEM-BI		10:05									
QT2-2-0002-SEDCHEM											
QT2-2-0205-SEDCHEM											
QT2-2-0507-SEDCHEM											
QT2-2-0002-SEDCHEM-AI											
QT2-2-0002-SEDCHEM-BI											
QT2-2-0205-SEDCHEM-BI											
TOTAL	X	X	X	X	X	X	X	X	13	13	

RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
	2:00 pm 9/25/14	(COMPANY):	9/26/14
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
		(COMPANY):	
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
		(COMPANY):	

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, NORMAL

SAMPLE INTEGRITY — INTACT: Y N Temp_____

IF SEALED, SEAL INTEGRITY — INTACT: Y N

O = OTHER; NO = NONE; U = UNKNOWN; S = H_2SO_4; N = HNO_3; H = HCL;

FILE: LOG FORMS\Chain_of_Custody

ENVIRON

CHAIN-of-CUSTODY № 10505

☐ 18100 Von Karman Ave., Suite 600, Irvine, CA 92612, (949) 261-5151, (949) 261-6202 (fax)

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☐ 1702 E Highland Avenue, Suite 412, Phoenix, AZ 85016, (602) 734-7700, (602) 734-7701 (fax)

MSA#: — WO#: —

PROJECT NAME / FACILITY ID: Quantico 2-Month Post Cap

FIELD PERSON: M. Grover / J. Conder

PROJECT NUMBER: 04MK-JC14 DATE: 9-25-14

PROJECT MANAGER: J. Conder

PROJECT LOCATION: Quantico, VA

LABORATORY: ERDC

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #:

SAMPLER: M. Grover

SIGNATURE:

SAMPLE I.D. NUMBER	YEAR 2014 SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: DDx EPA 8081A	TOC EPA 9060	Grain Size ASTM D422	COMMENTS
QT2-2-0507-SEDCHEM-BI	9/23	10:05	X	X	S	1	U	NO	X	X		Contact Victoria Kirtay with questions at victoria.kirtay@navy.mil
QT2-3-0002-SEDCHEM		10:31										
QT2-3-0205-SEDCHEM												
QT2-3-0507-SEDCHEM												
QT2-3-0002-SEDCHEM-AI												
QT2-3-0002-SEDCHEM-BI												
QT2-3-0205-SEDCHEM-BI												
QT2-3-0507-SEDCHEM-BI		↓							↓	↓		
QT2-1-0002-GS		9:31									X	
QT2-1-0205-GS												
QT2-1-0507-GS												
QT2-1-0002-GS-AI												
QT2-1-0002-GS-BI	↓	↓	↓	↓	↓	↓	↓	↓			↓	
TOTAL	X	X	X	X	X	X	X	X	8	8	5	

RELINQUISHED BY: [signature] TIME/DATE: 2:00 pm/9-25-14

RECEIVED BY: Michael Cook (COMPANY): TIME/DATE: 9/26/14

RELINQUISHED BY: TIME/DATE:

RECEIVED BY: (COMPANY): TIME/DATE:

RELINQUISHED BY: TIME/DATE:

RECEIVED BY: (COMPANY): TIME/DATE:

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, NORMAL

SAMPLE INTEGRITY — INTACT: Y N Temp

IF SEALED, SEAL INTEGRITY — INTACT: Y N

O = OTHER; NO = NONE; U = UNKNOWN; S = H_2SO_4; N = HNO_3; H = HCL;

FILE: LOG FORMS\Chain_of_Custody

ENVIRON — CHAIN-of-CUSTODY № 10530

☐ 18100 Von Karman Ave., Suite 600, Irvine, CA 92612, (949) 261-5151, (949) 261-6202 (fax)
☐ 707 Wilshire Blvd., Suite 4950, Los Angeles, Calif. 90017, (213) 943-6300, (213) 943-6301 (fax)
☐ 1702 E Highland Avenue, Suite 412, Phoenix, AZ 85016, (602) 734-7700, (602) 734-7701 (fax)

MSA#: — WO#: —

PROJECT NAME / FACILITY ID: Quantico 2-Month Post Cap

FIELD PERSON: M. Grover | J. Conder

PROJECT NUMBER: 04MKJC14 DATE: 9-25-14

PROJECT MANAGER: J. Conder

PROJECT LOCATION: Quantico, VA

LABORATORY: ERDC

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #: _____

SAMPLER: M. Grover

SIGNATURE:

SAMPLE I.D. NUMBER	SAMPLE DATE (YEAR 294)	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: ~~8081A~~	~~8260B~~ EPA 8260	Grain Size ASTM D422	COMMENTS
QT2-1-0205-GS-BI	9/23	9:31	X	X	S	1	U	NO			X	Contact Victoria Kirtay w/ questions at victoria.kirtay@navy.mil
QT2-1-0507-GS-BI		↓										
QT2-2-0002-GS		10:00										
QT2-2-0205-GS												
QT2-2-0507-GS												
QT2-2-0002-GS-AI												
QT2-2-0002-GS-BI												
QT2-2-0205-GS-BI												
QT2-2-0507-GS-BI		↓										
QT2-3-0002-GS		10:31										
QT2-3-0205-GS												
QT2-3-0507-GS												
QT2-3-0002-GS-AI												
TOTAL	X	X	X	X	X	X	X	X	0	0	13	

RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
	2:00 pm/9-25-14	(COMPANY): Marshall Cast	9/26/14
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
		(COMPANY):	
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
		(COMPANY):	

TURNAROUND TIME (CIRCLE ONE): SAME DAY; 24 HOURS; 48 HOURS; 72 HOURS; 5 DAYS; NORMAL

SAMPLE INTEGRITY — INTACT: Y N Temp_____

IF SEALED, SEAL INTEGRITY — INTACT: Y N

O = OTHER; NO = NONE; U = UNKNOWN; S = H_2SO_4; N = HNO_3; H = HCL;

FILE: LOG FORMS\Chain_of_Custody

ENVIRON — CHAIN-of-CUSTODY № 10532

☐ 18100 Von Karman Ave., Suite 600, Irvine, CA 92612, (949) 261-5151, (949) 261-6202 (fax)
☐ 707 Wilshire Blvd., Suite 4950, Los Angeles, Calif. 90017, (213) 943-6300, (213) 943-6301 (fax)
☐ 1702 E Highland Avenue, Suite 412, Phoenix, AZ 85016, (602) 734-7700, (602) 734-7701 (fax)

MSA#: — WO#: —

PROJECT NAME / FACILITY ID: Quantico 2-Month Post Cap
FIELD PERSON: M. Grower / J. Conder
PROJECT NUMBER: 04MKJC14 DATE: 9-25-14
PROJECT MANAGER: J. Conder
PROJECT LOCATION: Quantico, VA
LABORATORY: ERDC
IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #:

SAMPLER: M. Grower
SIGNATURE:

SAMPLE I.D. NUMBER	SAMPLE DATE (YEAR 2014)	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: DDX EPA 8081A	TOC EPA 9060	Grain Size ASTM D422	COMMENTS
QT2-3-0002-GS-BI	9/23	10:31	X	X	S	1	U	N	X	X	X	Contact Victoria Kirtay w/ questions at victoria.kirtay@navy.mil
QT2-3-0205-GS-BI		↓									↓	
QT2-3-0501-GS-BI												
QT2-4-0002-SEDCHEM		11:08							X	X		
QT2-4-0205-SEDCHEM												
QT2-4-0501-SEDCHEM												
QT2-4-0002-SEDCHEM-AI												
QT2-4-0002-SEDCHEM-BI												
QT2-4-0205-SEDCHEM-BI												
QT2-4-0501-SEDCHEM-BI		↓										
QT2-5-0002-SEDCHEM		11:50										
QT2-5-0205-SEDCHEM												
QT2-5-0501-SEDCHEM	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		
TOTAL	X	X	X	X	X	X	X	X	10	10	3	

RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
	2PM / 9-25-14	(COMPANY): Mitchell Cost	9/26/14
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
		(COMPANY):	
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
		(COMPANY):	

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, NORMAL

SAMPLE INTEGRITY — INTACT: Y N Temp_____

IF SEALED, SEAL INTEGRITY — INTACT: Y N

O = OTHER; NO = NONE; U = UNKNOWN; S = H_2SO_4; N = HNO_3; H = HCL;

FILE: LOG FORMS\Chain_of_Custody

ENVIRON — CHAIN-of-CUSTODY № 10531

☐ 18100 Von Karman Ave., Suite 600, Irvine, CA 92612, (949) 261-5151, (949) 261-6202 (fax)
☐ 707 Wilshire Blvd., Suite 4950, Los Angeles, Calif. 90017, (213) 943-6300, (213) 943-6301 (fax)
☐ 1702 E Highland Avenue, Suite 412, Phoenix, AZ 85016, (602) 734-7700, (602) 734-7701 (fax)

MSA#: — WO#: —

PROJECT NAME / FACILITY ID: Quantico 2-month Post Cap
FIELD PERSON: M. Graver / J. Conder
PROJECT NUMBER: 04MKJC14 DATE: 9-25-14
PROJECT MANAGER: J. Conder
PROJECT LOCATION: Quantico, VA
LABORATORY: ERDC
IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #:

SAMPLER: M. Graver
SIGNATURE:

SAMPLE I.D. NUMBER	SAMPLE DATE (YEAR 2014)	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: DDx EPA 8081B	TOC EPA 9060	COMMENTS
QTZ-5-0002-SEDCHEM-AI	9/23	11:50	X	X	S	1	U	NO	X	X	Contact Victoria Kirtay w/ questions at victoria.kirtay@navy.mil
QTZ-5-0002-SEDCHEM-BI											
QTZ-5-0205-SEDCHEM-BI											
QTZ-5-0507-SEDCHEM-BI											
QTZ-5DUP-0002-SEDCHEM											
QTZ-5DUP-0205-SEDCHEM											
QTZ-5DUP-0507-SEDCHEM											
QTZ-5DUP-0002-SEDCHEM-AI											
QTZ-5DUP-0002-SEDCHEM-BI											
QTZ-5DUP-0205-SEDCHEM-BI											
QTZ-5DUP-0507-SEDCHEM-BI		↓									
QTZ-6-GRAB-SEDCHEM	9/22	13:15									
QTZ-7-GRAB-SEDCHEM	↓	11:36	↓	↓	↓	↓	↓	↓	↓	↓	
TOTAL	X	X	X	X	X	X	X		13	13	

RELINQUISHED BY:	TIME/DATE: 2:00 PM 9-25-14	RECEIVED BY:	TIME/DATE: 9/26/14
		(COMPANY): Midwest Cas	
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
		(COMPANY):	
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
		(COMPANY):	

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, NORMAL

SAMPLE INTEGRITY — INTACT: Y N Temp____

IF SEALED, SEAL INTEGRITY — INTACT: Y N

O = OTHER; NO = NONE; U = UNKNOWN; S = H_2SO_4; N = HNO_3; H = HCL;

FILE: LOG FORMS\Chain_of_Custody

ENVIRON

CHAIN-of-CUSTODY № 10533

☐ 18100 Von Karman Ave., Suite 600, Irvine, CA 92612, (949) 261-5151, (949) 261-6202 (fax)
☐ 707 Wilshire Blvd., Suite 4950, Los Angeles, Calif. 90017, (213) 943-6300, (213) 943-6301 (fax)
☐ 1702 E Highland Avenue, Suite 412, Phoenix, AZ 85016, (602) 734-7700, (602) 734-7701 (fax)

MSA#: — WO#: —

PROJECT NAME / FACILITY ID: Quantico 2-Month Post Cap

FIELD PERSON: M. Grover / J. Conder

PROJECT NUMBER: 04MKJC14 DATE: 9-25-14

PROJECT MANAGER: J. Conder

PROJECT LOCATION: Quantico, VA

LABORATORY: ERDC

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #: _____

SAMPLER: M. Grover

SIGNATURE:

SAMPLE I.D. NUMBER	YEAR 2014 SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: Grain Size ASTM D422	COMMENTS
QTZ-4-0002-GS	9/23	11:00	X	X	S	1	U	NO	X	Contact Victoria Kirtay w/ questions at Victoria.Kirtay@navy.mil
QTZ-4-0205-GS										
QTZ-4-0507-GS										
QTZ-4-0002-GS-AI										
QTZ-4-0002-GS-BI										
QTZ-4-0205-GS-BI										
QTZ-4-0507-GS-BI		↓								
QTZ-5-0002-GS		11:50								
QTZ-5-0205-GS										
QTZ-5-0507-GS										
QTZ-5-0002-GS-AI										
QTZ-5-0002-GS-BI										
QTZ-5-0205-GS-BI	↓	↓	↓	↓	↓	↓	↓	↓	↓	
TOTAL	X	X	X	X	X	X	X	X	13	

RELINQUISHED BY:	TIME/DATE: 2:00 pm / 9-25-14	RECEIVED BY:	TIME/DATE: 9/26/14
		(COMPANY): Morford Corp	
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
		(COMPANY):	
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
		(COMPANY):	

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, NORMAL

SAMPLE INTEGRITY — INTACT: Y N Temp_____

IF SEALED, SEAL INTEGRITY — INTACT: Y N

O = OTHER; NO = NONE; U = UNKNOWN; S = H_2SO_4; N = HNO_3; H = HCL;

FILE: LOG FORMS\Chain_of_Custody

ENVIRON

CHAIN-of-CUSTODY № 10534

☐ 18100 Von Karman Ave., Suite 600
Irvine, CA 92612
(949) 261-5151
(949) 261-6202 (fax)

☐ 707 Wilshire Blvd., Suite 4950
Los Angeles, Calif. 90017
(213) 943-6300
(213) 943-6301 (fax)

☐ 1702 E Highland Avenue, Suite 412
Phoenix, AZ 85016
(602) 734-7700
(602) 734-7701 (fax)

MSA#: — WO#: —

PROJECT NAME / FACILITY ID: Quantico 2-Month Post Cap

PROJECT NUMBER: 024MK3C14 DATE: 9-25-14

PROJECT LOCATION: Quantico, VA

IS THIS A UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #: _____

FIELD PERSON: M. Grover / J. Conder

PROJECT MANAGER: J. Conder

LABORATORY: ERDC

SAMPLER: M. Grover

SIGNATURE:

SAMPLE I.D. NUMBER	YEAR 2014 SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (ft)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED / UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED Grain Size ASTM D422	COMMENTS
QTZ-5-0507-GS-BI	9/23	11:50	X	X	S	1	U	NO	X	Contact
QTZ-5DUP-0002-GS										Victoria
QTZ-5DUP-0205-GS										Kirtay w/
QTZ-5DUP-0507-GS										questions at
QTZ-5DUP-0002-GS-AI										victoria.kirtay@
QTZ-5DUP-0002-GS-BI										navy.mil
QTZ-5DUP-0205-GS-BI										
QTZ-5DUP-0507-GS-BI	↓	↓								
QTZ-6-GRAB-GS	9/22	12:15								
QTZ-7-GRAB-GS	↓	11:30	↓	↓	↓	↓	↓	↓	↓	
TOTAL	X	X	X	X	X	X	X	X	10	

RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
	2:00 pm / 9-25-14	(COMPANY): Michael Cart	9/26/14
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
		(COMPANY):	
RELINQUISHED BY:	TIME/DATE:	RECEIVED BY:	TIME/DATE:
		(COMPANY):	

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, NORMAL

SAMPLE INTEGRITY — INTACT: Y N Temp_____

IF SEALED, SEAL INTEGRITY — INTACT: Y N

O = OTHER; NO = NONE; U = UNKNOWN; S = H_2SO_4; N = HNO_3; H = HCL;

FILE: LOG FORMS\Chain_of_Custody

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception

Sample ID Key For 2-Month Sediment TOC and Grain Size Analyses

Sample Number	Sample ID
3116-01	QT2-1-0002-SEDCHEM
3116-02	QT2-1-0205-SEDCHEM
3116-03	QT2-1-0507-SEDCHEM
3116-04	QT2-1-0002-SEDCHEM-AI
3116-05	QT2-1-0002-SEDCHEM-BI
3116-06	QT2-1-0205-SEDCHEM-BI
3116-07	QT2-1-0507-SEDCHEM-BI
3116-08	QT2-2-0002-SEDCHEM
3116-09	QT2-2-0205-SEDCHEM
3116-10	QT2-2-0507-SEDCHEM
3116-11	QT2-2-0002-SEDCHEM-AI
3116-12	QT2-2-0002-SEDCHEM-BI
3116-13	QT2-2-0205-SEDCHEM-BI
3116-14	QT2-2-0507-SEDCHEM-BI
3116-15	QT2-3-0002-SEDCHEM
3116-16	QT2-3-0205-SEDCHEM
3116-17	QT2-3-0507-SEDCHEM
3116-18	QT2-3-0002-SEDCHEM-AI
3116-19	QT2-3-0002-SEDCHEM-BI
3116-20	QT2-3-0205-SEDCHEM-BI
3116-21	QT2-3-0507-SEDCHEM-BI
3116-22	QT2-1-0002-GS
3116-23	QT2-1-0205-GS
3116-24	QT2-1-0507-GS
3116-25	QT2-1-0002-GS-AI
3116-26	QT2-1-0002-GS-BI
3116-27	QT2-1-0205-GS-BI
3116-28	QT2-1-0507-GS-BI
3116-29	QT2-2-0002-GS
3116-30	QT2-2-0205-GS
3116-31	QT2-2-0507-GS
3116-32	QT2-2-0002-GS-AI
3116-33	QT2-2-0002-GS-BI
3116-34	QT2-2-0205-GS-BI
3116-35	QT2-2-0507-GS-BI
3116-36	QT2-3-0002-GS
3116-37	QT2-3-0205-GS
3116-38	QT2-3-0507-GS
3116-39	QT2-3-0002-GS-AI
3116-40	QT2-3-0002-GS-BI
3116-41	QT2-3-0205-GS-Bl
3116-42	QT2-3-0507-GS-BI
3116-43	QT2-4-0002-SEDCHEM
3116-44	QT2-4-0205-SEDCHEM
3116-45	QT2-4-0507-SEDCHEM
3116-46	QT2-4-0002-SEDCHEM-AI
3116-47	QT2-4-0002-SEDCHEM-BI
3116-48	QT2-4-0205-SEDCHEM-BI
3116-49	QT2-4-0507-SEDCHEM-BI
3116-50	QT2-5-0002-SEDCHEM
3116-51	QT2-5-0205-SEDCHEM
3116-52	QT2-5-0507-SEDCHEM
3116-53	QT2-5-0002-SEDCHEM-AI
3116-54	QT2-5-0002-SEDCHEM-BI
3116-55	QT2-5-0205-SEDCHEM-BI
3116-56	QT2-5-0507-SEDCHEM-BI

Sample Number	Sample ID
3116-57	QT2-5DUP-0002-SEDCHEM
3116-58	QT2-5DUP-0205-SEDCHEM
3116-59	QT2-5DUP-0507-SEDCHEM
3116-60	QT2-5DUP-0002-SEDCHEM-AI
3116-61	QT2-5DUP-0002-SEDCHEM-BI
3116-62	QT2-5DUP-0205-SEDCHEM-BI
3116-63	QT2-5DUP-0507-SEDCHEM-BI
3116-64	QT2-6-GRAB-SEDCHEM
3116-65	QT2-7-GRAB-SEDCHEM
3116-66	QT2-4-0002-GS
3116-67	QT2-4-0205-GS
3116-68	QT2-4-0507-GS
3116-69	QT2-4-0002-GS-AI
3116-70	QT2-4-0002-GS-BI
3116-71	QT2-4-0205-GS-BI
3116-72	QT2-4-0507-GS-BI
3116-73	QT2-5-0002-GS
3116-74	QT2-5-0205-GS
3116-75	QT2-5-0507-GS
3116-76	QT2-5-0002-GS-AI
3116-77	QT2-5-0002-GS-BI
3116-78	QT2-5-0205-GS-BI
3116-79	QT2-5-0507-GS-BI
3116-80	QT2-5DUP-0002-GS
3116-81	QT2-5DUP-0205-GS
3116-82	QT2-5DUP-0507-GS
3116-83	QT2-5DUP-0002-GS-AI
3116-84	QT2-5DUP-0002-GS-BI
3116-85	QT2-5DUP-0205-GS-BI
3116-86	QT2-5DUP-0507-GS-BI
3116-87	QT2-6-GRAB-GS
3116-88	QT2-7-GRAB-GS

Katahdin
ANALYTICAL SERVICES

nelac
Cert. No. E87604

October 17, 2014

Ms. Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

RE: Katahdin Lab Number: SH8352
Project ID: 31116
Project Manager: Ms. Shelly Brown
Sample Receipt Date(s): October 03, 2014

Dear Ms. Stratton:

Please find enclosed the following information:

* Report of Analysis (Analytical and/or Field)
* Quality Control Data Summary
* Chain of Custody (COC)
* Login Report

A copy of the Chain of Custody is included in the paginated report. The original COC is attached as an addendum to this report.

Should you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact the project manager listed above. The results contained in this report relate only to the submitted samples. This cover letter is an integral part of the ROA.

We certify that the test results provided in this report meet all the requirements of the NELAC standards unless otherwise noted in an attached technical narrative or in the Report of Analysis.

We appreciate your continued use of our laboratory and look forward to working with you in the future. The following signature indicates technical review and acceptance of the data.

Please go to http://www.katahdinlab.com/cert.html for copies of Katahdin Analytical Services Inc. current certificates and analyte lists.

Sincerely,
KATAHDIN ANALYTICAL SERVICES

Deborah J. Nadeau
Authorized Signature

10/17/2014
Date

TECHNICAL NARRATIVE

Wet Chemistry Analysis

The samples of Work Order SH8352 were analyzed in accordance with the specific methods listed on the Report of Analysis.

Analyses for total organic carbon (TOC) in soil were performed according to "Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods." SW-846. 2nd edition, 1982 (revised 1984), 3rd edition, 1986, and Updates I, II, IIA,III, IIIA and IIIB 1996, 1998 & 2004, Office of Solid Waste and Emergency Response, U.S. EPA. All TOC analyses were performed in duplicate, and both TOC results, as well as the average of the two results, have been reported on the Reports of Analytical Results.

Analyses for total solids were performed according to "Standard Methods for the Examination of Water and Wastewater", 15th, 16th, 17th, 18th, 19th, and 20th editions, 1980, 1985, 1989, 1992, 1995, 1999. APHA-AWWA-WPCF.

All analyses were performed within analytical holding times. All quality control criteria were met, with the following comments and exceptions:

The TOC recovery for the matrix spike duplicate aliquot of Katahdin Sample No. SH8352-5 is outside the laboratory's acceptance limits of 75% - 125%. The TOC recovery for the matrix spike aliquot of this sample is within the laboratory's acceptance limits. All matrix spike recoveries for TOC were calculated relative to the first of the two replicate unspiked analyses of the sample.

At client request, duplicate TOC analyses of a solid reference material (ERA Nutrients in Soil) were performed in each analytical batch containing Work Order SH8352 samples. Two different lots of this reference material, with different certified values and acceptance limits, were used in the analyses. Certificates of Analysis for these reference materials are included with this narrative. The results that were obtained for the analyses of these solid reference materials are summarized in the following table.

Analysis Date	Replicate	Measured Conc. (mg/kg)	Nutrients in Soil Lot	Certified Value (mg/kg)	Acceptance Limits (mg/kg)
10/07/14	1	2490	D066-542	2720	935-4500
	2	2340			
10/09/14	1	2500	D066-542	2720	935-4500
	2	2450			
10/10/14	1	6740	D085-542	5290	2580-7990
	2	6150			
10/07/14	1	6050	D085-542	5290	2580-7990
	2	6640			
10/07/14	1	6420	D085-542	5290	2580-7990
	2	6180			

ERA

A Waters Company

SW D936

Certificate of Analysis

Lot No. D066-542

Nutrients in Soil

Catalog No. 542

Issue Date: July 15, 2009

Revision Date: January 28, 2010

Certification

Parameter	Total Concentration [1] (mg/kg)	Certified Value [2] (mg/kg)	Uncertainty [3]	QC PALs™ [4] (mg/kg)	PT PALs™ [5] (mg/kg)
ammonia as N	964	823	7.1%	418 - 1230	362 - 1280
total kjeldahl nitrogen	1380	1040	14.6%	403 - 1680	138 - 2000
total organic carbon	2140	2720	11.7%	935 - 4500	214 - 5410
total phosphorus	495	510	10.5%	279 - 740	177 - 841

1. The **Total Concentrations** are equal to the digestable background concentrations in the blank soil matrix (determined internally by ERA using applicable methods), plus the amount of each analyte spiked onto the soil.

2. The **Certified Values** are equal to the mean recoveries for the parameters as determined in an interlaboratory round robin study. The certified values are based on an "as received" basis, assuming a 100% solids content.

3. The stated **Uncertainty** is the total propagated uncertainty at the 95% confidence interval. The uncertainty is based on the preparation and internal analytical verification of the product by ERA using applicable methods, multiplied by a coverage factor which is equal to the student t factor at a 95% confidence interval at n-1 degrees of freedom.

4. The **QC Performance Acceptance Limits (QC PALs™)** are based on actual historical data collected in ERA's Proficiency Testing program. The **QC PALs™** reflect any inherent biases in the methods used to establish the limits and closely approximate a 95% confidence interval of the performance that experienced laboratories should achieve using accepted environmental methods. Use the **QC PALs™** to realistically evaluate your performance against your peers.

5. The **PT Performance Acceptance Limits (PT PALs™)** are calculated using the regression equations and fixed acceptance criteria specified in the NELAC proficiency testing requirements. Use the **PT PALs™** when analyzing this QC standard alongside USEPA and NELAC compliant PT standards. Please note that many PT study acceptance limits are concentration dependent (some non-linearly) and, therefore, the acceptance limits of this QC standard and any PT standard may differ relative to their difference in concentrations.

6. This standard **expires 3/2013.** The certified values are monitored and purchasers will be notified of any significant changes resulting in recertification or withdrawal of this certified reference material during the period of validity of this certificate.

If you have any questions or need technical assistance, please call ERA technical assistance at 1-800-372-0122 or email to info@eraqc.com.

Certifying Officer: Tom Widera

ERA

A Waters Company

Reference Materials

▪ Certificate of Analysis ▪

Product: Nutrients in Soil
Catalog Number: 542
Lot No. D085-542
Certificate Issue Date: April 23, 2014
Expiration Date: October 31, 2017
Revision Number: Original

SWL3732

CERTIFICATION

Parameter	Total Concentration	Certified Value[1]	Uncertainty[2]	QC Performance Acceptance Limits[3]	PT Performance Acceptance Limits[4]
	mg/kg	mg/kg	%	mg/kg	mg/kg
Ammonia as N	401	404	8.86	245 - 563	174 - 634
Total Kjeldahl Nitrogen	895	881	14.5	543 - 1220	458 - 1300
Total Organic Carbon (TOC)	5290	5290	19.7	2580 - 7990	1400 - 9170
Total Phosphorus	780	879	9.56	447 - 1310	207 - 1550

ANALYTICAL VERIFICATION

Parameter	Certified Value[1]	Proficiency Testing Study			NIST Traceability	
		Mean	Recovery[5]	n	SRM Number	Recovery
	mg/kg	mg/kg	%			%
Ammonia as N	404	404	100	54	-	-
Total Kjeldahl Nitrogen	881	881	100	45	-	-
Total Organic Carbon (TOC)	5290	5290	100	25	-	-
Total Phosphorus	879	879	100	65	-	-

ACCREDITED ACCREDITED

16341 Table Mountain Pkwy ▪ Golden, CO 80403 ▪ T: 800.372.0122 ▪ 303.431.8454 ▪ www.eraqc.com

KATAHDIN ANALYTICAL SERVICES – INORGANIC DATA QUALIFIERS

The sampled date indicated on the attached Report(s) of Analysis (ROA) is the date for which a grab sample was collected or the date for which a composite sample was completed. Beginning and start times for composite samples can be found on the Chain-of-Custody.

U Indicates the compound was analyzed for but not detected above the specified level. This level may be the Limit of Quantitation (LOQ)(previously called Practical Quantitation Level (PQL)), the Limit of Detection (LOD) or Method Detection Limit (MDL) as required by the client.

Note: All results reported as "U" MDL have a 50% rate for false negatives compared to those results reported as "U" PQL/LOQ or "U" LOD, where the rate of false negatives is <1%.

E Estimated value. This flag identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis.

J Estimated value. The analyte was detected in the sample at a concentration less than the laboratory Limit of Quantitation (LOQ)(previously called Practical Quantitation Limit (PQL)), but above the Method Detection Limit (MDL).

I-7 The laboratory's Practical Quantitation Level could not be achieved for this parameter due to sample composition, matrix effects, sample volume, or quantity used for analysis.

A-4 Please refer to cover letter or narrative for further information.

H_ Please note that the regulatory holding time for _____ is "analyze immediately". Ideally, this analysis must be performed in the field at the time of sample collection. _____ for this sample was not performed at the time of sample collection. The analysis was performed as soon as possible after receipt by the laboratory.

H1 - pH H2 - DO H3 - sulfide H4 - residual chlorine

T1 The client did not provide the full volume of at least one liter for analysis of TSS. Therefore, the PQL of 2.5 mg/L could not be achieved.

T2 The client provided the required volume of at least one liter for analysis of TSS, but the laboratory could not filter the full one liter volume due to the sample matrix. Therefore, the PQL of 2.5 mg/L could not be achieved.

M1 The matrix spike and/or matrix spike duplicate recovery performed on this sample was outside of the laboratory acceptance criteria. Sample matrix is suspected. The laboratory criteria was met for the Laboratory Control Sample (LCS) analyzed concurrently with this sample.

M2 The matrix spike and/or matrix spike duplicate recovery was outside of the laboratory acceptance criteria. The native sample concentration is greater than four times the spike added concentration so the spike added could not be distinguished from the native sample concentration.

R1 The relative percent difference (RPD) between the duplicate analyses performed on this sample was outside of the laboratory acceptance criteria (when both values are greater than ten times the PQL).

MCL	Maximum Contaminant Level	NL	No limit
NFL	No Free Liquid Present	FLP	Free Liquid Present
NOD	No Odor Detected	TON	Threshold Odor Number

D-1 As required by Method 5210B, APHA Standard Methods for the Examination of Water and Wastewater (21st edition), the BOD value reported for this sample is 'qualified' because the check standard run concurrently with the sample analysis did not meet the criteria specified in the method (198 +/- 30.5 mg/L). These results may not be reportable for compliance purposes.

D-2 The measured final dissolved oxygen concentrations of all dilutions were less than the method-specified limit of 1 mg/L. The reported BOD result was calculated assuming a final oxygen concentration equal to 1 mg/L.

D-3 The dilution water used to prepare this sample did not meet the method and/or regulatory criteria of less than 0.2 or 0.4 mg/L dissolved oxygen (DO) uptake over the five day period of incubation. These results may not be reportable for compliance purposes.

Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-1
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-01	SL	23-SEP-14 09:31:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	2200 ug/gdrywt	480	100	SW846 9060A Mod.	WG151722	07-OCT-14 13:23:57	N/A	N/A	ZS	
Toc In Soil(2)	4000 ug/gdrywt	480	100	SW846 9060A Mod.	WG151722	07-OCT-14 13:35:40	N/A	N/A	ZS	
Toc In Soil(Avg)	3100 ug/gdrywt	480	100	SW846 9060A Mod.	WG151722	07-OCT-14 08:22:19	N/A	07-OCT-14	ZS	
Total Solids	84. %	1		SM2540G	WG151886	12-OCT-14 09:11:12	SM2540G	10-OCT-14	REC	

Katahdin Analytical Services SH8352 page 0000006 of 0000064

Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-2
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-02	SL	23-SEP-14 09:31:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	2400 ug/gdrywt	460	99.	SW846 9060A Mod.	WG151722	07-OCT-14 13:44:59	N/A	N/A	ZS	
Toc In Soil(2)	2400 ug/gdrywt	460	99.	SW846 9060A Mod.	WG151722	07-OCT-14 13:56:01	N/A	N/A	ZS	
Toc In Soil(Avg)	2400 ug/gdrywt	460	99.	SW846 9060A Mod.	WG151722	07-OCT-14 08:22:19	N/A	07-OCT-14	ZS	
Total Solids	86. %	1		SM2540G	WG151886	12-OCT-14 09:11:33	SM2540G	10-OCT-14	REC	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-3
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-03	SL	23-SEP-14 09:31:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	3300 ug/gdrywt	470	100	SW846 9060A Mod.	WG151722	07-OCT-14 14:07:17	N/A	N/A	ZS	
Toc In Soil(2)	3000 ug/gdrywt	470	100	SW846 9060A Mod.	WG151722	07-OCT-14 14:26:53	N/A	N/A	ZS	
Toc In Soil(Avg)	3200 ug/gdrywt	470	100	SW846 9060A Mod.	WG151722	07-OCT-14 08:22:19	N/A	07-OCT-14	ZS	
Total Solids	84. %	1		SM2540G	WG151886	12-OCT-14 09:11:48	SM2540G	10-OCT-14	REC	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-4
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-04	SL	23-SEP-14 09:31:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	2500 ug/gdrywt	480	100	SW846 9060A Mod.	WG151722	07-OCT-14 14:35:58	N/A	N/A	ZS	
Toc In Soil(2)	2300 ug/gdrywt	480	100	SW846 9060A Mod.	WG151722	07-OCT-14 14:44:22	N/A	N/A	ZS	
Toc In Soil(Avg)	2400 ug/gdrywt	480	100	SW846 9060A Mod.	WG151722	07-OCT-14 08:22:19	N/A	07-OCT-14	ZS	
Total Solids	84. %	1		SM2540G	WG151886	12-OCT-14 09:12:03	SM2540G	10-OCT-14	REC	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-5
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-05	SL	23-SEP-14 09:31:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	23000 ug/gdrywt	530	110	SW846 9060A Mod.	WG152163	09-OCT-14 09:55:39	N/A	N/A	ZS	M1
Toc In Soil(2)	29000 ug/gdrywt	530	110	SW846 9060A Mod.	WG152163	09-OCT-14 10:06:55	N/A	N/A	ZS	M1
Toc In Soil(Avg)	26000 ug/gdrywt	530	110	SW846 9060A Mod.	WG152163	09-OCT-14 09:06:47	N/A	09-OCT-14	ZS	M1
Total Solids	76. %	1		SM2540G	WG151886	12-OCT-14 09:12:24	SM2540G	10-OCT-14	REC	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-6
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-06	SL	23-SEP-14 09:31:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	30000 ug/gdrywt	540	120	SW846 9060A Mod.	WG152163	09-OCT-14 10:31:35	N/A	N/A	ZS	
Toc In Soil(2)	32000 ug/gdrywt	540	120	SW846 9060A Mod.	WG152163	09-OCT-14 10:47:46	N/A	N/A	ZS	
Toc In Soil(Avg)	31000 ug/gdrywt	540	120	SW846 9060A Mod.	WG152163	09-OCT-14 09:06:47	N/A	09-OCT-14	ZS	
Total Solids	73. %	1		SM2540G	WG151886	12-OCT-14 09:12:41	SM2540G	10-OCT-14	REC	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-7
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-07	SL	23-SEP-14 10:05:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	58000 ug/gdrywt	580	120	SW846 9060A Mod.	WG152163	09-OCT-14 11:13:36	N/A	N/A	ZS	
Toc In Soil(2)	52000 ug/gdrywt	580	120	SW846 9060A Mod.	WG152163	09-OCT-14 11:22:01	N/A	N/A	ZS	
Toc In Soil(Avg)	55000 ug/gdrywt	580	120	SW846 9060A Mod.	WG152163	09-OCT-14 09:06:47	N/A	09-OCT-14	ZS	
Total Solids	68. %	1		SM2540G	WG151886	12-OCT-14 09:12:58	SM2540G	10-OCT-14	REC	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-8
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-08	SL	23-SEP-14 10:05:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	2600 ug/gdrywt	460	98.	SW846 9060A Mod.	WG152163	09-OCT-14 11:30:37	N/A	N/A	ZS	
Toc In Soil(2)	3100 ug/gdrywt	460	98.	SW846 9060A Mod.	WG152163	09-OCT-14 12:22:52	N/A	N/A	ZS	
Toc In Soil(Avg)	2900 ug/gdrywt	460	98.	SW846 9060A Mod.	WG152163	09-OCT-14 09:06:47	N/A	09-OCT-14	ZS	
Total Solids	87. %	1		SM2540G	WG151886	12-OCT-14 09:13:13	SM2540G	10-OCT-14	REC	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-9
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-09	SL	23-SEP-14 10:05:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	1000 ug/gdrywt	440	93.	SW846 9060A Mod.	WG152163	09-OCT-14 12:31:28	N/A	N/A	ZS	
Toc In Soil(2)	990 ug/gdrywt	440	93.	SW846 9060A Mod.	WG152163	09-OCT-14 12:44:52	N/A	N/A	ZS	
Toc In Soil(Avg)	1000 ug/gdrywt	440	93.	SW846 9060A Mod.	WG152163	09-OCT-14 09:06:47	N/A	09-OCT-14	ZS	
Total Solids	91. %	1		SM2540G	WG151886	12-OCT-14 09:13:29	SM2540G	10-OCT-14	REC	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-10
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-10	SL	23-SEP-14 10:05:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	1400 ug/gdrywt	450	95.	SW846 9060A Mod.	WG152163	09-OCT-14 12:54:25	N/A	N/A	ZS	
Toc In Soil(2)	720 ug/gdrywt	450	95.	SW846 9060A Mod.	WG152163	09-OCT-14 13:01:54	N/A	N/A	ZS	
Toc In Soil(Avg)	1100 ug/gdrywt	450	95.	SW846 9060A Mod.	WG152163	09-OCT-14 09:06:47	N/A	09-OCT-14	ZS	
Total Solids	89. %	1		SM2540G	WG151886	12-OCT-14 09:13:47	SM2540G	10-OCT-14	REC	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-11
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-11	SL	23-SEP-14 10:05:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	3800 ug/gdrywt	470	100	SW846 9060A Mod.	WG152163	09-OCT-14 13:09:47	N/A	N/A	ZS	
Toc In Soil(2)	1300 ug/gdrywt	470	100	SW846 9060A Mod.	WG152163	09-OCT-14 13:18:07	N/A	N/A	ZS	
Toc In Soil(Avg)	2600 ug/gdrywt	470	100	SW846 9060A Mod.	WG152163	09-OCT-14 09:06:47	N/A	09-OCT-14	ZS	
Total Solids	85. %	1		SM2540G	WG151940	12-OCT-14 10:57:20	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-12
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-12	SL	23-SEP-14 10:05:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	16000 ug/gdrywt	520	110	SW846 9060A Mod.	WG152163	09-OCT-14 13:41:04	N/A	N/A	ZS	
Toc In Soil(2)	19000 ug/gdrywt	520	110	SW846 9060A Mod.	WG152163	09-OCT-14 14:08:36	N/A	N/A	ZS	
Toc In Soil(Avg)	18000 ug/gdrywt	520	110	SW846 9060A Mod.	WG152163	09-OCT-14 09:06:47	N/A	09-OCT-14	ZS	
Total Solids	77. %	1		SM2540G	WG151940	12-OCT-14 10:57:43	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-13
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-13	SL	23-SEP-14 10:05:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	20000 ug/gdrywt	500	110	SW846 9060A Mod.	WG152163	09-OCT-14 14:16:51	N/A	N/A	ZS	
Toc In Soil(2)	17000 ug/gdrywt	500	110	SW846 9060A Mod.	WG152163	09-OCT-14 14:25:01	N/A	N/A	ZS	
Toc In Soil(Avg)	18000 ug/gdrywt	500	110	SW846 9060A Mod.	WG152163	09-OCT-14 09:06:47	N/A	09-OCT-14	ZS	
Total Solids	79. %	1		SM2540G	WG151940	12-OCT-14 10:57:56	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-14
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-14	SL	23-SEP-14 10:05:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	16000 ug/gdrywt	500	110	SW846 9060A Mod.	WG152163	09-OCT-14 14:33:58	N/A	N/A	ZS	
Toc In Soil(2)	16000 ug/gdrywt	500	110	SW846 9060A Mod.	WG152163	09-OCT-14 14:43:14	N/A	N/A	ZS	
Toc In Soil(Avg)	16000 ug/gdrywt	500	110	SW846 9060A Mod.	WG152163	09-OCT-14 09:06:47	N/A	09-OCT-14	ZS	
Total Solids	80. %	1		SM2540G	WG151940	12-OCT-14 10:58:10	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-15
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-15	SL	23-SEP-14 10:31:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	6200 ug/gdrywt	480	100	SW846 9060A Mod.	WG152163	09-OCT-14 14:51:11	N/A	N/A	ZS	
Toc In Soil(2)	7700 ug/gdrywt	480	100	SW846 9060A Mod.	WG152163	09-OCT-14 14:59:17	N/A	N/A	ZS	
Toc In Soil(Avg)	6900 ug/gdrywt	480	100	SW846 9060A Mod.	WG152163	09-OCT-14 09:06:47	N/A	09-OCT-14	ZS	
Total Solids	83. %	1		SM2540G	WG151940	12-OCT-14 10:58:25	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-16
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-16	SL	23-SEP-14 10:31:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	7700 ug/gdrywt	470	100	SW846 9060A Mod.	WG152163	09-OCT-14 15:42:50	N/A	N/A	ZS	
Toc In Soil(2)	6500 ug/gdrywt	470	100	SW846 9060A Mod.	WG152163	09-OCT-14 15:51:45	N/A	N/A	ZS	
Toc In Soil(Avg)	7100 ug/gdrywt	470	100	SW846 9060A Mod.	WG152163	09-OCT-14 09:06:47	N/A	09-OCT-14	ZS	
Total Solids	85. %	1		SM2540G	WG151940	12-OCT-14 10:58:38	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-17
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-17	SL	23-SEP-14 10:31:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	14000 ug/gdrywt	470	99.	SW846 9060A Mod.	WG152163	09-OCT-14 15:59:32	N/A	N/A	ZS	
Toc In Soil(2)	13000 ug/gdrywt	470	99.	SW846 9060A Mod.	WG152163	09-OCT-14 16:07:32	N/A	N/A	ZS	
Toc In Soil(Avg)	14000 ug/gdrywt	470	99.	SW846 9060A Mod.	WG152163	09-OCT-14 09:06:47	N/A	09-OCT-14	ZS	
Total Solids	86. %	1		SM2540G	WG151940	12-OCT-14 10:58:50	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-18
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-18	SL	23-SEP-14 10:31:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	4300 ug/gdrywt	460	98.	SW846 9060A Mod.	WG152163	09-OCT-14 16:15:40	N/A	N/A	ZS	
Toc In Soil(2)	4200 ug/gdrywt	460	98.	SW846 9060A Mod.	WG152163	09-OCT-14 16:23:38	N/A	N/A	ZS	
Toc In Soil(Avg)	4300 ug/gdrywt	460	98.	SW846 9060A Mod.	WG152163	09-OCT-14 09:06:47	N/A	09-OCT-14	ZS	
Total Solids	86. %	1		SM2540G	WG151940	12-OCT-14 10:59:04	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-19
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-19	SL	23-SEP-14 10:31:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	34000 ug/gdrywt	510	110	SW846 9060A Mod.	WG152163	09-OCT-14 16:34:10	N/A	N/A	ZS	
Toc In Soil(2)	35000 ug/gdrywt	510	110	SW846 9060A Mod.	WG152163	09-OCT-14 16:44:14	N/A	N/A	ZS	
Toc In Soil(Avg)	35000 ug/gdrywt	510	110	SW846 9060A Mod.	WG152163	09-OCT-14 09:06:47	N/A	09-OCT-14	ZS	
Total Solids	78. %	1		SM2540G	WG151940	12-OCT-14 10:59:24	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-20
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-20	SL	23-SEP-14 10:31:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	94000 ug/gdrywt	590	120	SW846 9060A Mod.	WG152163	09-OCT-14 16:52:46	N/A	N/A	ZS	
Toc In Soil(2)	81000 ug/gdrywt	590	120	SW846 9060A Mod.	WG152163	09-OCT-14 17:00:44	N/A	N/A	ZS	
Toc In Soil(Avg)	87000 ug/gdrywt	590	120	SW846 9060A Mod.	WG152163	09-OCT-14 09:06:47	N/A	09-OCT-14	ZS	
Total Solids	68. %	1		SM2540G	WG151940	12-OCT-14 10:59:44	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-21
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-21	SL	23-SEP-14 10:31:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	110000 ug/gdrywt	610	130	SW846 9060A Mod.	WG152167	10-OCT-14 17:51:07	N/A	N/A	ZS	
Toc In Soil(2)	89000 ug/gdrywt	610	130	SW846 9060A Mod.	WG152167	10-OCT-14 17:58:48	N/A	N/A	ZS	
Toc In Soil(Avg)	100000 ug/gdrywt	610	130	SW846 9060A Mod.	WG152167	10-OCT-14 08:23:23	N/A	10-OCT-14	ZS	
Total Solids	65. %	1		SM2540G	WG151940	12-OCT-14 10:59:57	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-22
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-43	SL	23-SEP-14 11:08:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	4500 ug/gdrywt	470	100	SW846 9060A Mod.	WG152167	10-OCT-14 09:38:54	N/A	N/A	ZS	
Toc In Soil(2)	3900 ug/gdrywt	470	100	SW846 9060A Mod.	WG152167	10-OCT-14 09:47:38	N/A	N/A	ZS	
Toc In Soil(Avg)	4200 ug/gdrywt	470	100	SW846 9060A Mod.	WG152167	10-OCT-14 08:23:23	N/A	10-OCT-14	ZS	
Total Solids	85. %	1		SM2540G	WG151940	12-OCT-14 11:00:12	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-23
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-44	SL	23-SEP-14 11:08:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	1200 ug/gdrywt	460	98.	SW846 9060A Mod.	WG152167	10-OCT-14 09:57:14	N/A	N/A	ZS	
Toc In Soil(2)	1500 ug/gdrywt	460	98.	SW846 9060A Mod.	WG152167	10-OCT-14 10:05:13	N/A	N/A	ZS	
Toc In Soil(Avg)	1400 ug/gdrywt	460	98.	SW846 9060A Mod.	WG152167	10-OCT-14 08:23:23	N/A	10-OCT-14	ZS	
Total Solids	87. %	1		SM2540G	WG151940	12-OCT-14 11:00:23	SM2540G	11-OCT-14	CB	

Katahdin Analytical Services SH8352 page 0000028 of 0000064

Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-24
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-45	SL	23-SEP-14 11:08:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	11000 ug/gdrywt	500	100	SW846 9060A Mod.	WG152167	10-OCT-14 10:49:18	N/A	N/A	ZS	
Toc In Soil(2)	12000 ug/gdrywt	500	100	SW846 9060A Mod.	WG152167	10-OCT-14 11:02:18	N/A	N/A	ZS	
Toc In Soil(Avg)	11000 ug/gdrywt	500	100	SW846 9060A Mod.	WG152167	10-OCT-14 08:23:23	N/A	10-OCT-14	ZS	
Total Solids	80. %	1		SM2540G	WG151940	12-OCT-14 11:00:35	SM2540G	11-OCT-14	CB	

Katahdin Analytical Services SH8352 page 0000029 of 0000064

Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-25
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-46	SL	23-SEP-14 11:08:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	790 ug/gdrywt	470	99.	SW846 9060A Mod.	WG152167	10-OCT-14 11:10:36	N/A	N/A	ZS	
Toc In Soil(2)	1700 ug/gdrywt	470	99.	SW846 9060A Mod.	WG152167	10-OCT-14 11:37:14	N/A	N/A	ZS	
Toc In Soil(Avg)	1200 ug/gdrywt	470	99.	SW846 9060A Mod.	WG152167	10-OCT-14 08:23:23	N/A	10-OCT-14	ZS	
Total Solids	86. %	1		SM2540G	WG151940	12-OCT-14 11:00:49	SM2540G	11-OCT-14	CB	

Katahdin Analytical Services SH8352 page 0000030 of 0000064

Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-26
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-47	SL	23-SEP-14 11:08:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	27000 ug/gdrywt	620	130	SW846 9060A Mod.	WG152167	10-OCT-14 12:11:58	N/A	N/A	ZS	
Toc In Soil(2)	25000 ug/gdrywt	620	130	SW846 9060A Mod.	WG152167	10-OCT-14 12:20:27	N/A	N/A	ZS	
Toc In Soil(Avg)	26000 ug/gdrywt	620	130	SW846 9060A Mod.	WG152167	10-OCT-14 08:23:23	N/A	10-OCT-14	ZS	
Total Solids	64. %	1		SM2540G	WG151940	12-OCT-14 11:01:04	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-27
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-48	SL	23-SEP-14 11:08:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	24000 ug/gdrywt	670	140	SW846 9060A Mod.	WG152167	10-OCT-14 12:48:18	N/A	N/A	ZS	
Toc In Soil(2)	25000 ug/gdrywt	670	140	SW846 9060A Mod.	WG152167	10-OCT-14 12:58:05	N/A	N/A	ZS	
Toc In Soil(Avg)	24000 ug/gdrywt	670	140	SW846 9060A Mod.	WG152167	10-OCT-14 08:23:23	N/A	10-OCT-14	ZS	
Total Solids	60. %	1		SM2540G	WG151940	12-OCT-14 11:01:25	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-28
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-49	SL	23-SEP-14 11:08:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	25000 ug/gdrywt	680	140	SW846 9060A Mod.	WG152167	10-OCT-14 13:13:39	N/A	N/A	ZS	
Toc In Soil(2)	24000 ug/gdrywt	680	140	SW846 9060A Mod.	WG152167	10-OCT-14 13:21:24	N/A	N/A	ZS	
Toc In Soil(Avg)	25000 ug/gdrywt	680	140	SW846 9060A Mod.	WG152167	10-OCT-14 08:23:23	N/A	10-OCT-14	ZS	
Total Solids	59. %	1		SM2540G	WG151940	12-OCT-14 11:01:37	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-29
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-50	SL	23-SEP-14 11:50:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	6200 ug/gdrywt	510	110	SW846 9060A Mod.	WG152167	10-OCT-14 14:09:39	N/A	N/A	ZS	
Toc In Soil(2)	6000 ug/gdrywt	510	110	SW846 9060A Mod.	WG152167	10-OCT-14 14:22:26	N/A	N/A	ZS	
Toc In Soil(Avg)	6100 ug/gdrywt	510	110	SW846 9060A Mod.	WG152167	10-OCT-14 08:23:23	N/A	10-OCT-14	ZS	
Total Solids	78. %	1		SM2540G	WG151940	12-OCT-14 11:01:50	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-30
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-51	SL	23-SEP-14 11:50:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	5600 ug/gdrywt	480	100	SW846 9060A Mod.	WG152167	10-OCT-14 14:52:07	N/A	N/A	ZS	
Toc In Soil(2)	5400 ug/gdrywt	480	100	SW846 9060A Mod.	WG152167	10-OCT-14 15:03:38	N/A	N/A	ZS	
Toc In Soil(Avg)	5500 ug/gdrywt	480	100	SW846 9060A Mod.	WG152167	10-OCT-14 08:23:23	N/A	10-OCT-14	ZS	
Total Solids	82. %	1		SM2540G	WG151940	12-OCT-14 11:02:03	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-31
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-52	SL	23-SEP-14 11:50:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	16000 ug/gdrywt	550	120	SW846 9060A Mod.	WG152167	10-OCT-14 15:14:49	N/A	N/A	ZS	
Toc In Soil(2)	16000 ug/gdrywt	550	120	SW846 9060A Mod.	WG152167	10-OCT-14 15:27:00	N/A	N/A	ZS	
Toc In Soil(Avg)	16000 ug/gdrywt	550	120	SW846 9060A Mod.	WG152167	10-OCT-14 08:23:23	N/A	10-OCT-14	ZS	
Total Solids	73. %	1		SM2540G	WG151946	12-OCT-14 11:09:17	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-32
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-53	SL	23-SEP-14 11:50:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	540 ug/gdrywt	480	100	SW846 9060A Mod.	WG152167	10-OCT-14 16:55:27	N/A	N/A	ZS	
Toc In Soil(2)	800 ug/gdrywt	480	100	SW846 9060A Mod.	WG152167	10-OCT-14 17:03:51	N/A	N/A	ZS	
Toc In Soil(Avg)	670 ug/gdrywt	480	100	SW846 9060A Mod.	WG152167	10-OCT-14 08:23:23	N/A	10-OCT-14	ZS	
Total Solids	83. %	1		SM2540G	WG151946	12-OCT-14 11:09:31	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-33
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-54	SL	23-SEP-14 11:50:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	58000 ug/gdrywt	620	130	SW846 9060A Mod.	WG152167	10-OCT-14 17:11:58	N/A	N/A	ZS	
Toc In Soil(2)	65000 ug/gdrywt	620	130	SW846 9060A Mod.	WG152167	10-OCT-14 17:24:55	N/A	N/A	ZS	
Toc In Soil(Avg)	61000 ug/gdrywt	620	130	SW846 9060A Mod.	WG152167	10-OCT-14 08:23:23	N/A	10-OCT-14	ZS	
Total Solids	65. %	1		SM2540G	WG151946	12-OCT-14 11:09:45	SM2540G	11-OCT-14	CB	

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Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-34
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-55	SL	23-SEP-14 11:50:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	64000 ug/gdrywt	650	140	SW846 9060A Mod.	WG152167	10-OCT-14 17:33:29	N/A	N/A	ZS	
Toc In Soil(2)	58000 ug/gdrywt	650	140	SW846 9060A Mod.	WG152167	10-OCT-14 17:41:48	N/A	N/A	ZS	
Toc In Soil(Avg)	61000 ug/gdrywt	650	140	SW846 9060A Mod.	WG152167	10-OCT-14 08:23:23	N/A	10-OCT-14	ZS	
Total Solids	62. %	1		SM2540G	WG151946	12-OCT-14 11:10:01	SM2540G	11-OCT-14	CB	

Katahdin Analytical Services SH8352 page 0000039 of 0000064

Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-35
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-56	SL	23-SEP-14 11:50:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	65000 ug/gdrywt	640	140	SW846 9060A Mod.	WG152168	11-OCT-14 11:07:36	N/A	N/A	ZS	
Toc In Soil(2)	65000 ug/gdrywt	640	140	SW846 9060A Mod.	WG152168	11-OCT-14 11:19:15	N/A	N/A	ZS	
Toc In Soil(Avg)	65000 ug/gdrywt	640	140	SW846 9060A Mod.	WG152168	11-OCT-14 14:18:00	N/A	11-OCT-14	ZS	
Total Solids	62. %	1		SM2540G	WG151946	12-OCT-14 11:10:22	SM2540G	11-OCT-14	CB	

Katahdin Analytical Services SH8352 page 0000040 of 0000064

Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-36
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-57	SL	23-SEP-14 11:50:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	5400 ug/gdrywt	500	100	SW846 9060A Mod.	WG152168	11-OCT-14 11:53:37	N/A	N/A	ZS	
Toc In Soil(2)	7300 ug/gdrywt	500	100	SW846 9060A Mod.	WG152168	11-OCT-14 12:01:44	N/A	N/A	ZS	
Toc In Soil(Avg)	6300 ug/gdrywt	500	100	SW846 9060A Mod.	WG152168	11-OCT-14 14:18:00	N/A	11-OCT-14	ZS	
Total Solids	80. %	1		SM2540G	WG151946	12-OCT-14 11:10:57	SM2540G	11-OCT-14	CB	

Katahdin Analytical Services SH8352 page 0000041 of 0000064

Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-37
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-58	SL	23-SEP-14 11:50:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	6800 ug/gdrywt	500	100	SW846 9060A Mod.	WG152196	13-OCT-14 09:10:32	N/A	N/A	ZS	
Toc In Soil(2)	12000 ug/gdrywt	500	100	SW846 9060A Mod.	WG152196	13-OCT-14 09:24:56	N/A	N/A	ZS	
Toc In Soil(Avg)	9200 ug/gdrywt	500	100	SW846 9060A Mod.	WG152196	13-OCT-14 10:01:00	N/A	13-OCT-14	ZS	
Total Solids	80. %	1		SM2540G	WG151946	12-OCT-14 11:11:11	SM2540G	11-OCT-14	CB	

Katahdin Analytical Services SH8352 page 0000042 of 0000064

Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-38
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-59	SL	23-SEP-14 11:50:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	19000 ug/gdrywt	610	130	SW846 9060A Mod.	WG152196	13-OCT-14 09:33:02	N/A	N/A	ZS	
Toc In Soil(2)	18000 ug/gdrywt	610	130	SW846 9060A Mod.	WG152196	13-OCT-14 09:41:10	N/A	N/A	ZS	
Toc In Soil(Avg)	18000 ug/gdrywt	610	130	SW846 9060A Mod.	WG152196	13-OCT-14 10:01:00	N/A	13-OCT-14	ZS	
Total Solids	65. %	1		SM2540G	WG151946	12-OCT-14 11:11:27	SM2540G	11-OCT-14	CB	

Katahdin Analytical Services SH8352 page 0000043 of 0000064

Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-39
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-60	SL	23-SEP-14 11:50:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	910 ug/gdrywt	480	100	SW846 9060A Mod.	WG152196	13-OCT-14 09:49:08	N/A	N/A	ZS	
Toc In Soil(2)	920 ug/gdrywt	480	100	SW846 9060A Mod.	WG152196	13-OCT-14 09:56:48	N/A	N/A	ZS	
Toc In Soil(Avg)	920 ug/gdrywt	480	100	SW846 9060A Mod.	WG152196	13-OCT-14 10:01:00	N/A	13-OCT-14	ZS	
Total Solids	84. %	1		SM2540G	WG151946	12-OCT-14 11:11:40	SM2540G	11-OCT-14	CB	

Katahdin Analytical Services SH8352 page 0000044 of 0000064

Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-40
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-61	SL	23-SEP-14 11:50:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	59000 ug/gdrywt	600	130	SW846 9060A Mod.	WG152196	13-OCT-14 10:05:08	N/A	N/A	ZS	
Toc In Soil(2)	56000 ug/gdrywt	600	130	SW846 9060A Mod.	WG152196	13-OCT-14 10:29:47	N/A	N/A	ZS	
Toc In Soil(Avg)	58000 ug/gdrywt	600	130	SW846 9060A Mod.	WG152196	13-OCT-14 10:01:00	N/A	13-OCT-14	ZS	
Total Solids	66. %	1		SM2540G	WG151946	12-OCT-14 11:11:52	SM2540G	11-OCT-14	CB	

Katahdin Analytical Services SH8352 page 0000045 of 0000064

Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-41
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-62	SL	23-SEP-14 11:50:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	67000 ug/gdrywt	640	140	SW846 9060A Mod.	WG152196	13-OCT-14 10:39:43	N/A	N/A	ZS	
Toc In Soil(2)	66000 ug/gdrywt	640	140	SW846 9060A Mod.	WG152196	13-OCT-14 10:48:14	N/A	N/A	ZS	
Toc In Soil(Avg)	66000 ug/gdrywt	640	140	SW846 9060A Mod.	WG152196	13-OCT-14 10:01:00	N/A	13-OCT-14	ZS	
Total Solids	62. %	1		SM2540G	WG151946	12-OCT-14 11:12:07	SM2540G	11-OCT-14	CB	

Katahdin Analytical Services SH8352 page 0000046 of 0000064

Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-42
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-63	SL	23-SEP-14 11:50:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	73000 ug/gdrywt	660	140	SW846 9060A Mod.	WG152196	13-OCT-14 11:16:18	N/A	N/A	ZS	
Toc In Soil(2)	70000 ug/gdrywt	660	140	SW846 9060A Mod.	WG152196	13-OCT-14 11:24:24	N/A	N/A	ZS	
Toc In Soil(Avg)	71000 ug/gdrywt	660	140	SW846 9060A Mod.	WG152196	13-OCT-14 10:01:00	N/A	13-OCT-14	ZS	
Total Solids	61. %	1		SM2540G	WG151946	12-OCT-14 11:12:22	SM2540G	11-OCT-14	CB	

Katahdin Analytical Services SH8352 page 0000047 of 0000064

Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-43
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-64	SL	23-SEP-14 12:15:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	24000 ug/gdrywt	860	180	SW846 9060A Mod.	WG152196	13-OCT-14 12:10:48	N/A	N/A	ZS	
Toc In Soil(2)	24000 ug/gdrywt	860	180	SW846 9060A Mod.	WG152196	13-OCT-14 12:18:53	N/A	N/A	ZS	
Toc In Soil(Avg)	24000 ug/gdrywt	860	180	SW846 9060A Mod.	WG152196	13-OCT-14 10:01:00	N/A	13-OCT-14	ZS	
Total Solids	46. %	1		SM2540G	WG151946	12-OCT-14 11:12:36	SM2540G	11-OCT-14	CB	

Katahdin Analytical Services SH8352 page 0000048 of 0000064

Report of Analytical Results

Client: Jane Stratton
Absolute Resources
124 Heritage Avenue #16
Portsmouth,NH 03801

Lab Sample ID: SH8352-44
Report Date: 17-OCT-14
Client PO: 31116
Project: 31116
SDG: SH8352

Sample Description	Matrix	Date Sampled	Date Received
3116-65	SL	23-SEP-14 11:36:00	03-OCT-14

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Toc In Soil(1)	34000 ug/gdrywt	1300	280	SW846 9060A Mod.	WG152196	13-OCT-14 12:26:52	N/A	N/A	ZS	
Toc In Soil(2)	36000 ug/gdrywt	1300	280	SW846 9060A Mod.	WG152196	13-OCT-14 12:48:35	N/A	N/A	ZS	
Toc In Soil(Avg)	35000 ug/gdrywt	1300	280	SW846 9060A Mod.	WG152196	13-OCT-14 10:01:00	N/A	13-OCT-14	ZS	
Total Solids	31. %	1		SM2540G	WG151946	12-OCT-14 11:12:47	SM2540G	11-OCT-14	CB	

Katahdin Analytical Services SH8352 page 0000049 of 0000064

Quality Control Report

Blank Sample Summary Report

Toc In Soil(1)

Samp Type	QC Batch	Anal. Method	Anal. Date	Prep. Date	Result	PQL
MBLANK	WG151722	SW846 9060A Mod.	07-OCT-14	N/A	U 300 ug/gdrywt	400 ug/gdrywt
MBLANK	WG152163	SW846 9060A Mod.	09-OCT-14	N/A	U 300 ug/gdrywt	400 ug/gdrywt
MBLANK	WG152167	SW846 9060A Mod.	10-OCT-14	N/A	U 300 ug/gdrywt	400 ug/gdrywt
MBLANK	WG152168	SW846 9060A Mod.	11-OCT-14	N/A	U 300 ug/gdrywt	400 ug/gdrywt
MBLANK	WG152196	SW846 9060A Mod.	13-OCT-14	N/A	U 300 ug/gdrywt	400 ug/gdrywt

Total Solids

Samp Type	QC Batch	Anal. Method	Anal. Date	Prep. Date	Result	PQL
MBLANK	WG151886	SM2540	12-OCT-14	10-OCT-14	U 1 %	1 %
MBLANK	WG151940	SM2540	12-OCT-14	11-OCT-14	U 1 %	1 %
MBLANK	WG151946	SM2540	12-OCT-14	11-OCT-14	U 1 %	1 %

Quality Control Report

Laboratory Control Sample Summary Report

Toc In Soil(1)

Lab Sample Id	Samp Type	QC Batch	Analysis Date	Prep Date	Units	Spike Amt.	Result	Recovery	Acceptance Range	RPD
WG151722-2	LCS	WG151722	07-OCT-14	N/A	ug/gdrywt	400000.000	410000	102	80-120	
WG152163-2	LCS	WG152163	09-OCT-14	N/A	ug/gdrywt	400000.000	390000	97	80-120	
WG152167-2	LCS	WG152167	10-OCT-14	N/A	ug/gdrywt	400000.000	420000	105	80-120	
WG152168-2	LCS	WG152168	11-OCT-14	N/A	ug/gdrywt	400000.000	400000	101	80-120	
WG152196-2	LCS	WG152196	13-OCT-14	N/A	ug/gdrywt	400000.000	410000	102	80-120	

Total Solids

Lab Sample Id	Samp Type	QC Batch	Analysis Date	Prep Date	Units	Spike Amt.	Result	Recovery	Acceptance Range	RPD
WG151886-2	LCS	WG151886	12-OCT-14	10-OCT-14	%	90	94.	104	80-120	
WG151940-2	LCS	WG151940	12-OCT-14	11-OCT-14	%	90	91.	102	80-120	
WG151946-2	LCS	WG151946	12-OCT-14	11-OCT-14	%	90	90.	100	80-120	

Quality Control Report

Duplicate Sample Summary Report

Total Solids

Duplicate Sample ID	Original Sample ID	QC Batch	Analysis Date	Result Units	Sample Result	Duplicate Result	RPD(%)	RPD Limit
WG151946-4	SH8352-44	WG151946	12-OCT-14	%	31.	30.	0	20
WG151940-4	SH8352-30	WG151940	12-OCT-14	%	82.	81.	2	20
WG151946-3	SH8352-33	WG151946	12-OCT-14	%	65.	66.	2	20
WG151886-4	SH8352-10	WG151886	12-OCT-14	%	89.	90.	1	20
WG151940-3	SH8352-11	WG151940	12-OCT-14	%	85.	86.	1	20

Quality Control Report

Matrix Spike Sample Summary Report

Toc In Soil(1)

Matrix Spike Sample ID	Sample Type	Original Sample ID	QC Batch	Analysis Date	Result Units	Spike Amount	Sample Result	MS Result	Recovery (%)	Recovery Limit
WG152196-3	MS	SH8352-41	WG152196	13-OCT-14	ug/gdrywt	45212.86	67000	120000	110	75 - 125
WG152163-3	MS	SH8352-5	WG152163	09-OCT-14	ug/gdrywt	28705.86	23000	55000	111	75 - 125
WG152167-7	MS	SH8352-31	WG152167	10-OCT-14	ug/gdrywt	21771.86	16000	37000	94	75 - 125
WG152167-5	MS	SH8352-25	WG152167	10-OCT-14	ug/gdrywt	10329.08	790	11000	103	75 - 125
WG152168-3	MS	SH8352-35	WG152168	11-OCT-14	ug/gdrywt	23835.3	65000	95000	125	75 - 125
WG152163-5	MS	SH8352-15	WG152163	09-OCT-14	ug/gdrywt	21405.63	6200	27000	91	75 - 125
WG152168-4	MSD	SH8352-35	WG152168	11-OCT-14	ug/gdrywt	22744.57	65000	93000	121	75 - 125
WG152163-6	MSD	SH8352-15	WG152163	09-OCT-14	ug/gdrywt	18989.81	6200	31000	125	75 - 125
WG151722-4	MSD	SH8352-4	WG151722	07-OCT-14	ug/gdrywt	18770.92	2500	22000	107	75 - 125
WG152163-4	MSD	SH8352-5	WG152163	09-OCT-14	ug/gdrywt	23526.24	23000	58000	152*	75 - 125
WG152167-8	MSD	SH8352-31	WG152167	10-OCT-14	ug/gdrywt	22663.64	16000	39000	99	75 - 125
WG152167-6	MSD	SH8352-25	WG152167	10-OCT-14	ug/gdrywt	14850.73	790	16000	106	75 - 125
WG152196-4	MSD	SH8352-41	WG152196	13-OCT-14	ug/gdrywt	51459.14	67000	130000	116	75 - 125
WG151722-3	MS	SH8352-4	WG151722	07-OCT-14	ug/gdrywt	15707.42	2500	18000	99	75 - 125

Katahdin Analytical Services, Inc. **Sample Receipt Condition Report**

Client:	Absolute Resources	KAS PM:	SMB	Sampled By:	Client
Project:		KIMS Entry By:	DM	Delivered By:	UPS
KAS Work Order#:	SH8352	KIMS Review By:		Received By:	DM
SDG #:		Cooler: 1 of 1		Date/Time Rec.:	10-3-14 1200

Receipt Criteria	Y	N	EX*	NA	Comments and/or Resolution
1. Custody seals present / intact?	✓				
2. Chain of Custody present in cooler?	✓				
3. Chain of Custody signed by client?	✓				
4. Chain of Custody matches samples?	✓				
5. Temperature Blanks present? If not, take temperature of any sample w/ IR gun.		✓			Temp (°C): 4.0
Samples received at <6 °C w/o freezing?	✓				Note: Not required for metals analysis.
Ice packs or ice present?	✓				The lack of ice or ice packs (i.e. no attempt to begin cooling process) or insufficient ice may not meet certain regulatory requirements and may invalidate certain data.
If yes, was there sufficient ice to meet temperature requirements?	✓				
If temp. out, has the cooling process begun (i.e. ice or packs present) and sample collection times <6hrs., but samples are not yet cool?				✓	Note: No cooling process required for metals analysis.
6. Volatiles:					
Aqueous: No bubble larger than a pea?				✓	
Soil/Sediment:					
Received in airtight container?				✓	
Received in methanol?				✓	
Methanol covering soil?				✓	
D.I. Water - Received within 48 hour HT?				✓	
Air: Refer to KAS COC for canister/flow controller requirements.	√ if air included				
7. Trip Blank present in cooler?				✓	
8. Proper sample containers and volume?	✓				
9. Samples within hold time upon receipt?	✓				
10. Aqueous samples properly preserved?					
Metals, COD, NH3, TKN, O/G, phenol, TPO4, N+N, TOC, DRO, TPH – pH <2				✓	
Sulfide - >9				✓	
Cyanide – pH >12				✓	

* Log-In Notes to Exceptions: document any problems with samples or discrepancies or pH adjustments

Katahdin SH8352

PAGE 1 OF 4

Absolute Resource associates

124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: See Above
Company Address:
Report To: Jane Stratton
Phone #:
Invoice to Email: Same
☐ Hard Copy Invoice Required

Project Name:
Project #: 31116
Project Location: NH MA ME VT NY Other
Protocol: RCRA SDWA NPDES MCP NHDES OTHER
Reporting Limits: QAPP GW-1 S-1 EPA DW Other
Quote # ☐ NH Reimbursement Pricing
PO # 31116

ANALYSIS REQUEST

☐ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP
☐ VOC 624 ☐ VOC BTEX ☐ MtBE, only ☐ VOC 8021VT
☐ VPH MADEP ☐ MEGRO ☐ GRO 8015 ☐ 1,4-Dioxane
☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List:
☐ TPH ☐ DRO 8015 ☐ MEDRO ☐ EPH MADEP ☐ TPH Fingerprint
☐ 8270PAH ☐ 8270ABN ☐ 625 ☐ EDB
☐ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB
☐ O&G 1664 ☐ Mineral O&G SM5520F
☐ pH ☐ BOD ☐ Conductivity ☐ Turbidity
☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity
☐ RCRA Metals ☐ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness
☐ Total Metals-list:
☐ Dissolved Metals-list:
☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC
☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN
☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P
☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride
☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP
☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide
Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde
X TOC
Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	SOLID	OTHER	Preservation Method: HCl	HNO_3	H_2SO_4	NaOH	MeOH	Sampling: DATE	TIME	SAMPLER
	31116-01										9/23/14	0931	
	02											0931	
	03												
	04												
	05												
	06												
	07											1005	
	08												
	09												
	10												
	11												

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard (10 Business Days) ☒
*Date Needed _____

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS

REPORTING INSTRUCTIONS ☒ PDF (e-mail address) janis and jennifer
☐ HARD COPY REQUIRED ☐ FAX (FAX#)

RECEIVED ON ICE ☑ YES ☐ NO
TEMPERATURE _____ °C

CUSTODY RECORD
QSD-01 Revision 08/05/14

	Relinquished by Sampler:	Date	Time	Received by:	Date	Time
	Relinquished by: Jane Stratton	10/2/14	1421	Received by: UPS		
	Relinquished by:	Date	Time	Received by Laboratory: Dan Medlin	Date 10/3/14	Time 1200

Katahdin Analytical Services SH8352 page 0000055 of 0000064

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: See Above
Company Address:
Report To: Jane Stratton
Phone #:
Invoice to Email: Same
☐ Hard Copy Invoice Required

Project Name:
Project #: 31116
Project Location: NH MA ME VT NY ____ Other
Protocol: RCRA SDWA NPDES MCP NHDES OTHER
Reporting Limits: QAPP GW-1 S-1 EPA DW Other____
Quote #____ ☐ NH Reimbursement Pricing
PO # 31116

ANALYSIS REQUEST

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	SOLID	OTHER	Preservation Method: HCl	HNO_3	H_2SO_4	NaOH	MeOH	Sampling: DATE	TIME	SAMPLER
	31116-12										9/23	1005	
	13											1	
	14											1031	
	15												
	16												
	17												
	18												
	19												
	20												
	21												
	22											1108	

☐ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP
☐ VOC 624 ☐ VOC BTEX ☐ MtBE, only ☐ VOC 8021VT
☐ VPH MADEP ☐ MEGRO ☐ GRO 8015 ☐ 1,4-Dioxane
☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List:
☐ TPH ☐ DRO 8015 ☐ MEDRO ☐ EPH MADEP ☐ TPH Fingerprint
☐ 8270PAH ☐ 8270ABN ☐ 625 ☐ EDB
☐ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB
☐ O&G 1664 ☐ Mineral O&G SM5520F
☐ pH ☐ BOD ☐ Conductivity ☐ Turbidity
☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity
☐ RCRA Metals ☐ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness
☐ Total Metals-list:
☐ Dissolved Metals-list:
☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC
☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN
☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P
☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride
☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP
☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide
Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde
X 12C
Grab (G) or Composite (C)

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard (10 Business Days) ☒
*Date Needed ____

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS

REPORTING INSTRUCTIONS ☒ PDF (e-mail address)____
☐ HARD COPY REQUIRED ☐ FAX (FAX#)____

RECEIVED ON ICE ☑ YES ☐ NO
TEMPERATURE ____ °C

CUSTODY RECORD
QSD-01 Revision 08/05/14

	Relinquished by Sampler:	Date	Time	Received by:	Date	Time
	Relinquished by: Jane Stratton	10/2/14	1421	Received by: UPS		
	Relinquished by:	Date	Time	Received by Laboratory:	Date	Time
					10/3/14	1200

Katahdin Analytical Services SH8352 page 0000056 of 0000064

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name:

Company Address:

Report To: See P1

Phone #:

Invoice to Email:

☐ Hard Copy Invoice Required

Project Name:

Project #: 31116

Project Location: NH MA ME VT NY ____ Other

Protocol: RCRA SDWA NPDES MCP NHDES OTHER

Reporting Limits: QAPP GW-1 S-1 EPA DW Other ____

Quote # ____ ☐ NH Reimbursement Pricing

PO # 31116

ANALYSIS REQUEST

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	SOLID	OTHER	Preservation Method: HCl	HNO_3	H_2SO_4	NaOH	MeOH	Sampling: DATE	TIME	SAMPLER
	31116-44										9/23	1108	
	45												
	46												
	47												
	48												
	49												
	50											1150	
	51												
	52												
	53												
	54												

☐ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP
☐ VOC 624 ☐ VOC BTEX ☐ MtBE only ☐ VOC 8021VT
☐ VPH MADEP ☐ MEGRO ☐ GRO 8015 ☐ 1,4-Dioxane
☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List:
☐ TPH ☐ DRO 8015 ☐ MEDRO ☐ EPH MADEP ☐ TPH Fingerprint
☐ 8270PAH ☐ 8270ABN ☐ 625 ☐ EDB
☐ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB
☐ O&G 1664 ☐ Mineral O&G SM5520F
☐ pH ☐ BOD ☐ Conductivity ☐ Turbidity
☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity
☐ RCRA Metals ☐ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness
☐ Total Metals-list:
☐ Dissolved Metals-list:
☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC
☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN
☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P
☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride
☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP
☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide
Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde
X 12C
Grab (G) or Composite (C)

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard (10 Business Days) X
*Date Needed ____

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS

REPORTING INSTRUCTIONS ☐ PDF (e-mail address) ____
☐ HARD COPY REQUIRED ☐ FAX (FAX#) ____

RECEIVED ON ICE ✓ YES ☐ NO
TEMPERATURE ____ °C

CUSTODY RECORD
QSD-01 Revision 08/05/14

	Date	Time		Date	Time
Relinquished by Sampler:			Received by:		
Relinquished by:	10/2/14	1421	Received by: UPS		
Relinquished by:			Received by Laboratory:	10-3-14	1200

Katahdin Analytical Services SH8352 page 0000057 of 0000064

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name:

Company Address:

Report To: Sell P. 1

Phone #:

Invoice to Email:

☐ Hard Copy Invoice Required

Project Name:

Project #: 31116

Project Location: NH MA ME VT NY ____ Other

Protocol: RCRA SDWA NPDES MCP NHDES OTHER

Reporting Limits: QAPP GW-1 S-1 EPA DW Other ____

Quote #____ ☐ NH Reimbursement Pricing

PO # 31116

ANALYSIS REQUEST

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	SOLID	OTHER	Preservation Method: HCl	HNO_3	H_2SO_4	NaOH	MeOH	Sampling: DATE	TIME	SAMPLER
	31116-55										9/23	1150	
	56												
	57												
	58												
	59											1215	
	60											1136	
	61												
	62												
	63												
	64												
	65												

☐ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP
☐ VOC 624 ☐ VOC BTEX ☐ MtBE, only ☐ VOC 8021VT
☐ VPH MADEP ☐ MEGRO ☐ GRO 8015 ☐ 1,4-Dioxane
☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List:
☐ TPH ☐ DRO 8015 ☐ MEDRO ☐ EPH MADEP ☐ TPH Fingerprint
☐ 8270PAH ☐ 8270ABN ☐ 625 ☐ EDB
☐ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB
☐ O&G 1664 ☐ Mineral O&G SM5520F
☐ pH ☐ BOD ☐ Conductivity ☐ Turbidity
☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity
☐ RCRA Metals ☐ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness
☐ Total Metals-list:
☐ Dissolved Metals-list:
☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC
☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN
☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P
☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride
☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP
☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide
Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde
X TDC
Grab (G) or Composite (C)

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard (10 Business Days) ☒ X
*Date Needed ____

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS

REPORTING INSTRUCTIONS ☒ PDF (e-mail address) janes and jennifer2
☐ HARD COPY REQUIRED ☐ FAX (FAX#) ____

RECEIVED ON ICE ☑ YES ☐ NO
TEMPERATURE ____ °C

CUSTODY RECORD
QSD-01 Revision 08/05/14

Relinquished by Sampler:	Date	Time	Received by:	Date	Time
Relinquished by:	10/2/14	1421	Received by: UPS	Date	Time
Relinquished by:	Date	Time	Received by Laboratory:	10/3/14	1200

Katahdin Analytical Services SH8352 page 0000058 of 0000064

Katahdin
ANALYTICAL SERVICES

Katahdin Analytical Services

Login Chain of Custody Report (lno1)

Oct. 03, 2014
03:08 PM

Login Number: SH8352

Account: ABSOL001
Absolute Resources

Project: ABSOL001

NoWeb

Quote/Incoming:

Primary Report Address:
Jane Stratton
Absolute Resources
124 Heritage Avenue #16

Portsmouth,NH 03801
janes@absoluteresourceassociates.com

Primary Invoice Address:
Accounts Payable
Absolute Resources
124 Heritage Avenue #16

Portsmouth,NH 03801

Report CC Addresses:
Invoice CC Addresses:

Login Information:

ANALYSIS INSTRUCTIONS	:	Analyze Nutrients in Soil, in Duplicate, and report in narrartive, TOC Reporting Limit 0.1 %
CHECK NO.	:	
CLIENT PO#	:	31116
CLIENT PROJECT MANAGE	:	
CONTRACT	:	
COOLER TEMPERATURE	:	4.0
DELIVERY SERVICES	:	Fed Ex
EDD FORMAT	:	
LOGIN INITIALS	:	
PM	:	SMB
PROJECT NAME	:	31116
QC LEVEL	:	I
REGULATORY LIST	:	
REPORT INSTRUCTIONS	:	email pdf and invoice to Jane, janes@absoluteresourceaccociates.com and jenniferz@absoluteresourceassoiciates.com, no HC
SDG ID	:	
SDG STATUS	:	

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Mailed
SH8352-1	3116-01	23-SEP-14 09:31	03-OCT-14			16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-2	3116-02	23-SEP-14 09:31	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-3	3116-03	23-SEP-14 09:31	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-4	3116-04	23-SEP-14 09:31	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-5	3116-05	23-SEP-14 09:31	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-6	3116-06	23-SEP-14 09:31	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

Login Number: SH8352

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Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Mailed
SH8352-7	3116-07	23-SEP-14 10:05	03-OCT-14			16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-8	3116-08	23-SEP-14 10:05	03-OCT-14			16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-9	3116-09	23-SEP-14 10:05	03-OCT-14			16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-10	3116-10	23-SEP-14 10:05	03-OCT-14			16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-11	3116-11	23-SEP-14 10:05	03-OCT-14			16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-12	3116-12	23-SEP-14 10:05	03-OCT-14			16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-13	3116-13	23-SEP-14 10:05	03-OCT-14			16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-14	3116-14	23-SEP-14 10:05	03-OCT-14			16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

Login Number: SH8352

Quote/Incoming:

Account: ABSOL001 NoWeb

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Project: ABSOL001

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Mailed
SH8352-15	3116-15	23-SEP-14 10:31	03-OCT-14			16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-16	3116-16	23-SEP-14 10:31	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-17	3116-17	23-SEP-14 10:31	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-18	3116-18	23-SEP-14 10:31	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-19	3116-19	23-SEP-14 10:31	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-20	3116-20	23-SEP-14 10:31	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-21	3116-21	23-SEP-14 10:31	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-22	3116-43	23-SEP-14 11:08	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

Login Number: SH8352 **Quote/Incoming:**

Account: ABSOL001 NoWeb

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Project: ABSOL001

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Mailed
SH8352-23	3116-44	23-SEP-14 11:08	03-OCT-14			16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-24	3116-45	23-SEP-14 11:08	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-25	3116-46	23-SEP-14 11:08	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-26	3116-47	23-SEP-14 11:08	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-27	3116-48	23-SEP-14 11:08	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-28	3116-49	23-SEP-14 11:08	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-29	3116-50	23-SEP-14 11:50	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-30	3116-51	23-SEP-14 11:50	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

Login Number: SH8352

Quote/Incoming:

Account: ABSOL001 NoWeb

Absolute Resources

Project: ABSOL001

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Mailed
SH8352-31	3116-52	23-SEP-14 11:50	03-OCT-14			16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-32	3116-53	23-SEP-14 11:50	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-33	3116-54	23-SEP-14 11:50	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-34	3116-55	23-SEP-14 11:50	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-35	3116-56	23-SEP-14 11:50	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-36	3116-57	23-SEP-14 11:50	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-37	3116-58	23-SEP-14 11:50	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-38	3116-59	23-SEP-14 11:50	03-OCT-14		16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

Login Number: SH8352

Quote/Incoming:

Account: ABSOL001 NoWeb
Absolute Resources

Project: ABSOL001

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Mailed
SH8352-39	3116-60	23-SEP-14 11:50	03-OCT-14			16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-40	3116-61	23-SEP-14 11:50	03-OCT-14			16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-41	3116-62	23-SEP-14 11:50	03-OCT-14			16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-42	3116-63	23-SEP-14 11:50	03-OCT-14			16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-43	3116-64	23-SEP-14 12:15	03-OCT-14			16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

SH8352-44	3116-65	23-SEP-14 11:36	03-OCT-14			16-OCT-14	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	SW9060-TOC(1)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(2)	21-OCT-14	2oz Glass		
Solid	S	SW9060-TOC(AVG)	21-OCT-14	2oz Glass		
Solid	S	TS	23-OCT-14	4oz Glass		

Total Samples: 44 ***Total Analyses: 176***

SUBCONTRACT ORDER

ERDC- EL-EP-C

4092606 31116

SENDING LABORATORY:

ERDC- EL-EP-C
3909 Halls Ferry Road , Building 3299
Vicksburg, MS 39180
Phone: 601-634-4826
Fax: 601-634-2742
Project Manager: Patty Tuminello

RECEIVING LABORATORY:

ARA
124 Heritage Ave, #16
Portsmouth, NH 03801
Phone :(603) 436-2001
Fax:

Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-1-0002-SEDCHEM				
Sample ID: 4092606-01	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	31116-01	
TOC	27-Oct-2014 00:00	21-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0205-SEDCHEM				
Sample ID: 4092606-02	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	02	
TOC	27-Oct-2014 00:00	21-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0507-SEDCHEM				
Sample ID: 4092606-03	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	03	
TOC	27-Oct-2014 00:00	21-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0002-SEDCHEM-AI				
Sample ID: 4092606-04	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	04	
TOC	27-Oct-2014 00:00	21-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0002-SEDCHEM-BI				
Sample ID: 4092606-05	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	05	
TOC	27-Oct-2014 00:00	21-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0205-SEDCHEM-BI				
Sample ID: 4092606-06	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	06	
TOC	27-Oct-2014 00:00	21-Oct-2014 09:31		
Containers Supplied:				

Released By	9-30-14 Date	Fed EX Received By	9/30/14 Date
FedEX Released By	~~9/30/14~~ 10/1/14 Date	Received By	10/1/14 Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-1-0507-SEDCHEM-BI				
Sample ID: 4092606-07	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	07	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0002-SEDCHEM				
Sample ID: 4092606-08	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	08	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0205-SEDCHEM				
Sample ID: 4092606-09	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	09	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0507-SEDCHEM				
Sample ID: 4092606-10	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	10	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0002-SEDCHEM-AI				
Sample ID: 4092606-11	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	11	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0002-SEDCHEM-BI				
Sample ID: 4092606-12	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	12	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0205-SEDCHEM-BI				
Sample ID: 4092606-13	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	13	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0507-SEDCHEM-BI				
Sample ID: 4092606-14	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	14	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:05		
Containers Supplied:				

Released By	9-30-14 Date	FedEx Received By	9/30/14 Date
FedEx Released By	10/1/14 Date	Received By	10/1/14 Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-3-0002-SEDCHEM				
Sample ID: 4092606-15	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	15	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0205-SEDCHEM				
Sample ID: 4092606-16	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	16	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0507-SEDCHEM				
Sample ID: 4092606-17	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	17	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0002-SEDCHEM-AI				
Sample ID: 4092606-18	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	18	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0002-SEDCHEM-BI				
Sample ID: 4092606-19	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	19	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0205-SEDCHEM-BI				
Sample ID: 4092606-20	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	20	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0507-SEDCHEM-BI				
Sample ID: 4092606-21	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	21	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-1-0002-GS				
Sample ID: 4092606-22	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	22	• •
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 09:31		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 09:31		
Containers Supplied:				

Released By	9-30-14 Date	Fed Ex Received By	9/30/14 Date
Fed Ex Released By	10/1/14 Date	Received By	10/1/14 Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-1-0205-GS				
Sample ID: 4092606-23	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	23	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 09:31		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0507-GS				
Sample ID: 4092606-24	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	24	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 09:31		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0002-GS-AI				
Sample ID: 4092606-25	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	25	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 09:31		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0002-GS-BI				
Sample ID: 4092606-26	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	26	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 09:31		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0205-GS-BI				
Sample ID: 4092606-27	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	27	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 09:31		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0507-GS-BI				
Sample ID: 4092606-28	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	28	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 09:31		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 09:31		
Containers Supplied:				

Released By	9-30-14 Date	Fed Ex Received By	9/30/14 Date
Fed Ex Released By	10/1/14 Date	Received By	10/1/14 Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-2-0002-GS				
Sample ID: 4092606-29	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	29	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:05		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0205-GS				
Sample ID: 4092606-30	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	30	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:05		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0507-GS				
Sample ID: 4092606-31	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	31	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:05		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0002-GS-AI				
Sample ID: 4092606-32	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	32	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:05		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0002-GS-BI				
Sample ID: 4092606-33	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	33	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:05		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0205-GS-BI				
Sample ID: 4092606-34	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	34	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:05		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:05		
Containers Supplied:				

Released By	9-30-14 Date	Fed Ex Received By	9/30/14 Date
Fed Ex Released By	10/1/14 Date	Received By	10/1/14 Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-2-0507-GS-BI				
Sample ID: 4092606-35	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	35	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:05		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-3-0002-GS				
Sample ID: 4092606-36	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	36	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:31		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0205-GS				
Sample ID: 4092606-37	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	37	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:31		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0507-GS				
Sample ID: 4092606-38	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	38	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:31		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0002-GS-AI				
Sample ID: 4092606-39	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	39	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:31		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0002-GS-BI				
Sample ID: 4092606-40	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	40	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:31		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:31		
Containers Supplied:				

Released By	9-30-14 Date	Fed Ex Received By	9/30/14 Date
Fed Ex Released By	10/1/14 Date	Received By	10/1/14 Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-3-0205-GS-BI				
Sample ID: 4092606-41	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	41	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:31		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0507-GS-BI				
Sample ID: 4092606-42	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	42	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:31		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-4-0002-SEDCHEM				
Sample ID: 4092606-43	**Soil/Sedir**	**Sampled:23-Sep-2014 11:08**	43	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:08		
Containers Supplied:				
Sample Name: QT2-4-0205-SEDCHEM				
Sample ID: 4092606-44	**Soil/Sedir**	**Sampled:23-Sep-2014 11:08**	44	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:08		
Containers Supplied:				
Sample Name: QT2-4-0507-SEDCHEM				
Sample ID: 4092606-45	**Soil/Sedir**	**Sampled:23-Sep-2014 11:08**	45	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:08		
Containers Supplied:				
Sample Name: QT2-4-0002-SEDCHEM-AI				
Sample ID: 4092606-46	**Soil/Sedir**	**Sampled:23-Sep-2014 11:08**	46	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:08		
Containers Supplied:				
Sample Name: QT2-4-0002-SEDCHEM-BI				
Sample ID: 4092606-47	**Soil/Sedir**	**Sampled:23-Sep-2014 11:08**	47	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:08		
Containers Supplied:				

Released By	9-30-14 Date	Fed EX Received By	9/30/14 Date
Fed EX Released By	10/1/14 Date	Received By	10/1/14 Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-4-0205-SEDCHEM-BI				
Sample ID: 4092606-48	**Soil/Sedir**	**Sampled:23-Sep-2014 11:08**	48	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:08		
Containers Supplied:				
Sample Name: QT2-4-0507-SEDCHEM-BI				
Sample ID: 4092606-49	**Soil/Sedir**	**Sampled:23-Sep-2014 11:08**	49	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:08		
Containers Supplied:				
Sample Name: QT2-5-0002-SEDCHEM				
Sample ID: 4092606-50	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	50	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0205-SEDCHEM				
Sample ID: 4092606-51	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	51	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0507-SEDCHEM				
Sample ID: 4092606-52	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	52	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0002-SEDCHEM-AI				
Sample ID: 4092606-53	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	53	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0002-SEDCHEM-BI				
Sample ID: 4092606-54	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	54	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0205-SEDCHEM-BI				
Sample ID: 4092606-55	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	55	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				

Released By	9-30-14 Date	Fed Ex Received By	9/30/14 Date
Fedex Released By	~~9/30/14~~ 10/1/14 Date	Received By	10/1/14 Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-5-0507-SEDCHEM-BI				
Sample ID: 4092606-56	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	56	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0002-SEDCHEM				
Sample ID: 4092606-57	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	57	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0205-SEDCHEM				
Sample ID: 4092606-58	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	58	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0507-SEDCHEM				
Sample ID: 4092606-59	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	59	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0002-SEDCHEM-AI				
Sample ID: 4092606-60	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	60	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0002-SEDCHEM-BI				
Sample ID: 4092606-61	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	61	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0205-SEDCHEM-BI				
Sample ID: 4092606-62	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	62	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0507-SEDCHEM-BI				
Sample ID: 4092606-63	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	63	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				

Released By	9-30-14 Date	Fed EX Received By	9/30/14 Date
Fed EX Released By	10/1/14 Date	Received By	10/1/14 Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-6-GRAB-SEDCHEM				
Sample ID: 4092606-64	**Soil/Sedir**	**Sampled:22-Sep-2014 12:15**	64	
TOC	27-Oct-2014 00:00	20-Oct-2014 12:15		
Containers Supplied:				
Sample Name: QT2-7-GRAB-SEDCHEM				
Sample ID: 4092606-65	**Soil/Sedir**	**Sampled:22-Sep-2014 11:36**	65	
TOC	27-Oct-2014 00:00	20-Oct-2014 11:36		
Containers Supplied:				
Sample Name: QT2-4-0002-GS				
Sample ID: 4092606-66	**Soil/Sedir**	**Sampled:23-Sep-2014 11:00**	66	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:00		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:00		
Containers Supplied:				
Sample Name: QT2-4-0205-GS				
Sample ID: 4092606-67	**Soil/Sedir**	**Sampled:23-Sep-2014 11:00**	67	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:00		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:00		
Containers Supplied:				
Sample Name: QT2-4-0507-GS				
Sample ID: 4092606-68	**Soil/Sedir**	**Sampled:23-Sep-2014 11:00**	68	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:00		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:00		
Containers Supplied:				
Sample Name: QT2-4-0002-GS-AI				
Sample ID: 4092606-69	**Soil/Sedir**	**Sampled:23-Sep-2014 11:00**	69	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:00		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:00		
Containers Supplied:				
Sample Name: QT2-4-0002-GS-BI				
Sample ID: 4092606-70	**Soil/Sedir**	**Sampled:23-Sep-2014 11:00**	70	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:00		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:00		
Containers Supplied:				

Released By	Date	Received By	Date
	9-30-14	Fed EX	9/30/14
Fed EX	10/1/14		10/1/14
Released By	Date	Received By	Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-4-0205-GS-BI				
Sample ID: 4092606-71	**Soil/Sedir**	**Sampled:23-Sep-2014 11:00**	71	•
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:00		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:00		
Containers Supplied:				
Sample Name: QT2-4-0507-GS-BI				
Sample ID: 4092606-72	**Soil/Sedir**	**Sampled:23-Sep-2014 11:00**	72	•
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:00		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:00		
Containers Supplied:				
Sample Name: QT2-5-0002-GS				
Sample ID: 4092606-73	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	73	•
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0205-GS				
Sample ID: 4092606-74	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	74	•
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0507-GS				
Sample ID: 4092606-75	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	75	•
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0002-GS-AI				
Sample ID: 4092606-76	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	76	•
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				

Released By	9-30-14 Date	Fed EX Received By	9/30/14 Date
Fed EX Released By	10/1/14 Date	Received By	10/1/14 Date

SUBCONTRACT ORDER

ERDC- EL-EP-C

4092606

3/11/14

Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-5-0002-GS-BI				
Sample ID: 4092606-77	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	77	•
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0205-GS-BI				
Sample ID: 4092606-78	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	78	•
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0507-GS-BI				
Sample ID: 4092606-79	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	79	•
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0002-GS				
Sample ID: 4092606-80	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	80	•
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0205-GS				
Sample ID: 4092606-81	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	81	•
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0507-GS				
Sample ID: 4092606-82	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	82	•
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				

Released By	9-30-14 Date	Fed EX Received By	9/30/14 Date
Fed EX Released By	10/1/14 Date	Received By	10/1/14 Date

SUBCONTRACT ORDER

ERDC- EL-EP-C

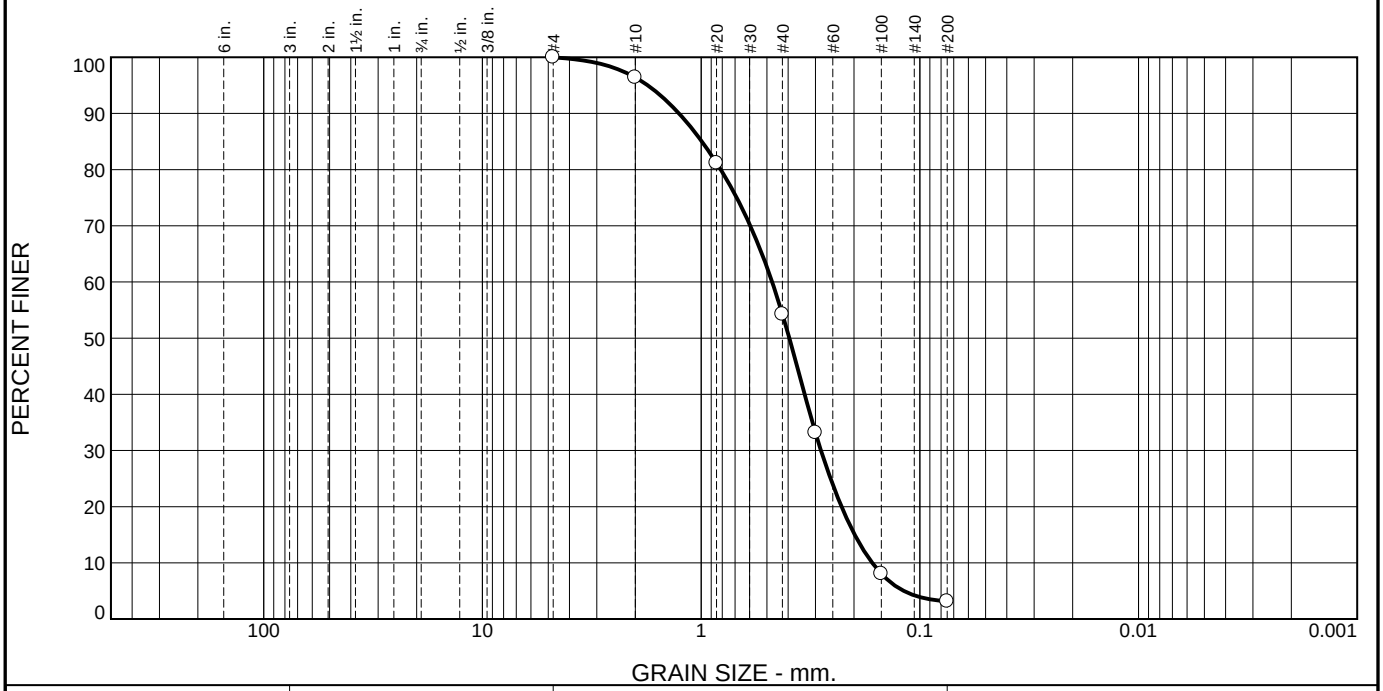
4092606

3/11/16

Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-5DUP-0002-GS-AI				
Sample ID: 4092606-83	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	83	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0002-GS-BI				
Sample ID: 4092606-84	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	84	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0205-GS-BI				
Sample ID: 4092606-85	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	85	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0507-GS-BI				
Sample ID: 4092606-86	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	86	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-6-GRAB-GS				
Sample ID: 4092606-87	**Soil/Sedir**	**Sampled:22-Sep-2014 12:15**	87	
Particle Size - Hydrometer	27-Sep-2014 00:00	22-Oct-2014 12:15		
Particle Size - Sieve	27-Sep-2014 00:00	22-Oct-2014 12:15		
Containers Supplied:				
Sample Name: QT2-7-GRAB-GS				
Sample ID: 4092606-88	**Soil/Sedir**	**Sampled:22-Sep-2014 11:36**	88	
Particle Size - Hydrometer	27-Sep-2014 00:00	22-Oct-2014 11:36		
Particle Size - Sieve	27-Sep-2014 00:00	22-Oct-2014 11:36		
Containers Supplied:				

Released By	9-30-14 Date	Fed EX Received By	9/30/14 Date
Fed EX Released By	10/1/14 Date	Received By	10/1/14 Date

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	3.6	42.1	51.2	3.1	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	96.4		
#20	81.2		
#40	54.3		
#50	33.2		
#100	8.1		
#200	3.1		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 1.2621 D_{85}= 0.9922 D_{60}= 0.4735
D_{50}= 0.3952 D_{30}= 0.2831 D_{15}= 0.1984
D_{10}= 0.1651 C_u= 2.87 C_c= 1.03

Remarks

Date Received: 10-3-14 **Date Tested:** 10-6-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-22
Sample Number: 14-1161

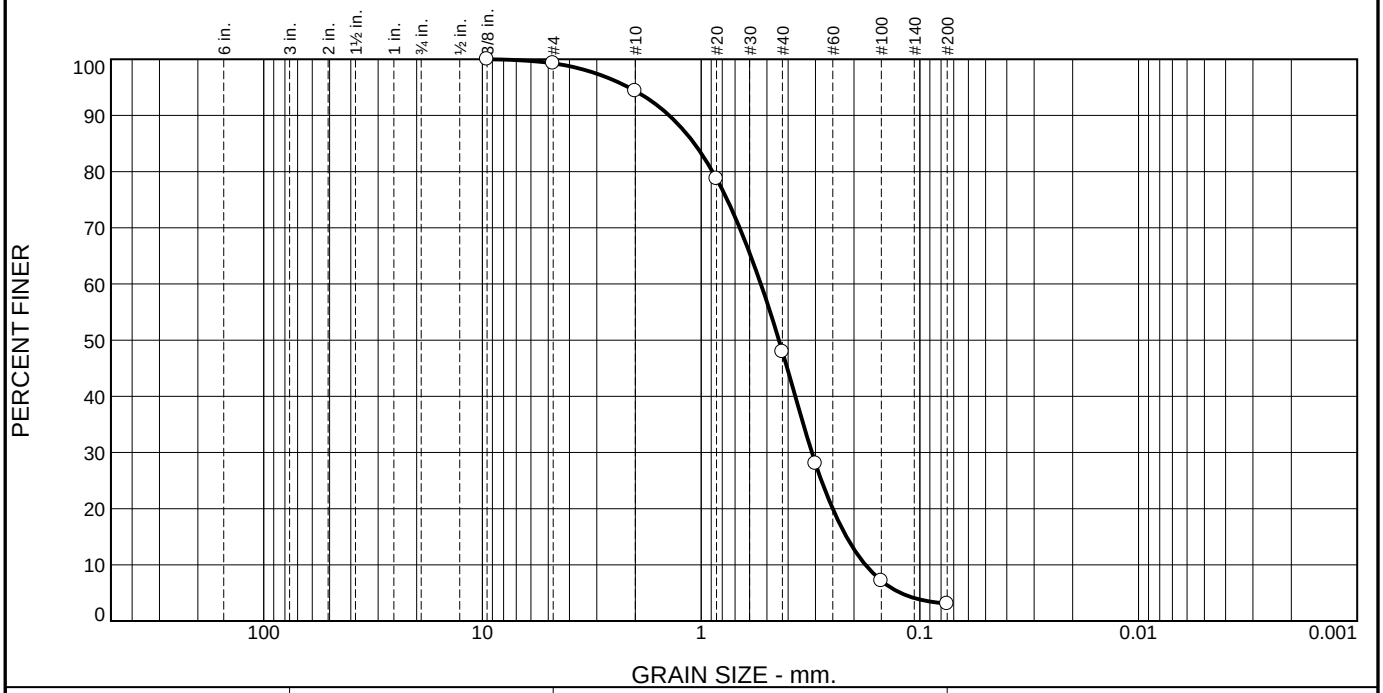
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 011

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	4.9	46.5	44.8	3.1	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	99.3		
#10	94.4		
#20	78.7		
#40	47.9		
#50	28.0		
#100	7.2		
#200	3.1		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 1.3991 D_{85}= 1.0745 D_{60}= 0.5332
D_{50}= 0.4407 D_{30}= 0.3115 D_{15}= 0.2165
D_{10}= 0.1772 C_u= 3.01 C_c= 1.03

Remarks

Date Received: 10-3-14 **Date Tested:** 10-6-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-23
Sample Number: 14-1162

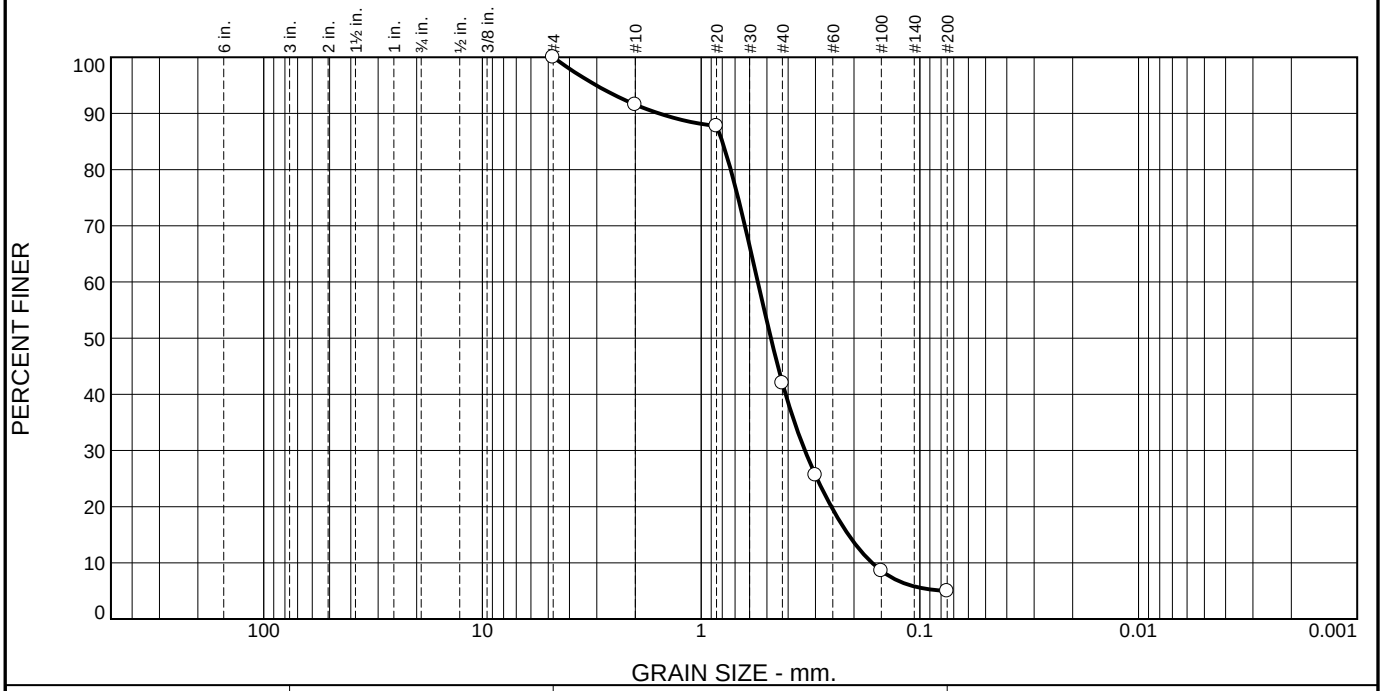
Date Sampled: 10-3-14

JTC INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 012

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	8.4	49.6	37.0	5.0	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	91.6		
#20	87.8		
#40	42.0		
#50	25.6		
#100	8.6		
#200	5.0		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 1.5596 D_{85}= 0.8006 D_{60}= 0.5505
D_{50}= 0.4799 D_{30}= 0.3354 D_{15}= 0.2120
D_{10}= 0.1654 C_u= 3.33 C_c= 1.24

Remarks

Date Received: 10-3-14 **Date Tested:** 10-6-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-24
Sample Number: 14-1163

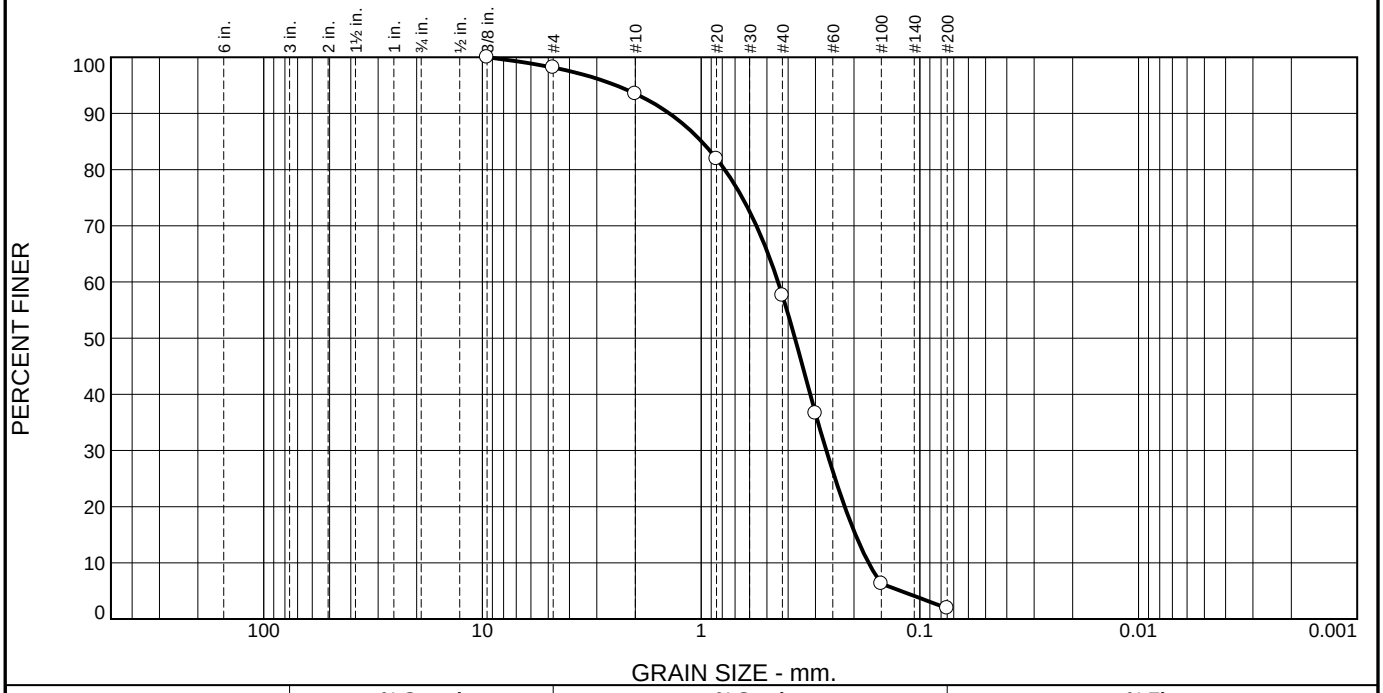
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 013

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.8	4.7	35.9	55.7	1.9	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	98.2		
#10	93.5		
#20	81.9		
#40	57.6		
#50	36.6		
#100	6.3		
#200	1.9		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt, trace Fine Gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 1.3963 D_{85}= 0.9947 D_{60}= 0.4446
D_{50}= 0.3726 D_{30}= 0.2677 D_{15}= 0.1967
D_{10}= 0.1715 C_u= 2.59 C_c= 0.94

Remarks

Date Received: 10-3-14 **Date Tested:** 10-6-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-25
Sample Number: 14-1164

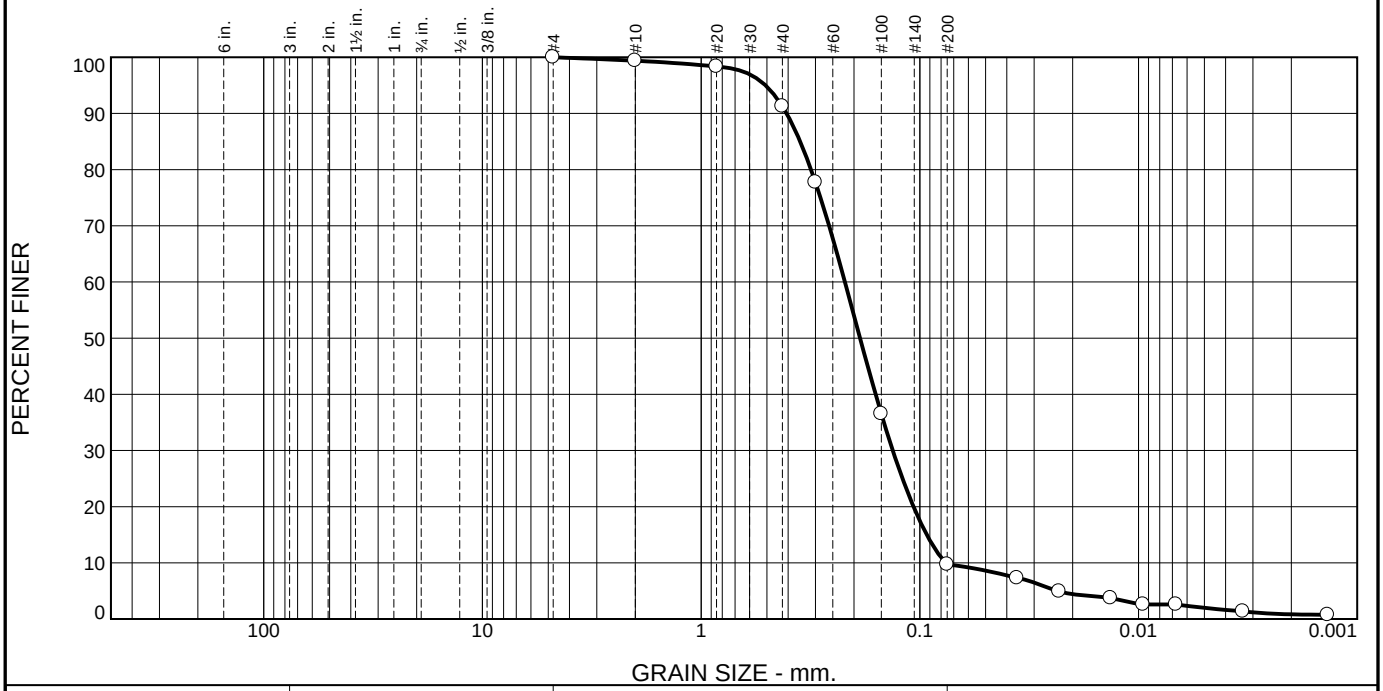
Date Sampled: 10-3-14

JTC INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 014

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	8.1	81.6	7.7	2.0

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.4		
#20	98.4		
#40	91.3		
#50	77.7		
#100	36.5		
#200	9.7		
0.0359 mm.	7.3		
0.0231 mm.	4.9		
0.0134 mm.	3.7		
0.0095 mm.	2.6		
0.0067 mm.	2.6		
0.0033 mm.	1.4		
0.0014 mm.	0.8		

* (no specification provided)

Material Description

FINE SAND, trace Silt, trace Clay

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.4067 D_{85}= 0.3525 D_{60}= 0.2201
D_{50}= 0.1876 D_{30}= 0.1330 D_{15}= 0.0930
D_{10}= 0.0761 C_u= 2.89 C_c= 1.06

Remarks

Date Received: 10-3-14 **Date Tested:** 10-10-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-26
Sample Number: 14-1165

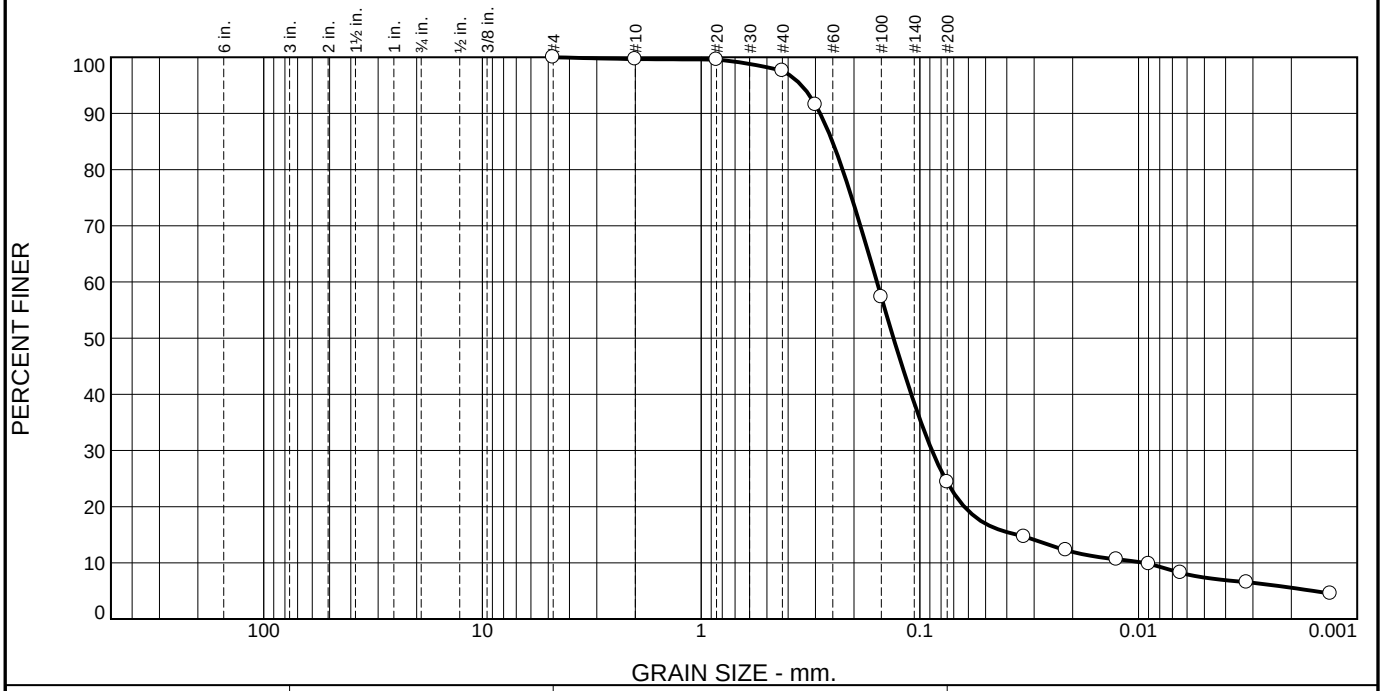
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 035

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	2.1	73.2	17.0	7.4

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.7		
#20	99.6		
#40	97.6		
#50	91.6		
#100	57.3		
#200	24.4		
0.0334 mm.	14.7		
0.0215 mm.	12.3		
0.0126 mm.	10.6		
0.0090 mm.	9.8		
0.0064 mm.	8.2		
0.0032 mm.	6.6		
0.0013 mm.	4.5		

* (no specification provided)

Material Description

FINE SAND, little Silt, trace Clay

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.2856 D_{85}= 0.2510 D_{60}= 0.1571
D_{50}= 0.1319 D_{30}= 0.0880 D_{15}= 0.0360
D_{10}= 0.0095 C_u= 16.60 C_c= 5.21

Remarks

Date Received: 10-3-14 **Date Tested:** 10-10-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-27
Sample Number: 14-1166

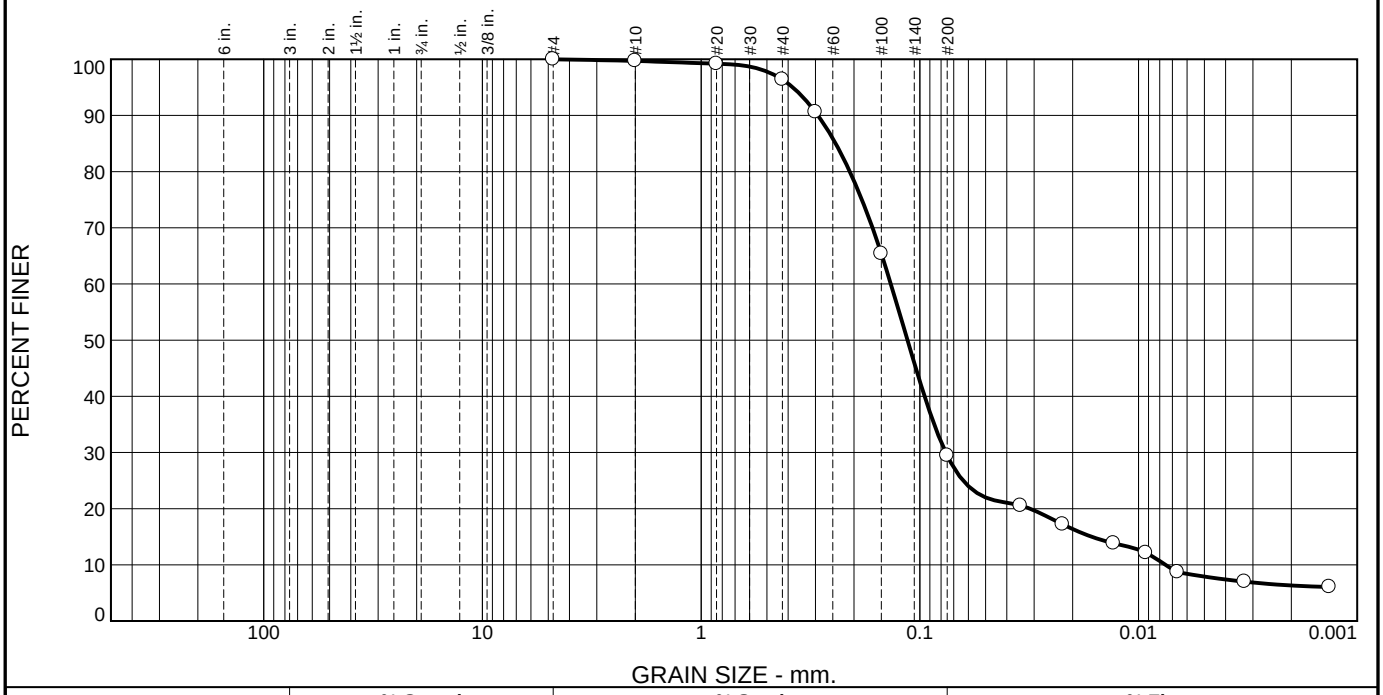
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 036

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	3.3	66.9	21.6	7.9

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.7		
#20	99.2		
#40	96.4		
#50	90.6		
#100	65.4		
#200	29.5		
0.0346 mm.	20.6		
0.0222 mm.	17.2		
0.0130 mm.	13.8		
0.0092 mm.	12.1		
0.0066 mm.	8.7		
0.0033 mm.	7.0		
0.0013 mm.	6.1		

* (no specification provided)

Material Description

FINE SAND, some Silt, trace Clay

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.2924 D_{85}= 0.2427 D_{60}= 0.1357
D_{50}= 0.1139 D_{30}= 0.0761 D_{15}= 0.0163
D_{10}= 0.0075 C_u= 18.03 C_c= 5.67

Remarks

Date Received: 10-3-14 **Date Tested:** 10-10-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-28
Sample Number: 14-1167

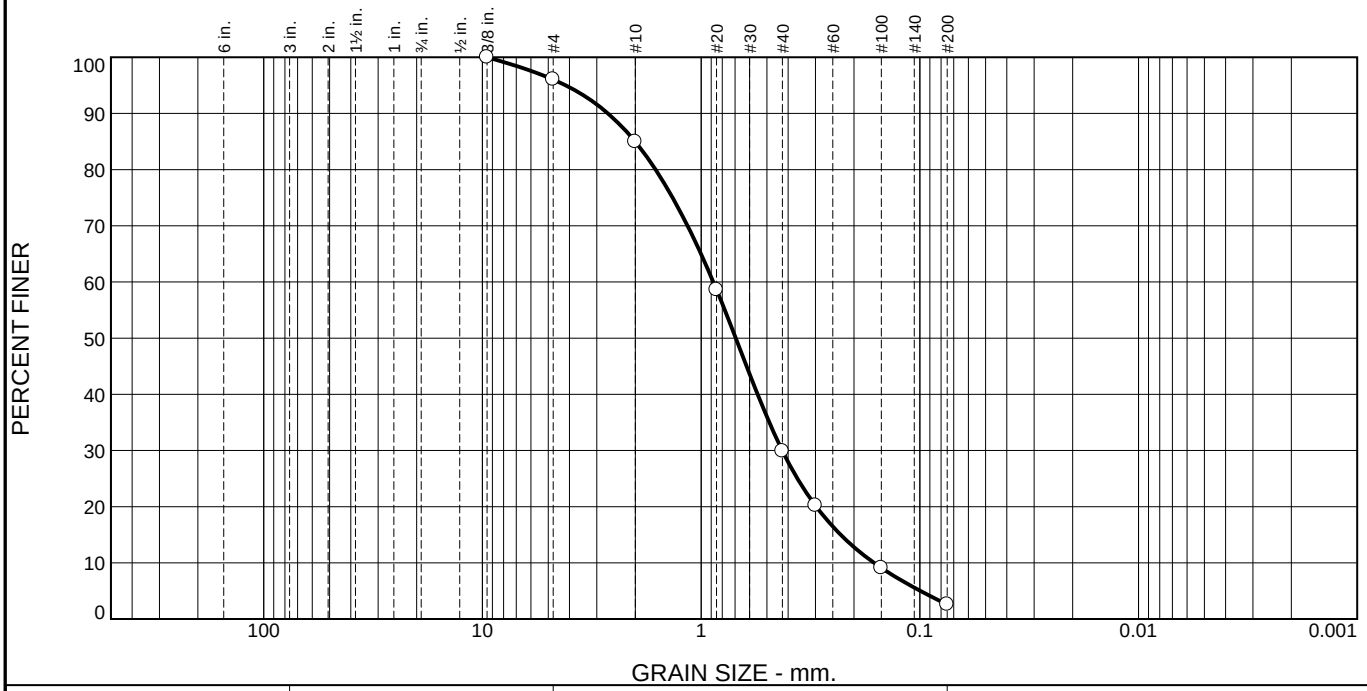
Date Sampled: 10-3-14

JTC INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 037

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.0	11.0	55.1	27.3	2.6	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	96.0		
#10	85.0		
#20	58.6		
#40	29.9		
#50	20.2		
#100	9.1		
#200	2.6		

* (no specification provided)

Material Description

FINE-COARSE SAND, trace Fine Gravel, trace Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 2.6680 D_{85}= 2.0048 D_{60}= 0.8796
D_{50}= 0.6945 D_{30}= 0.4262 D_{15}= 0.2301
D_{10}= 0.1619 C_u= 5.43 C_c= 1.28

Remarks

Date Received: 10-3-14 **Date Tested:** 10-6-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-29
Sample Number: 14-1168

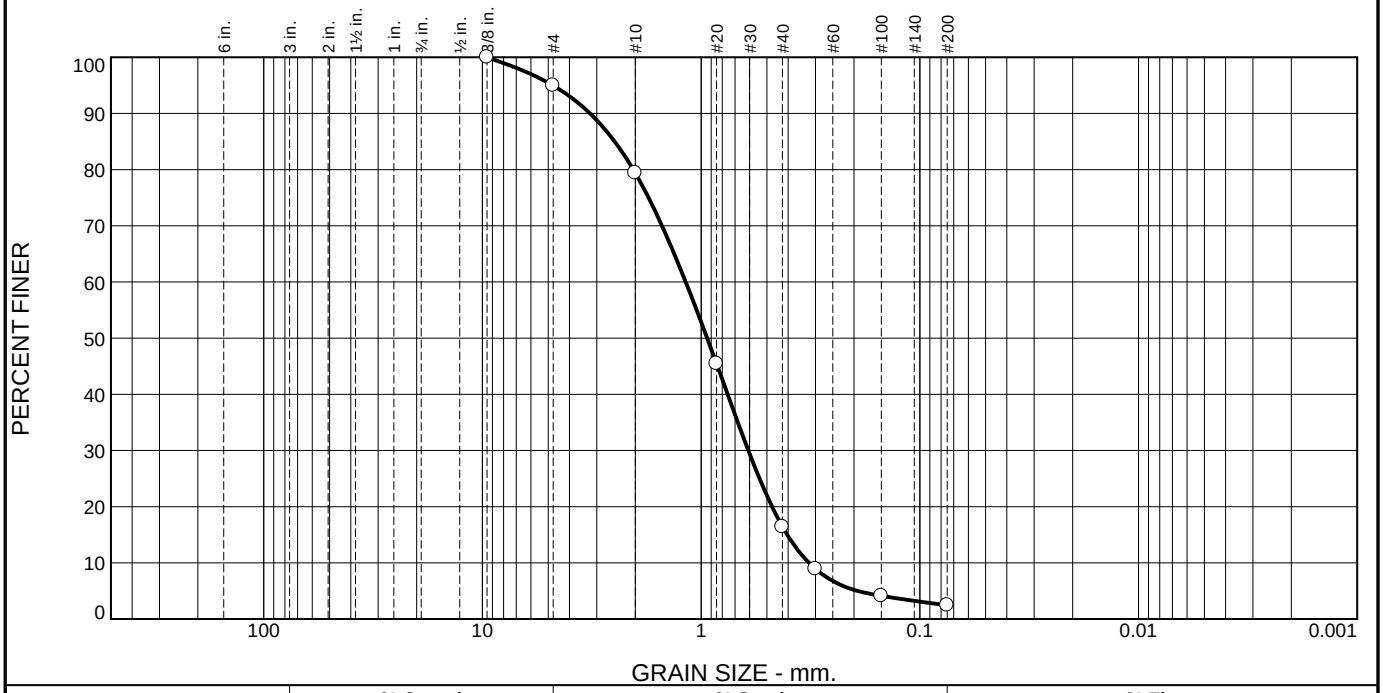
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 015

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.0	15.6	63.0	13.9	2.5	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	95.0		
#10	79.4		
#20	45.4		
#40	16.4		
#50	8.9		
#100	4.1		
#200	2.5		

* (no specification provided)

Material Description

FINE-COARSE SAND, trace Fine Gravel, trace Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 3.2198 D_{85}= 2.4850 D_{60}= 1.1761
D_{50}= 0.9381 D_{30}= 0.6082 D_{15}= 0.4045
D_{10}= 0.3214 C_u= 3.66 C_c= 0.98

Remarks

Date Received: 10-3-14 **Date Tested:** 10-6-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-30
Sample Number: 14-1169

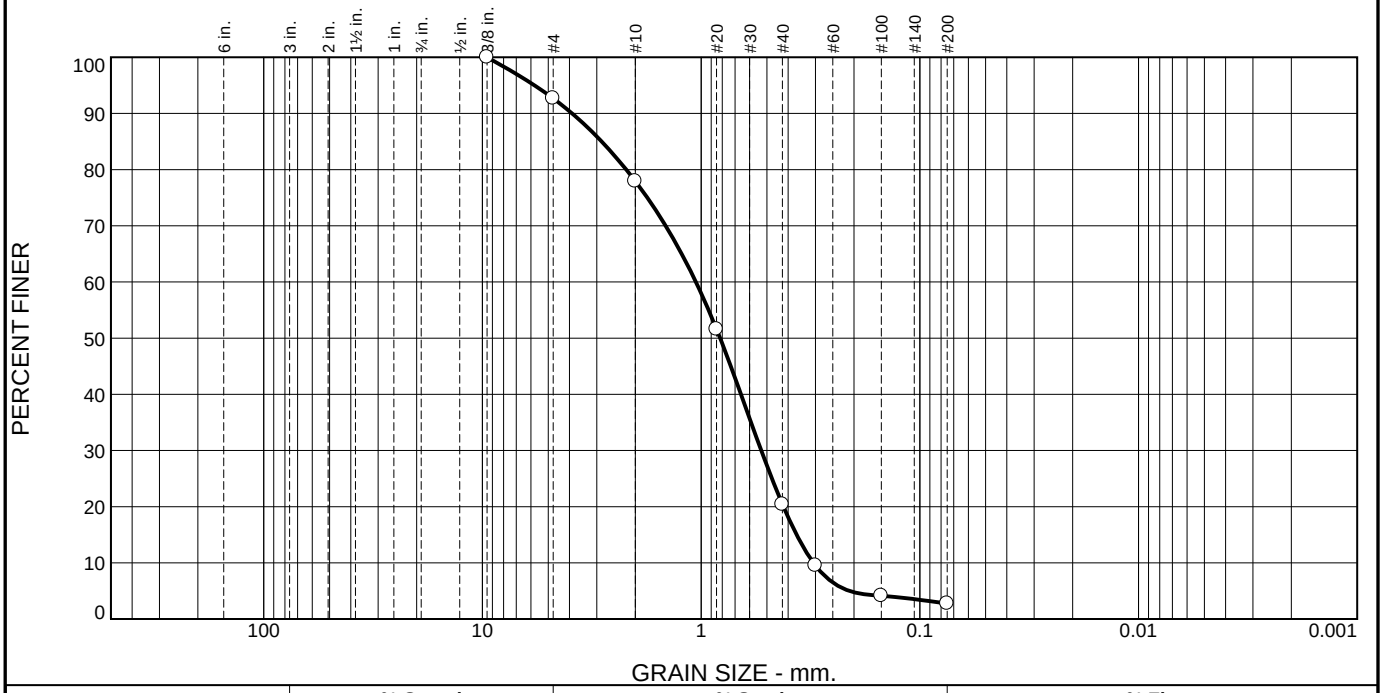
Date Sampled: 10-3-14

JTC, INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 016

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.3	14.8	57.5	17.6	2.8	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	92.7		
#10	77.9		
#20	51.6		
#40	20.4		
#50	9.5		
#100	4.1		
#200	2.8		

* (no specification provided)

Material Description

FINE-COARSE SAND, trace Fine Gravel, trace Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 3.8904 D_{85}= 2.8498 D_{60}= 1.0566
D_{50}= 0.8189 D_{30}= 0.5309 D_{15}= 0.3661
D_{10}= 0.3065 C_u= 3.45 C_c= 0.87

Remarks

Date Received: 10-3-14 **Date Tested:** 10-6-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-31
Sample Number: 14-1170

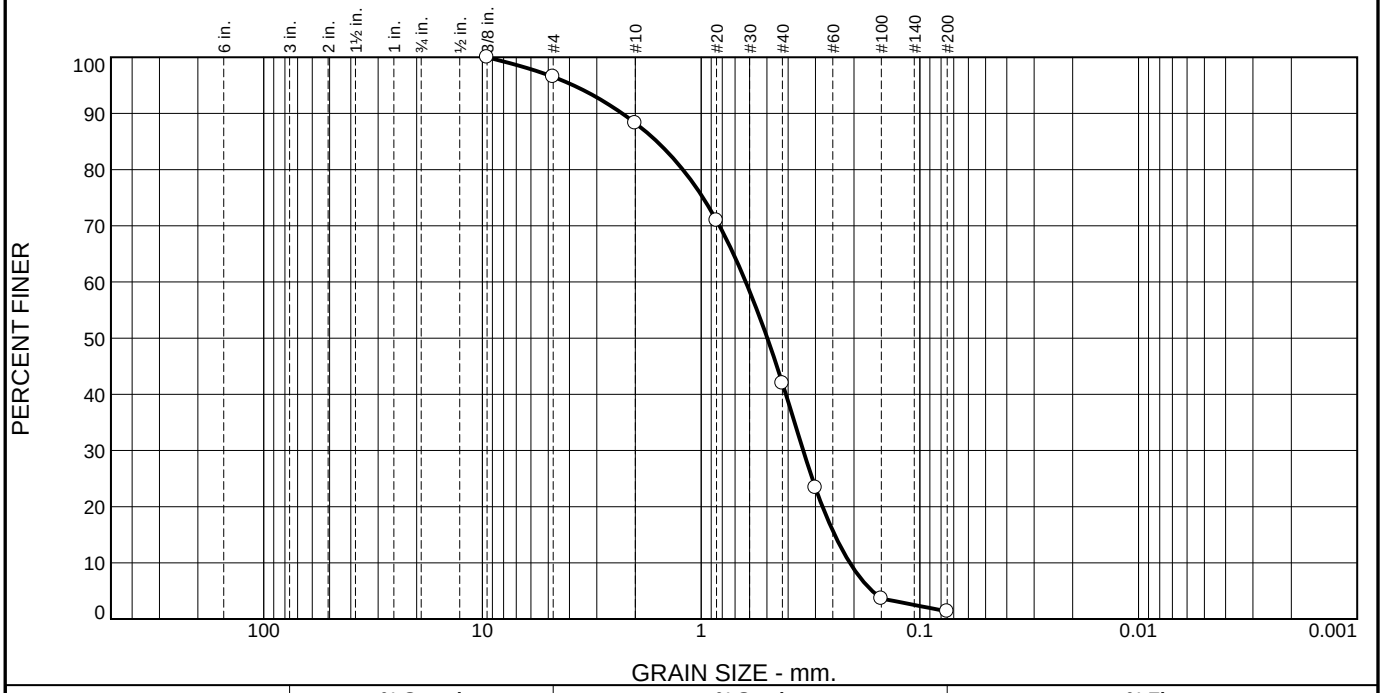
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 017

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.5	8.2	46.3	40.6	1.4	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	96.5		
#10	88.3		
#20	70.9		
#40	42.0		
#50	23.4		
#100	3.7		
#200	1.4		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Fine Gravel. trace Silt

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 2.2969 D_{85}= 1.5926 D_{60}= 0.6246
D_{50}= 0.4981 D_{30}= 0.3415 D_{15}= 0.2453
D_{10}= 0.2089 C_u= 2.99 C_c= 0.89

Remarks

Date Received: 10-3-14 **Date Tested:** 10-6-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-32
Sample Number: 14-1171

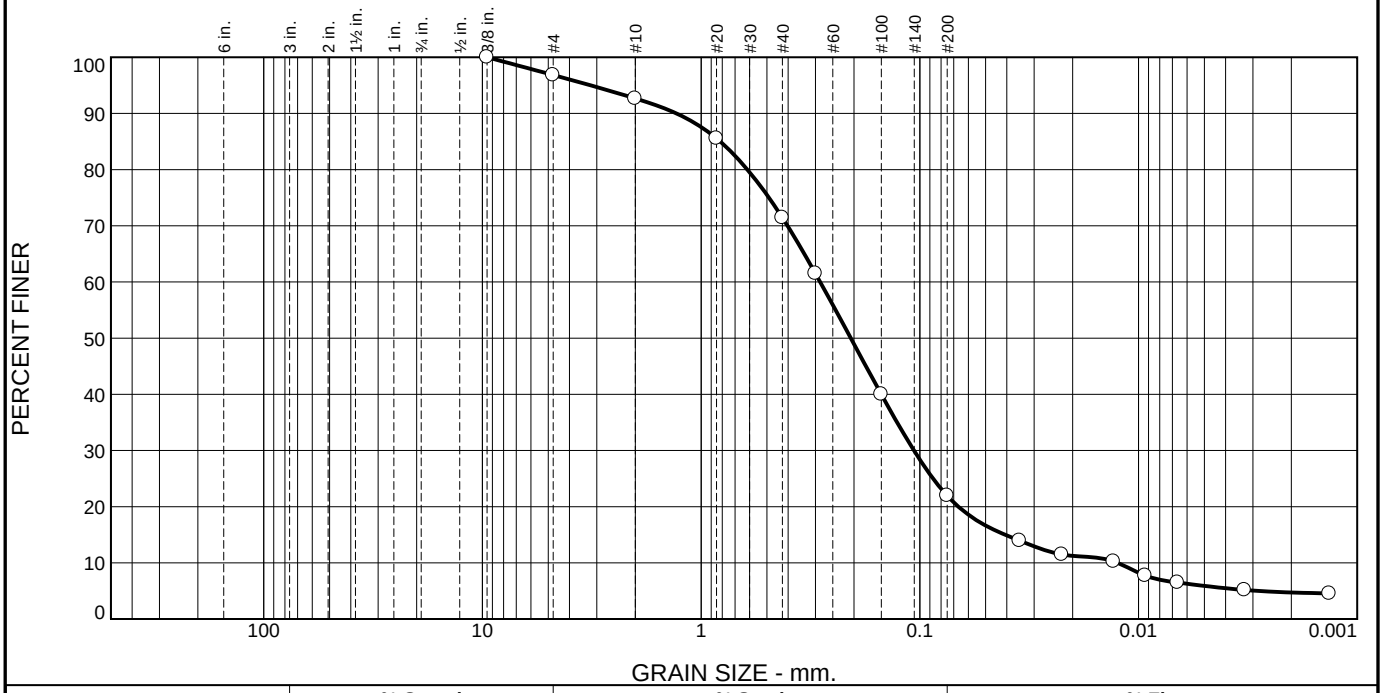
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 018

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.2	4.1	21.3	49.4	16.1	5.9

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	96.8		
#10	92.7		
#20	85.5		
#40	71.4		
#50	61.5		
#100	40.0		
#200	22.0		
0.0350 mm.	14.0		
0.0224 mm.	11.5		
0.0130 mm.	10.3		
0.0093 mm.	7.7		
0.0066 mm.	6.5		
0.0033 mm.	5.2		
0.0013 mm.	4.6		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, little Silt, trace Clay, trace Fine Gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 1.2959 D_{85}= 0.8184 D_{60}= 0.2856
D_{50}= 0.2068 D_{30}= 0.1064 D_{15}= 0.0408
D_{10}= 0.0125 C_u= 22.87 C_c= 3.17

Remarks

Date Received: 10-3-14 **Date Tested:** 10-10-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-33
Sample Number: 14-1172

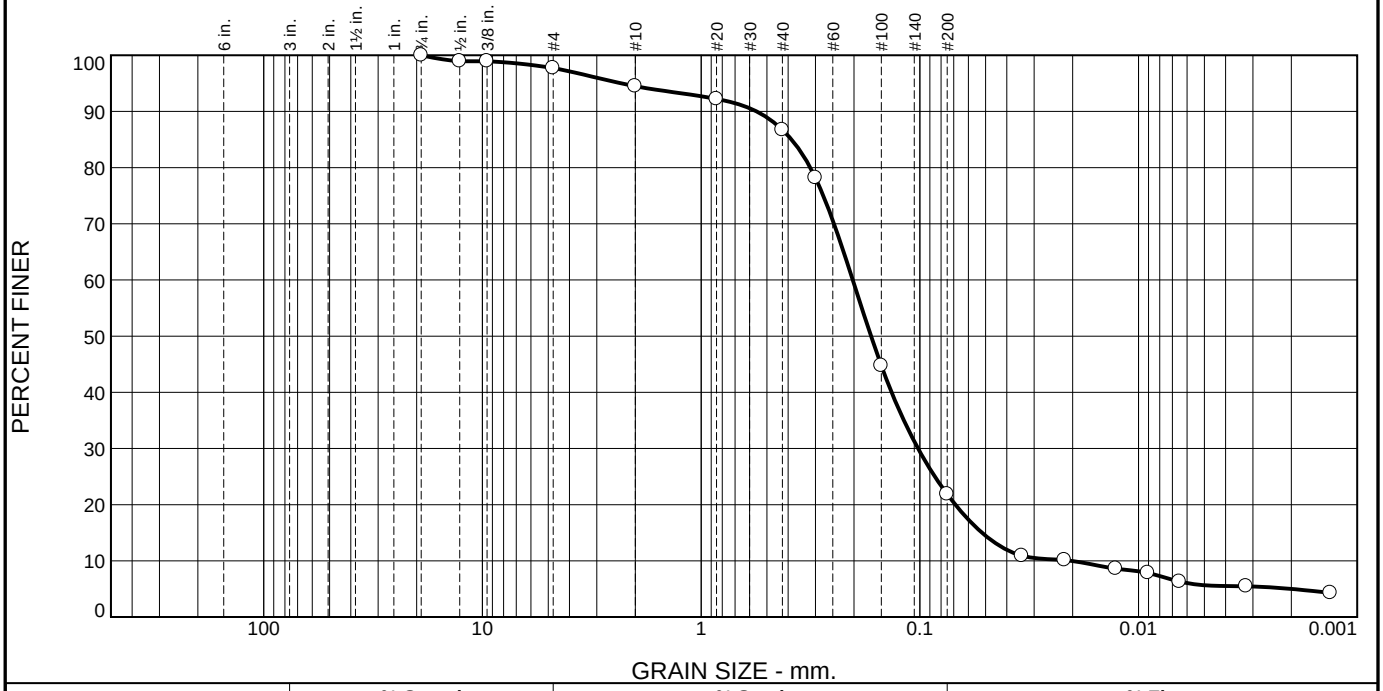
Date Sampled: 10-3-14

JTC INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 038

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.3	3.2	7.8	64.8	16.2	5.7

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
1/2	98.9		
3/8	98.9		
#4	97.7		
#10	94.5		
#20	92.2		
#40	86.7		
#50	78.2		
#100	44.8		
#200	21.9		
0.0342 mm.	10.9		
0.0218 mm.	10.1		
0.0127 mm.	8.6		
0.0091 mm.	7.8		
0.0065 mm.	6.3		
0.0032 mm.	5.5		
0.0013 mm.	4.3		

* (no specification provided)

Material Description

FINE SAND, little Silt, trace Clay, trace Fine Gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.5577 D_{85}= 0.3860 D_{60}= 0.2026
D_{50}= 0.1671 D_{30}= 0.1019 D_{15}= 0.0520
D_{10}= 0.0202 C_u= 10.01 C_c= 2.53

Remarks

Date Received: 10-3-14 **Date Tested:** 10-10-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-34
Sample Number: 14-1173

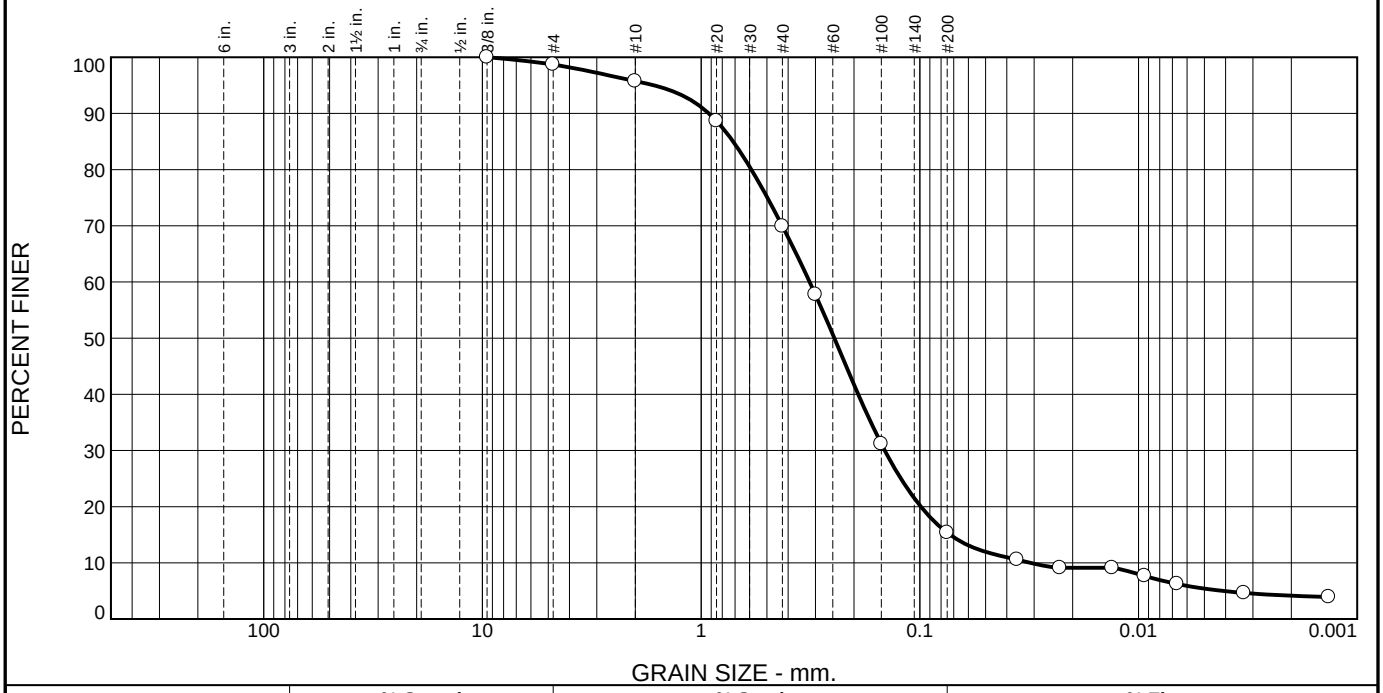
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 039

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	3.0	25.8	54.5	10.0	5.4

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	98.7		
#10	95.7		
#20	88.6		
#40	69.9		
#50	57.7		
#100	31.2		
#200	15.4		
0.0359 mm.	10.6		
0.0228 mm.	9.1		
0.0132 mm.	9.1		
0.0094 mm.	7.7		
0.0067 mm.	6.2		
0.0033 mm.	4.7		
0.0013 mm.	3.9		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, little Silt, trace Clay, trace Fine Gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.9224 D_{85}= 0.7140 D_{60}= 0.3189
D_{50}= 0.2460 D_{30}= 0.1446 D_{15}= 0.0728
D_{10}= 0.0311 C_u= 10.24 C_c= 2.11

Remarks

Date Received: 10-3-14 **Date Tested:** 10-10-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-35
Sample Number: 14-1174

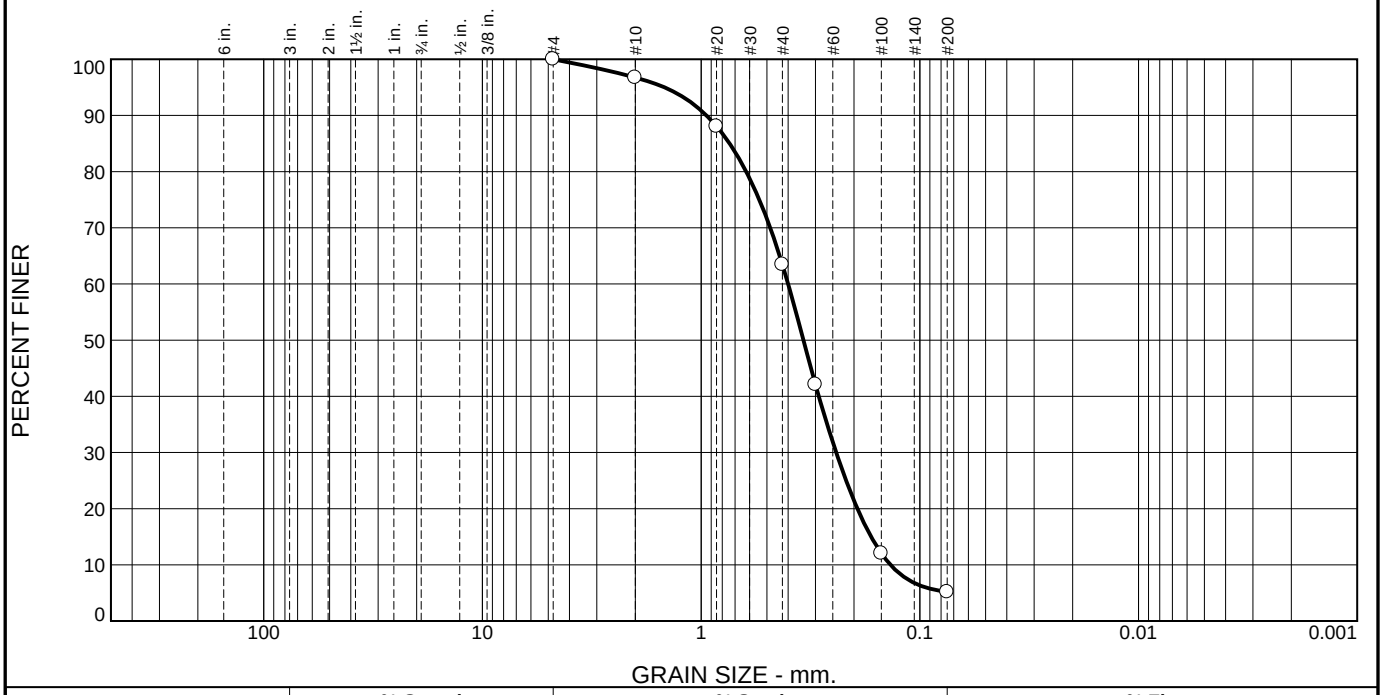
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 040

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	3.3	33.3	58.2	5.2	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	96.7		
#20	88.1		
#40	63.4		
#50	42.1		
#100	12.1		
#200	5.2		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 0.9460 D_{85}= 0.7409 D_{60}= 0.4003
D_{50}= 0.3406 D_{30}= 0.2413 D_{15}= 0.1670
D_{10}= 0.1362 C_u= 2.94 C_c= 1.07

Remarks

Date Received: 10-3-14 **Date Tested:** 10-6-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-36
Sample Number: 14-1175

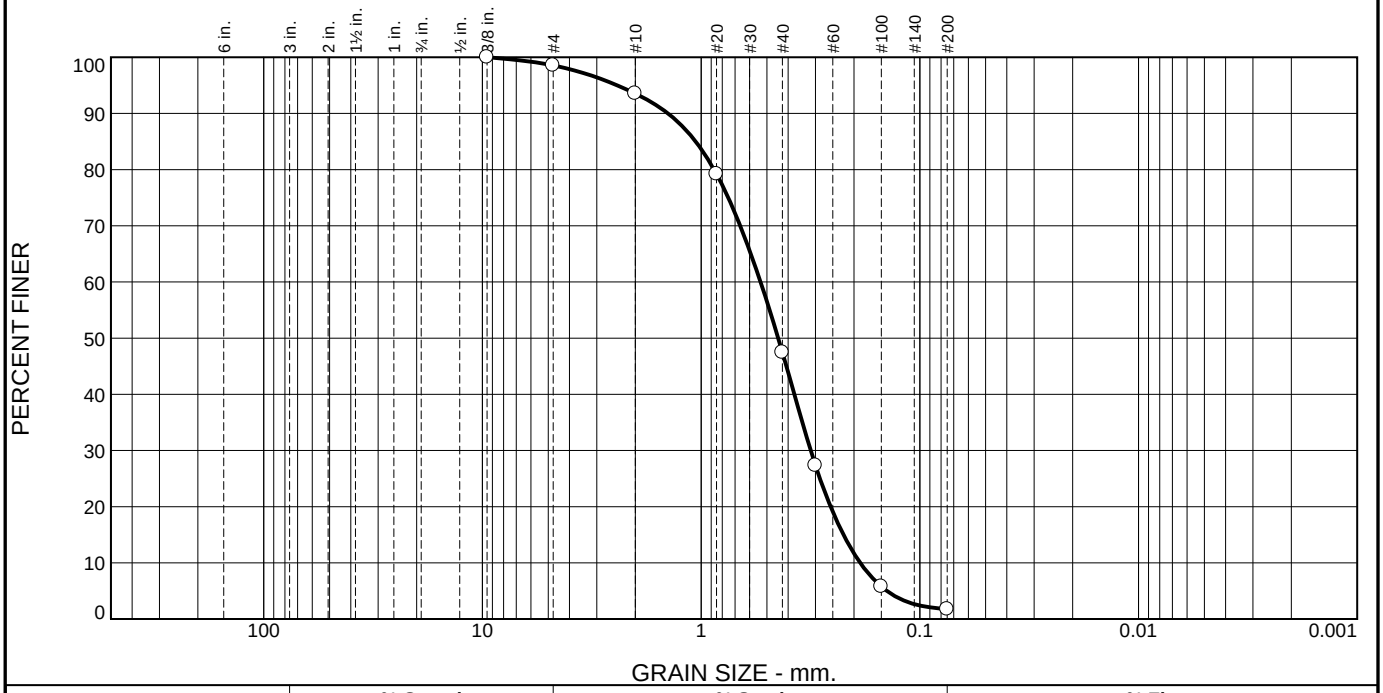
Date Sampled: 10-3-14

JTC INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 020

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	5.1	46.0	45.7	1.8	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	98.6		
#10	93.5		
#20	79.2		
#40	47.5		
#50	27.3		
#100	5.8		
#200	1.8		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt, trace Fine Gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 1.4172 D_{85}= 1.0594 D_{60}= 0.5348
D_{50}= 0.4442 D_{30}= 0.3154 D_{15}= 0.2235
D_{10}= 0.1873 C_u= 2.86 C_c= 0.99

Remarks

Date Received: 10-3-14 **Date Tested:** 10-6-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-37
Sample Number: 14-1176

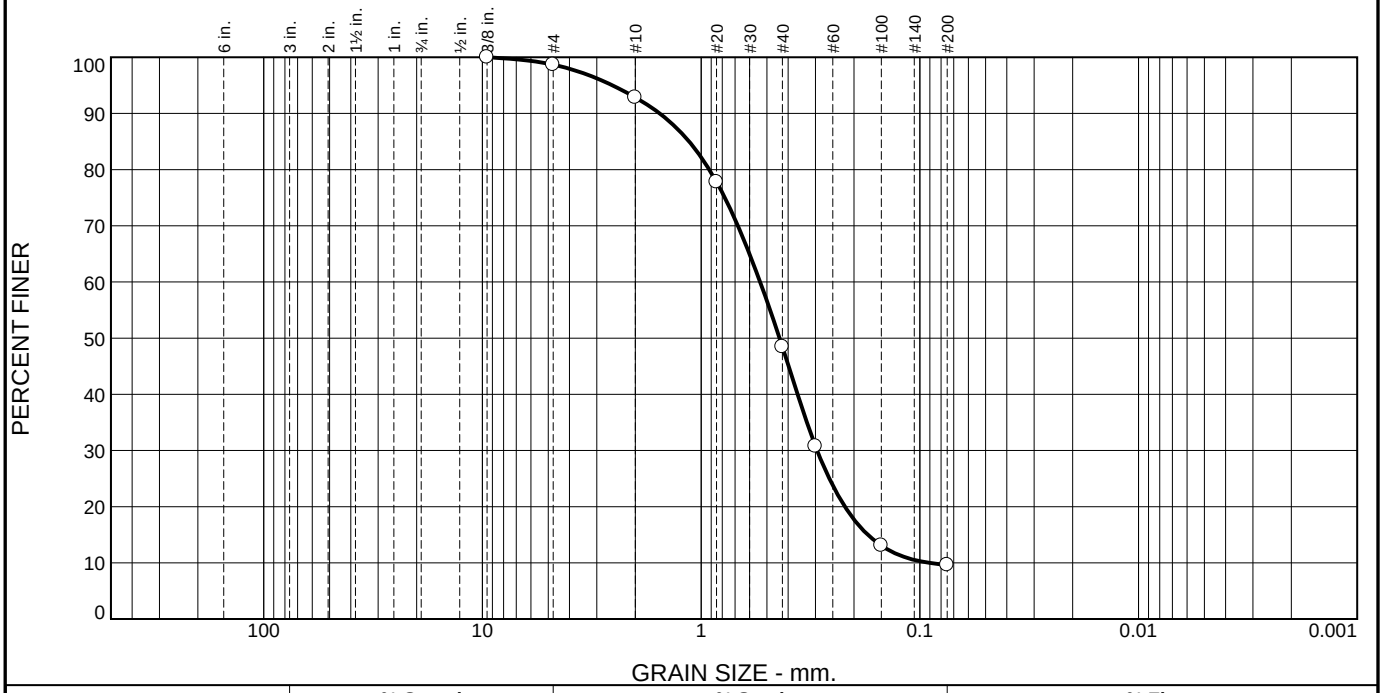
Date Sampled: 10-3-14

JTC CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION INC.

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 019

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	5.9	44.4	38.8	9.6	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	98.7		
#10	92.8		
#20	77.8		
#40	48.4		
#50	30.8		
#100	13.1		
#200	9.6		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt, trace Fine Gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 1.5473 D_{85}= 1.1350 D_{60}= 0.5372
D_{50}= 0.4380 D_{30}= 0.2948 D_{15}= 0.1729
D_{10}= 0.0904 C_u= 5.94 C_c= 1.79

Remarks

Date Received: 10-3-14 **Date Tested:** 10-8-14

Tested By: Pete Schrier

Checked By: John Turner

Title: President

Location: 31116-38
Sample Number: 14-1177

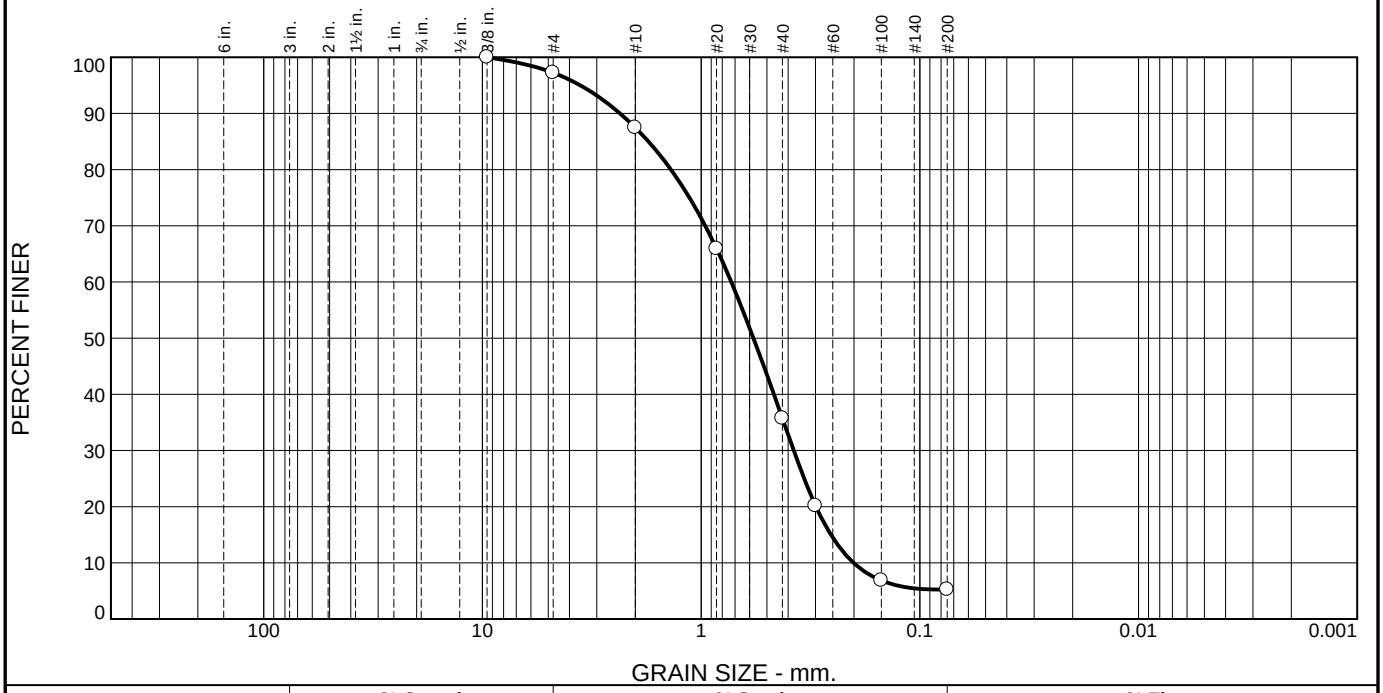
Date Sampled: 10-3-14

JTC CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION INC.

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 021

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.7	9.8	51.8	30.5	5.2	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	97.3		
#10	87.5		
#20	65.9		
#40	35.7		
#50	20.2		
#100	6.9		
#200	5.2		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt, trace Fine Gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 2.3500 D_{85}= 1.7415 D_{60}= 0.7280
D_{50}= 0.5765 D_{30}= 0.3772 D_{15}= 0.2550
D_{10}= 0.2009 C_u= 3.62 C_c= 0.97

Remarks

Date Received: 10-3-14 **Date Tested:** 10-9-14

Tested By: Pete Schrier

Checked By: John Turner

Title: President

Location: 31116-39
Sample Number: 14-1178

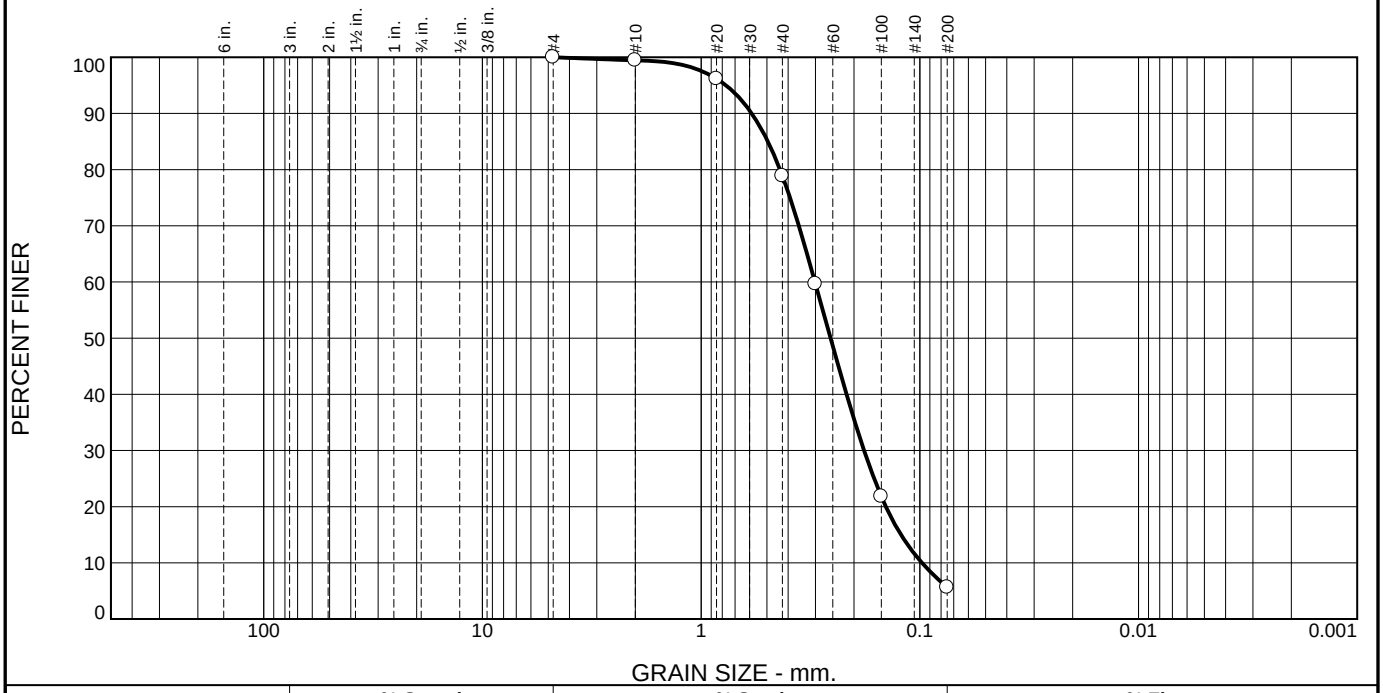
Date Sampled: 10-3-14

JTC INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 022

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	20.6	73.3	5.6	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.5		
#20	96.2		
#40	78.9		
#50	59.7		
#100	21.8		
#200	5.6		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 0.5867 D_{85}= 0.4951 D_{60}= 0.3017
D_{50}= 0.2560 D_{30}= 0.1798 D_{15}= 0.1220
D_{10}= 0.0978 C_u= 3.09 C_c= 1.10

Remarks

Date Received: 10-3-14 **Date Tested:** 10-9-14

Tested By: Derek Kraytenberg

Checked By: John Turner

Title: President

Location: 31116-40
Sample Number: 14-1179

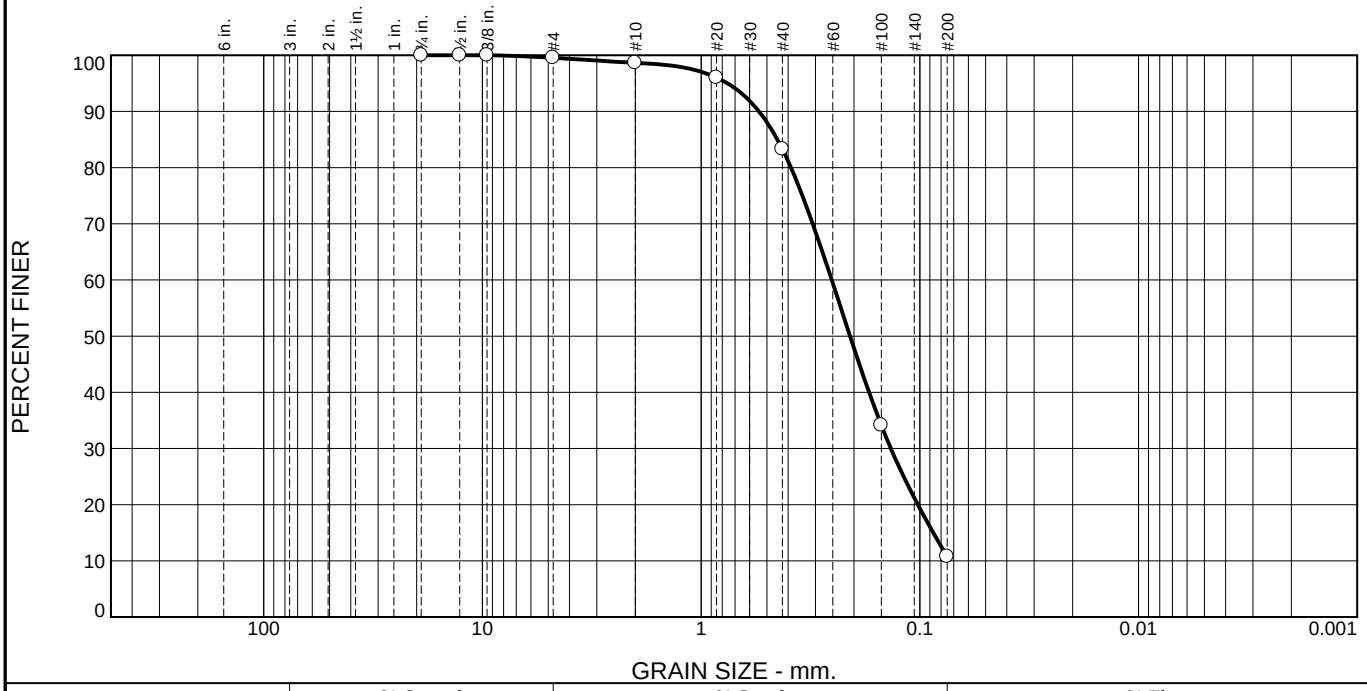
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 023

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.9	15.3	72.5	10.8	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
1/2	100.0		
3/8	100.0		
#4	99.5		
#10	98.6		
#20	96.0		
#40	83.3		
#100	34.1		
#200	10.8		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, little Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.5433 D_{85}= 0.4478 D_{60}= 0.2528
D_{50}= 0.2084 D_{30}= 0.1357 D_{15}= 0.0867
D_{10}= C_u= C_c=

Remarks

Date Received: 10-03-14 **Date Tested:** 10-09-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-41
Sample Number: 14-1180

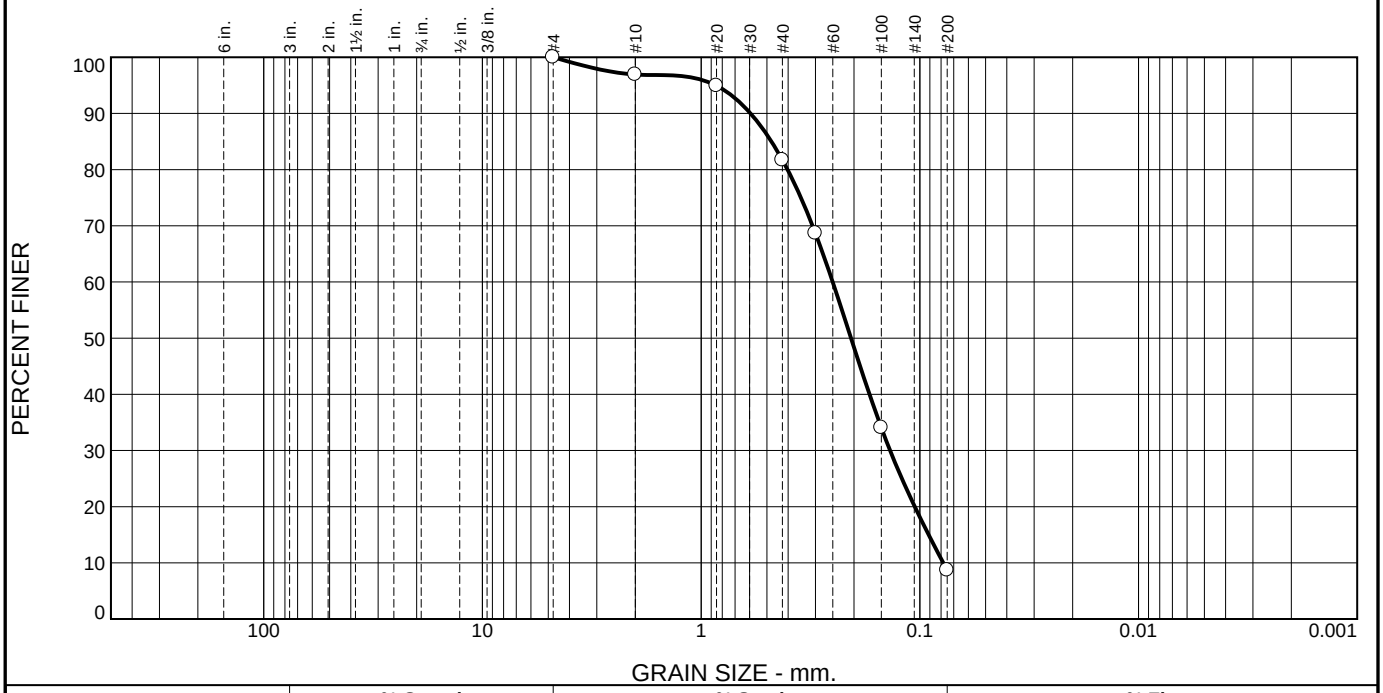
Date Sampled: 10-03-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 054

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	3.1	15.2	73.0	8.7	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	96.9		
#20	94.9		
#40	81.7		
#50	68.7		
#100	34.1		
#200	8.7		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 0.5941 D_{85}= 0.4770 D_{60}= 0.2503
D_{50}= 0.2063 D_{30}= 0.1368 D_{15}= 0.0911
D_{10}= 0.0781 C_u= 3.20 C_c= 0.96

Remarks

Date Received: 10-3-14 **Date Tested:** 10-8-14

Tested By: Justin Sigouin

Checked By: John Turner

Title: President

Location: 31116-42
Sample Number: 14-1181

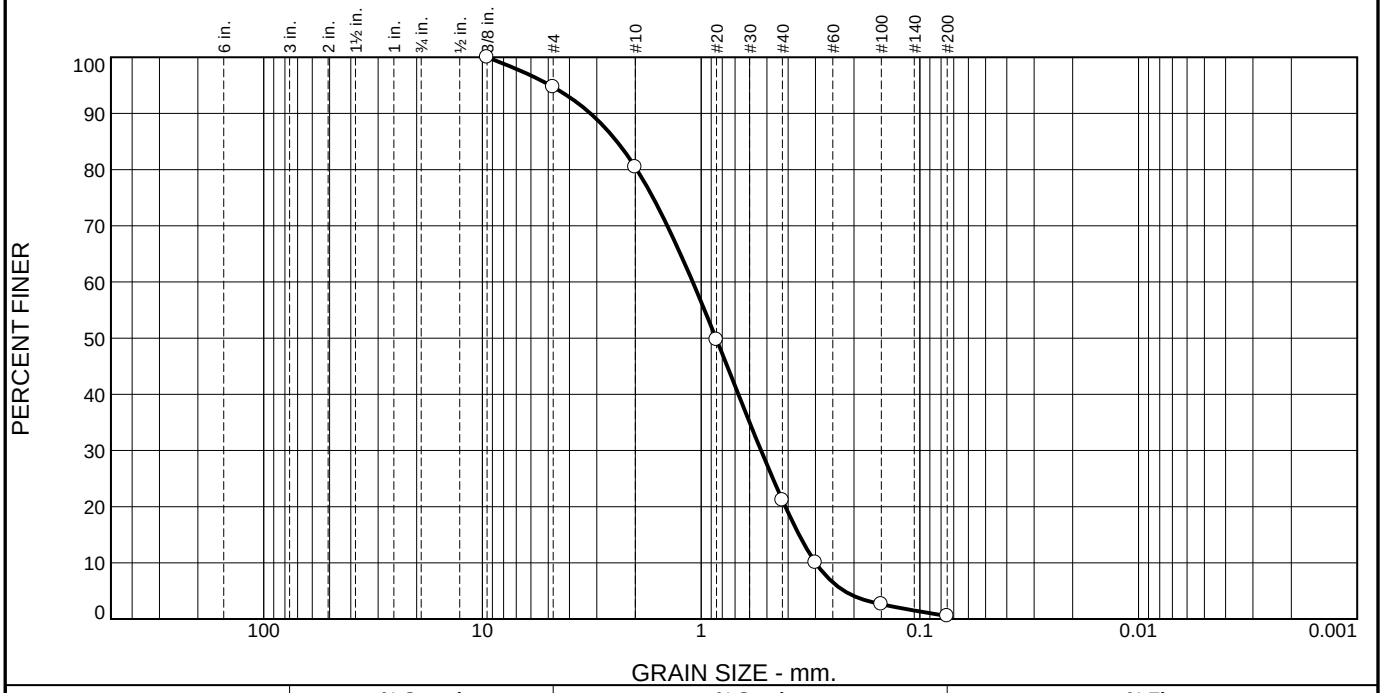
Date Sampled: 10-3-14

JTC INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 024

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.3	14.3	59.2	20.7	0.5	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	94.7		
#10	80.4		
#20	49.7		
#40	21.2		
#50	10.1		
#100	2.6		
#200	0.5		

* (no specification provided)

Material Description

FINE-COARSE SAND, trace Fine Gravel, trace Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 3.2095 D_{85}= 2.4266 D_{60}= 1.0927
D_{50}= 0.8554 D_{30}= 0.5320 D_{15}= 0.3568
D_{10}= 0.2993 C_u= 3.65 C_c= 0.87

Remarks

Date Received: 10-3-14 **Date Tested:** 10-9-14

Tested By: Justin Sigouin

Checked By: John Turner

Title: President

Location: 31116-66
Sample Number: 14-1182

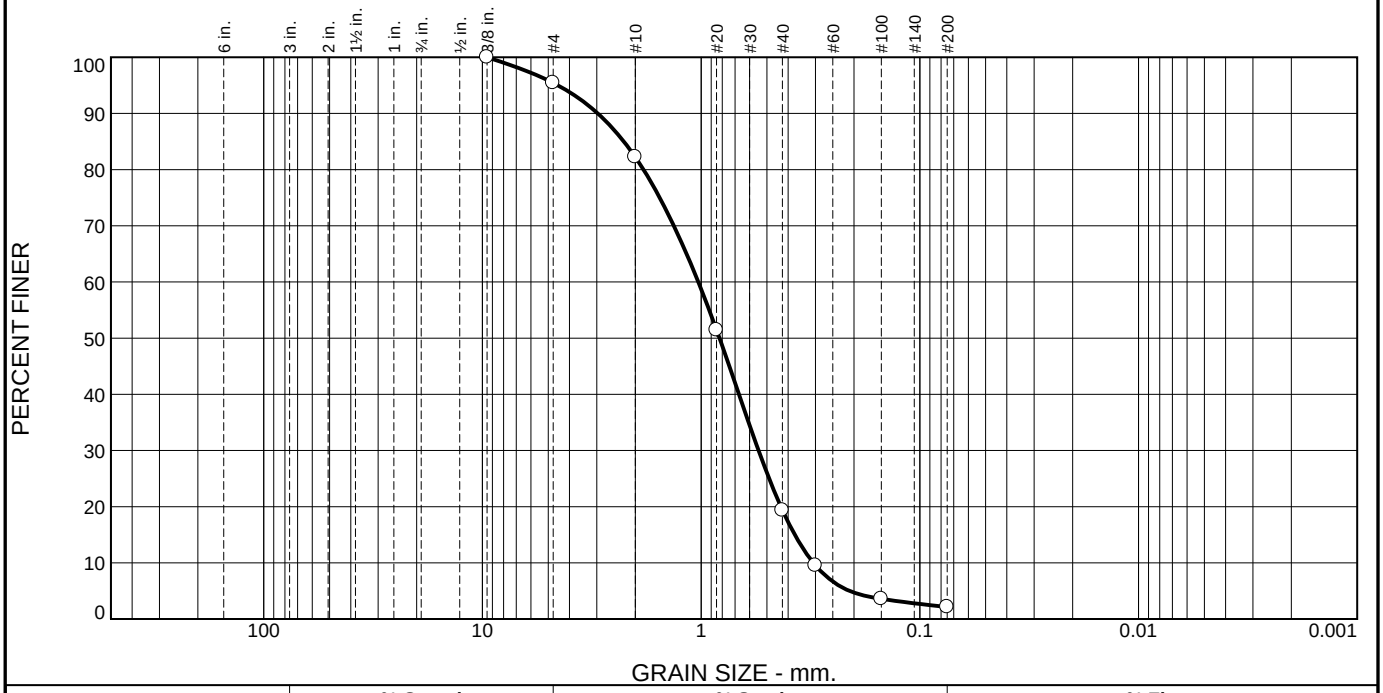
Date Sampled: 10-3-14

JTC INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 025

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.6	13.2	62.8	17.3	2.1	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	95.4		
#10	82.2		
#20	51.5		
#40	19.4		
#50	9.5		
#100	3.6		
#200	2.1		

* (no specification provided)

Material Description

FINE-COARSE SAND, trace Fine Gravel, trace Silt

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 2.9697 D_{85}= 2.2566 D_{60}= 1.0302
D_{50}= 0.8242 D_{30}= 0.5462 D_{15}= 0.3733
D_{10}= 0.3068 C_u= 3.36 C_c= 0.94

Remarks

Date Received: 10-3-14 **Date Tested:** 10-9-14

Tested By: Justin Sigouin

Checked By: John Turner

Title: President

Location: 31116-67
Sample Number: 14-1183

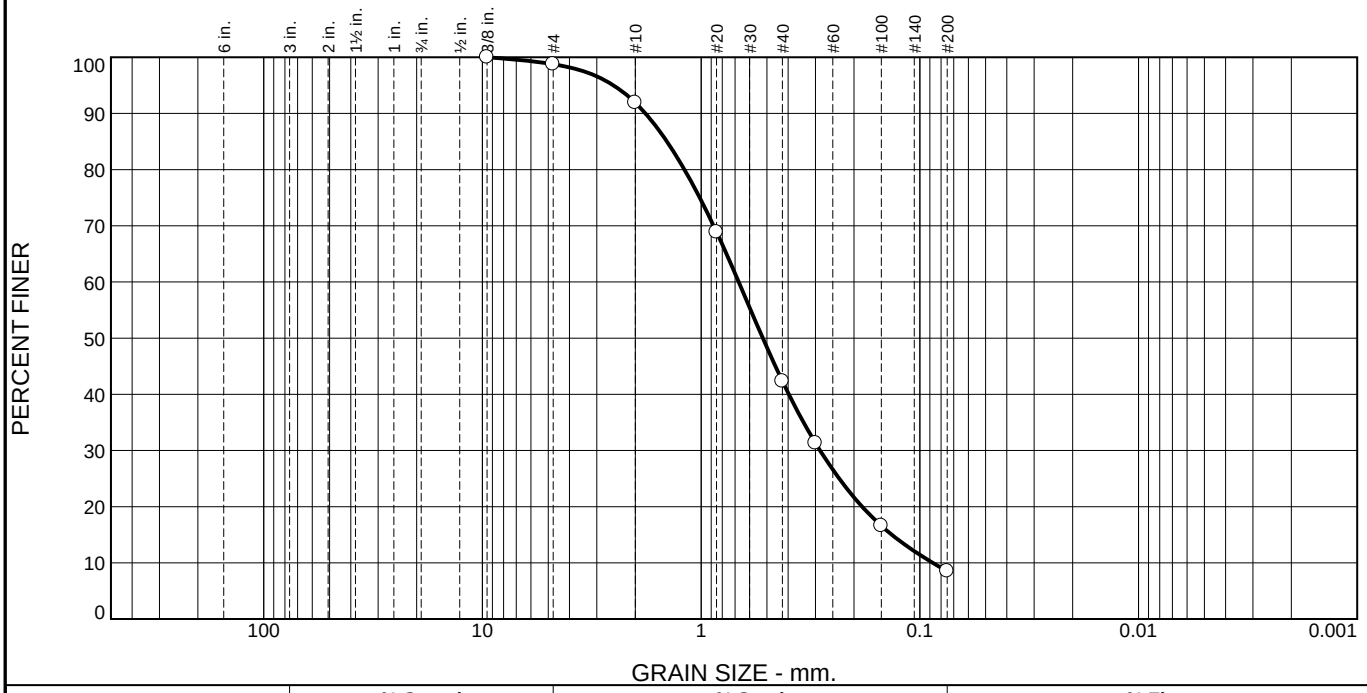
Date Sampled: 10-3-14

JTC INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 026

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	6.9	49.6	33.8	8.5	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	98.8		
#10	91.9		
#20	68.9		
#40	42.3		
#50	31.3		
#100	16.6		
#200	8.5		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt, trace Fine Gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 1.7967 D_{85}= 1.4332 D_{60}= 0.6733
D_{50}= 0.5222 D_{30}= 0.2858 D_{15}= 0.1343
D_{10}= 0.0871 C_u= 7.73 C_c= 1.39

Remarks

Date Received: 10-3-14 **Date Tested:** 10-6-14

Tested By: Justin Sigouin

Checked By: John Turner

Title: President

Location: 31116-68
Sample Number: 14-1184

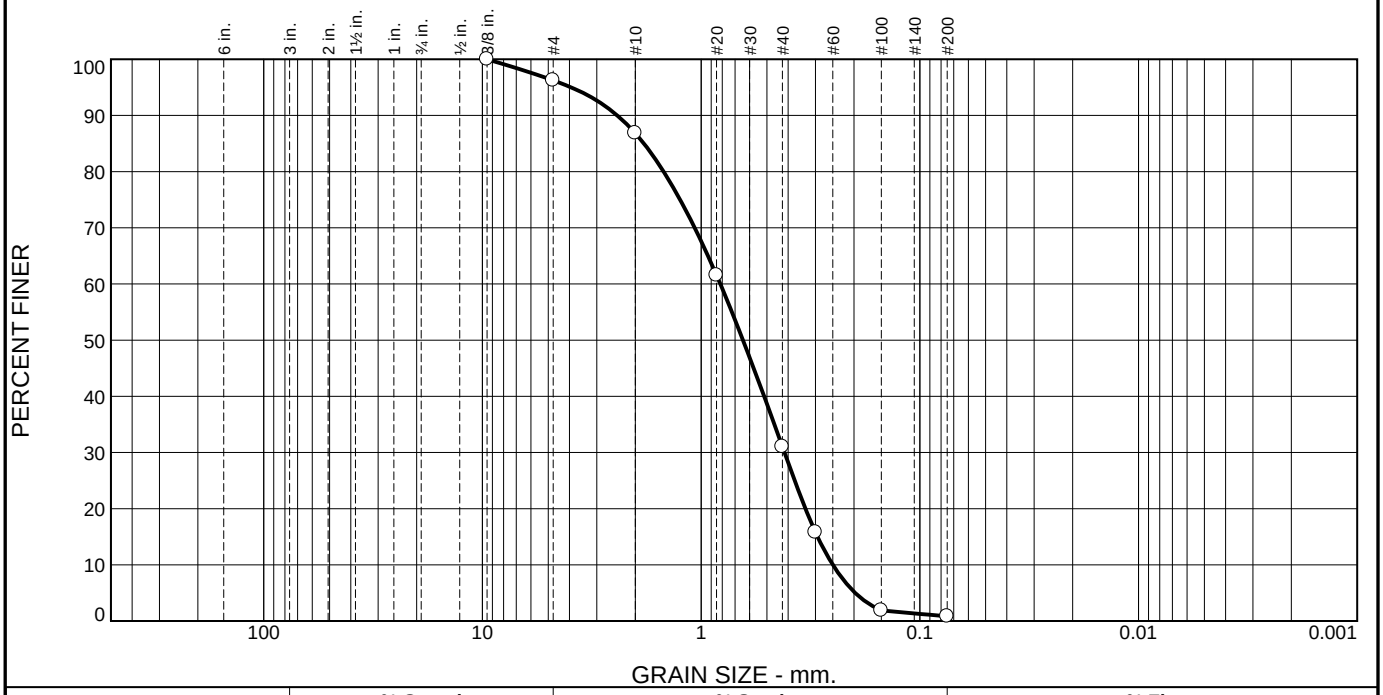
Date Sampled: 10-3-14

JTC INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 027

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.8	9.4	55.8	30.2	0.8	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	96.2		
#10	86.8		
#20	61.5		
#40	31.0		
#50	15.8		
#100	1.9		
#200	0.8		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Fine Gravel, trace Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 2.4184 D_{85}= 1.8269 D_{60}= 0.8173
D_{50}= 0.6437 D_{30}= 0.4157 D_{15}= 0.2936
D_{10}= 0.2500 C_u= 3.27 C_c= 0.85

Remarks

Date Received: 10-3-14 **Date Tested:** 10-8-14

Tested By: Justin Sigouin

Checked By: John Turner

Title: President

Location: 31116-69
Sample Number: 14-1185

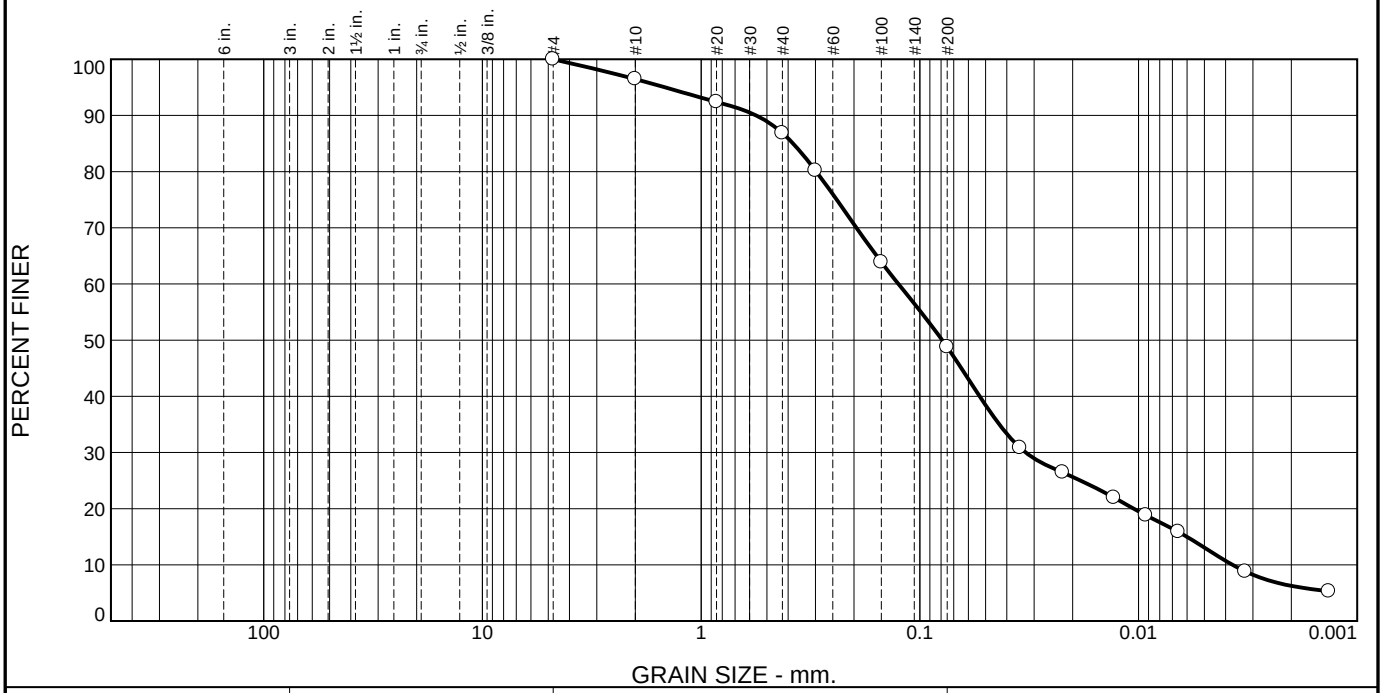
Date Sampled: 10-3-14

JTC INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 028

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	3.5	9.6	38.1	35.7	13.1

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	96.5		
#20	92.4		
#40	86.9		
#50	80.2		
#100	63.9		
#200	48.8		
0.0348 mm.	30.9		
0.0222 mm.	26.5		
0.0130 mm.	22.0		
0.0093 mm.	18.8		
0.0066 mm.	15.9		
0.0033 mm.	8.8		
0.0013 mm.	5.3		

* (no specification provided)

Material Description

FINE SAND and Silt, little Clay

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.5606 D_{85}= 0.3798 D_{60}= 0.1253
D_{50}= 0.0790 D_{30}= 0.0328 D_{15}= 0.0060
D_{10}= 0.0037 C_u= 33.72 C_c= 2.31

Remarks

Date Received: 10-3-14 **Date Tested:** 10-17-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

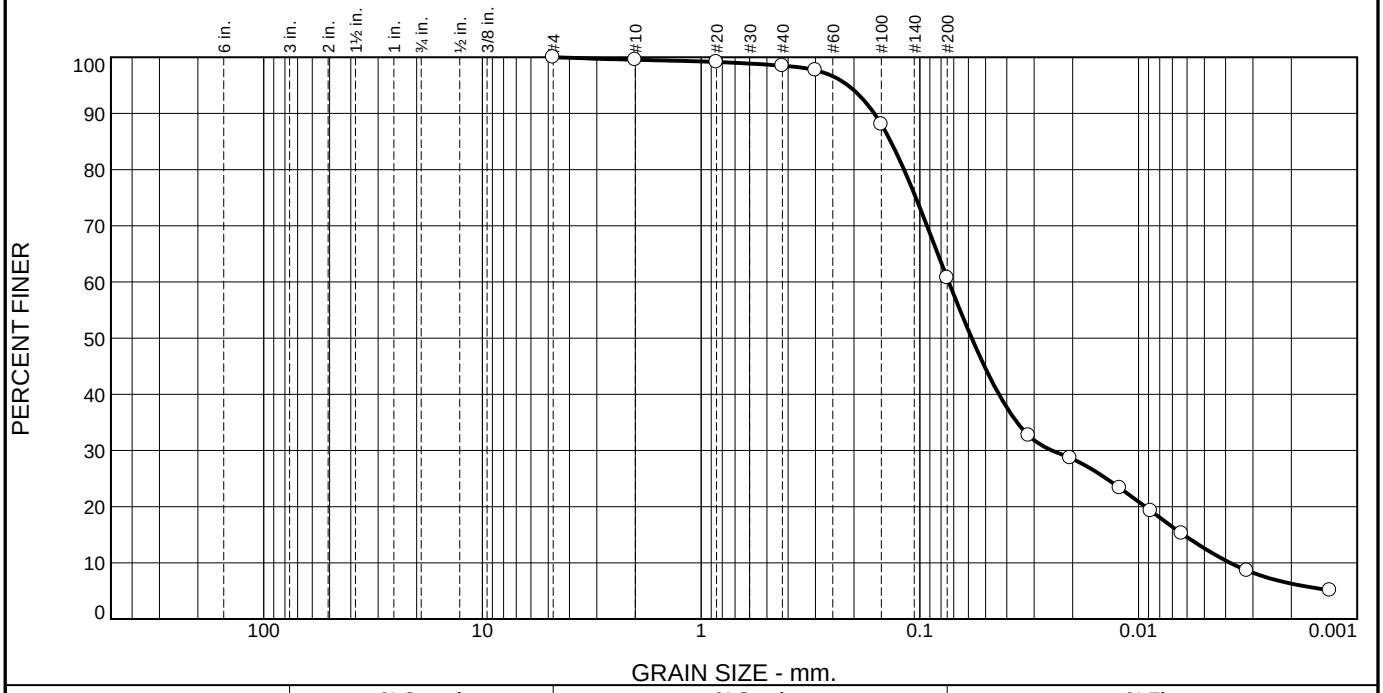
Location: 31116-70
Sample Number: 14-1186

Date Sampled: 10-3-14

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 041

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	1.0	37.8	48.1	12.6

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.5		
#20	99.2		
#40	98.5		
#50	97.7		
#100	88.1		
#200	60.7		
0.0318 mm.	32.7		
0.0206 mm.	28.7		
0.0122 mm.	23.3		
0.0088 mm.	19.3		
0.0063 mm.	15.2		
0.0032 mm.	8.6		
0.0013 mm.	5.1		

* (no specification provided)

Material Description

Silt and Fine Sand, little Clay

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.1615 D_{85}= 0.1358 D_{60}= 0.0737
D_{50}= 0.0579 D_{30}= 0.0249 D_{15}= 0.0062
D_{10}= 0.0038 C_u= 19.35 C_c= 2.20

Remarks

Date Received: 10-3-14 **Date Tested:** 10-17-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-71
Sample Number: 14-1187

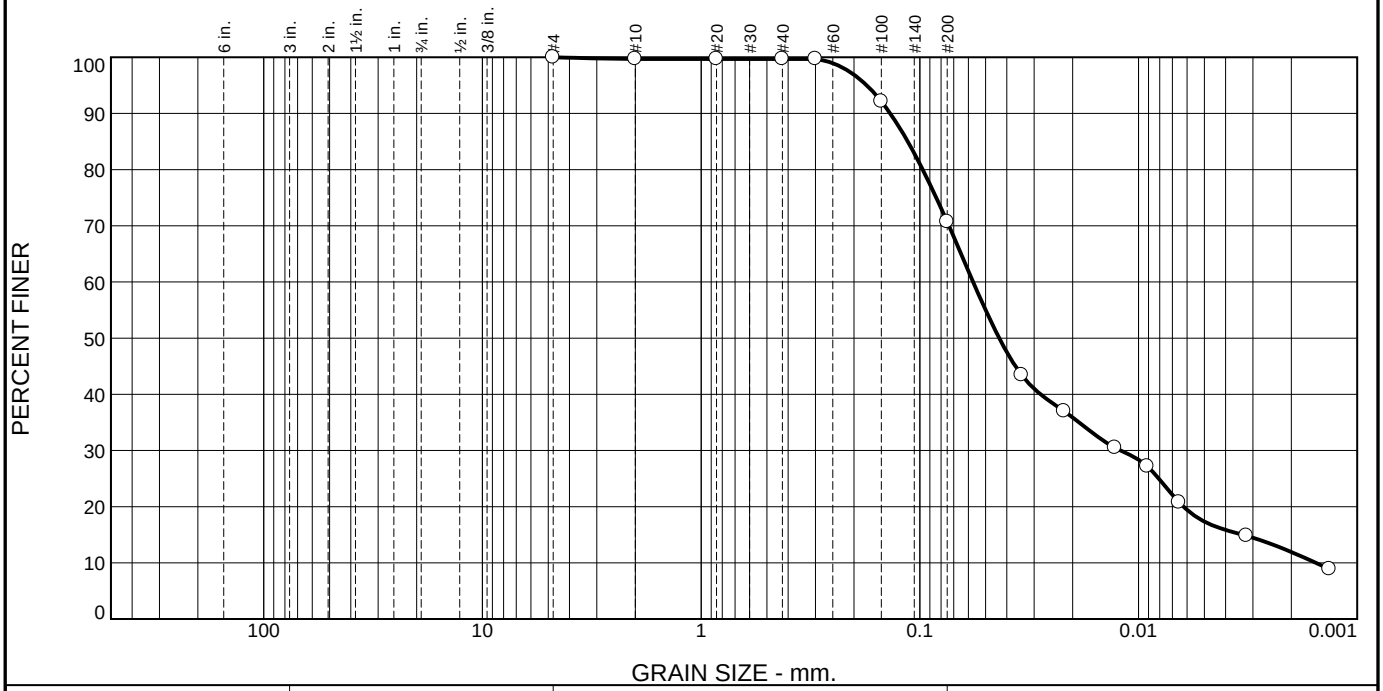
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 042

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	0.0	29.0	53.4	17.3

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.7		
#20	99.7		
#40	99.7		
#50	99.7		
#100	92.1		
#200	70.7		
0.0342 mm.	43.4		
0.0219 mm.	37.0		
0.0128 mm.	30.5		
0.0091 mm.	27.2		
0.0065 mm.	20.8		
0.0032 mm.	14.8		
0.0013 mm.	8.9		

* (no specification provided)

Material Description

SILT, some Fine Sand, little Clay

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.1365 D_{85}= 0.1135 D_{60}= 0.0570
D_{50}= 0.0433 D_{30}= 0.0121 D_{15}= 0.0033
D_{10}= 0.0015 C_u= 36.94 C_c= 1.66

Remarks

Date Received: 10-3-14 **Date Tested:** 10-17-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-72
Sample Number: 14-1188

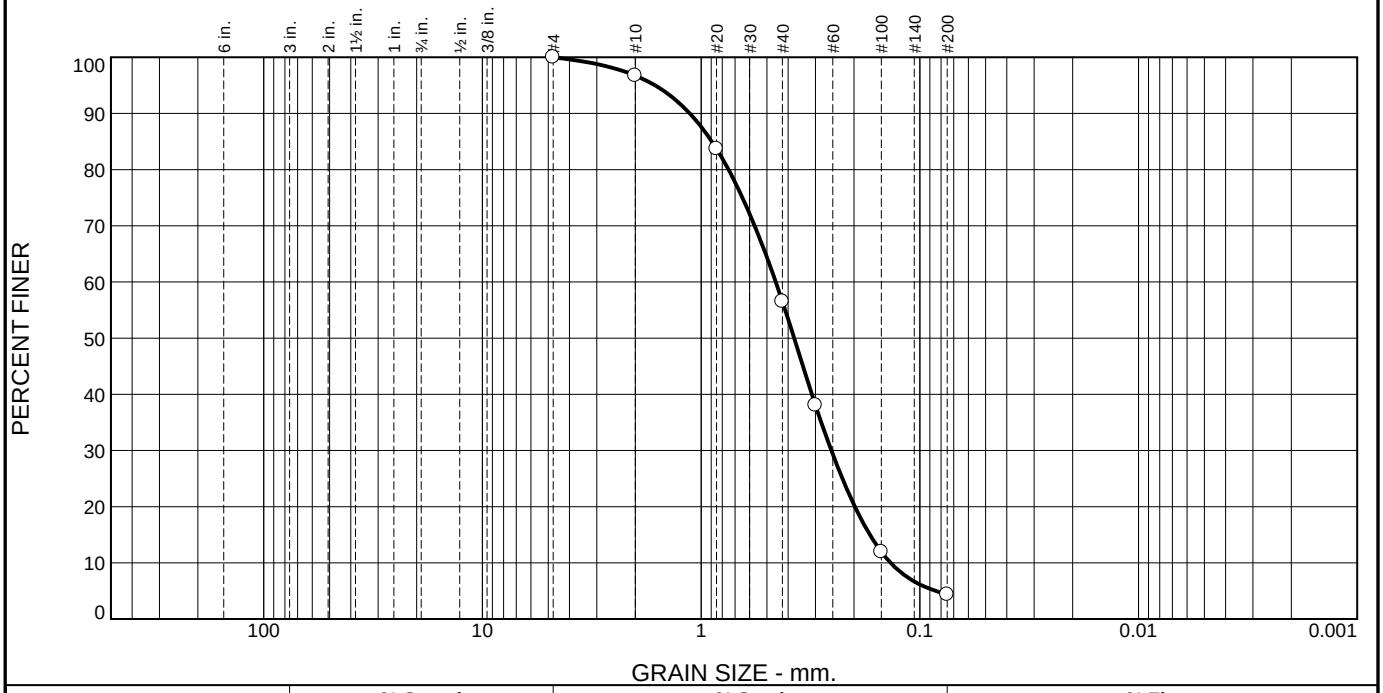
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 043

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	3.3	40.2	52.2	4.3	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	96.7		
#20	83.7		
#40	56.5		
#50	38.0		
#100	12.0		
#200	4.3		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 1.1266 D_{85}= 0.8934 D_{60}= 0.4557
D_{50}= 0.3755 D_{30}= 0.2539 D_{15}= 0.1692
D_{10}= 0.1361 C_u= 3.35 C_c= 1.04

Remarks

Date Received: 10-3-14 **Date Tested:** 10-10-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-73
Sample Number: 14-1189

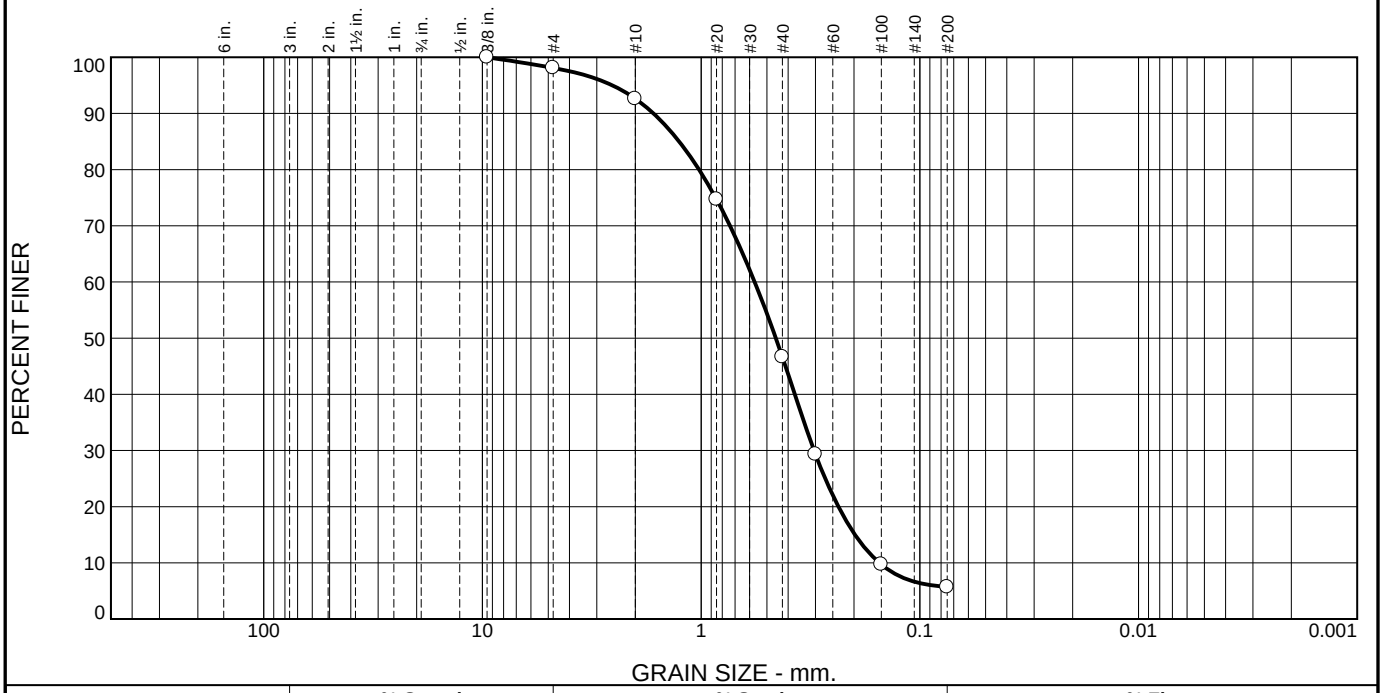
Date Sampled: 10-3-14

JTC CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION INC.

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 029

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.9	5.5	46.0	40.9	5.7	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	98.1		
#10	92.6		
#20	74.7		
#40	46.6		
#50	29.3		
#100	9.7		
#200	5.7		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt, trace Fine Gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 1.6526 D_{85}= 1.2602 D_{60}= 0.5690
D_{50}= 0.4554 D_{30}= 0.3045 D_{15}= 0.1978
D_{10}= 0.1531 C_u= 3.72 C_c= 1.06

Remarks

Date Received: 10-3-14 **Date Tested:** 10-10-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-74
Sample Number: 14-1190

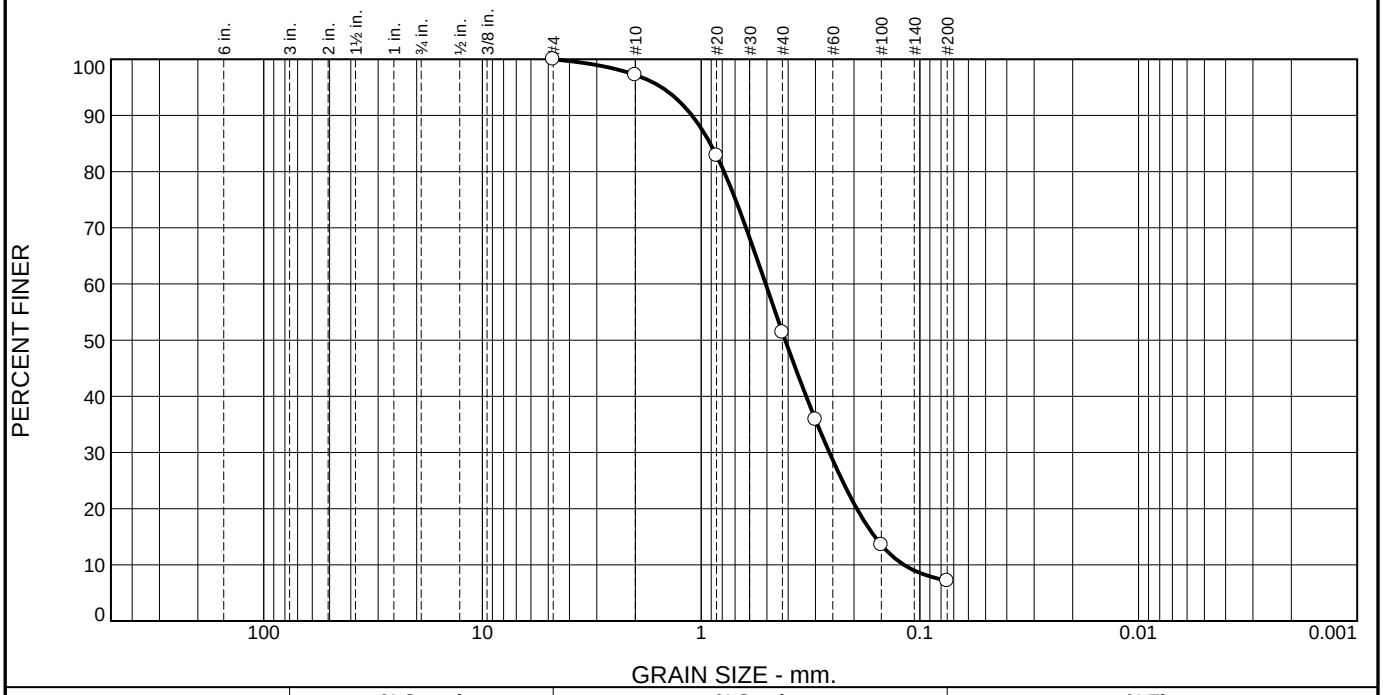
Date Sampled: 10-3-14

JTC INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 030

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.8	45.8	44.2	7.2	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	97.2		
#20	82.9		
#40	51.4		
#50	35.9		
#100	13.5		
#200	7.2		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 1.1004 D_{85}= 0.9076 D_{60}= 0.5069
D_{50}= 0.4127 D_{30}= 0.2592 D_{15}= 0.1607
D_{10}= 0.1182 C_u= 4.29 C_c= 1.12

Remarks

Date Received: 10-3-14 **Date Tested:** 10-8-14

Tested By: Justin Sigouin

Checked By: John Turner

Title: President

Location: 31116-75
Sample Number: 14-1191

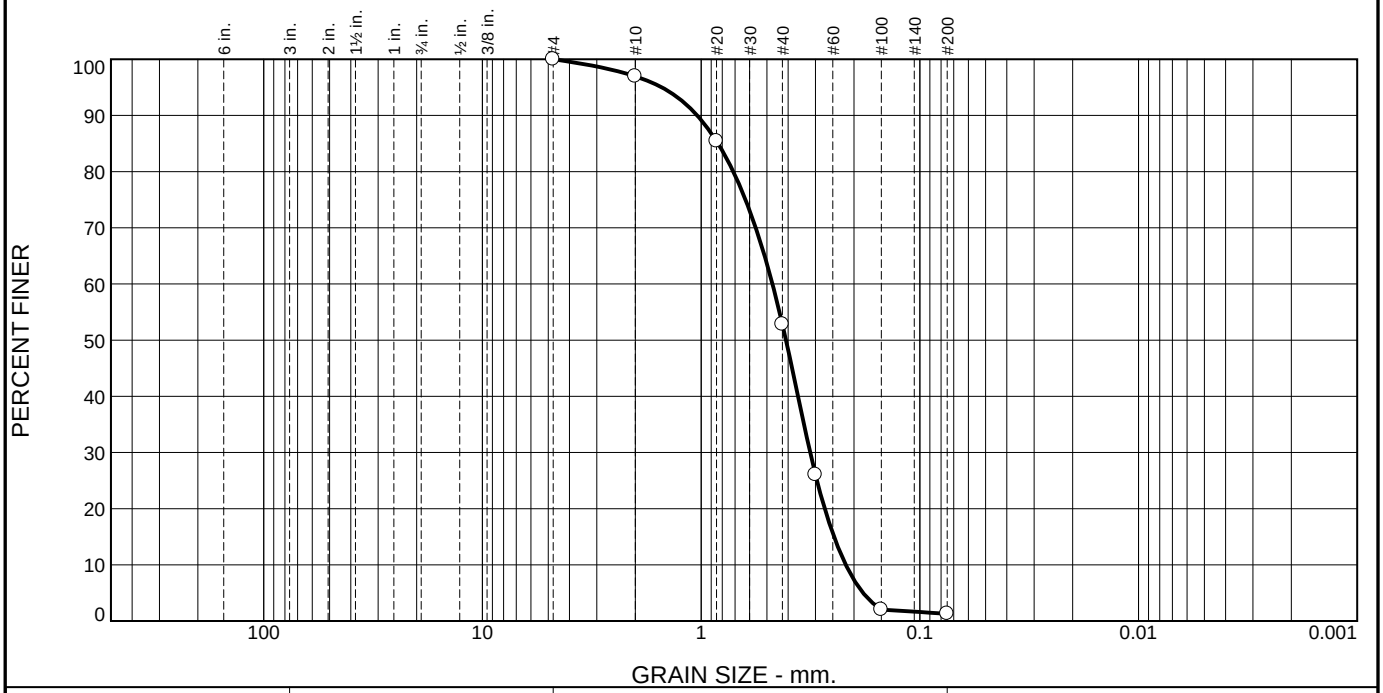
Date Sampled: 10-3-14

JTC INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 031

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	3.0	44.2	51.5	1.3	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	97.0		
#20	85.4		
#40	52.8		
#50	26.0		
#100	2.0		
#200	1.3		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 1.0421 D_{85}= 0.8371 D_{60}= 0.4719
D_{50}= 0.4093 D_{30}= 0.3172 D_{15}= 0.2469
D_{10}= 0.2181 C_u= 2.16 C_c= 0.98

Remarks

Date Received: 10-3-14 **Date Tested:** 10-9-14

Tested By: Justin Sigouin

Checked By: John Turner

Title: President

Location: 31116-76
Sample Number: 14-1192

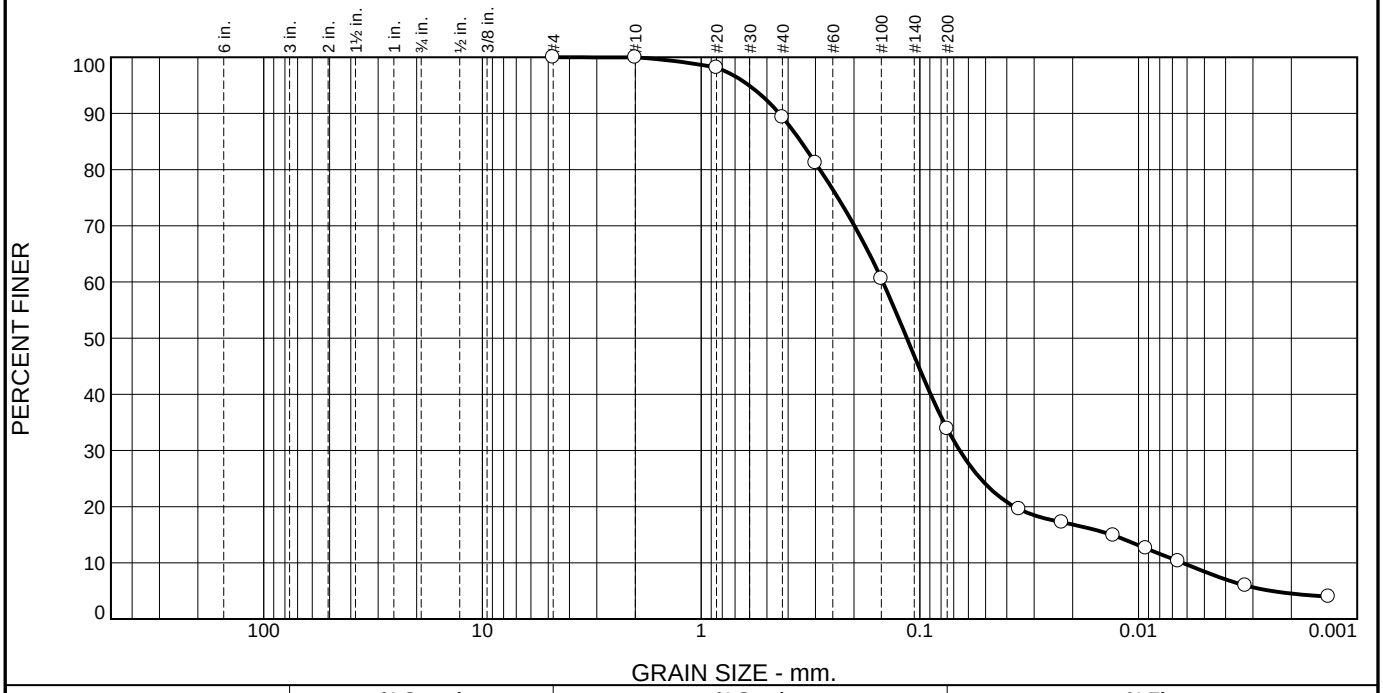
Date Sampled: 10-3-14

JTC INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 032

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	10.7	55.4	25.4	8.5

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	100.0		
#20	98.2		
#40	89.3		
#50	81.2		
#100	60.6		
#200	33.9		
0.0352 mm.	19.6		
0.0224 mm.	17.2		
0.0130 mm.	14.9		
0.0093 mm.	12.6		
0.0066 mm.	10.3		
0.0032 mm.	6.0		
0.0014 mm.	4.0		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, some Silt, trace Clay

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.4394 D_{85}= 0.3498 D_{60}= 0.1476
D_{50}= 0.1146 D_{30}= 0.0657 D_{15}= 0.0133
D_{10}= 0.0063 C_u= 23.47 C_c= 4.65

Remarks

Date Received: 10-3-14 **Date Tested:** 10-17-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-77
Sample Number: 14-1193

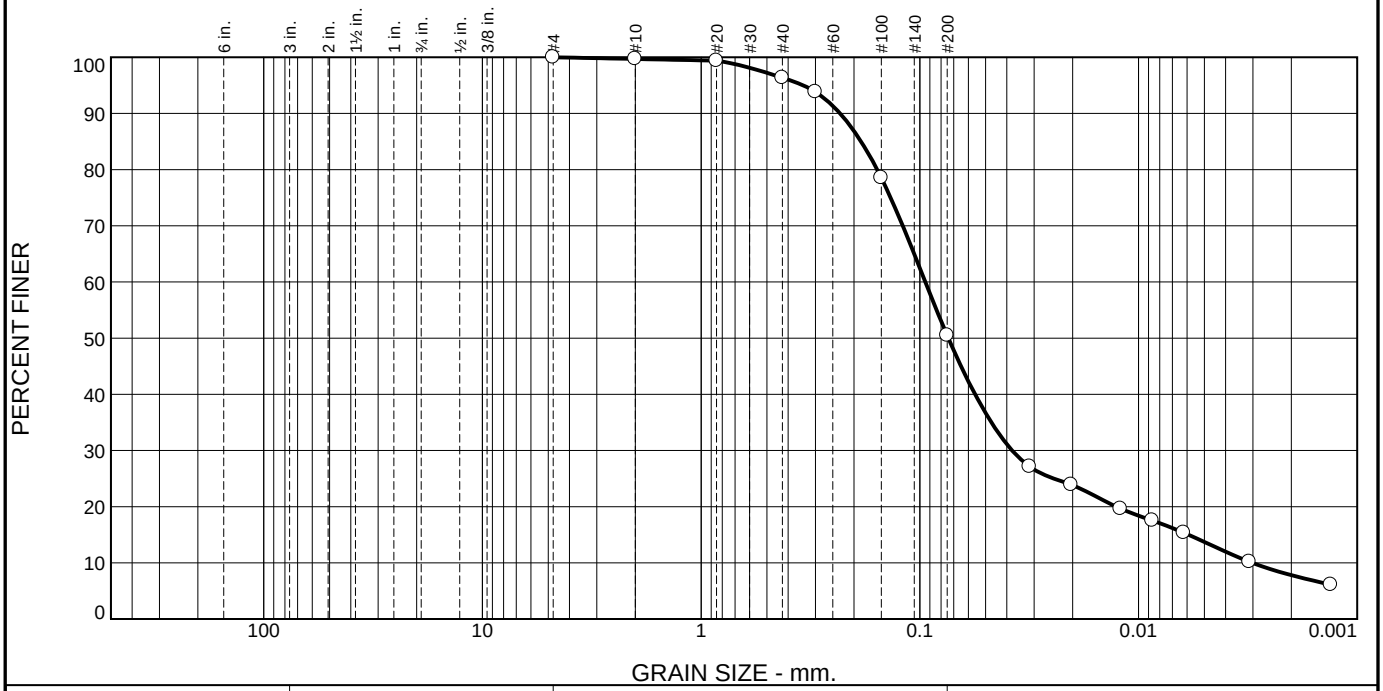
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 044

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	3.3	45.9	36.8	13.7

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.7		
#20	99.4		
#40	96.4		
#50	93.8		
#100	78.5		
#200	50.5		
0.0314 mm.	27.1		
0.0203 mm.	23.9		
0.0121 mm.	19.7		
0.0087 mm.	17.5		
0.0062 mm.	15.4		
0.0031 mm.	10.2		
0.0013 mm.	6.1		

* (no specification provided)

Material Description

Fine Sand and Silt, little Clay

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.2315 D_{85}= 0.1856 D_{60}= 0.0944
D_{50}= 0.0740 D_{30}= 0.0378 D_{15}= 0.0059
D_{10}= 0.0030 C_u= 31.26 C_c= 5.02

Remarks

Date Received: 10-3-14 **Date Tested:** 10-17-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-78
Sample Number: 14-1194

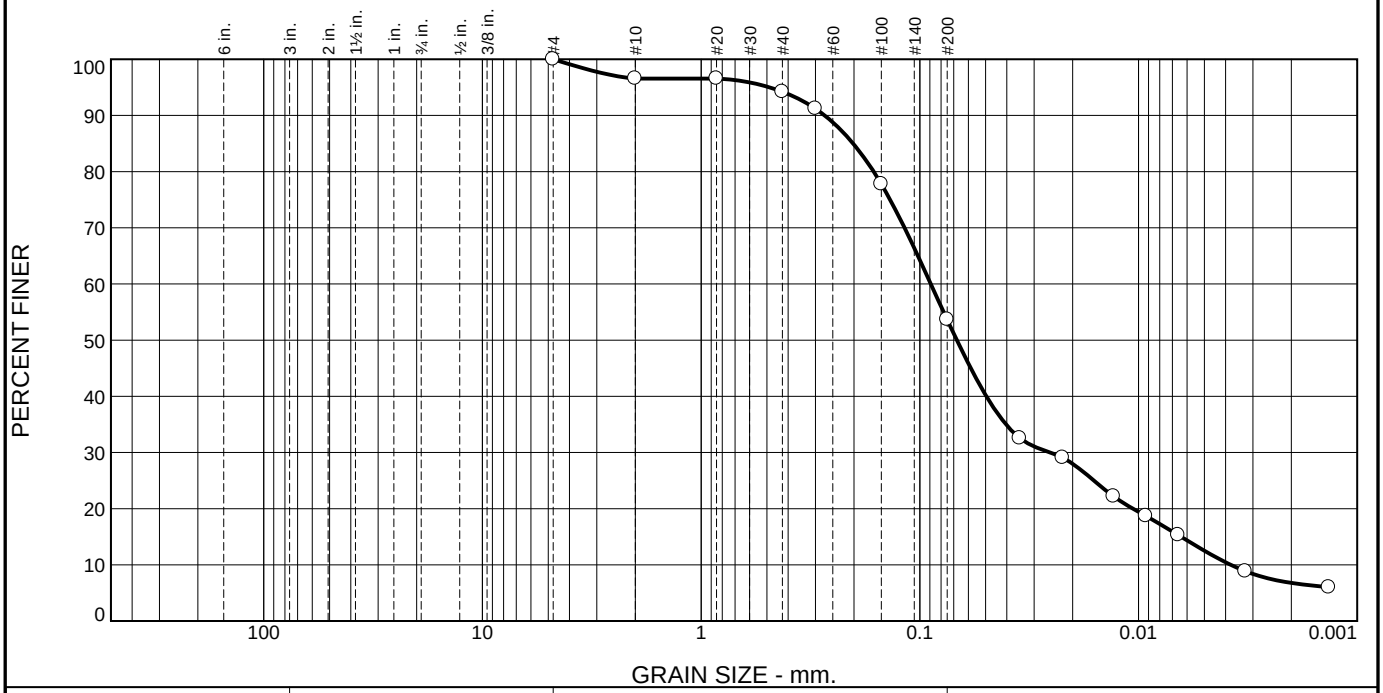
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 045

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	3.4	2.4	40.5	41.2	12.5

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	96.6		
#20	96.6		
#40	94.2		
#50	91.2		
#100	77.8		
#200	53.7		
0.0349 mm.	32.6		
0.0222 mm.	29.1		
0.0130 mm.	22.2		
0.0093 mm.	18.7		
0.0066 mm.	15.3		
0.0032 mm.	8.9		
0.0013 mm.	6.0		

* (no specification provided)

Material Description

FINE SAND and Silt, little Clay

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.2723 D_{85}= 0.2017 D_{60}= 0.0891
D_{50}= 0.0677 D_{30}= 0.0253 D_{15}= 0.0064
D_{10}= 0.0038 C_u= 23.53 C_c= 1.90

Remarks

Date Received: 10-3-14 **Date Tested:** 10-17-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-79
Sample Number: 14-1195

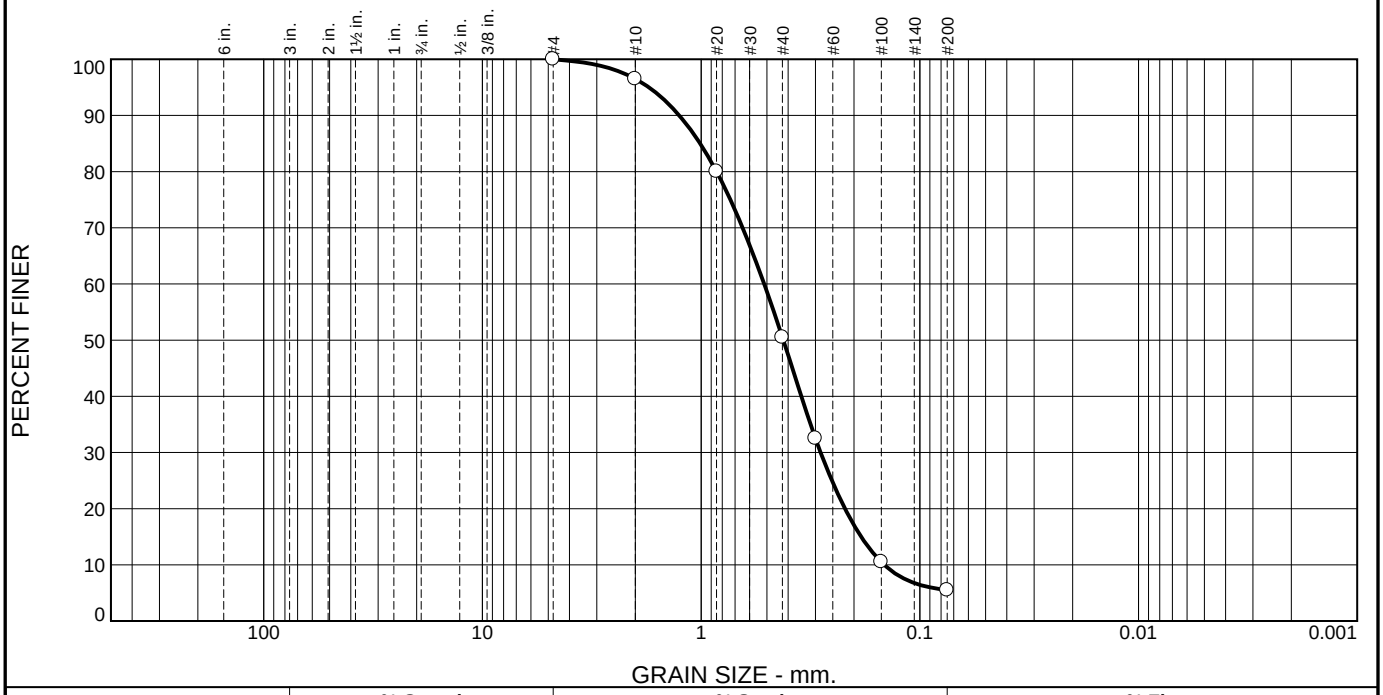
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 046

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	3.5	46.0	45.0	5.5	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	96.5		
#20	80.0		
#40	50.5		
#50	32.5		
#100	10.5		
#200	5.5		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 1.2588 D_{85}= 1.0105 D_{60}= 0.5148
D_{50}= 0.4209 D_{30}= 0.2842 D_{15}= 0.1855
D_{10}= 0.1454 C_u= 3.54 C_c= 1.08

Remarks

Date Received: 10-3-14 **Date Tested:** 10-9-14

Tested By: Justin Sigouin

Checked By: John Turner

Title: President

Location: 31116-80
Sample Number: 14-1196

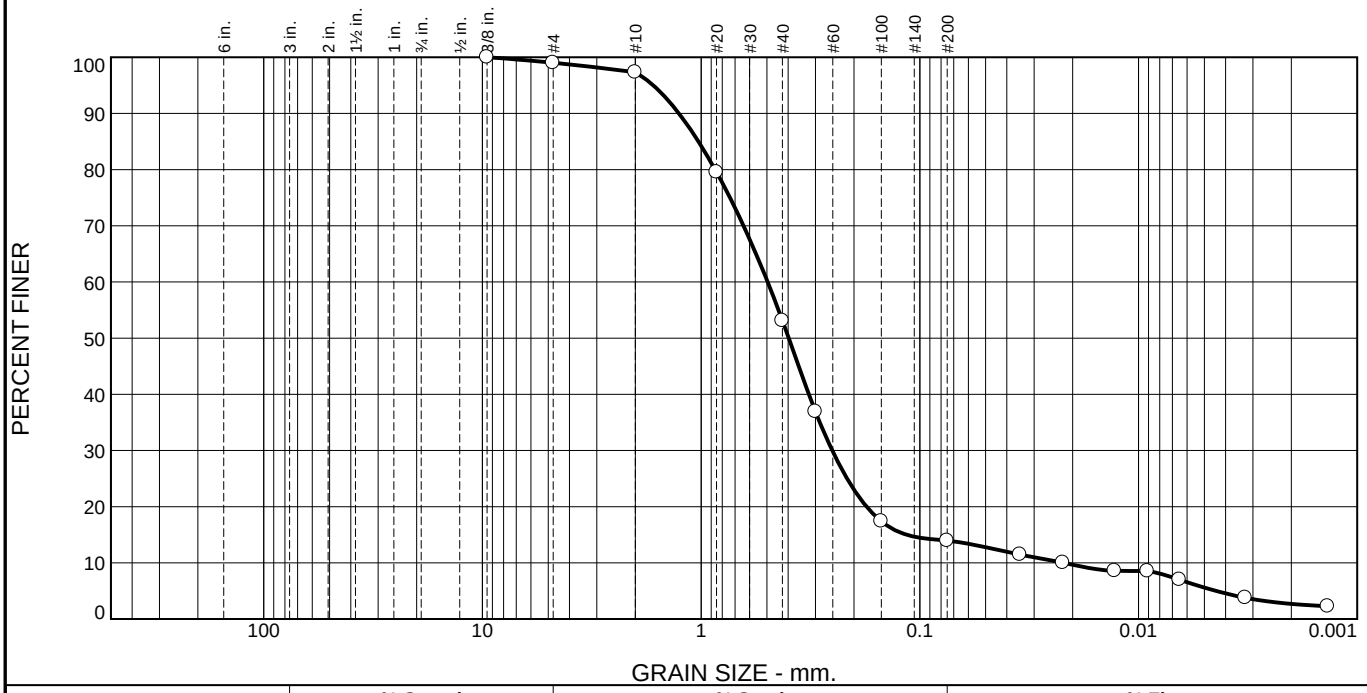
Date Sampled: 10-3-14

JTC INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 033

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	1.7	44.2	39.2	8.3	5.6

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	99.0		
#10	97.3		
#20	79.5		
#40	53.1		
#50	36.9		
#100	17.4		
#200	13.9		
0.0348 mm.	11.5		
0.0222 mm.	10.0		
0.0129 mm.	8.6		
0.0091 mm.	8.5		
0.0065 mm.	7.0		
0.0032 mm.	3.8		
0.0014 mm.	2.3		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt, trace Clay, trace Gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 1.2633 D_{85}= 1.0287 D_{60}= 0.4965
D_{50}= 0.3976 D_{30}= 0.2515 D_{15}= 0.1151
D_{10}= 0.0220 C_u= 22.57 C_c= 5.79

Remarks

Date Received: 10-3-14 **Date Tested:** 10-17-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-81
Sample Number: 14-1197

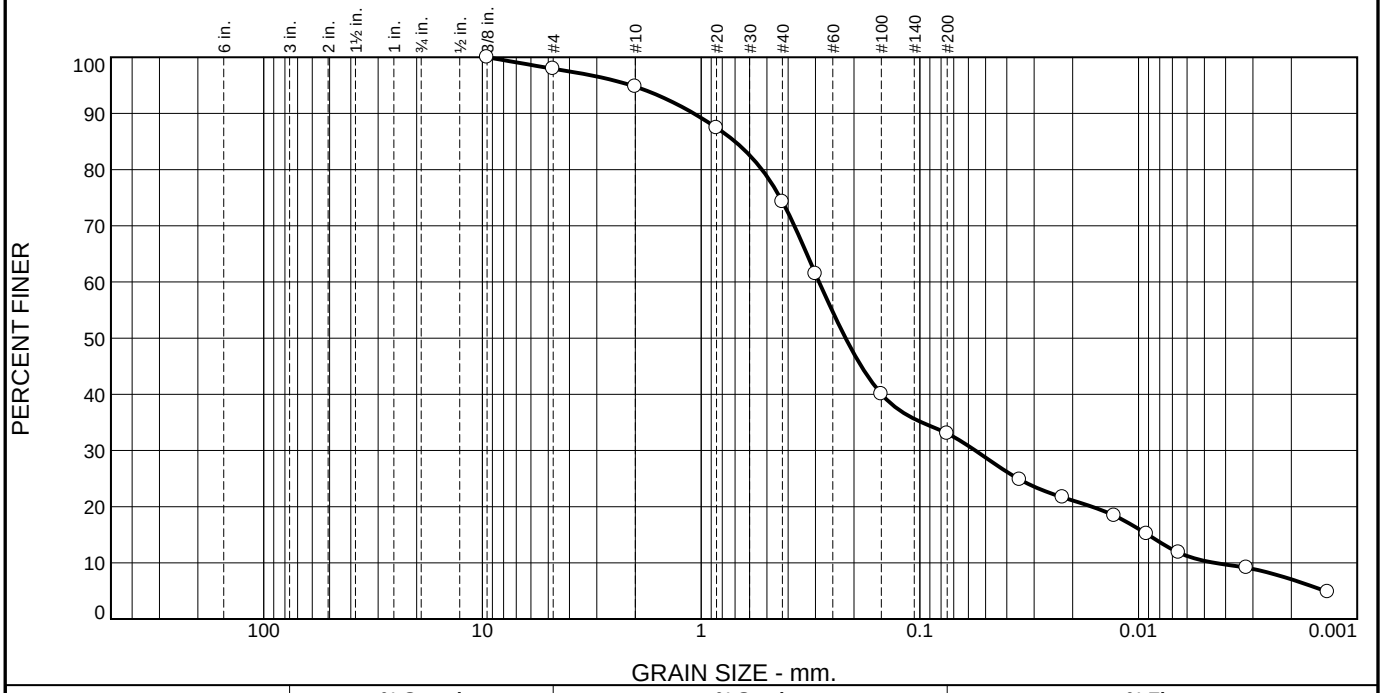
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 047

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.0	3.2	20.5	41.3	22.7	10.3

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	98.0		
#10	94.8		
#20	87.4		
#40	74.3		
#50	61.5		
#100	40.1		
#200	33.0		
0.0349 mm.	24.8		
0.0222 mm.	21.7		
0.0129 mm.	18.4		
0.0092 mm.	15.2		
0.0065 mm.	11.8		
0.0032 mm.	9.1		
0.0014 mm.	4.8		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, some Silt, little Clay, trace Gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 1.0810 D_{85}= 0.7002 D_{60}= 0.2888
D_{50}= 0.2184 D_{30}= 0.0557 D_{15}= 0.0090
D_{10}= 0.0045 C_u= 64.31 C_c= 2.39

Remarks

Date Received: 10-3-14 **Date Tested:** 10-17-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-82
Sample Number: 14-1198

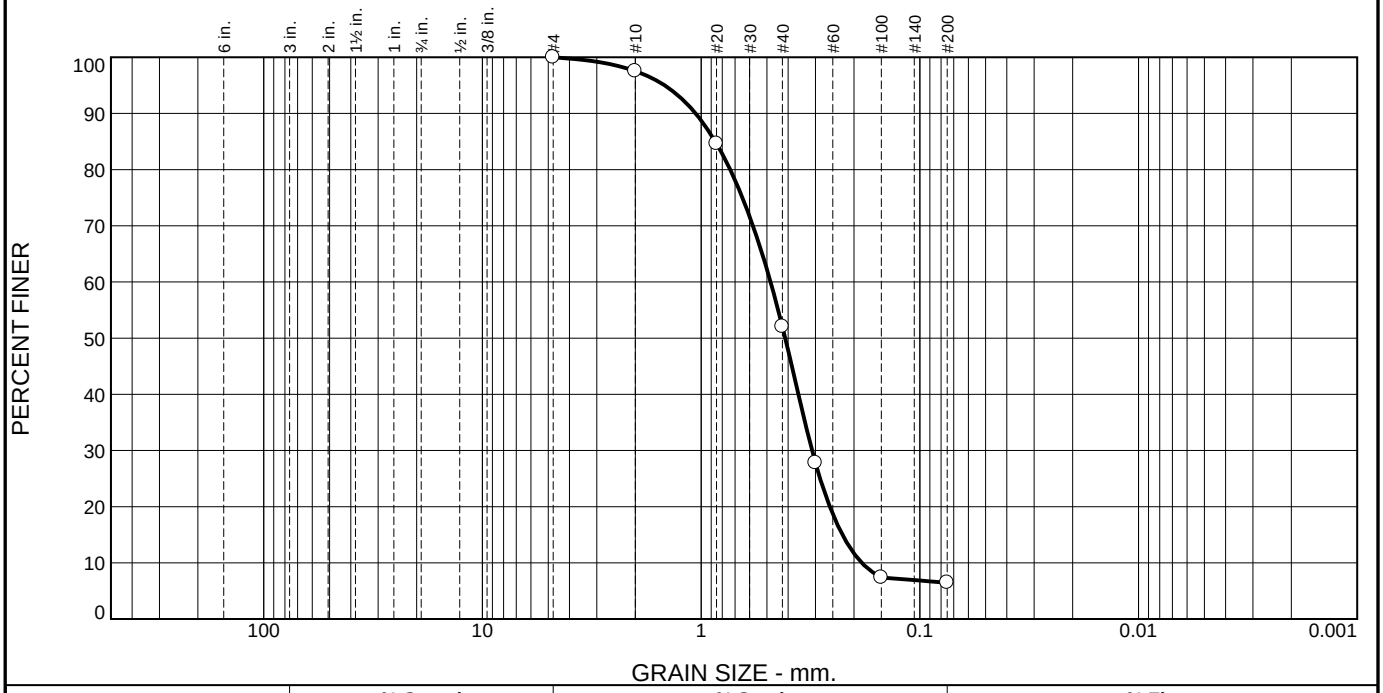
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 048

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.5	45.5	45.5	6.5	

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	97.5		
#20	84.6		
#40	52.0		
#50	27.8		
#100	7.4		
#200	6.5		

* (no specification provided)

Material Description

FINE-MEDIUM SAND, trace Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 1.0598 D_{85}= 0.8619 D_{60}= 0.4813
D_{50}= 0.4127 D_{30}= 0.3109 D_{15}= 0.2261
D_{10}= 0.1842 C_u= 2.61 C_c= 1.09

Remarks

Date Received: 10-3-14 **Date Tested:** 10-8-14

Tested By: Justin Sigouin

Checked By: John Turner

Title: President

Location: 31116-83
Sample Number: 14-1199

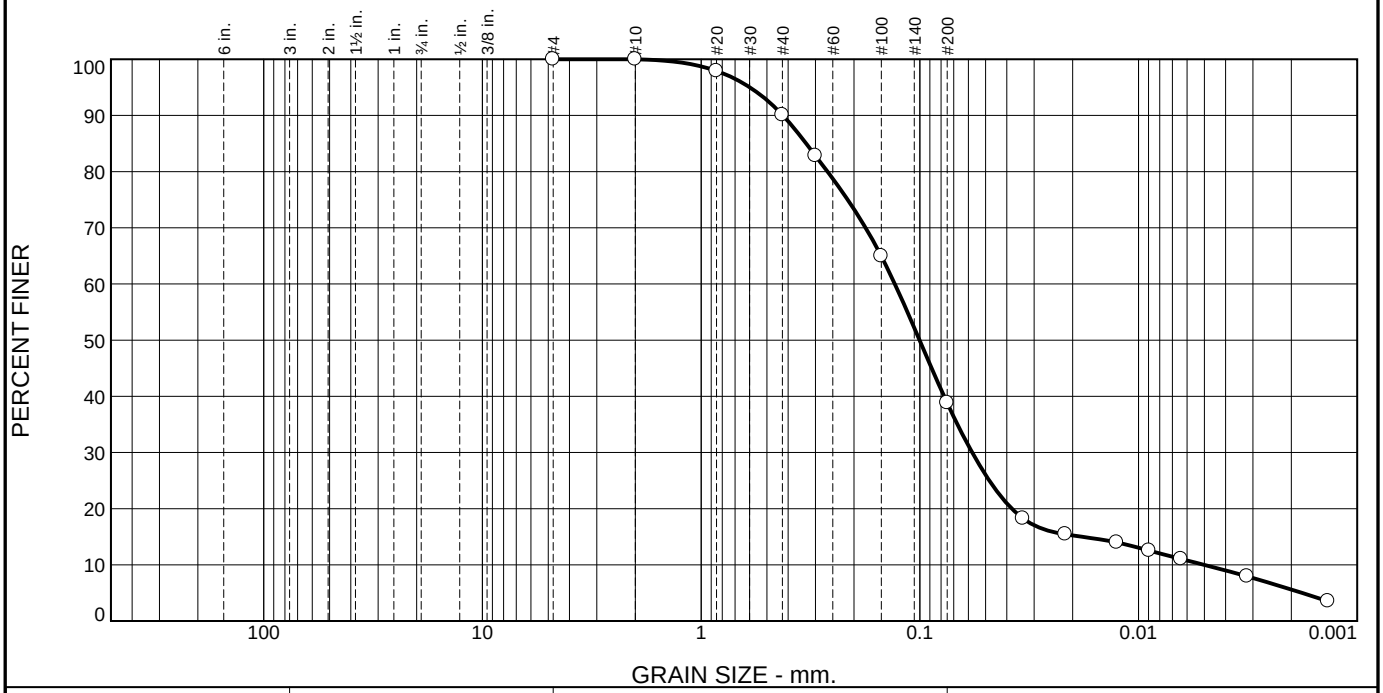
Date Sampled: 10-3-14

JTC CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION INC.

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 034

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.9	51.3	28.8	10.0

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	100.0		
#20	97.9		
#40	90.1		
#50	82.8		
#100	64.9		
#200	38.8		
0.0338 mm.	18.3		
0.0216 mm.	15.4		
0.0126 mm.	14.0		
0.0090 mm.	12.5		
0.0064 mm.	11.0		
0.0032 mm.	8.0		
0.0014 mm.	3.5		

* (no specification provided)

Material Description

FINE SAND, some Silt, little Clay

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.4230 D_{85}= 0.3310 D_{60}= 0.1301
D_{50}= 0.1003 D_{30}= 0.0576 D_{15}= 0.0181
D_{10}= 0.0050 C_u= 25.96 C_c= 5.09

Remarks

Date Received: 10-3-14 **Date Tested:** 10-17-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-84
Sample Number: 14-1200

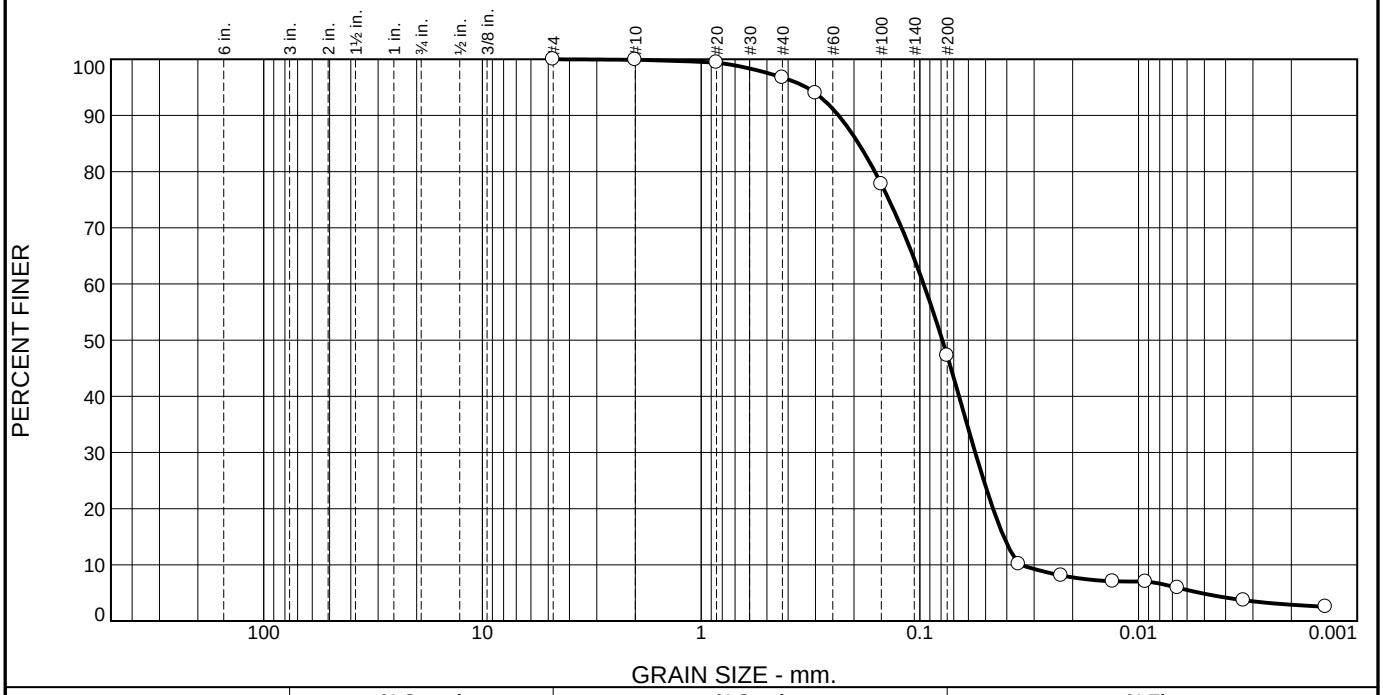
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 049

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	3.2	49.4	42.4	4.9

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.9		
#20	99.4		
#40	96.7		
#50	94.0		
#100	77.8		
#200	47.3		
0.0353 mm.	10.1		
0.0226 mm.	8.1		
0.0131 mm.	7.1		
0.0093 mm.	7.0		
0.0066 mm.	5.9		
0.0033 mm.	3.7		
0.0014 mm.	2.5		

* (no specification provided)

Material Description

FINE SAND and Silt, trace Clay

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.2352 D_{85}= 0.1904 D_{60}= 0.0961
D_{50}= 0.0788 D_{30}= 0.0558 D_{15}= 0.0413
D_{10}= 0.0345 C_u= 2.78 C_c= 0.94

Remarks

Date Received: 10-3-14 **Date Tested:** 10-17-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-85
Sample Number: 14-1201

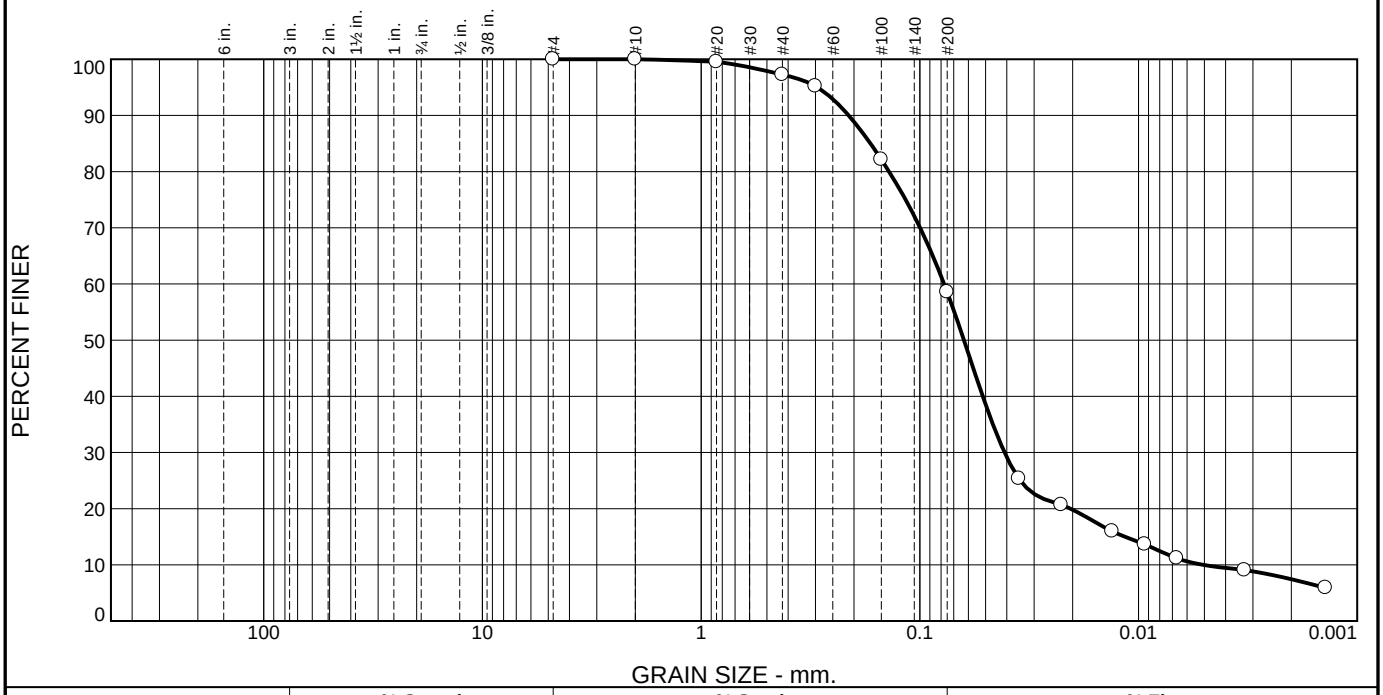
Date Sampled: 10-3-14

JTC INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 050

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.7	38.7	48.6	10.0

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	100.0		
#20	99.5		
#40	97.3		
#50	95.2		
#100	82.2		
#200	58.6		
0.0353 mm.	25.4		
0.0226 mm.	20.7		
0.0132 mm.	16.0		
0.0094 mm.	13.6		
0.0067 mm.	11.2		
0.0033 mm.	9.1		
0.0014 mm.	5.9		

* (no specification provided)

Material Description

Silt and Fine Sand, little Clay

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.2115 D_{85}= 0.1682 D_{60}= 0.0774
D_{50}= 0.0629 D_{30}= 0.0410 D_{15}= 0.0115
D_{10}= 0.0051 C_u= 15.25 C_c= 4.28

Remarks

Date Received: 10-3-14 **Date Tested:** 10-17-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-86
Sample Number: 14-1202

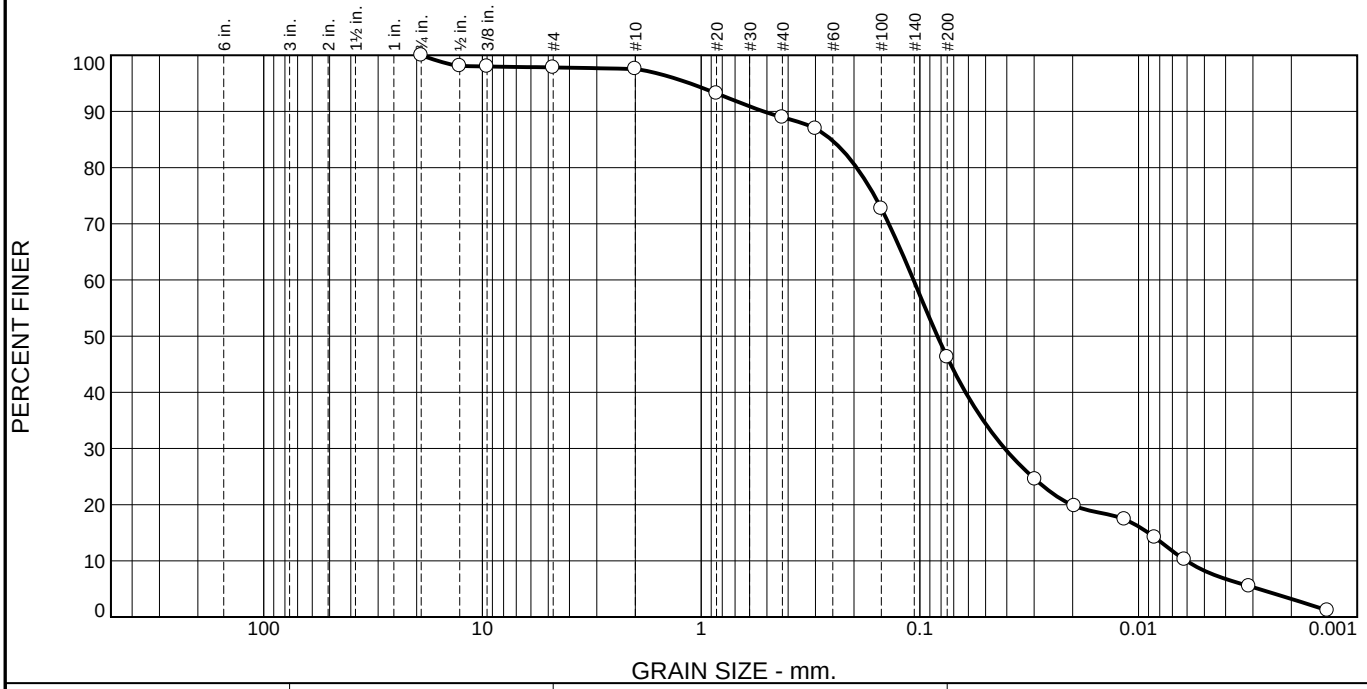
Date Sampled: 10-3-14

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 051

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.2	0.2	8.7	42.6	38.0	8.3

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
1/2	98.1		
3/8	98.0		
#4	97.8		
#10	97.6		
#20	93.2		
#40	88.9		
#50	86.9		
#100	72.7		
#200	46.3		
0.0297 mm.	24.5		
0.0197 mm.	19.8		
0.0116 mm.	17.4		
0.0084 mm.	14.2		
0.0062 mm.	10.2		
0.0031 mm.	5.5		
0.0014 mm.	1.2		

* (no specification provided)

Material Description

Fine Sand and Silt, trace Clay, trace Gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.5178 D_{85}= 0.2540 D_{60}= 0.1069
D_{50}= 0.0831 D_{30}= 0.0409 D_{15}= 0.0090
D_{10}= 0.0060 C_u= 17.69 C_c= 2.59

Remarks

Date Received: 10-3-14 **Date Tested:** 10-17-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-87
Sample Number: 14-1203

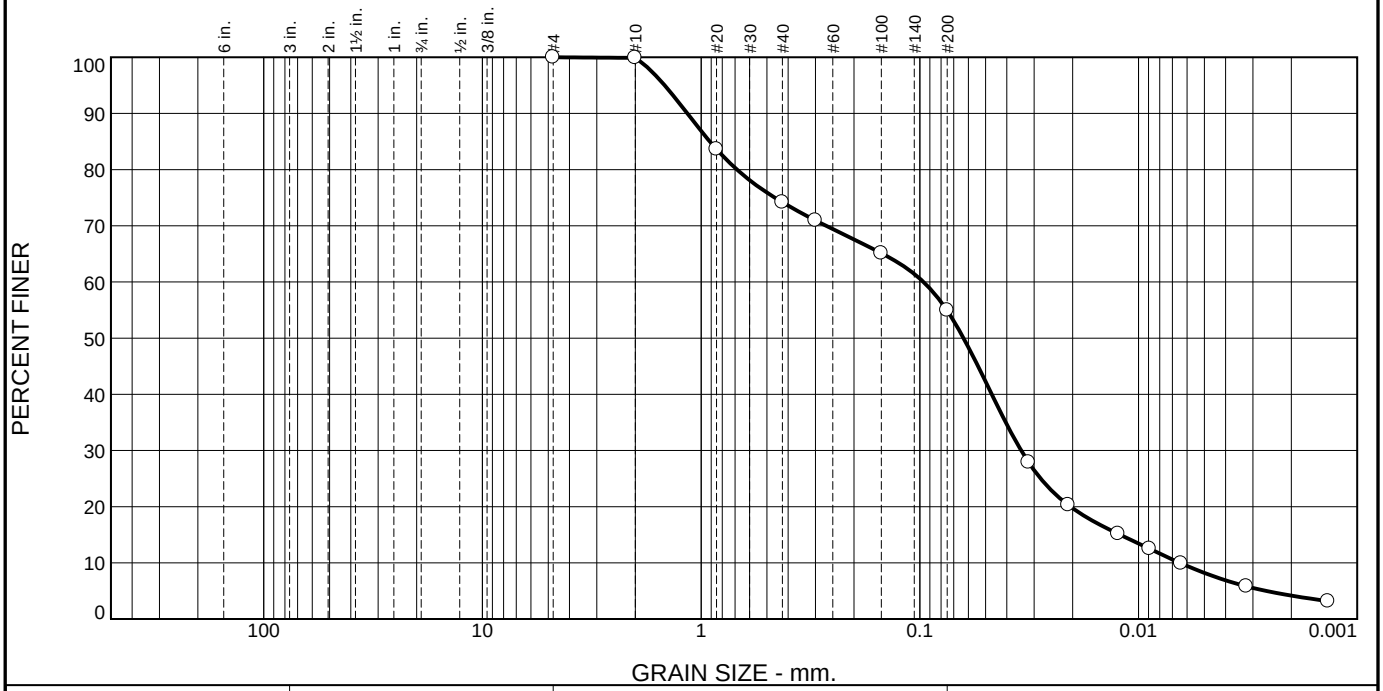
Date Sampled: 10-3-14

JTC INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 052

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	25.7	19.3	46.7	8.2

TEST RESULTS (ASTM D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.9		
#20	83.6		
#40	74.2		
#50	71.0		
#100	65.1		
#200	54.9		
0.0318 mm.	27.9		
0.0209 mm.	20.3		
0.0124 mm.	15.2		
0.0089 mm.	12.5		
0.0064 mm.	9.9		
0.0032 mm.	5.8		
0.0014 mm.	3.2		

* (no specification provided)

Material Description

Silt and Fine-Medium Sand, trace Clay

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 1.1558 D_{85}= 0.9125 D_{60}= 0.0962
D_{50}= 0.0631 D_{30}= 0.0344 D_{15}= 0.0121
D_{10}= 0.0065 C_u= 14.87 C_c= 1.90

Remarks

Date Received: 10-3-14 **Date Tested:** 10-17-14

Tested By: Jeff Young

Checked By: John Turner

Title: President

Location: 31116-88
Sample Number: 14-1204

Date Sampled: 10-3-14

JTC INC. CONSULTING TESTING INSPECTION GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resources
Project: Misc. Testing

Project No: 14-25-010 **Figure** 053

SUBCONTRACT ORDER

ERDC- EL-EP-C

4092606 31116

SENDING LABORATORY:

ERDC- EL-EP-C
3909 Halls Ferry Road , Building 3299
Vicksburg, MS 39180
Phone: 601-634-4826
Fax: 601-634-2742
Project Manager: Patty Tuminello

RECEIVING LABORATORY:

ARA
124 Heritage Ave, #16
Portsmouth, NH 03801
Phone :(603) 436-2001
Fax:

Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-1-0002-SEDCHEM				
Sample ID: 4092606-01	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	31116-01	
TOC	27-Oct-2014 00:00	21-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0205-SEDCHEM				
Sample ID: 4092606-02	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	02	
TOC	27-Oct-2014 00:00	21-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0507-SEDCHEM				
Sample ID: 4092606-03	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	03	
TOC	27-Oct-2014 00:00	21-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0002-SEDCHEM-AI				
Sample ID: 4092606-04	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	04	
TOC	27-Oct-2014 00:00	21-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0002-SEDCHEM-BI				
Sample ID: 4092606-05	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	05	
TOC	27-Oct-2014 00:00	21-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0205-SEDCHEM-BI				
Sample ID: 4092606-06	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	06	
TOC	27-Oct-2014 00:00	21-Oct-2014 09:31		
Containers Supplied:				

Released By	9-30-14 Date	Fed EX Received By	9/30/14 Date
FedEX Released By	~~9/30/14~~ 10/1/14 Date	Received By	10/1/14 Date

Rec'd on Ice @ 2°C

SUBCONTRACT ORDER

ERDC- EL-EP-C

4092606 31116

Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-1-0507-SEDCHEM-BI				
Sample ID: 4092606-07	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	07	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0002-SEDCHEM				
Sample ID: 4092606-08	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	08	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0205-SEDCHEM				
Sample ID: 4092606-09	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	09	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0507-SEDCHEM				
Sample ID: 4092606-10	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	10	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0002-SEDCHEM-AI				
Sample ID: 4092606-11	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	11	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0002-SEDCHEM-BI				
Sample ID: 4092606-12	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	12	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0205-SEDCHEM-BI				
Sample ID: 4092606-13	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	13	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0507-SEDCHEM-BI				
Sample ID: 4092606-14	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	14	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:05		
Containers Supplied:				

Released By	9-30-14 Date	FedEx Received By	9/30/14 Date
FedEx Released By	10/1/14 Date	Received By	10/1/14 Date

SUBCONTRACT ORDER

ERDC- EL-EP-C 31116

4092606

Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-3-0002-SEDCHEM				
Sample ID: 4092606-15	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	15	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0205-SEDCHEM				
Sample ID: 4092606-16	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	16	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0507-SEDCHEM				
Sample ID: 4092606-17	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	17	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0002-SEDCHEM-AI				
Sample ID: 4092606-18	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	18	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0002-SEDCHEM-BI				
Sample ID: 4092606-19	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	19	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0205-SEDCHEM-BI				
Sample ID: 4092606-20	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	20	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0507-SEDCHEM-BI				
Sample ID: 4092606-21	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	21	
TOC	27-Oct-2014 00:00	21-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-1-0002-GS				
Sample ID: 4092606-22	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	22	• •
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 09:31		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 09:31		
Containers Supplied:				

Released By	9-30-14 Date	Fed Ex Received By	9/30/14 Date
Fed Ex Released By	10/1/14 Date	Received By	10/1/14 Date

SUBCONTRACT ORDER

ERDC- EL-EP-C

4092606

3/11/6

Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-1-0205-GS				
Sample ID: 4092606-23	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	23	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 09:31		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0507-GS				
Sample ID: 4092606-24	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	24	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 09:31		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0002-GS-AI				
Sample ID: 4092606-25	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	25	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 09:31		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0002-GS-BI				
Sample ID: 4092606-26	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	26	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 09:31		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0205-GS-BI				
Sample ID: 4092606-27	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	27	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 09:31		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 09:31		
Containers Supplied:				
Sample Name: QT2-1-0507-GS-BI				
Sample ID: 4092606-28	**Soil/Sedir**	**Sampled:23-Sep-2014 09:31**	28	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 09:31		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 09:31		
Containers Supplied:				

Released By	9-30-14 Date	Fed Ex Received By	9/30/14 Date
Fed Ex Released By	10/1/14 Date	Received By	10/1/14 Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-2-0002-GS				
Sample ID: 4092606-29	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	29	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:05		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0205-GS				
Sample ID: 4092606-30	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	30	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:05		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0507-GS				
Sample ID: 4092606-31	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	31	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:05		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0002-GS-AI				
Sample ID: 4092606-32	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	32	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:05		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0002-GS-BI				
Sample ID: 4092606-33	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	33	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:05		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-2-0205-GS-BI				
Sample ID: 4092606-34	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	34	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:05		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:05		
Containers Supplied:				

Released By	9-30-14 Date	Fed Ex Received By	9/30/14 Date
Fed Ex Released By	10/1/14 Date	Received By	10/1/14 Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-2-0507-GS-BI				
Sample ID: 4092606-35	**Soil/Sedir**	**Sampled:23-Sep-2014 10:05**	35	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:05		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:05		
Containers Supplied:				
Sample Name: QT2-3-0002-GS				
Sample ID: 4092606-36	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	36	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:31		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0205-GS				
Sample ID: 4092606-37	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	37	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:31		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0507-GS				
Sample ID: 4092606-38	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	38	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:31		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0002-GS-AI				
Sample ID: 4092606-39	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	39	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:31		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0002-GS-BI				
Sample ID: 4092606-40	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	40	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:31		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:31		
Containers Supplied:				

Released By	9-30-14 Date	Fed Ex Received By	9/30/14 Date
Fed Ex Released By	10/1/14 Date	Received By	10/1/14 Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-3-0205-GS-BI				
Sample ID: 4092606-41	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	41	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:31		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-3-0507-GS-BI				
Sample ID: 4092606-42	**Soil/Sedir**	**Sampled:23-Sep-2014 10:31**	42	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 10:31		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 10:31		
Containers Supplied:				
Sample Name: QT2-4-0002-SEDCHEM				
Sample ID: 4092606-43	**Soil/Sedir**	**Sampled:23-Sep-2014 11:08**	43	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:08		
Containers Supplied:				
Sample Name: QT2-4-0205-SEDCHEM				
Sample ID: 4092606-44	**Soil/Sedir**	**Sampled:23-Sep-2014 11:08**	44	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:08		
Containers Supplied:				
Sample Name: QT2-4-0507-SEDCHEM				
Sample ID: 4092606-45	**Soil/Sedir**	**Sampled:23-Sep-2014 11:08**	45	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:08		
Containers Supplied:				
Sample Name: QT2-4-0002-SEDCHEM-AI				
Sample ID: 4092606-46	**Soil/Sedir**	**Sampled:23-Sep-2014 11:08**	46	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:08		
Containers Supplied:				
Sample Name: QT2-4-0002-SEDCHEM-BI				
Sample ID: 4092606-47	**Soil/Sedir**	**Sampled:23-Sep-2014 11:08**	47	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:08		
Containers Supplied:				

Released By	9-30-14 Date	Fed EX Received By	9/30/14 Date
Fed EX Released By	10/1/14 Date	Received By	10/1/14 Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-4-0205-SEDCHEM-BI				
Sample ID: 4092606-48	**Soil/Sedir**	**Sampled:23-Sep-2014 11:08**	48	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:08		
Containers Supplied:				
Sample Name: QT2-4-0507-SEDCHEM-BI				
Sample ID: 4092606-49	**Soil/Sedir**	**Sampled:23-Sep-2014 11:08**	49	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:08		
Containers Supplied:				
Sample Name: QT2-5-0002-SEDCHEM				
Sample ID: 4092606-50	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	50	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0205-SEDCHEM				
Sample ID: 4092606-51	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	51	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0507-SEDCHEM				
Sample ID: 4092606-52	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	52	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0002-SEDCHEM-AI				
Sample ID: 4092606-53	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	53	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0002-SEDCHEM-BI				
Sample ID: 4092606-54	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	54	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0205-SEDCHEM-BI				
Sample ID: 4092606-55	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	55	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				

Released By	9-30-14 Date	Fed Ex Received By	9/30/14 Date
Fedex Released By	~~9/30/14~~ 10/1/14 Date	Received By	10/1/14 Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-5-0507-SEDCHEM-BI				
Sample ID: 4092606-56	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	56	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0002-SEDCHEM				
Sample ID: 4092606-57	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	57	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0205-SEDCHEM				
Sample ID: 4092606-58	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	58	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0507-SEDCHEM				
Sample ID: 4092606-59	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	59	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0002-SEDCHEM-AI				
Sample ID: 4092606-60	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	60	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0002-SEDCHEM-BI				
Sample ID: 4092606-61	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	61	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0205-SEDCHEM-BI				
Sample ID: 4092606-62	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	62	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0507-SEDCHEM-BI				
Sample ID: 4092606-63	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	63	
TOC	27-Oct-2014 00:00	21-Oct-2014 11:50		
Containers Supplied:				

Released By	9-30-14 Date	Fed EX Received By	9/30/14 Date
Fed EX Released By	10/1/14 Date	Received By	10/1/14 Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-6-GRAB-SEDCHEM				
Sample ID: 4092606-64	**Soil/Sedir**	**Sampled:22-Sep-2014 12:15**	64	
TOC	27-Oct-2014 00:00	20-Oct-2014 12:15		
Containers Supplied:				
Sample Name: QT2-7-GRAB-SEDCHEM				
Sample ID: 4092606-65	**Soil/Sedir**	**Sampled:22-Sep-2014 11:36**	65	
TOC	27-Oct-2014 00:00	20-Oct-2014 11:36		
Containers Supplied:				
Sample Name: QT2-4-0002-GS				
Sample ID: 4092606-66	**Soil/Sedir**	**Sampled:23-Sep-2014 11:00**	66	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:00		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:00		
Containers Supplied:				
Sample Name: QT2-4-0205-GS				
Sample ID: 4092606-67	**Soil/Sedir**	**Sampled:23-Sep-2014 11:00**	67	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:00		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:00		
Containers Supplied:				
Sample Name: QT2-4-0507-GS				
Sample ID: 4092606-68	**Soil/Sedir**	**Sampled:23-Sep-2014 11:00**	68	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:00		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:00		
Containers Supplied:				
Sample Name: QT2-4-0002-GS-AI				
Sample ID: 4092606-69	**Soil/Sedir**	**Sampled:23-Sep-2014 11:00**	69	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:00		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:00		
Containers Supplied:				
Sample Name: QT2-4-0002-GS-BI				
Sample ID: 4092606-70	**Soil/Sedir**	**Sampled:23-Sep-2014 11:00**	70	
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:00		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:00		
Containers Supplied:				

Released By	Date	Received By	Date
	9-30-14	Fed EX	9/30/14
Fed EX	10/1/14		10/1/14
Released By	Date	Received By	Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-4-0205-GS-BI				
Sample ID: 4092606-71	**Soil/Sedir**	**Sampled:23-Sep-2014 11:00**	71	•
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:00		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:00		
Containers Supplied:				
Sample Name: QT2-4-0507-GS-BI				
Sample ID: 4092606-72	**Soil/Sedir**	**Sampled:23-Sep-2014 11:00**	72	•
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:00		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:00		
Containers Supplied:				
Sample Name: QT2-5-0002-GS				
Sample ID: 4092606-73	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	73	•
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0205-GS				
Sample ID: 4092606-74	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	74	•
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0507-GS				
Sample ID: 4092606-75	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	75	•
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0002-GS-AI				
Sample ID: 4092606-76	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	76	•
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				

Released By	9-30-14 Date	Fed EX Received By	9/30/14 Date
Fed EX Released By	10/1/14 Date	Received By	10/1/14 Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-5-0002-GS-BI				
Sample ID: 4092606-77	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	77	•
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0205-GS-BI				
Sample ID: 4092606-78	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	78	•
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5-0507-GS-BI				
Sample ID: 4092606-79	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	79	•
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0002-GS				
Sample ID: 4092606-80	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	80	•
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0205-GS				
Sample ID: 4092606-81	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	81	•
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0507-GS				
Sample ID: 4092606-82	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	82	•
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				

Released By	9-30-14 Date	Fed EX Received By	9/30/14 Date
Fed EX Released By	10/1/14 Date	Received By	10/1/14 Date

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Analysis	Due	Expires	Laboratory ID	Comments
Sample Name: QT2-5DUP-0002-GS-AI				
Sample ID: 4092606-83	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	83	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0002-GS-BI				
Sample ID: 4092606-84	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	84	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0205-GS-BI				
Sample ID: 4092606-85	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	85	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-5DUP-0507-GS-BI				
Sample ID: 4092606-86	**Soil/Sedir**	**Sampled:23-Sep-2014 11:50**	86	
Particle Size - Hydrometer	27-Sep-2014 00:00	23-Oct-2014 11:50		
Particle Size - Sieve	27-Sep-2014 00:00	23-Oct-2014 11:50		
Containers Supplied:				
Sample Name: QT2-6-GRAB-GS				
Sample ID: 4092606-87	**Soil/Sedir**	**Sampled:22-Sep-2014 12:15**	87	
Particle Size - Hydrometer	27-Sep-2014 00:00	22-Oct-2014 12:15		
Particle Size - Sieve	27-Sep-2014 00:00	22-Oct-2014 12:15		
Containers Supplied:				
Sample Name: QT2-7-GRAB-GS				
Sample ID: 4092606-88	**Soil/Sedir**	**Sampled:22-Sep-2014 11:36**	88	
Particle Size - Hydrometer	27-Sep-2014 00:00	22-Oct-2014 11:36		
Particle Size - Sieve	27-Sep-2014 00:00	22-Oct-2014 11:36		
Containers Supplied:				

Released By	9-30-14 Date	Fed EX Received By	9/30/14 Date
Fed EX Released By	10/1/14 Date	Received By	10/1/14 Date

USACE ERDC-EP-C
3909 Halls Ferry Road
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26 January 2016

Gunther Rosen
Navy -- SPAWAR
Environmental Science and Applied System Branch, 536(
San Diego, CA 92152

RE: Quantico

Enclosed are the results of analyses for samples received by the laboratory on 11-Sep-2015. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Dale Rosado, Ph. D.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
26-Jan-2016

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
QT12-1-0002-SEDCHEM	5091107-01	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-1-0205-SEDCHEM	5091107-02	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-1-0507-SEDCHEM	5091107-03	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-1-0002-SEDCHEM-AI	5091107-04	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-1-0002-SEDCHEM-BI	5091107-05	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-1-0205-SEDCHEM-BI	5091107-06	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-1-0507-SEDCHEM-BI	5091107-07	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-2-0002-SEDCHEM	5091107-08	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-2-0205-SEDCHEM	5091107-09	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-2-0507-SEDCHEM	5091107-10	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-2-0002-SEDCHEM-AI	5091107-11	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-2-0002-SEDCHEM-BI	5091107-12	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-2-0205-SEDCHEM-BI	5091107-13	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-2-0507-SEDCHEM-BI	5091107-14	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-3-0002-SEDCHEM	5091107-15	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-3-0205-SEDCHEM	5091107-16	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-3-0507-SEDCHEM	5091107-17	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-3-0002-SEDCHEM-AI	5091107-18	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-3-0002-SEDCHEM-BI	5091107-19	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-3-0205-SEDCHEM-BI	5091107-20	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-3-0507-SEDCHEM-BI	5091107-21	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-4-0002-SEDCHEM	5091107-43	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-4-0205-SEDCHEM	5091107-44	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-4-0507-SEDCHEM	5091107-45	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-4-0002-SEDCHEM-AI	5091107-46	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-4-0002-SEDCHEM-BI	5091107-47	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-4-0205-SEDCHEM-BI	5091107-48	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-4-0507-SEDCHEM-BI	5091107-49	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-5-0002-SEDCHEM	5091107-50	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-5-0205-SEDCHEM	5091107-51	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-5-0507-SEDCHEM	5091107-52	Soil/Sediment	09-Sep-2015	11-Sep-2015

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
26-Jan-2016

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
QT12-5-0002-SEDCHEM-AI	5091107-53	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-5-0002-SEDCHEM-BI	5091107-54	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-5-0205-SEDCHEM-BI	5091107-55	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-5-0507-SEDCHEM-BI	5091107-56	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-5DUP-0002-SEDCHEM	5091107-57	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-5DUP-0205-SEDCHEM	5091107-58	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-5DUP-0507-SEDCHEM	5091107-59	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-5DUP-0002-SEDCHEM-AI	5091107-60	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-5DUP-0002-SEDCHEM-BI	5091107-61	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-5DUP-0205-SEDCHEM-BI	5091107-62	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-5DUP-0507-SEDCHEM-BI	5091107-63	Soil/Sediment	09-Sep-2015	11-Sep-2015
QT12-6-GRAB-SEDCHEM	5091107-64	Soil/Sediment	10-Sep-2015	11-Sep-2015
QT12-7-GRAB-SEDCHEM	5091107-65	Soil/Sediment	10-Sep-2015	11-Sep-2015

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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

Case Narrative

For some samples, the primary and confirmation columns did not always agree within 40%. This primarily occured for 4,4-DDT. For these samples, the higher concentration was likely caused by an interference. Therefore, the lower value was reported per SW 846 guidelines.

Some samples had low recoveries for the TMX surrogate. Data was accepted based on acceptable recoveries of the decachlorobiphenyl surrogate.

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

Notes and Definitions

U	Analyte included in the analysis, but not detected
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate/s.
RPD-06	RPD exceeds acceptance limit.
RPD-04	RPD between primary and confirmation column values >40%. Per SW846 8000C, the lower result has been reported.
QM-11	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to inherent analyte concentration greater than the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
QM-08	Spike or surrogate was inadvertently left out of this sample.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
H	Sample was prepped or analyzed beyond the specified holding time
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-1-0002-SEDCHEM

5091107-01 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY_BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**510**	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**86.9**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**20.2**	0.07	0.21	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDE	**12.2**	0.07	0.21	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDT	**6.23**	0.07	0.21	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDD	**60.2**	0.07	0.21	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	**24.5**	0.07	0.21	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDT	**9.02**	0.07	0.21	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.03**		*68.5 %*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.00**		*67.5 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-1-0205-SEDCHEM

5091107-02 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**510**	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**85.6**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.98**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDE	ND	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
2,4´-DDT	ND	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**4.25**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	**0.96**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDT	ND	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.13**		*36.5 %*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	*S-GC*
Surrogate: Decachlorobiphenyl	**1.82**		*59.0 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-1-0507-SEDCHEM

5091107-03 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	ND	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**86.2**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.29**	0.07	0.21	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDE	**0.18**	0.07	0.21	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	J
2,4´-DDT	ND	0.07	0.21	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**1.41**	0.07	0.21	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	**0.40**	0.07	0.21	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDT	**0.11**	0.07	0.21	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.895**		*29.8 %*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	*S-GC*
Surrogate: Decachlorobiphenyl	**1.65**		*55.0 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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Navy -- SPAWAR
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San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
26-Jan-2016

QT12-1-0002-SEDCHEM-AI

5091107-04 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	ND	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**84.8**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.26**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDE	ND	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
2,4´-DDT	ND	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**1.39**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	**0.24**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDT	ND	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**ND**		*%*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	*S-GC, U*
Surrogate: Decachlorobiphenyl	**1.55**		*50.0 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-1-0002-SEDCHEM-BI

5091107-05 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ARA					
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**1500**	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Solids	**81.6**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.07	0.23	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
2,4´-DDE	ND	0.07	0.23	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
2,4´-DDT	ND	0.07	0.23	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**0.24**	0.07	0.23	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	ND	0.07	0.23	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDT	ND	0.07	0.23	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.725**		*22.8 %*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	*S-GC*
Surrogate: Decachlorobiphenyl	**1.67**		*52.5 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
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San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-1-0205-SEDCHEM-BI

5091107-06 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ARA					
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**5200**	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Solids	**74.4**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**5.52**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDE	**4.14**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDT	ND	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**38.0**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	**5.43**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDT	**8.71**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.30**		*37.4 %*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	*S-GC*
Surrogate: Decachlorobiphenyl	**2.01**		*58.0 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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Project: Quantico

Project Manager: Gunther Rosen

Reported:
26-Jan-2016

QT12-1-0507-SEDCHEM-BI

5091107-07 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**4200**	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**73.9**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**12.6**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDE	**7.21**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDT	ND	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**64.3**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	**15.0**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDT	**3.39**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.32**		*37.5 %*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	*S-GC*
Surrogate: Decachlorobiphenyl	**2.47**		*70.0 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-2-0002-SEDCHEM

5091107-08 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ARA					
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**710**	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Solids	**85.1**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**30.2**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDE	**15.2**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDT	ND	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**434**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	**23.2**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDT	**6.25**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.57**		*51.5 %*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.16**		*71.0 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-2-0205-SEDCHEM

5091107-09 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	ND	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**85.3**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**1.60**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDE	**0.68**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDT	ND	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**6.66**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	**0.93**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDT	ND	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.67**		*54.5 %*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.75**		*57.0 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-2-0507-SEDCHEM

5091107-10 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	ND	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**88.0**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.70**	0.07	0.21	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDE	**0.27**	0.07	0.21	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDT	ND	0.07	0.21	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**2.83**	0.07	0.21	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	**0.39**	0.07	0.21	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDT	ND	0.07	0.21	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.757**		*25.2 %*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	*S-GC*
Surrogate: Decachlorobiphenyl	**1.54**		*51.5 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-2-0002-SEDCHEM-AI

5091107-11 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	ND	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**84.4**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
2,4´-DDE	ND	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
2,4´-DDT	ND	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**0.35**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	ND	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDT	ND	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.557**		*17.7 %*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	*S-GC*
Surrogate: Decachlorobiphenyl	**1.52**		*48.3 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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QT12-2-0002-SEDCHEM-BI

5091107-12 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**4800**	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**75.9**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**12.3**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDE	**6.09**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDT	ND	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**59.5**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	**8.23**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDT	**2.28**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.60**		*45.7 %*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.06**		*59.0 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
26-Jan-2016

QT12-2-0205-SEDCHEM-BI

5091107-13 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**8100**	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**76.2**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**3.06**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDE	**1.21**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDT	ND	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**14.1**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	**2.50**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDT	ND	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**ND**		*%*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	*QM-08, U*
Surrogate: Decachlorobiphenyl	**ND**		*%*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	*QM-08, U*

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QT12-2-0507-SEDCHEM-BI

5091107-14 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ARA					
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**5800**	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Solids	**74.5**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**12.4**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDE	**5.39**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDT	ND	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**62.1**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	**14.5**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDT	**15.5**	0.08	0.25	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.83**		*52.5 %*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.61**		*46.0 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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5091107-15 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**2700**	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**75.3**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**61.9**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDE	**22.3**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDT	ND	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**254**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	**38.6**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDT	**16.3**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.97**		*57.5 %*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.42**		*70.5 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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5091107-16 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ARA					
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**1600**	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Solids	**80.6**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**36.6**	0.07	0.23	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDE	**15.8**	0.07	0.23	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDT	ND	0.07	0.23	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**133**	0.07	0.23	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	**22.6**	0.07	0.23	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDT	**13.3**	0.07	0.23	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.77**		*54.5 %*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.20**		*67.5 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

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5091107-17 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ARA					
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**1500**	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Solids	**79.3**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**34.9**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDE	**15.1**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDT	ND	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**134**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	**26.3**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDT	**30.0**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.02**		*61.0 %*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.33**		*70.5 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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5091107-18 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**300**	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**84.2**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.41**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDE	**0.21**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	J
2,4´-DDT	ND	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**1.75**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	**0.37**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDT	**0.31**	0.07	0.22	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.50**		*47.6 %*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.89**		*60.0 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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5091107-19 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ARA					
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**1300**	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Solids	**78.5**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**42.3**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDE	**13.3**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDT	ND	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**182**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	**26.2**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDT	**6.59**	0.08	0.24	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.19**		*66.0 %*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.24**		*67.5 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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5091107-20 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ARA					
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**4600**	67	250	mg/Kg		02-Oct-2015	WALKLEY BLACK	
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Solids	**72.4**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**51.2**	0.08	0.26	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDE	**19.1**	0.08	0.26	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
2,4´-DDT	ND	0.08	0.26	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	U
4,4´-DDD	**275**	0.08	0.26	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDE	**43.4**	0.08	0.26	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
4,4´-DDT	**10.5**	0.08	0.26	ug/kg dry	18-Sep-2015	20-Oct-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.35**		*64.5 %*	*40-125*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.90**		*79.5 %*	*40-130*	*18-Sep-2015*	*20-Oct-2015*	*EPA 8081A*	

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5091107-21 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ARA					
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**8300**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Solids	**66.7**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**47.2**	0.09	0.28	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
2,4´-DDE	**25.0**	0.09	0.28	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
2,4´-DDT	ND	0.09	0.28	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	U
4,4´-DDD	**231**	0.09	0.28	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
4,4´-DDE	**54.4**	0.09	0.28	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
4,4´-DDT	**11.9**	0.09	0.28	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.71**		*68.5 %*	*40-125*	*23-Sep-2015*	*23-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.23**		*56.5 %*	*40-130*	*23-Sep-2015*	*23-Nov-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-4-0002-SEDCHEM

5091107-43 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ARA					
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**1000**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Solids	**86.1**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**1.02**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
2,4´-DDE	ND	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	U
2,4´-DDT	ND	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	U
4,4´-DDD	**4.43**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
4,4´-DDE	**1.13**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
4,4´-DDT	**0.53**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.37**		*44.8 %*	*40-125*	*23-Sep-2015*	*23-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.62**		*53.0 %*	*40-130*	*23-Sep-2015*	*23-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-4-0205-SEDCHEM

5091107-44 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**1400**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**85.0**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**1.12**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
2,4´-DDE	**0.56**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
2,4´-DDT	ND	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	U
4,4´-DDD	**5.36**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
4,4´-DDE	**1.37**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
4,4´-DDT	**0.57**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.95**		*63.0 %*	*40-125*	*23-Sep-2015*	*23-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.95**		*63.0 %*	*40-130*	*23-Sep-2015*	*23-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-4-0507-SEDCHEM

5091107-45 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**810**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**86.4**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**1.13**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
2,4´-DDE	**0.55**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
2,4´-DDT	ND	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	U
4,4´-DDD	**4.73**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
4,4´-DDE	**1.32**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
4,4´-DDT	**1.32**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.46**		*81.5 %*	*40-125*	*23-Sep-2015*	*23-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.12**		*70.0 %*	*40-130*	*23-Sep-2015*	*23-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
26-Jan-2016

QT12-4-0002-SEDCHEM-AI

5091107-46 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	ND	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**86.1**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	U
2,4´-DDE	ND	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	U
2,4´-DDT	ND	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	U
4,4´-DDD	**0.08**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	J
4,4´-DDE	ND	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	U
4,4´-DDT	ND	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.23**		*40.3 %*	*40-125*	*23-Sep-2015*	*23-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.39**		*45.4 %*	*40-130*	*23-Sep-2015*	*23-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
26-Jan-2016

QT12-4-0002-SEDCHEM-BI

5091107-47 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**7800**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**59.2**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**11.4**	0.10	0.32	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
2,4´-DDE	**4.84**	0.10	0.32	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
2,4´-DDT	ND	0.10	0.32	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	U
4,4´-DDD	**64.1**	0.10	0.32	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
4,4´-DDE	**26.4**	0.10	0.32	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
4,4´-DDT	**9.41**	0.10	0.32	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.53**		*57.0 %*	*40-125*	*23-Sep-2015*	*23-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.66**		*82.5 %*	*40-130*	*23-Sep-2015*	*23-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
26-Jan-2016

QT12-4-0205-SEDCHEM-BI

5091107-48 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**11000**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**54.9**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**13.9**	0.11	0.34	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
2,4´-DDE	ND	0.11	0.34	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	U
2,4´-DDT	ND	0.11	0.34	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	U
4,4´-DDD	**73.9**	0.11	0.34	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
4,4´-DDE	**31.9**	0.11	0.34	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
4,4´-DDT	**4.28**	0.11	0.34	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.81**		*58.5 %*	*40-125*	*23-Sep-2015*	*23-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.86**		*59.5 %*	*40-130*	*23-Sep-2015*	*23-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-4-0507-SEDCHEM-BI

5091107-49 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ARA					
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**9900**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Solids	**58.1**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**17.6**	0.10	0.32	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
2,4´-DDE	**8.91**	0.10	0.32	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
2,4´-DDT	**0.21**	0.10	0.32	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	J
4,4´-DDD	**90.6**	0.10	0.32	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
4,4´-DDE	**27.5**	0.10	0.32	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
4,4´-DDT	**5.09**	0.10	0.32	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.39**		*53.5 %*	*40-125*	*23-Sep-2015*	*23-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.43**		*54.5 %*	*40-130*	*23-Sep-2015*	*23-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-5-0002-SEDCHEM

5091107-50 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ARA					
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**940**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Solids	**84.1**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.61**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
2,4´-DDE	ND	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	U
2,4´-DDT	ND	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	U
4,4´-DDD	**2.36**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
4,4´-DDE	**1.00**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	
4,4´-DDT	**0.49**	0.07	0.22	ug/kg dry	23-Sep-2015	23-Nov-2015	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.33**		*43.1 %*	*40-125*	*23-Sep-2015*	*23-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.71**		*55.5 %*	*40-130*	*23-Sep-2015*	*23-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-5-0205-SEDCHEM

5091107-51 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ARA					
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**670**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Solids	**84.3**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.46**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDE	ND	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	U
2,4´-DDT	ND	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	U
4,4´-DDD	**1.87**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDE	**0.79**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDT	**0.47**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.52**		*48.5 %*	*40-125*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.91**		*61.0 %*	*40-130*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-5-0507-SEDCHEM

5091107-52 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**470**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**84.5**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.10**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	J
2,4´-DDE	ND	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	U
2,4´-DDT	ND	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	U
4,4´-DDD	**0.67**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDE	**0.27**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDT	**0.47**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.28**		*41.4 %*	*40-125*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.70**		*55.0 %*	*40-130*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-5-0002-SEDCHEM-AI

5091107-53 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ARA					
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**600**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Solids	**82.1**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.89**	0.07	0.23	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDE	**0.47**	0.07	0.23	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDT	ND	0.07	0.23	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	U
4,4´-DDD	**4.00**	0.07	0.23	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDE	**1.19**	0.07	0.23	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDT	**0.57**	0.07	0.23	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.45**		*45.5 %*	*40-125*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.93**		*60.5 %*	*40-130*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-5-0002-SEDCHEM-BI

5091107-54 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ARA					
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**7900**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Solids	**65.8**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**12.7**	0.09	0.29	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDE	**8.03**	0.09	0.29	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDT	**0.95**	0.09	0.29	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDD	**77.6**	0.09	0.29	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDE	**39.1**	0.09	0.29	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDT	**13.2**	0.09	0.29	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.08**		*51.5 %*	*40-125*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.48**		*61.5 %*	*40-130*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-5-0205-SEDCHEM-BI

5091107-55 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**7900**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**64.8**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**35.2**	0.09	0.29	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDE	**16.3**	0.09	0.29	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDT	**0.75**	0.09	0.29	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDD	**125**	0.09	0.29	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDE	**37.4**	0.09	0.29	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDT	**13.5**	0.09	0.29	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.21**		*55.0 %*	*40-125*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.25**		*56.0 %*	*40-130*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
26-Jan-2016

QT12-5-0507-SEDCHEM-BI

5091107-56 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**8100**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**64.2**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**70.8**	0.09	0.29	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDE	**34.7**	0.09	0.29	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDT	**2.25**	0.09	0.29	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDD	**788**	0.09	0.29	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDE	**70.0**	0.09	0.29	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDT	**75.0**	0.09	0.29	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.51**		*62.5 %*	*40-125*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.41**		*60.0 %*	*40-130*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-5DUP-0002-SEDCHEM

5091107-57 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**400**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**85.3**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**1.80**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDE	ND	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	U
2,4´-DDT	ND	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	U
4,4´-DDD	**6.81**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDE	**1.74**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDT	**0.65**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.42**		*46.0 %*	*40-125*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.29**		*74.5 %*	*40-130*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-5DUP-0205-SEDCHEM

5091107-58 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**940**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**85.1**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.39**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDE	ND	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	U
2,4´-DDT	ND	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	U
4,4´-DDD	**1.55**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDE	**0.94**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDT	**0.45**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.48**		*49.2 %*	*40-125*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.86**		*61.5 %*	*40-130*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-5DUP-0507-SEDCHEM

5091107-59 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**670**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**84.8**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.38**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDE	ND	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	U
2,4´-DDT	ND	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	U
4,4´-DDD	**1.41**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDE	**0.64**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDT	**0.40**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.69**		*54.0 %*	*40-125*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.90**		*61.0 %*	*40-130*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-5DUP-0002-SEDCHEM-AI

5091107-60 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**270**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**83.8**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.28**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDE	**0.16**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	J
2,4´-DDT	ND	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	U
4,4´-DDD	**1.06**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDE	**0.30**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDT	**0.36**	0.07	0.22	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.03**		*33.3 %*	*40-125*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	*S-GC*
Surrogate: Decachlorobiphenyl	**1.42**		*45.8 %*	*40-130*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-5DUP-0002-SEDCHEM-BI

5091107-61 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**7700**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**62.9**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**8.32**	0.10	0.30	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDE	**3.42**	0.10	0.30	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDT	**0.36**	0.10	0.30	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDD	**34.8**	0.10	0.30	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDE	**14.8**	0.10	0.30	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDT	**3.88**	0.10	0.30	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.48**		*35.4 %*	*40-125*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	*S-GC*
Surrogate: Decachlorobiphenyl	**1.93**		*46.1 %*	*40-130*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-5DUP-0205-SEDCHEM-BI

5091107-62 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**8500**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**63.1**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**40.5**	0.09	0.30	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDE	**16.9**	0.09	0.30	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDT	**0.84**	0.09	0.30	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDD	**177**	0.09	0.30	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDE	**47.6**	0.09	0.30	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDT	**10.6**	0.09	0.30	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.87**		*69.0 %*	*40-125*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.58**		*62.0 %*	*40-130*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-5DUP-0507-SEDCHEM-BI

5091107-63 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**9000**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**62.8**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**45.8**	0.09	0.30	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDE	**22.6**	0.09	0.30	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDT	**0.85**	0.09	0.30	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDD	**550**	0.09	0.30	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDE	**45.2**	0.09	0.30	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDT	**24.4**	0.09	0.30	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.58**		*62.0 %*	*40-125*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.42**		*58.0 %*	*40-130*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

QT12-6-GRAB-SEDCHEM

5091107-64 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**7500**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**38.5**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.16	0.49	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	U
2,4´-DDE	**0.20**	0.16	0.49	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	J
2,4´-DDT	ND	0.16	0.49	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	U
4,4´-DDD	**8.97**	0.16	0.49	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDE	**5.72**	0.16	0.49	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDT	**2.98**	0.16	0.49	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.49**		*51.0 %*	*40-125*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**5.21**		*76.0 %*	*40-130*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
26-Jan-2016

QT12-7-GRAB-SEDCHEM

5091107-65 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ARA								
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**8600**	67	250	mg/Kg		09-Oct-2015	WALKLEY BLACK	H
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**36.7**	0.500	0.500	% Solids	20-Oct-2015	20-Oct-2015	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**2.85**	0.16	0.50	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
2,4´-DDE	ND	0.16	0.50	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	U
2,4´-DDT	ND	0.16	0.50	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	U
4,4´-DDD	**13.6**	0.16	0.50	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDE	**7.71**	0.16	0.50	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
4,4´-DDT	**2.75**	0.16	0.50	ug/kg dry	23-Sep-2015	27-Nov-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**4.31**		*61.5 %*	*40-125*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**5.64**		*80.5 %*	*40-130*	*23-Sep-2015*	*27-Nov-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B510014 - EPA 3545											
Blank (B510014-BLK1)					Prepared: 18-Sep-2015 Analyzed: 20-Oct-2015						
2,4´-DDD	ND	0.06	0.19	ug/kg wet							U
2,4´-DDE	ND	0.06	0.19	ug/kg wet							U
2,4´-DDT	ND	0.06	0.19	ug/kg wet							U
4,4´-DDD	ND	0.06	0.19	ug/kg wet							U
4,4´-DDE	ND	0.06	0.19	ug/kg wet							U
4,4´-DDT	ND	0.06	0.19	ug/kg wet							U
LCS (B510014-BS1)					Prepared: 18-Sep-2015 Analyzed: 20-Oct-2015						
2,4´-DDD	4.3	0.06	0.19	ug/kg wet	6.667		64.0	40-125			
2,4´-DDE	4.5	0.06	0.19	ug/kg wet	6.667		68.2	40-125			
2,4´-DDT	4.4	0.06	0.19	ug/kg wet	6.667		66.0	40-125			
4,4´-DDD	4.7	0.06	0.19	ug/kg wet	6.667		70.0	40-125			
4,4´-DDE	4.6	0.06	0.19	ug/kg wet	6.667		68.8	40-125			
4,4´-DDT	4.5	0.06	0.19	ug/kg wet	6.667		67.2	45-125			
LCS Dup (B510014-BSD1)					Prepared: 18-Sep-2015 Analyzed: 20-Oct-2015						
2,4´-DDD	3.9	0.06	0.19	ug/kg wet	6.667		58.4	40-125	9.15	30	
2,4´-DDE	3.5	0.06	0.19	ug/kg wet	6.667		52.6	40-125	25.8	30	
2,4´-DDT	3.5	0.06	0.19	ug/kg wet	6.667		53.0	40-125	21.8	30	
4,4´-DDD	3.8	0.06	0.19	ug/kg wet	6.667		56.8	40-125	20.8	30	
4,4´-DDE	3.4	0.06	0.19	ug/kg wet	6.667		51.4	40-125	29.0	30	
4,4´-DDT	3.6	0.06	0.19	ug/kg wet	6.667		54.4	45-125	21.1	30	
Matrix Spike (B510014-MS1)		**Source: 5091107-06**			Prepared: 02-Oct-2015 Analyzed: 30-Nov-2015						
2,4´-DDD	99.3	0.12	0.37	ug/kg dry	13.04	5.5	720	40-125			
2,4´-DDE	18.6	0.12	0.37	ug/kg dry	13.04	4.1	111	40-125			
2,4´-DDT	2.7	0.12	0.37	ug/kg dry	13.04	ND	20.7	40-125			
4,4´-DDD	322	0.12	0.37	ug/kg dry	13.04	38.0	NR	40-125			QM-11
4,4´-DDE	65.4	0.12	0.37	ug/kg dry	13.04	5.4	460	40-125			
4,4´-DDT	34.7	0.12	0.37	ug/kg dry	13.04	8.7	199	45-125			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B510014 - EPA 3545											
Matrix Spike Dup (B510014-MSD1)	**Source: 5091107-06**				Prepared: 02-Oct-2015 Analyzed: 30-Nov-2015						
2,4´-DDD	29.0	0.12	0.37	ug/kg dry	12.81	5.5	183	40-125	110	30	
2,4´-DDE	17.5	0.12	0.37	ug/kg dry	12.81	4.1	104	40-125	5.88	30	
2,4´-DDT	11.6	0.12	0.37	ug/kg dry	12.81	ND	90.4	40-125	124	30	
4,4´-DDD	122	0.12	0.37	ug/kg dry	12.81	38.0	656	40-125	90.0	30	
4,4´-DDE	42.5	0.12	0.37	ug/kg dry	12.81	5.4	290	40-125	42.4	30	
4,4´-DDT	21.9	0.12	0.37	ug/kg dry	12.81	8.7	103	45-125	45.3	30	
Batch B510038 - EPA 3545											
Blank (B510038-BLK1)					Prepared: 23-Sep-2015 Analyzed: 27-Nov-2015						
2,4´-DDD	ND	0.06	0.19	ug/kg wet							U
2,4´-DDE	ND	0.06	0.19	ug/kg wet							U
2,4´-DDT	ND	0.06	0.19	ug/kg wet							U
4,4´-DDD	ND	0.06	0.19	ug/kg wet							U
4,4´-DDE	ND	0.06	0.19	ug/kg wet							U
4,4´-DDT	ND	0.06	0.19	ug/kg wet							U
Blank (B510038-BLK2)					Prepared: 23-Sep-2015 Analyzed: 27-Nov-2015						
2,4´-DDD	ND	0.06	0.19	ug/kg wet							U
2,4´-DDE	ND	0.06	0.19	ug/kg wet							U
2,4´-DDT	ND	0.06	0.19	ug/kg wet							U
4,4´-DDD	ND	0.06	0.19	ug/kg wet							U
4,4´-DDE	ND	0.06	0.19	ug/kg wet							U
4,4´-DDT	ND	0.06	0.19	ug/kg wet							U
LCS (B510038-BS2)					Prepared: 23-Sep-2015 Analyzed: 27-Nov-2015						
2,4´-DDD	4.3	0.06	0.19	ug/kg wet	6.667		64.0	40-125			
2,4´-DDE	4.7	0.06	0.19	ug/kg wet	6.667		70.2	40-125			
2,4´-DDT	4.9	0.06	0.19	ug/kg wet	6.667		73.6	40-125			
4,4´-DDD	4.7	0.06	0.19	ug/kg wet	6.667		70.0	40-125			
4,4´-DDE	4.7	0.06	0.19	ug/kg wet	6.667		71.0	40-125			
4,4´-DDT	4.7	0.06	0.19	ug/kg wet	6.667		70.6	45-125			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B510038 - EPA 3545											
LCS (B510038-BS3)					Prepared: 23-Sep-2015 Analyzed: 27-Nov-2015						
2,4´-DDD	4.3	0.06	0.19	ug/kg wet	6.667		64.8	40-125			
2,4´-DDE	4.2	0.06	0.19	ug/kg wet	6.667		62.8	40-125			
2,4´-DDT	4.8	0.06	0.19	ug/kg wet	6.667		72.6	40-125			
4,4´-DDD	4.6	0.06	0.19	ug/kg wet	6.667		69.0	40-125			
4,4´-DDE	4.4	0.06	0.19	ug/kg wet	6.667		66.4	40-125			
4,4´-DDT	4.6	0.06	0.19	ug/kg wet	6.667		69.0	45-125			
LCS Dup (B510038-BSD2)					Prepared: 23-Sep-2015 Analyzed: 27-Nov-2015						
2,4´-DDD	4.7	0.06	0.19	ug/kg wet	6.667		71.2	40-125	10.7	30	
2,4´-DDE	4.9	0.06	0.19	ug/kg wet	6.667		73.6	40-125	4.73	30	
2,4´-DDT	5.3	0.06	0.19	ug/kg wet	6.667		79.2	40-125	7.33	30	
4,4´-DDD	4.9	0.06	0.19	ug/kg wet	6.667		73.4	40-125	4.74	30	
4,4´-DDE	4.9	0.06	0.19	ug/kg wet	6.667		73.8	40-125	3.87	30	
4,4´-DDT	5.1	0.06	0.19	ug/kg wet	6.667		76.2	45-125	7.63	30	
LCS Dup (B510038-BSD3)					Prepared: 23-Sep-2015 Analyzed: 27-Nov-2015						
2,4´-DDD	4.3	0.06	0.19	ug/kg wet	6.667		64.6	40-125	0.309	30	
2,4´-DDE	4.2	0.06	0.19	ug/kg wet	6.667		63.6	40-125	1.27	30	
2,4´-DDT	4.6	0.06	0.19	ug/kg wet	6.667		68.6	40-125	5.67	30	
4,4´-DDD	4.5	0.06	0.19	ug/kg wet	6.667		67.4	40-125	2.35	30	
4,4´-DDE	4.3	0.06	0.19	ug/kg wet	6.667		64.4	40-125	3.06	30	
4,4´-DDT	4.6	0.06	0.19	ug/kg wet	6.667		68.6	45-125	0.581	30	
Matrix Spike (B510038-MS1)		**Source: 5091107-45**			Prepared: 23-Sep-2015 Analyzed: 27-Nov-2015						
2,4´-DDD	9.4	0.10	0.32	ug/kg dry	11.15	1.1	74.4	40-125			
2,4´-DDE	8.8	0.10	0.32	ug/kg dry	11.15	0.6	74.3	40-125			
2,4´-DDT	8.9	0.10	0.32	ug/kg dry	11.15	ND	79.8	40-125			
4,4´-DDD	14.2	0.10	0.32	ug/kg dry	11.15	4.7	85.0	40-125			
4,4´-DDE	10.7	0.10	0.32	ug/kg dry	11.15	1.3	84.4	40-125			
4,4´-DDT	10.5	0.10	0.32	ug/kg dry	11.15	1.3	82.3	45-125			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B510038 - EPA 3545											
Matrix Spike (B510038-MS2)	**Source: 5091107-59**				Prepared: 23-Sep-2015 Analyzed: 27-Nov-2015						
2,4´-DDD	8.2	0.11	0.33	ug/kg dry	11.57	0.4	67.7	40-125			
2,4´-DDE	7.7	0.11	0.33	ug/kg dry	11.57	ND	66.6	40-125			
2,4´-DDT	8.5	0.11	0.33	ug/kg dry	11.57	ND	73.2	40-125			
4,4´-DDD	10.7	0.11	0.33	ug/kg dry	11.57	1.4	80.2	40-125			
4,4´-DDE	9.9	0.11	0.33	ug/kg dry	11.57	0.6	79.9	40-125			
4,4´-DDT	8.8	0.11	0.33	ug/kg dry	11.57	0.4	72.3	45-125			
Matrix Spike Dup (B510038-MSD1)	**Source: 5091107-45**				Prepared: 23-Sep-2015 Analyzed: 27-Nov-2015						
2,4´-DDD	9.7	0.10	0.31	ug/kg dry	11.02	1.1	77.9	40-125	3.02	30	
2,4´-DDE	9.3	0.10	0.31	ug/kg dry	11.02	0.6	79.2	40-125	4.97	30	
2,4´-DDT	8.9	0.10	0.31	ug/kg dry	11.02	ND	80.6	40-125	0.152	30	
4,4´-DDD	20.0	0.10	0.31	ug/kg dry	11.02	4.7	138	40-125	33.6	30	RPD-06
4,4´-DDE	10.9	0.10	0.31	ug/kg dry	11.02	1.3	87.0	40-125	1.72	30	
4,4´-DDT	9.8	0.10	0.31	ug/kg dry	11.02	1.3	77.0	45-125	6.83	30	
Matrix Spike Dup (B510038-MSD2)	**Source: 5091107-59**				Prepared: 23-Sep-2015 Analyzed: 27-Nov-2015						
2,4´-DDD	8.8	0.11	0.33	ug/kg dry	11.53	0.4	73.1	40-125	6.94	30	
2,4´-DDE	9.1	0.11	0.33	ug/kg dry	11.53	ND	78.8	40-125	16.4	30	
2,4´-DDT	9.5	0.11	0.33	ug/kg dry	11.53	ND	82.4	40-125	11.4	30	
4,4´-DDD	11.0	0.11	0.33	ug/kg dry	11.53	1.4	83.0	40-125	2.59	30	
4,4´-DDE	10.4	0.11	0.33	ug/kg dry	11.53	0.6	84.5	40-125	4.85	30	
4,4´-DDT	9.1	0.11	0.33	ug/kg dry	11.53	0.4	75.7	45-125	4.00	30	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

WALKLEY_BLACK Organic Carbon, Total (TOC) - Quality Control

ARA

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 155607 -											
LCS (180-1556071)					Prepared:	Analyzed: 02-Oct-2015					
Total Organic Carbon	495000	67	250	mg/Kg	471000		105	80-120			
MB (180-1556072)					Prepared:	Analyzed: 02-Oct-2015					
Total Organic Carbon	ND	67	250	mg/Kg				-			
DU (180-48101-12DU)		**Source: 180-48101-12**			Prepared:	Analyzed: 02-Oct-2015					
Total Organic Carbon	3950	67	250	mg/Kg		4800		-	19	20	
Batch 156461 -											
LCS (180-1564611)					Prepared:	Analyzed: 09-Oct-2015					
Total Organic Carbon	494000	67	250	mg/Kg	471000		105	80-120			
MB (180-1564612)					Prepared:	Analyzed: 09-Oct-2015					
Total Organic Carbon	ND	67	250	mg/Kg				-			
DU (180-48102-14DU)		**Source: 180-48102-14**			Prepared:	Analyzed: 09-Oct-2015					
Total Organic Carbon	9880	67	250	mg/Kg		8100		-	19	20	
Batch 156463 -											
LCS (180-1564631)					Prepared:	Analyzed: 09-Oct-2015					
Total Organic Carbon	497000	67	250	mg/Kg	471000		106	80-120			
MB (180-1564632)					Prepared:	Analyzed: 09-Oct-2015					
Total Organic Carbon	ND	67	250	mg/Kg				-			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

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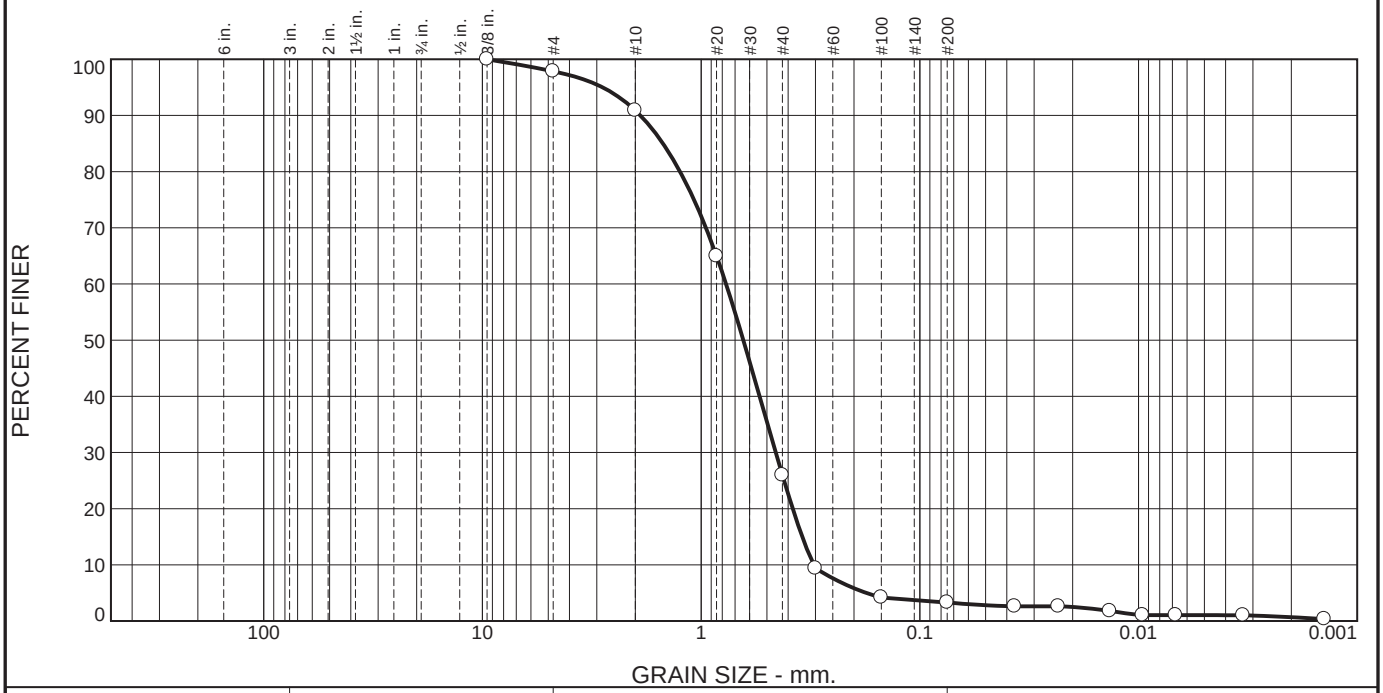
Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
			Data included from: W:\TransferIn\5091107 TRANSFER 03 Dec 2015 0952.mdb
			Data included from: W:\TransferIn\5091107 TRANSFER 03 Dec 2015 1541.mdb
			Data included from: W:\TransferIn\5091107 TRANSFER 03 Dec 2015 1547.mdb

Sample ID Key For 14-Month Grain Size Samples

Sample Name	Location ID
QT12-1-0002-GS	34390-22
QT12-1-0205-GS	34390-23
QT12-1-0507-GS	34391-01
QT12-1-0002-GS-AI	34391-02
QT12-1-0002-GS-BI	34391-03
QT12-1-0205-GS-BI	34391-04
QT12-1-0507-GS-BI	34391-05
QT12-2-0002-GS	34391-06
QT12-2-0205-GS	34391-07
QT12-2-0507-GS	34391-08
QT12-2-0002-GS-AI	34391-09
QT12-2-0002-GS-BI	34391-10
QT12-2-0205-GS-BI	34391-11
QT12-2-0507-GS-BI	34391-12
QT12-3-0002-GS	34391-13
QT12-3-0205-GS	34391-14
QT12-3-0507-GS	34391-15
QT12-3-0002-GS-AI	34391-16
QT12-3-0002-GS-BI	34392-01
QT12-3-0205-GS-BI	34392-02
QT12-3-0507-GS-BI	34392-03
QT12-4-0002-GS	34393-04
QT12-4-0205-GS	34393-05
QT12-4-0507-GS	34393-06
QT12-4-0002-GS-AI	34393-07
QT12-4-0205-GS-BI	34393-08
QT12-4-0507-GS-BI	34393-09
QT12-4-0002-GS-BI	34393-10
QT12-5-0002-GS	34393-11
QT12-5-0205-GS	34393-12
QT12-5-0507-GS	34393-13
QT12-5-0002-GS-AI	34393-14
QT12-5-0002-GS-BI	34393-15
QT12-5-0205-GS-BI	34393-16
QT12-5-0507-GS-BI	34393-17
QT12-5DUP-0002-GS	34395-01
QT12-5DUP-0205-GS	34395-02
QT12-5DUP-0507-GS	34395-03
QT12-5DUP-0002-GS-AI	34395-04
QT12-5DUP-0002-GS-BI	34395-05
QT12-5DUP-0205-GS-BI	34395-06
QT12-5DUP-0507-GS-BI	34395-07
QT12-6-GRAB-GS	34395-08
QT12-7-GRAB-GS	34395-09

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.2	6.9	64.9	22.7	2.3	1.0

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	97.8		
#10	90.9		
#20	65.0		
#40	26.0		
#50	9.4		
#100	4.2		
#200	3.3		
0.0368 mm.	2.6		
0.0233 mm.	2.6		
0.0135 mm.	1.8		
0.0096 mm.	1.0		
0.0068 mm.	1.0		
0.0033 mm.	1.0		
0.0014 mm.	0.4		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP **AASHTO (M 145)=**

Coefficients

D_{90}= 1.8974 D_{85}= 1.4942 D_{60}= 0.7695
D_{50}= 0.6412 D_{30}= 0.4558 D_{15}= 0.3451
D_{10}= 0.3054 C_u= 2.52 C_c= 0.88

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34390-22
Sample Number: 15-1154

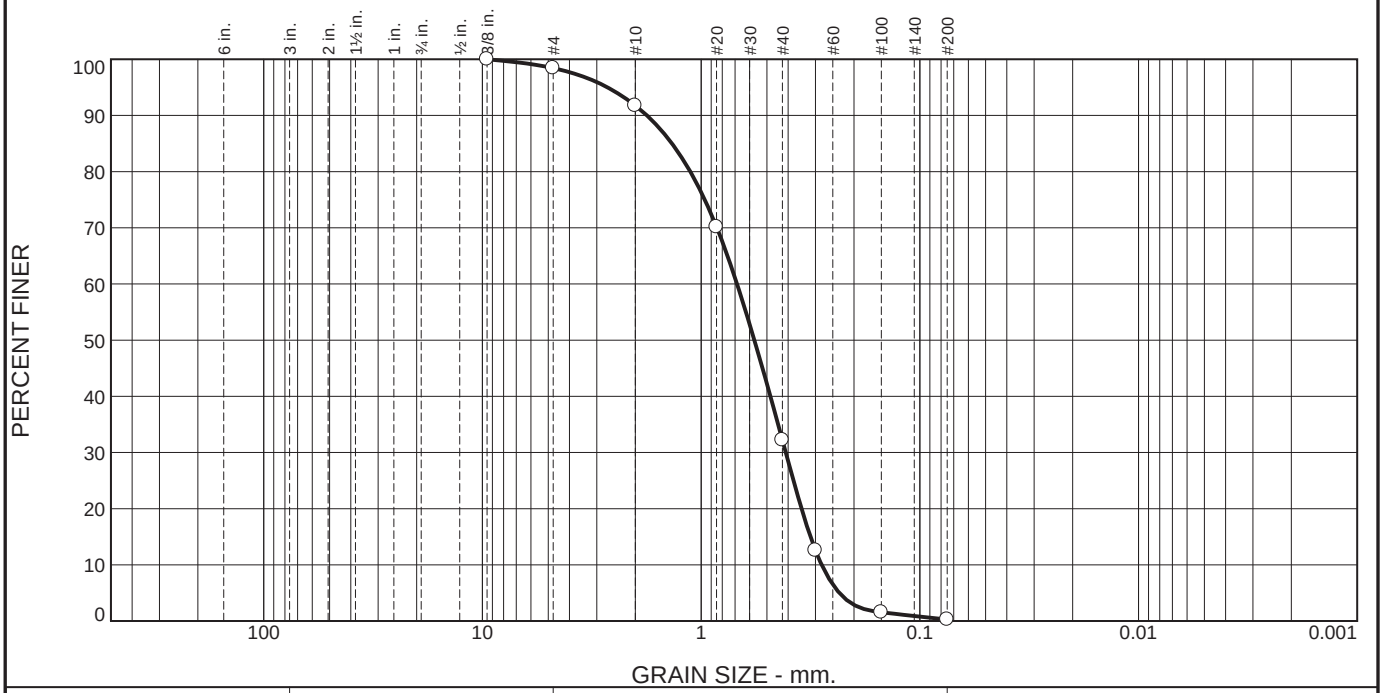
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 045

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.6	6.6	59.6	31.9	0.3	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	98.4		
#10	91.8		
#20	70.2		
#40	32.2		
#50	12.6		
#100	1.6		
#200	0.3		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP **AASHTO (M 145)=**

Coefficients

D_{90}= 1.7705 D_{85}= 1.3587 D_{60}= 0.6852
D_{50}= 0.5708 D_{30}= 0.4103 D_{15}= 0.3163
D_{10}= 0.2811 C_u= 2.44 C_c= 0.87

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34390-23
Sample Number: 15-1155

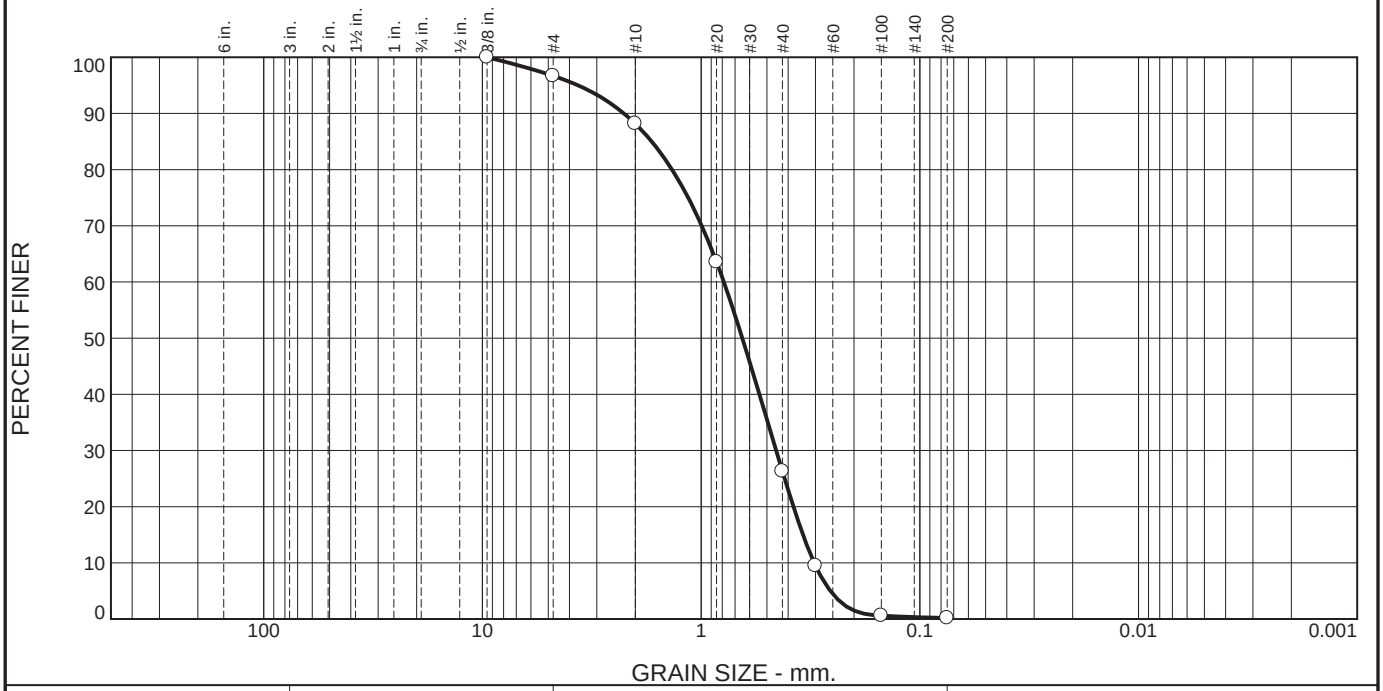
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 046

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.3	8.5	61.9	26.1	0.2	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	96.7		
#10	88.2		
#20	63.5		
#40	26.3		
#50	9.5		
#100	0.6		
#200	0.2		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SP AASHTO (M 145)=

Coefficients

D_{90}= 2.2564 D_{85}= 1.6821 D_{60}= 0.7876
D_{50}= 0.6481 D_{30}= 0.4539 D_{15}= 0.3423
D_{10}= 0.3042 C_u= 2.59 C_c= 0.86

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34391-1
Sample Number: 15-1156

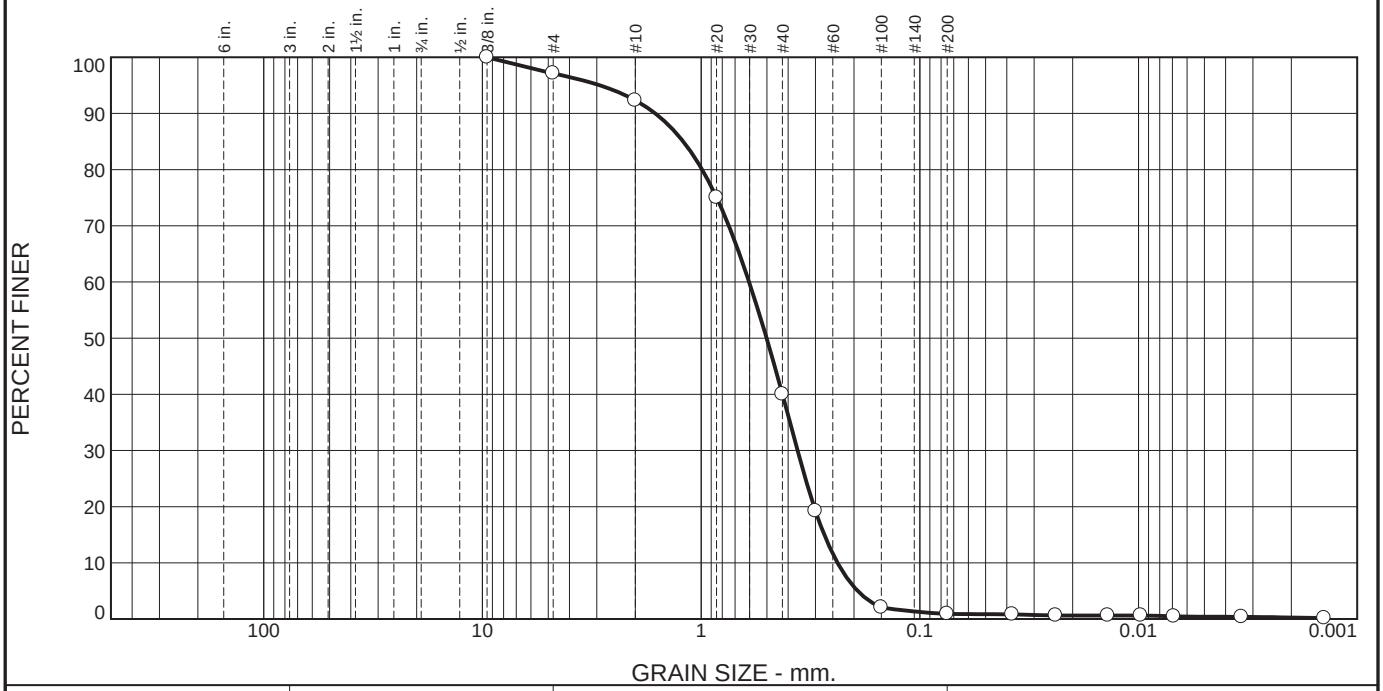
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 047

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.9	4.8	52.3	39.1	0.5	0.4

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	97.1		
#10	92.3		
#20	75.1		
#40	40.0		
#50	19.2		
#100	2.1		
#200	0.9		
0.0378 mm.	0.8		
0.0239 mm.	0.6		
0.0138 mm.	0.6		
0.0098 mm.	0.6		
0.0069 mm.	0.5		
0.0034 mm.	0.4		
0.0014 mm.	0.2		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP **AASHTO (M 145)=**

Coefficients

D_{90}= 1.6201 D_{85}= 1.2068 D_{60}= 0.6035
D_{50}= 0.5020 D_{30}= 0.3623 D_{15}= 0.2735
D_{10}= 0.2379 C_u= 2.54 C_c= 0.91

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34391-2
Sample Number: 15-1157

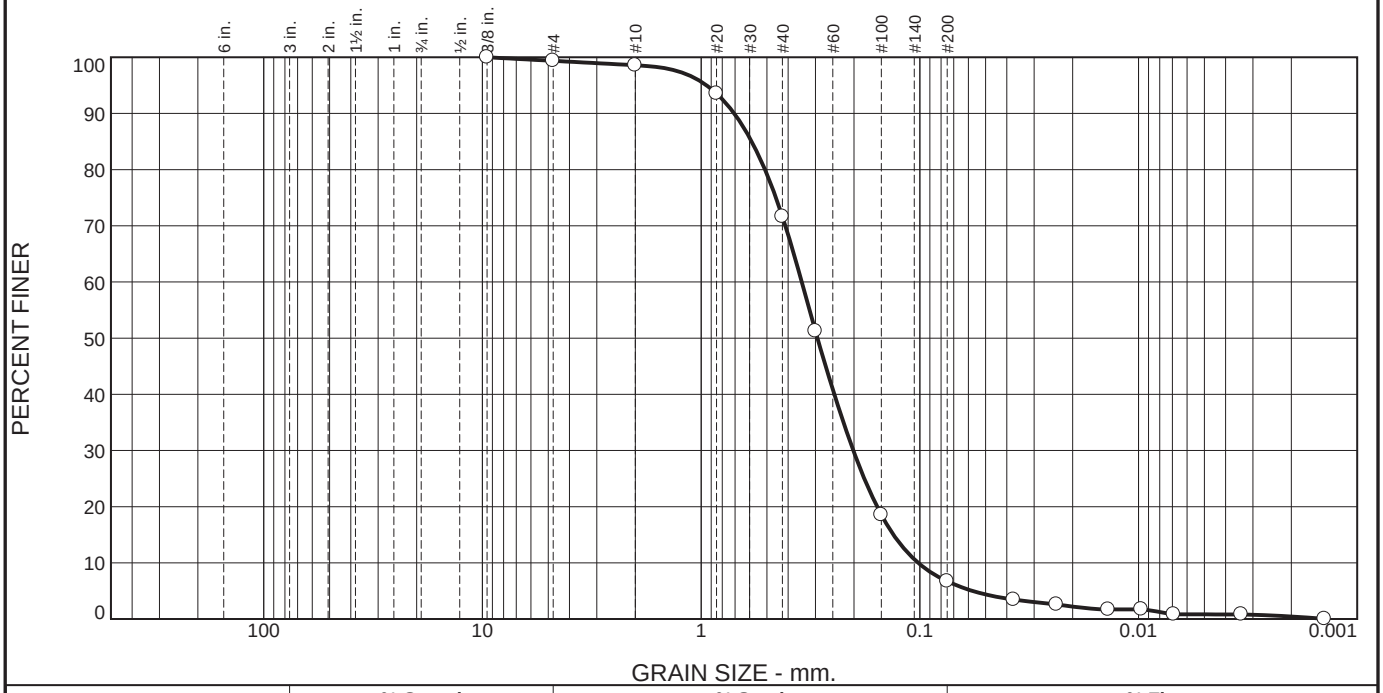
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 048

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.8	27.0	64.9	5.9	0.8

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	99.4		
#10	98.6		
#20	93.5		
#40	71.6		
#50	51.2		
#100	18.6		
#200	6.7		
0.0373 mm.	3.5		
0.0237 mm.	2.6		
0.0137 mm.	1.7		
0.0097 mm.	1.7		
0.0069 mm.	0.8		
0.0034 mm.	0.8		
0.0014 mm.	0.0		

* (no specification provided)

Material Description

Poorly graded sand with silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP-SM **AASHTO (M 145)=**

Coefficients

D_{90}= 0.7058 D_{85}= 0.5871 D_{60}= 0.3467
D_{50}= 0.2938 D_{30}= 0.2014 D_{15}= 0.1320
D_{10}= 0.1018 C_u= 3.41 C_c= 1.15

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34391-3
Sample Number: 15-1158

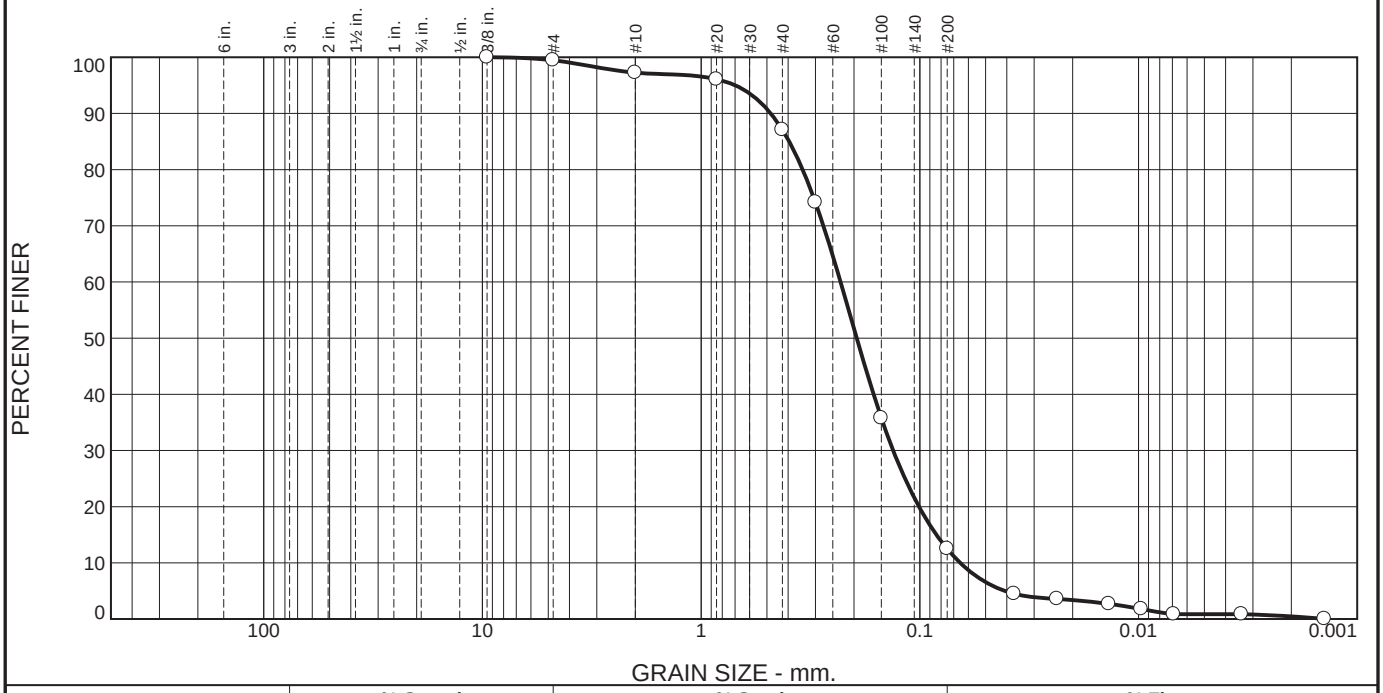
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 049

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	2.2	10.2	74.6	11.6	0.9

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	99.5		
#10	97.3		
#20	96.1		
#40	87.1		
#50	74.2		
#100	35.8		
#200	12.5		
0.0370 mm.	4.5		
0.0236 mm.	3.6		
0.0137 mm.	2.7		
0.0097 mm.	1.8		
0.0069 mm.	0.9		
0.0034 mm.	0.9		
0.0014 mm.	0.0		

* (no specification provided)

Material Description

Poorly graded sand with silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP-SM **AASHTO (M 145)=**

Coefficients

D_{90}= 0.4805 D_{85}= 0.3958 D_{60}= 0.2304
D_{50}= 0.1942 D_{30}= 0.1324 D_{15}= 0.0840
D_{10}= 0.0653 C_u= 3.53 C_c= 1.16

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34391-4
Sample Number: 15-1159

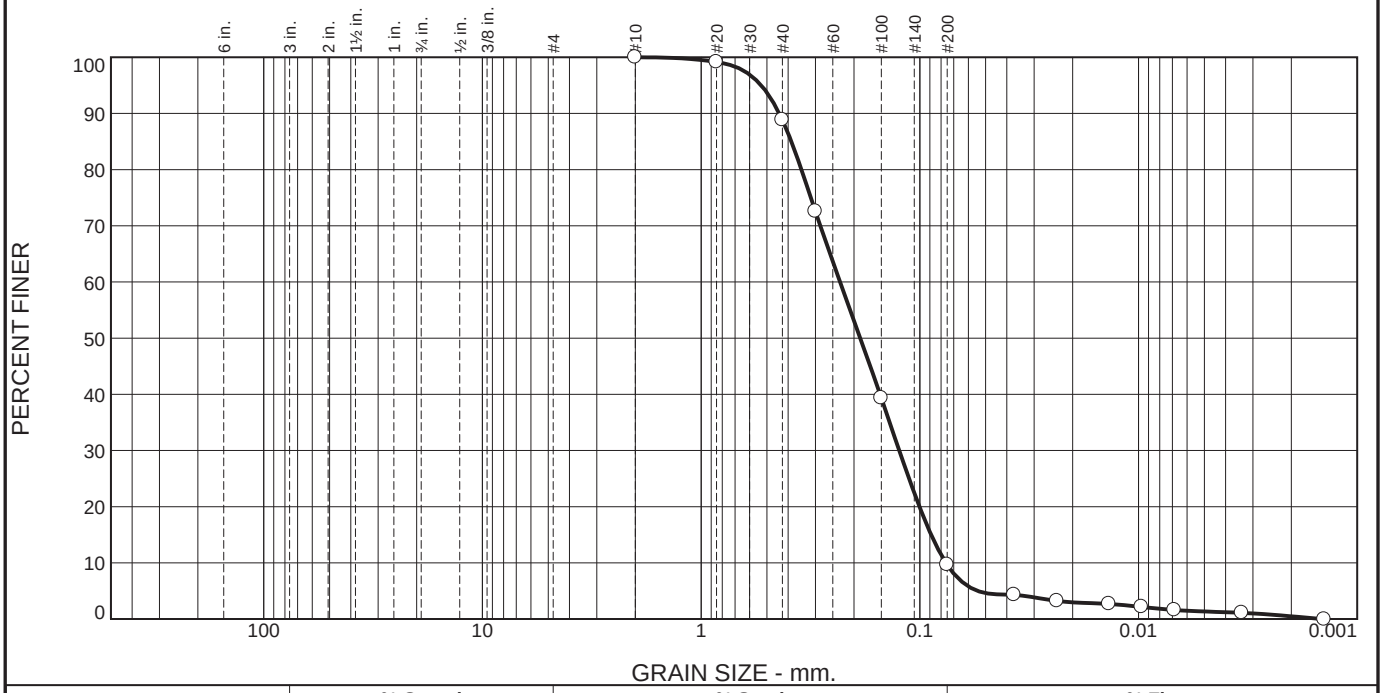
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 050

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	11.2	79.1	8.4	1.3

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#10	100.0		
#20	99.1		
#40	88.8		
#50	72.6		
#100	39.4		
#200	9.7		
0.0371 mm.	4.3		
0.0236 mm.	3.2		
0.0136 mm.	2.7		
0.0097 mm.	2.1		
0.0069 mm.	1.6		
0.0034 mm.	1.1		
0.0014 mm.			

* (no specification provided)

Material Description

Poorly graded sand with silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP-SM **AASHTO (M 145)=**

Coefficients

D_{90}= 0.4393 D_{85}= 0.3870 D_{60}= 0.2316
D_{50}= 0.1873 D_{30}= 0.1242 D_{15}= 0.0887
D_{10}= 0.0760 C_u= 3.05 C_c= 0.88

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34391-5
Sample Number: 15-1160

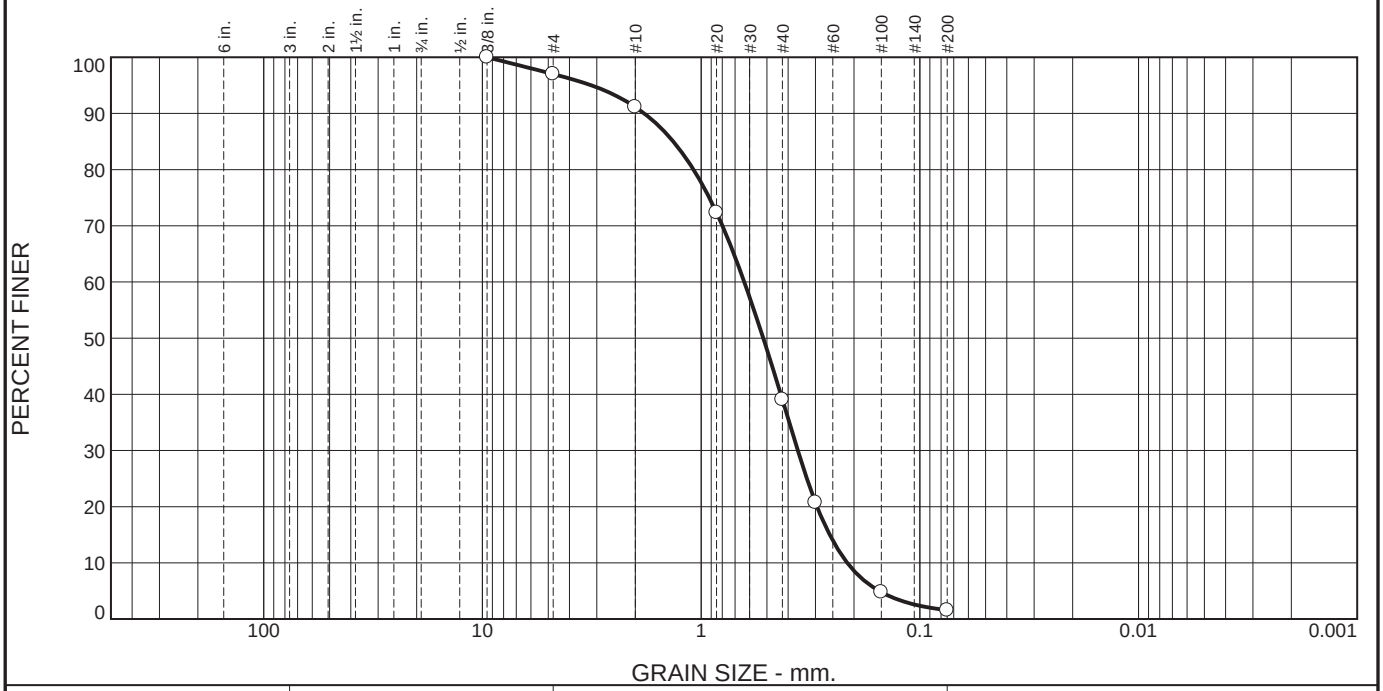
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 051

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.0	5.9	52.1	37.4	1.6	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	97.0		
#10	91.1		
#20	72.3		
#40	39.0		
#50	20.7		
#100	4.8		
#200	1.6		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SP AASHTO (M 145)=

Coefficients

D_{90}= 1.8208 D_{85}= 1.3400 D_{60}= 0.6349
D_{50}= 0.5200 D_{30}= 0.3613 D_{15}= 0.2583
D_{10}= 0.2147 C_u= 2.96 C_c= 0.96

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34391-6
Sample Number: 15-1161

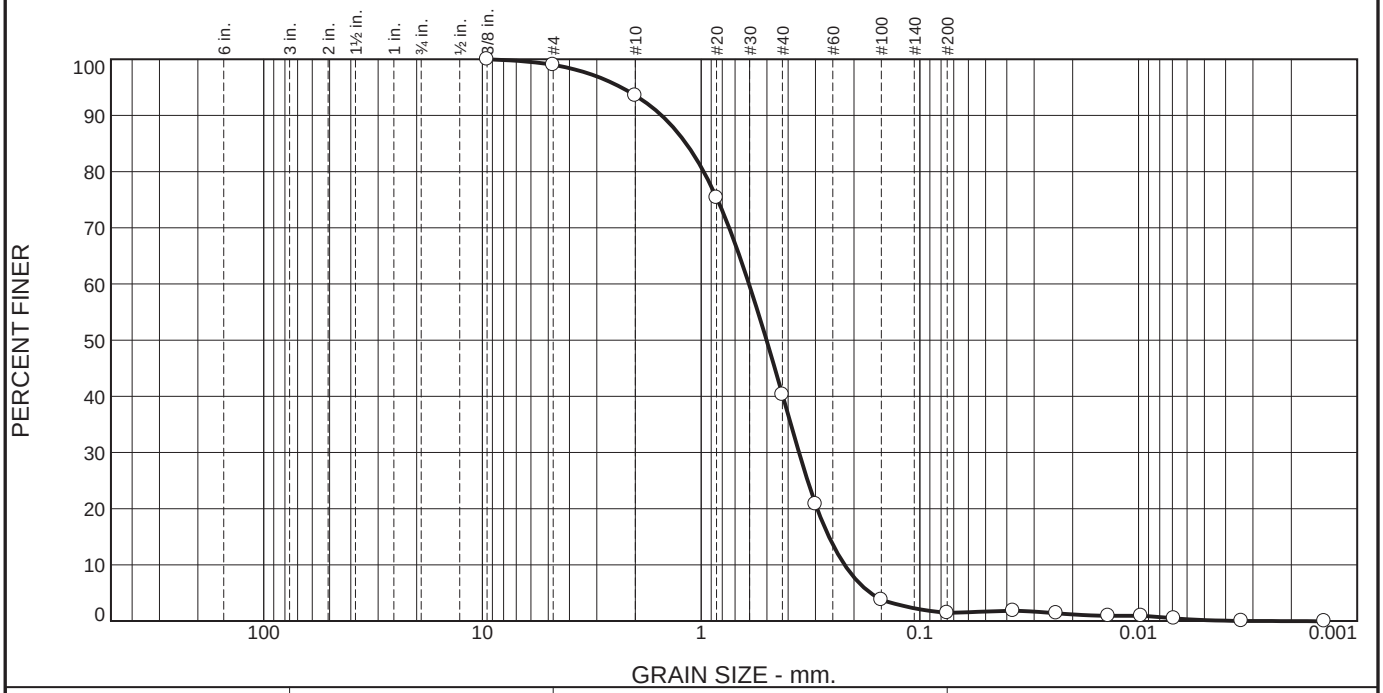
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 052

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	5.4	53.3	38.8	1.3	0.2

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	99.0		
#10	93.6		
#20	75.4		
#40	40.3		
#50	20.8		
#100	3.8		
#200	1.5		
0.0375 mm.	1.8		
0.0238 mm.	1.4		
0.0138 mm.	0.9		
0.0097 mm.	0.9		
0.0069 mm.	0.5		
0.0034 mm.	0.0		
0.0014 mm.			

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP **AASHTO (M 145)=**

Coefficients

D_{90}= 1.5166 D_{85}= 1.1707 D_{60}= 0.6041
D_{50}= 0.5023 D_{30}= 0.3569 D_{15}= 0.2604
D_{10}= 0.2207 C_u= 2.74 C_c= 0.96

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34391-7
Sample Number: 15-1162

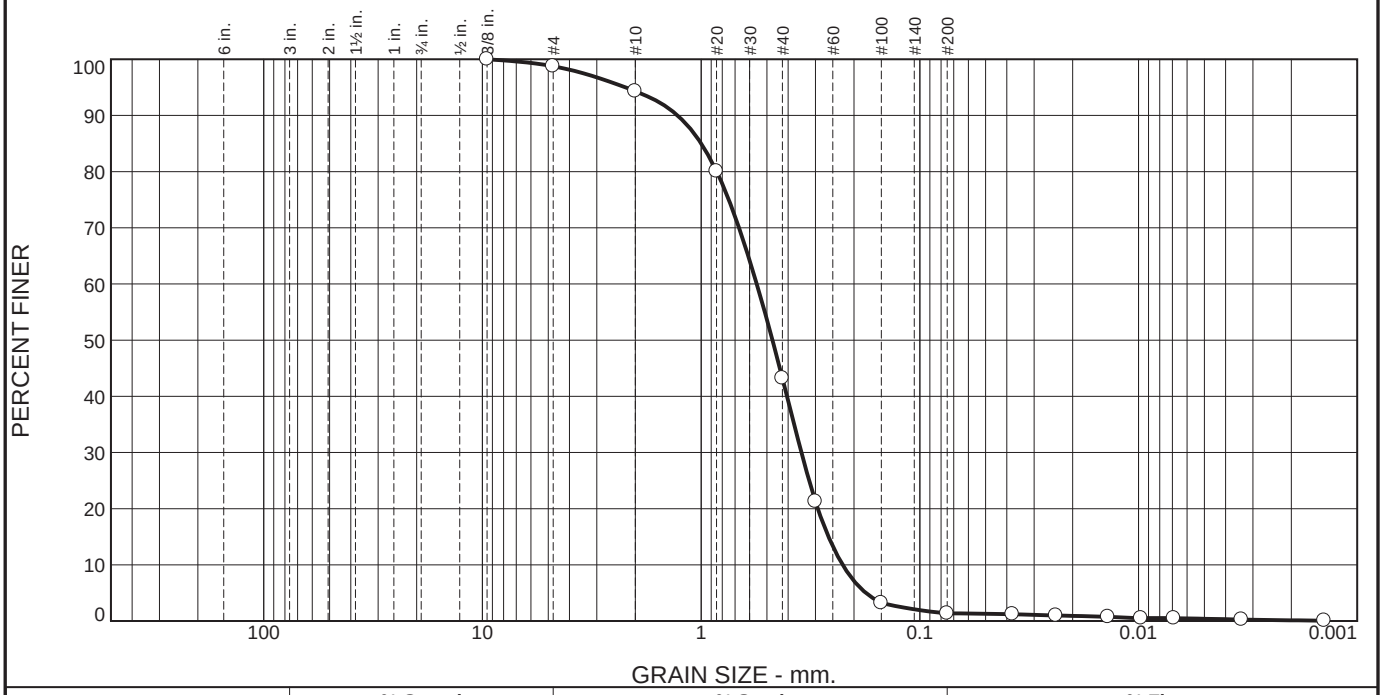
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 053

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	4.5	51.1	41.8	1.0	0.4

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	98.8		
#10	94.3		
#20	80.1		
#40	43.2		
#50	21.3		
#100	3.2		
#200	1.4		
0.0377 mm.	1.2		
0.0238 mm.	1.0		
0.0138 mm.	0.7		
0.0097 mm.	0.5		
0.0069 mm.	0.5		
0.0034 mm.	0.3		
0.0014 mm.	0.1		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP **AASHTO (M 145)=**

Coefficients

D_{90}= 1.2816 D_{85}= 0.9995 D_{60}= 0.5567
D_{50}= 0.4720 D_{30}= 0.3480 D_{15}= 0.2617
D_{10}= 0.2255 C_u= 2.47 C_c= 0.96

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34391-8
Sample Number: 15-1163

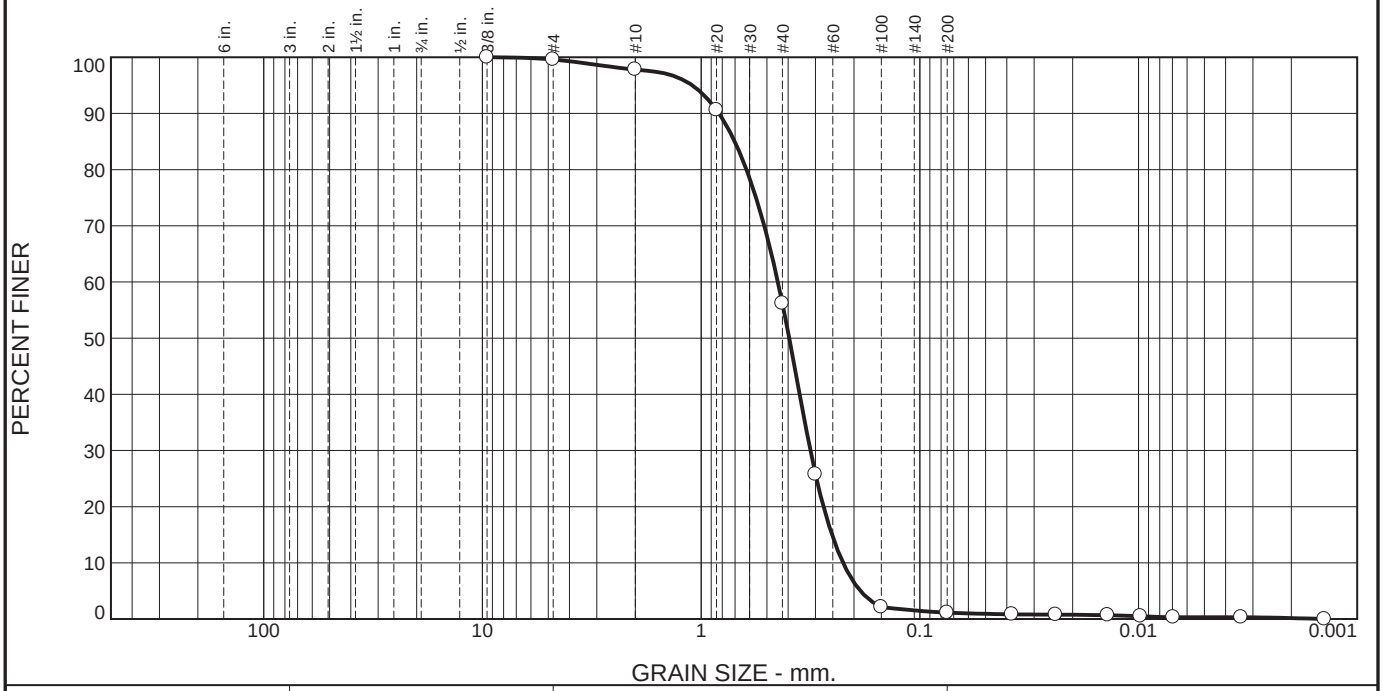
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 054

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.8	41.6	55.1	0.8	0.3

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	99.6		
#10	97.8		
#20	90.6		
#40	56.2		
#50	25.8		
#100	2.1		
#200	1.1		
0.0378 mm.	0.8		
0.0239 mm.	0.8		
0.0138 mm.	0.7		
0.0098 mm.	0.5		
0.0069 mm.	0.3		
0.0034 mm.	0.3		
0.0014 mm.	0.0		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SP AASHTO (M 145)=

Coefficients

D_{90}= 0.8294 D_{85}= 0.7021 D_{60}= 0.4457
D_{50}= 0.3957 D_{30}= 0.3164 D_{15}= 0.2523
D_{10}= 0.2245 C_u= 1.99 C_c= 1.00

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34391-9
Sample Number: 15-1164

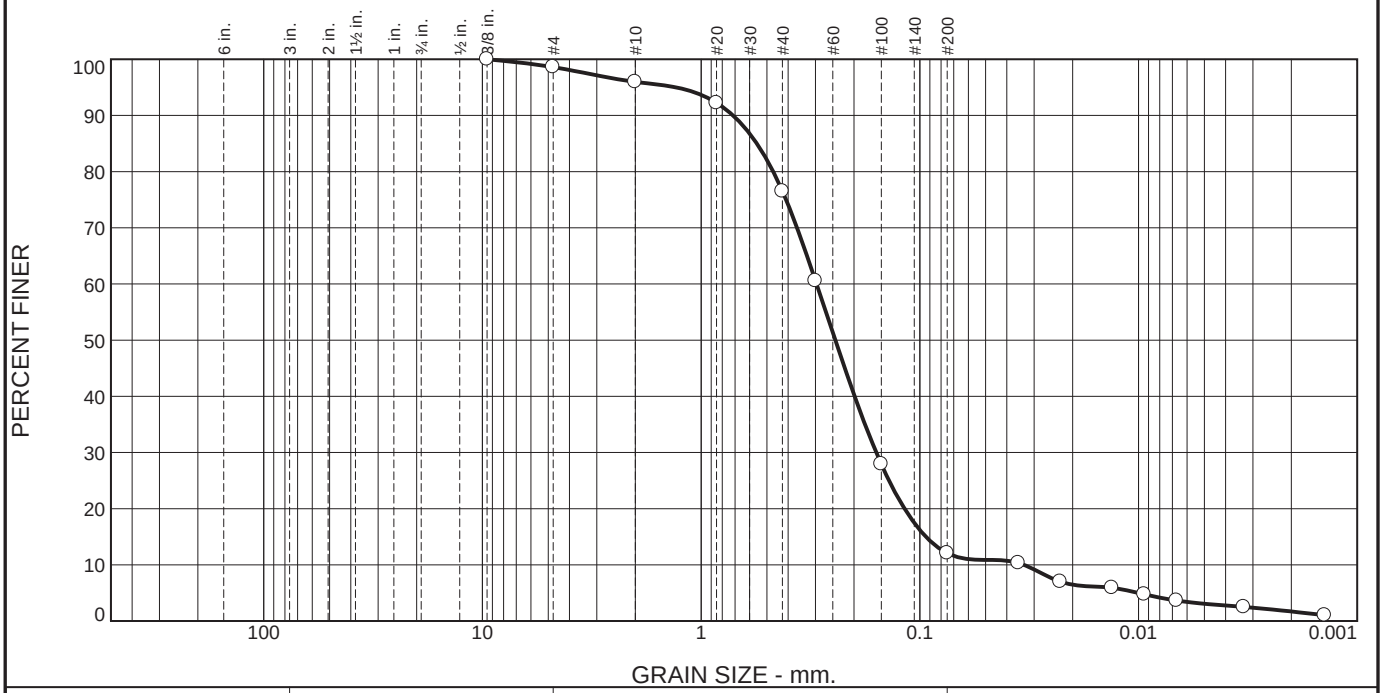
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 055

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	2.6	19.5	64.4	9.0	3.1

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	98.6		
#10	96.0		
#20	92.2		
#40	76.5		
#50	60.6		
#100	27.9		
#200	12.1		
0.0354 mm.	10.3		
0.0228 mm.	7.0		
0.0132 mm.	5.9		
0.0094 mm.	4.8		
0.0067 mm.	3.6		
0.0033 mm.	2.5		
0.0014 mm.	1.0		

* (no specification provided)

Material Description

Well-graded sand with silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SW-SM **AASHTO (M 145)=**

Coefficients

D_{90}= 0.7146 D_{85}= 0.5563 D_{60}= 0.2966
D_{50}= 0.2434 D_{30}= 0.1582 D_{15}= 0.0938
D_{10}= 0.0335 C_u= 8.86 C_c= 2.52

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34391-10
Sample Number: 15-1165

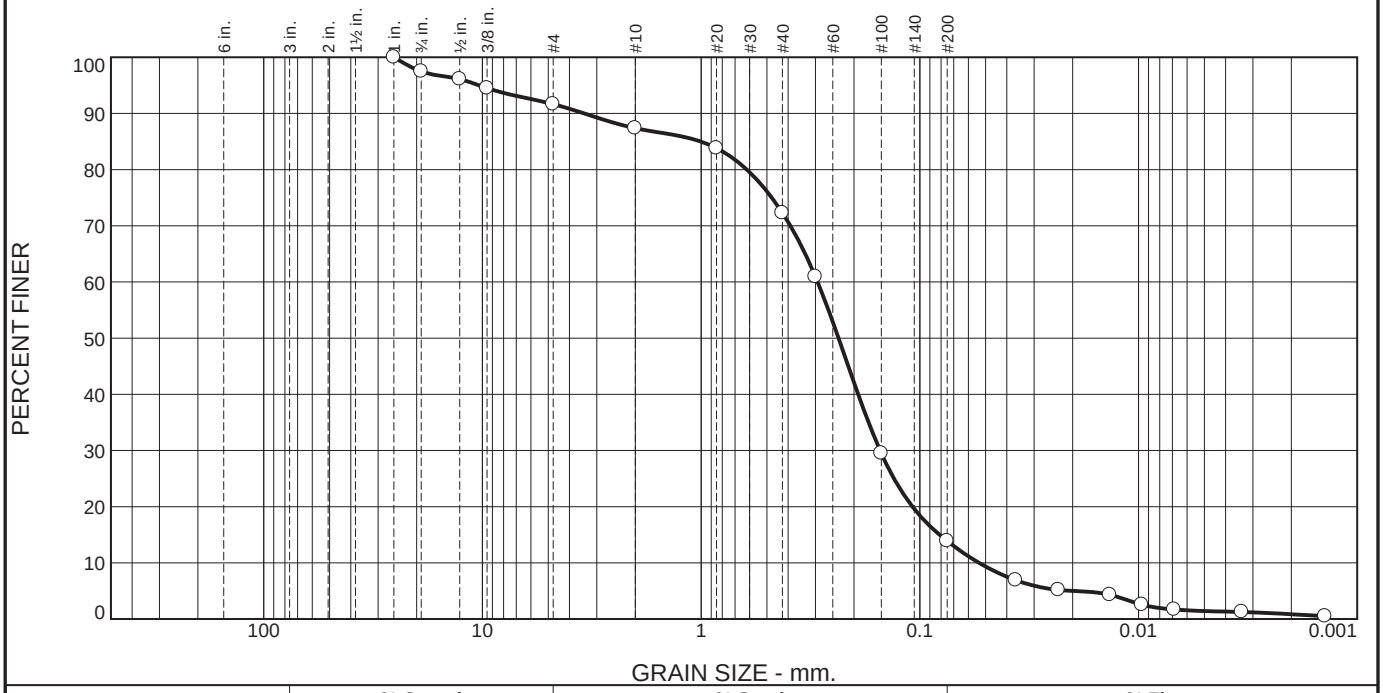
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 056

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.5	5.8	4.3	15.1	58.4	12.5	1.4

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1	100.0		
3/4	97.5		
1/2	96.1		
3/8	94.5		
#4	91.7		
#10	87.4		
#20	83.8		
#40	72.3		
#50	60.9		
#100	29.5		
#200	13.9		
0.0364 mm.	6.9		
0.0233 mm.	5.2		
0.0135 mm.	4.3		
0.0097 mm.	2.6		
0.0069 mm.	1.7		
0.0034 mm.	1.3		
0.0014 mm.	0.5		

* (no specification provided)

Material Description

Silty sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=**

Coefficients

D_{90}= 3.4222 D_{85}= 1.0046 D_{60}= 0.2932
D_{50}= 0.2353 D_{30}= 0.1520 D_{15}= 0.0813
D_{10}= 0.0536 C_u= 5.47 C_c= 1.47

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34391-11
Sample Number: 15-1166

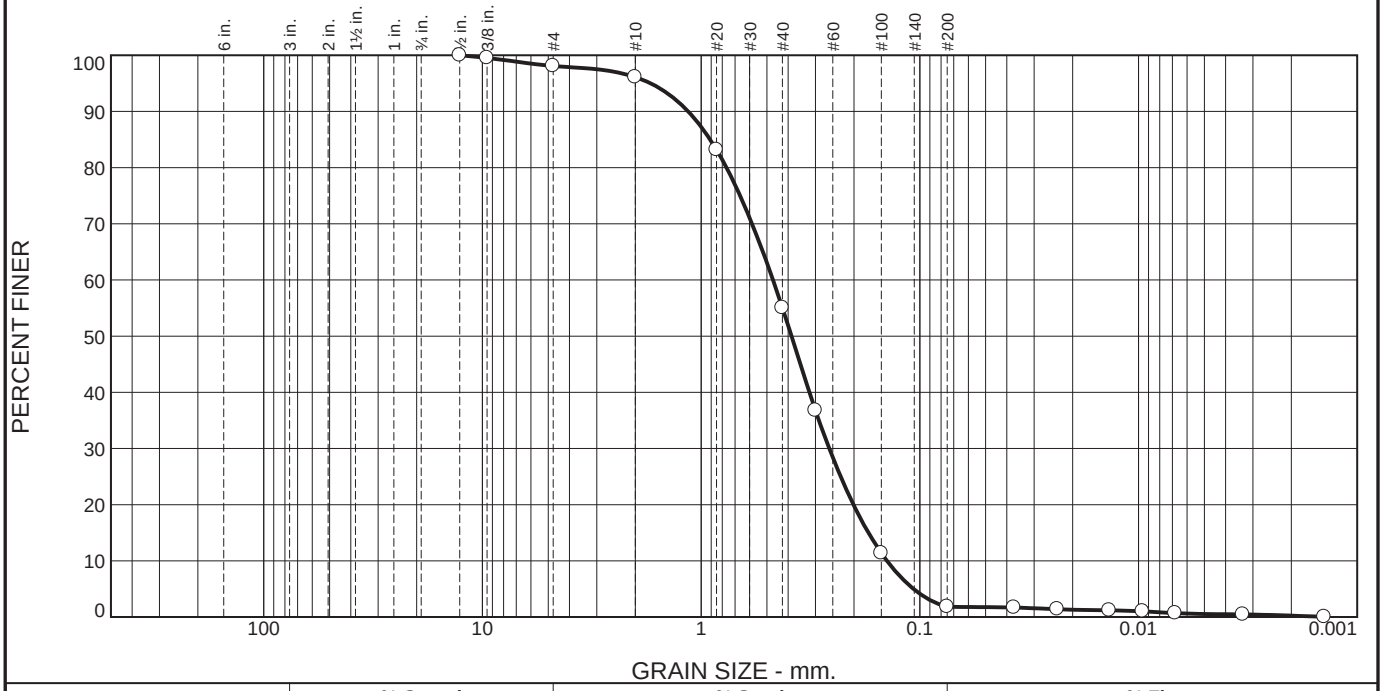
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 057

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.9	2.0	41.1	53.2	1.3	0.5

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1/2	100.0		
3/8	99.5		
#4	98.1		
#10	96.1		
#20	83.2		
#40	55.0		
#50	36.8		
#100	11.4		
#200	1.8		
0.0371 mm.	1.7		
0.0235 mm.	1.4		
0.0136 mm.	1.2		
0.0096 mm.	1.0		
0.0068 mm.	0.7		
0.0033 mm.	0.5		
0.0014 mm.	0.0		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP **AASHTO (M 145)=**

Coefficients

D_{90}= 1.1458 D_{85}= 0.9095 D_{60}= 0.4693
D_{50}= 0.3862 D_{30}= 0.2595 D_{15}= 0.1718
D_{10}= 0.1413 C_u= 3.32 C_c= 1.02

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34391-12
Sample Number: 15-1167

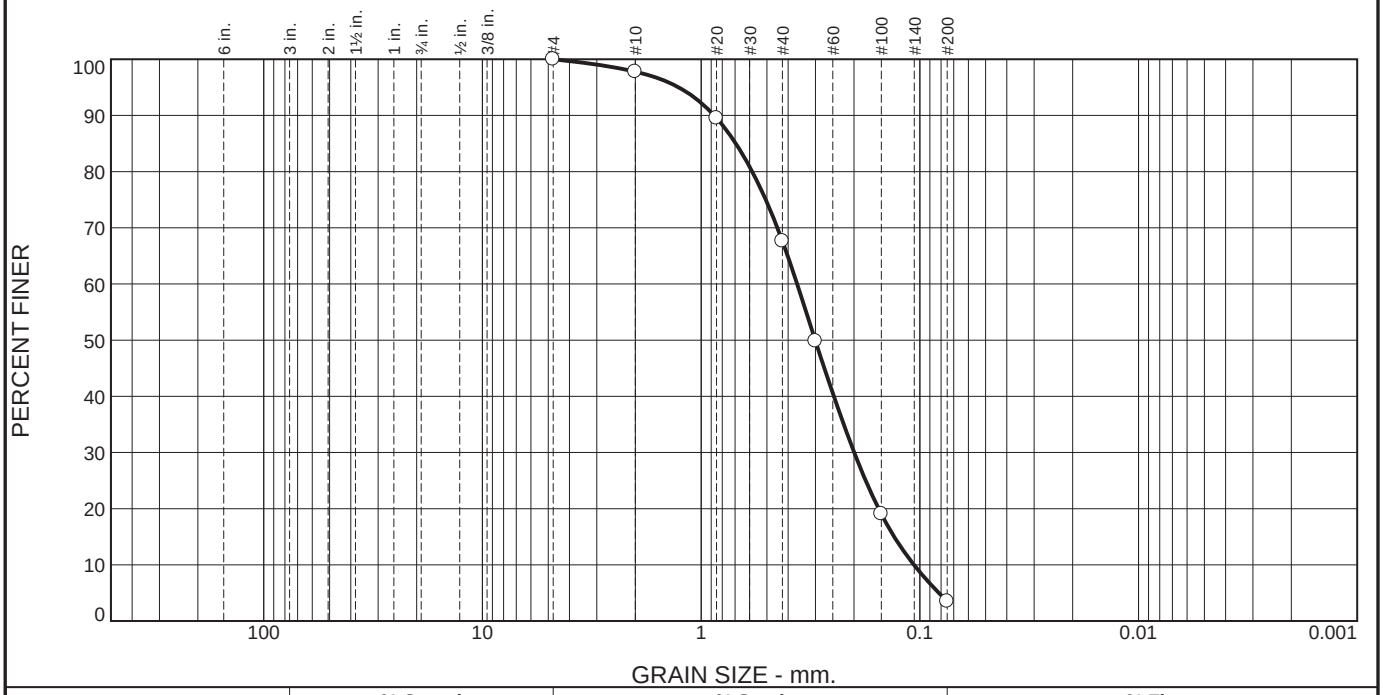
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 058

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.2	30.2	64.1	3.5	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	97.8		
#20	89.5		
#40	67.6		
#50	49.8		
#100	19.0		
#200	3.5		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SP AASHTO (M 145)=

Coefficients

D_{90}= 0.8720 D_{85}= 0.6939 D_{60}= 0.3640
D_{50}= 0.3009 D_{30}= 0.1995 D_{15}= 0.1310
D_{10}= 0.1064 C_u= 3.42 C_c= 1.03

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34391-13
Sample Number: 15-1168

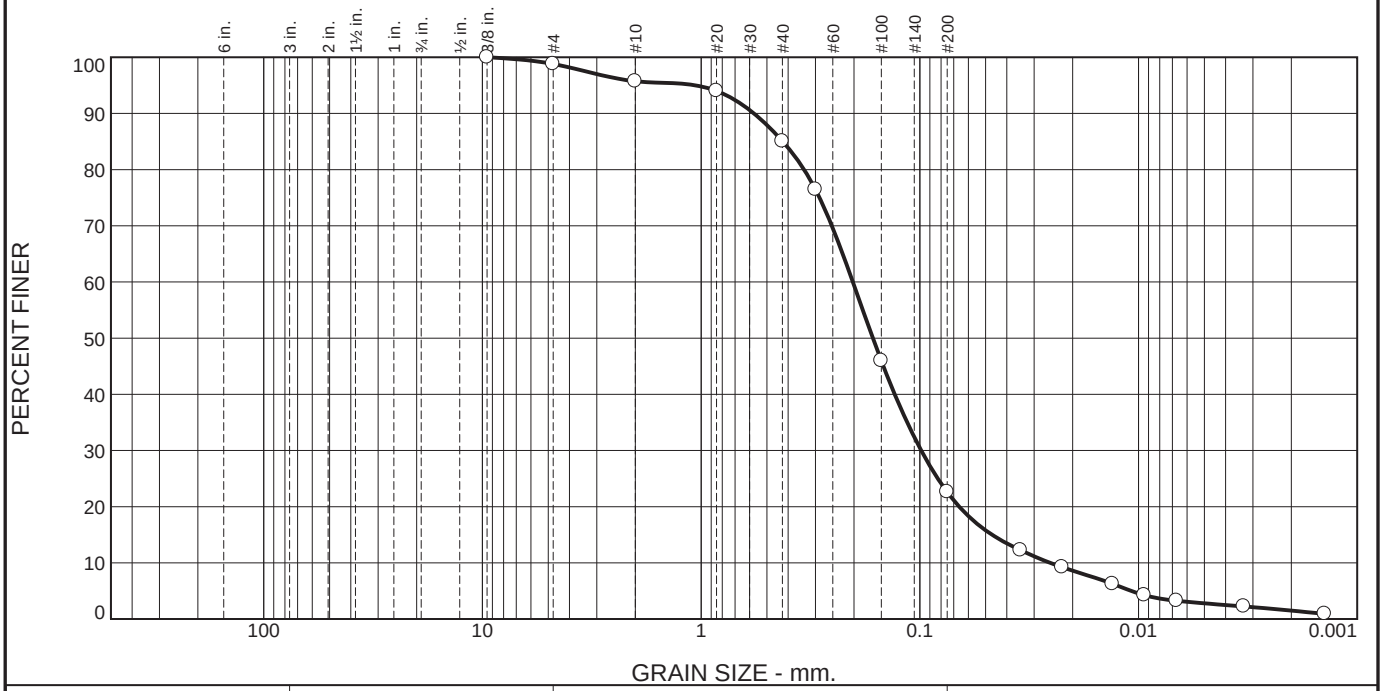
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 059

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	3.1	10.6	62.5	19.8	2.8

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	98.8		
#10	95.7		
#20	94.0		
#40	85.1		
#50	76.5		
#100	46.0		
#200	22.6		
0.0346 mm.	12.3		
0.0224 mm.	9.2		
0.0131 mm.	6.3		
0.0094 mm.	4.2		
0.0067 mm.	3.3		
0.0033 mm.	2.2		
0.0014 mm.	0.9		

* (no specification provided)

Material Description

Silty sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=**

Coefficients

D_{90}= 0.5736 D_{85}= 0.4238 D_{60}= 0.2024
D_{50}= 0.1639 D_{30}= 0.0985 D_{15}= 0.0467
D_{10}= 0.0253 C_u= 7.99 C_c= 1.90

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34391-14
Sample Number: 15-1169

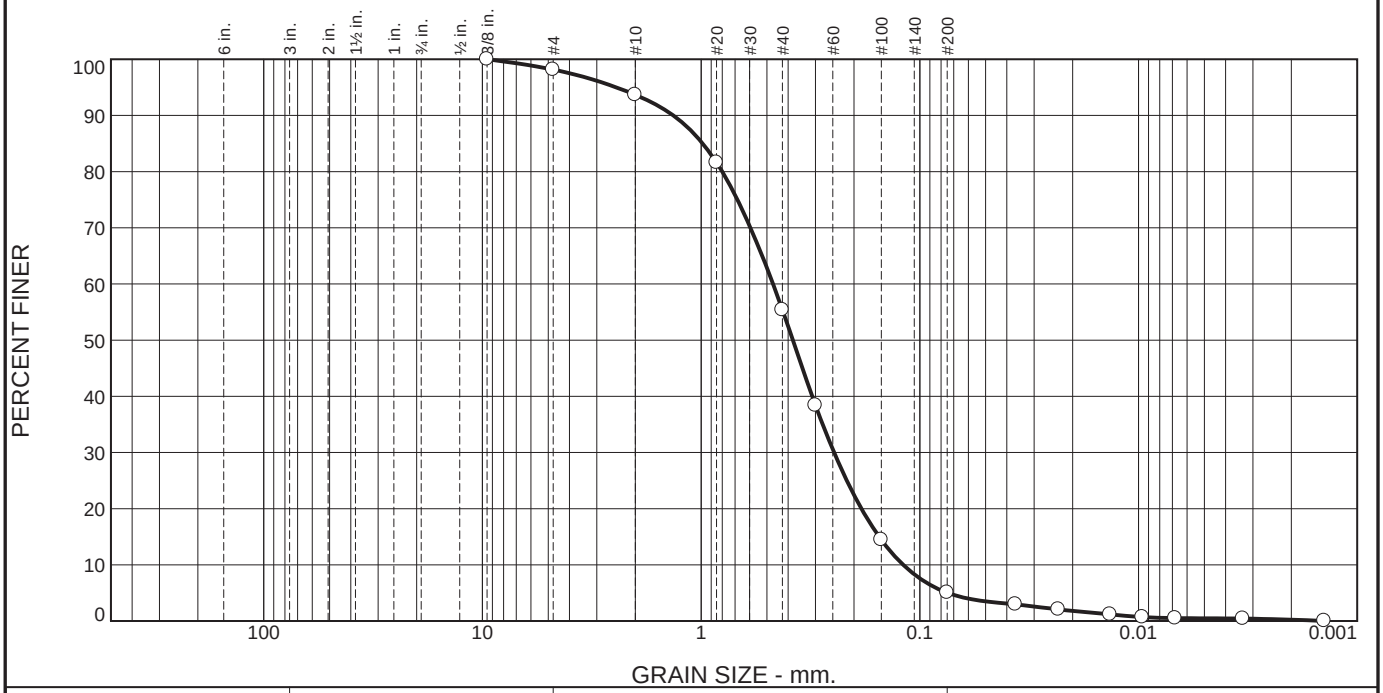
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 060

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.8	4.5	38.3	50.3	4.6	0.5

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	98.2		
#10	93.7		
#20	81.6		
#40	55.4		
#50	38.4		
#100	14.5		
#200	5.1		
0.0366 mm.	3.0		
0.0233 mm.	2.1		
0.0135 mm.	1.2		
0.0096 mm.	0.7		
0.0068 mm.	0.5		
0.0033 mm.	0.4		
0.0014 mm.	0.0		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SP AASHTO (M 145)=

Coefficients

D_{90}= 1.3406 D_{85}= 0.9836 D_{60}= 0.4691
D_{50}= 0.3807 D_{30}= 0.2466 D_{15}= 0.1535
D_{10}= 0.1191 C_u= 3.94 C_c= 1.09

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34391-15
Sample Number: 15-1170

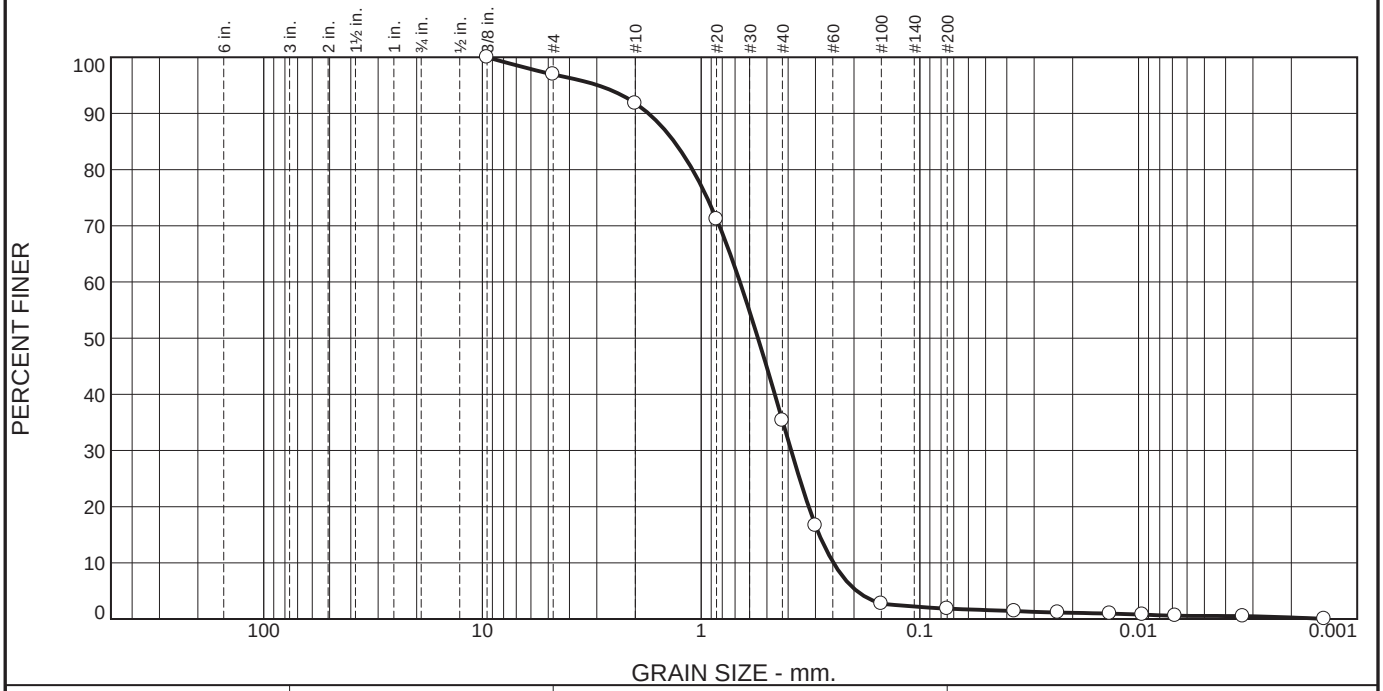
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 061

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.1	5.1	56.5	33.5	1.3	0.5

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	96.9		
#10	91.8		
#20	71.2		
#40	35.3		
#50	16.7		
#100	2.7		
#200	1.8		
0.0369 mm.	1.4		
0.0234 mm.	1.2		
0.0135 mm.	1.0		
0.0096 mm.	0.8		
0.0068 mm.	0.6		
0.0033 mm.	0.5		
0.0014 mm.	0.0		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP **AASHTO (M 145)=**

Coefficients

D_{90}= 1.7416 D_{85}= 1.3281 D_{60}= 0.6645
D_{50}= 0.5496 D_{30}= 0.3877 D_{15}= 0.2882
D_{10}= 0.2485 C_u= 2.67 C_c= 0.91

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34391-16
Sample Number: 15-1171

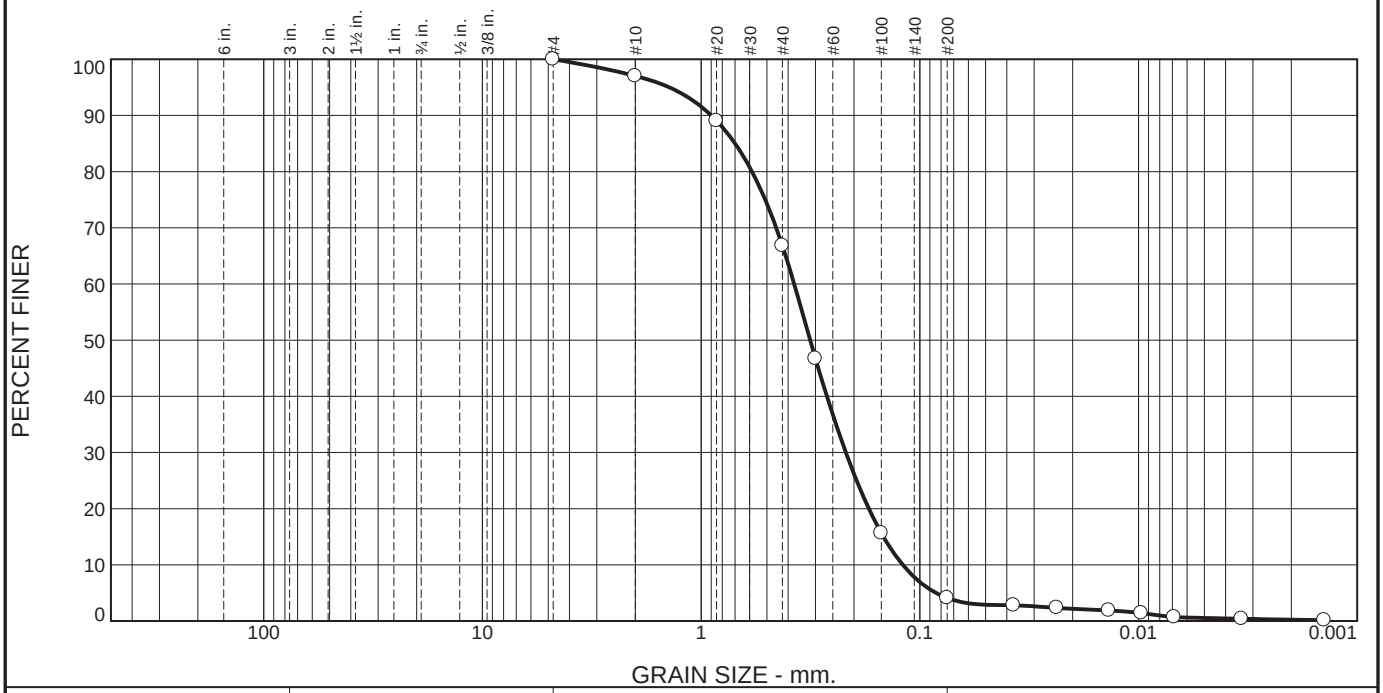
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 062

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	3.0	30.2	62.7	3.6	0.5

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	97.0		
#20	89.1		
#40	66.8		
#50	46.7		
#100	15.6		
#200	4.1		
0.0373 mm.	2.8		
0.0237 mm.	2.3		
0.0137 mm.	1.9		
0.0097 mm.	1.4		
0.0069 mm.	0.7		
0.0034 mm.	0.4		
0.0014 mm.	0.1		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP **AASHTO (M 145)=**

Coefficients

D_{90}= 0.8991 D_{85}= 0.6991 D_{60}= 0.3756
D_{50}= 0.3173 D_{30}= 0.2179 D_{15}= 0.1467
D_{10}= 0.1197 C_u= 3.14 C_c= 1.06

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34392-1
Sample Number: 15-1172

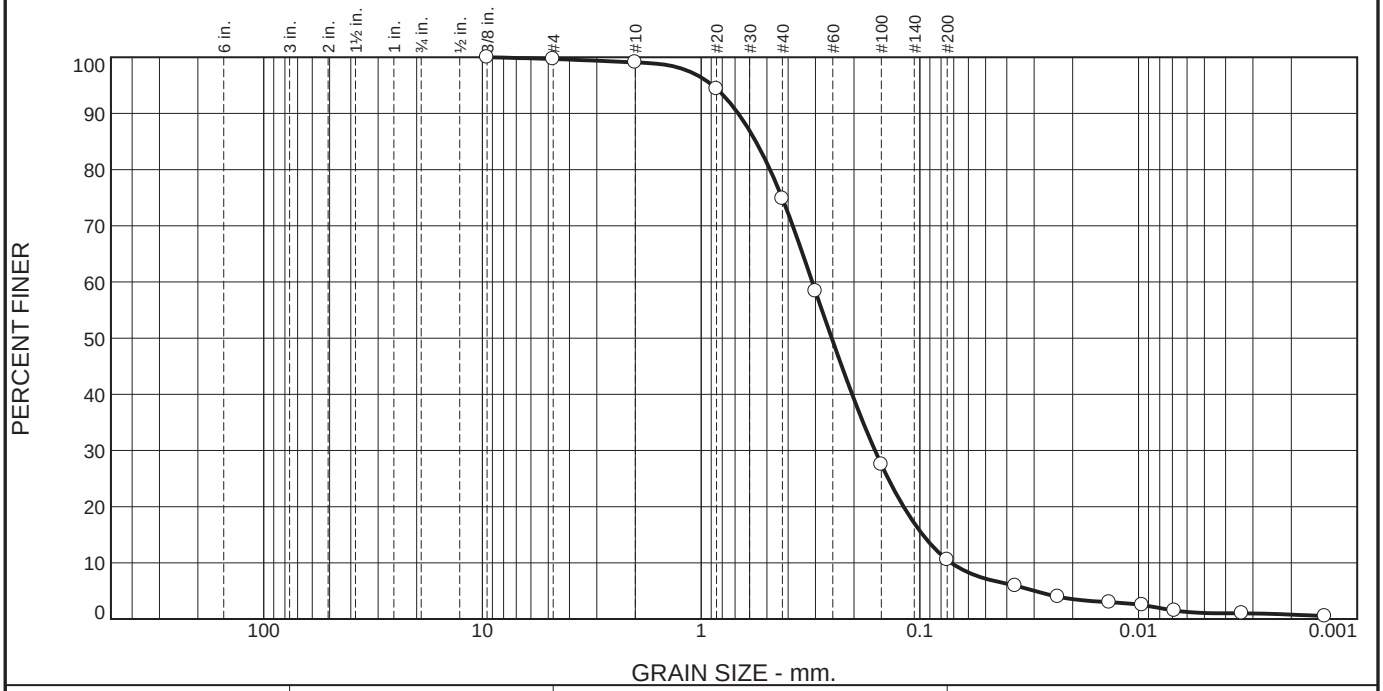
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 063

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.6	24.3	64.3	9.4	1.1

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	99.7		
#10	99.1		
#20	94.4		
#40	74.8		
#50	58.3		
#100	27.5		
#200	10.5		
0.0366 mm.	5.9		
0.0234 mm.	4.0		
0.0136 mm.	3.0		
0.0096 mm.	2.5		
0.0068 mm.	1.5		
0.0034 mm.	1.0		
0.0014 mm.	0.5		

* (no specification provided)

Material Description

Poorly graded sand with silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP-SM **AASHTO (M 145)=**

Coefficients

D_{90}= 0.6766 D_{85}= 0.5619 D_{60}= 0.3102
D_{50}= 0.2529 D_{30}= 0.1603 D_{15}= 0.0970
D_{10}= 0.0718 C_u= 4.32 C_c= 1.15

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34392-2
Sample Number: 15-1173

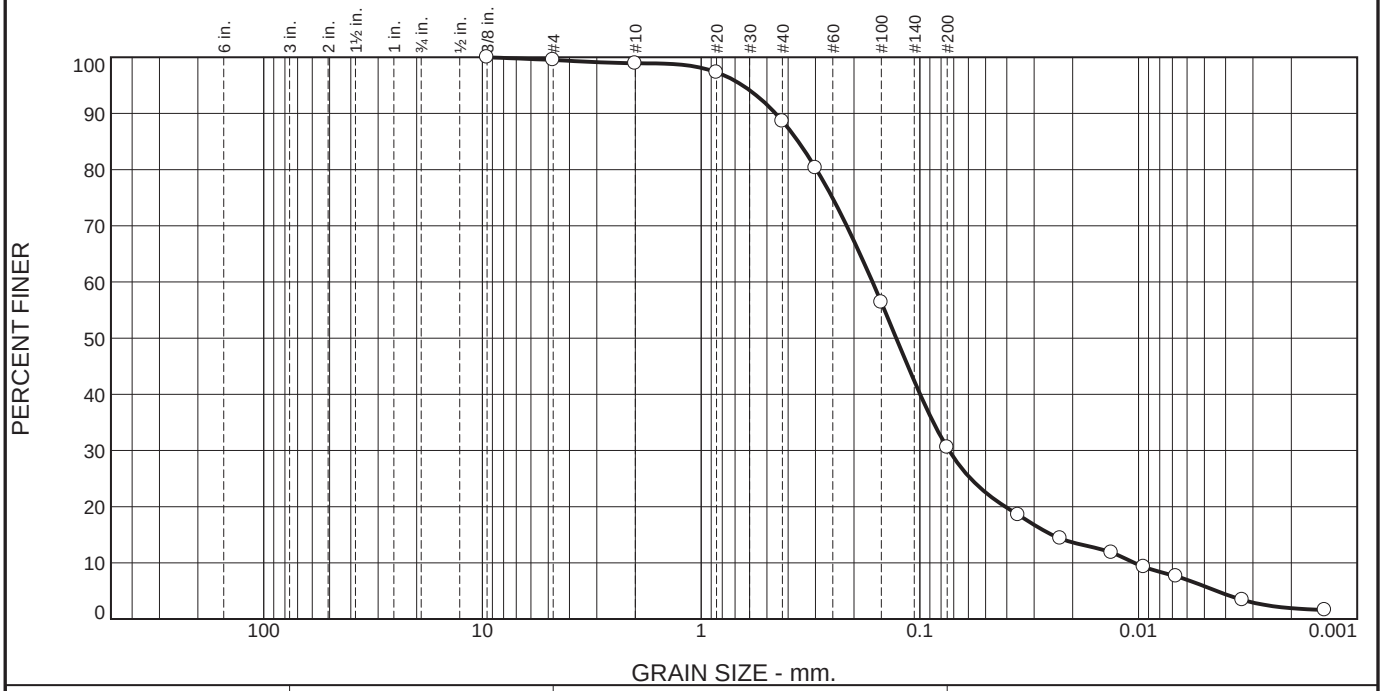
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 064

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.6	10.3	58.1	24.7	5.8

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	99.5		
#10	98.9		
#20	97.3		
#40	88.6		
#50	80.3		
#100	56.4		
#200	30.5		
0.0355 mm.	18.6		
0.0228 mm.	14.4		
0.0133 mm.	11.8		
0.0095 mm.	9.3		
0.0067 mm.	7.6		
0.0033 mm.	3.4		
0.0014 mm.	1.6		

* (no specification provided)

Material Description

Silty, clayey sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SC-SM **AASHTO (M 145)=**

Coefficients

D_{90}= 0.4569 D_{85}= 0.3598 D_{60}= 0.1645
D_{50}= 0.1282 D_{30}= 0.0735 D_{15}= 0.0249
D_{10}= 0.0104 C_u= 15.76 C_c= 3.15

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34392-3
Sample Number: 15-1174

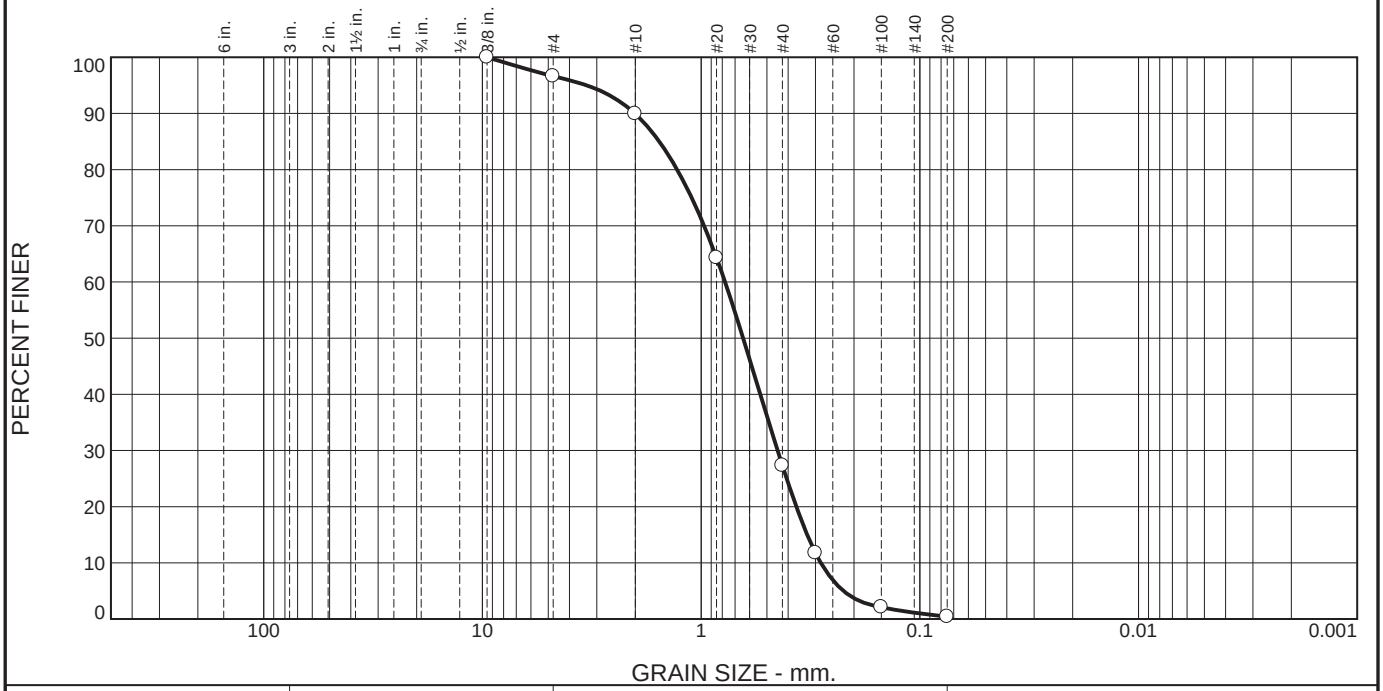
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 065

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.4	6.7	62.6	26.9	0.4	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	96.6		
#10	89.9		
#20	64.3		
#40	27.3		
#50	11.8		
#100	2.1		
#200	0.4		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 2.0108 D_{85}= 1.5534 D_{60}= 0.7776
D_{50}= 0.6426 D_{30}= 0.4471 D_{15}= 0.3274
D_{10}= 0.2835 C_u= 2.74 C_c= 0.91

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34393-4
Sample Number: 15-1175

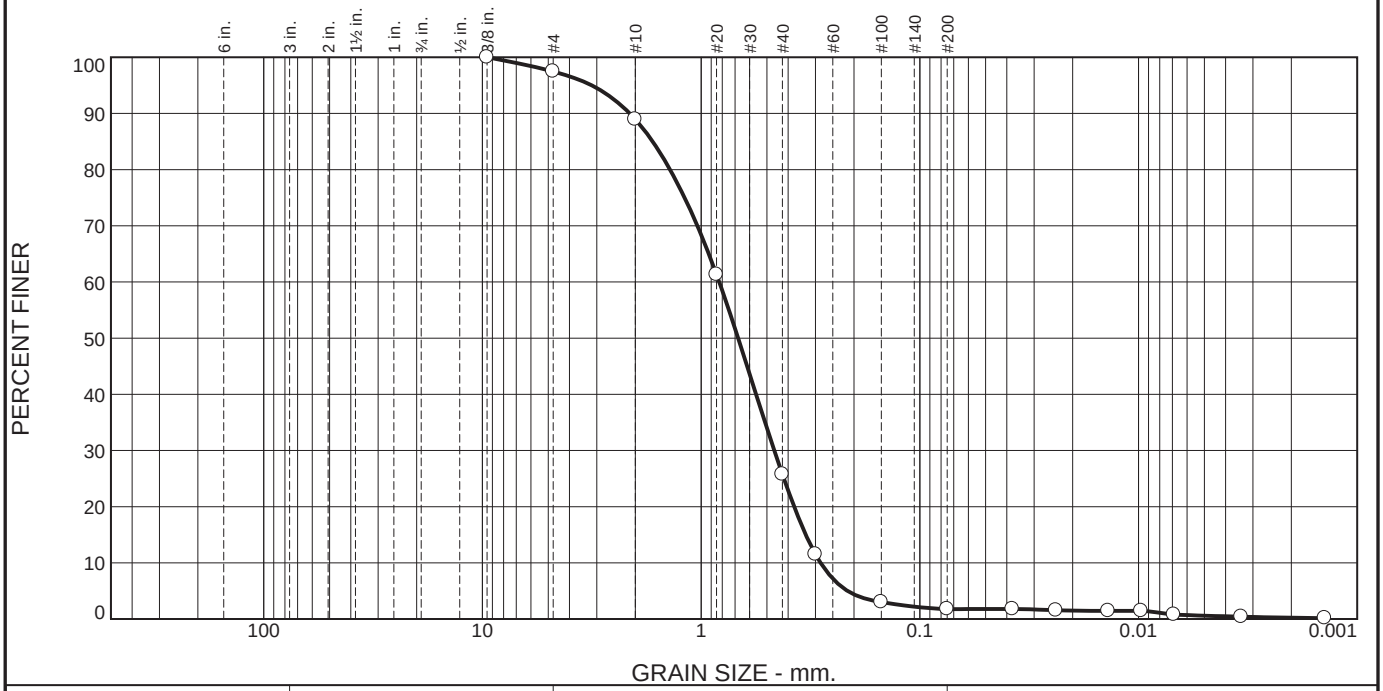
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 066

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.5	8.6	63.2	23.9	1.2	0.6

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	97.5		
#10	88.9		
#20	61.3		
#40	25.7		
#50	11.5		
#100	3.0		
#200	1.8		
0.0376 mm.	1.8		
0.0238 mm.	1.6		
0.0138 mm.	1.4		
0.0097 mm.	1.5		
0.0069 mm.	0.8		
0.0034 mm.	0.4		
0.0014 mm.	0.2		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP **AASHTO (M 145)=**

Coefficients

D_{90}= 2.1202 D_{85}= 1.6663 D_{60}= 0.8268
D_{50}= 0.6772 D_{30}= 0.4630 D_{15}= 0.3324
D_{10}= 0.2843 C_u= 2.91 C_c= 0.91

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34393-5
Sample Number: 15-1176

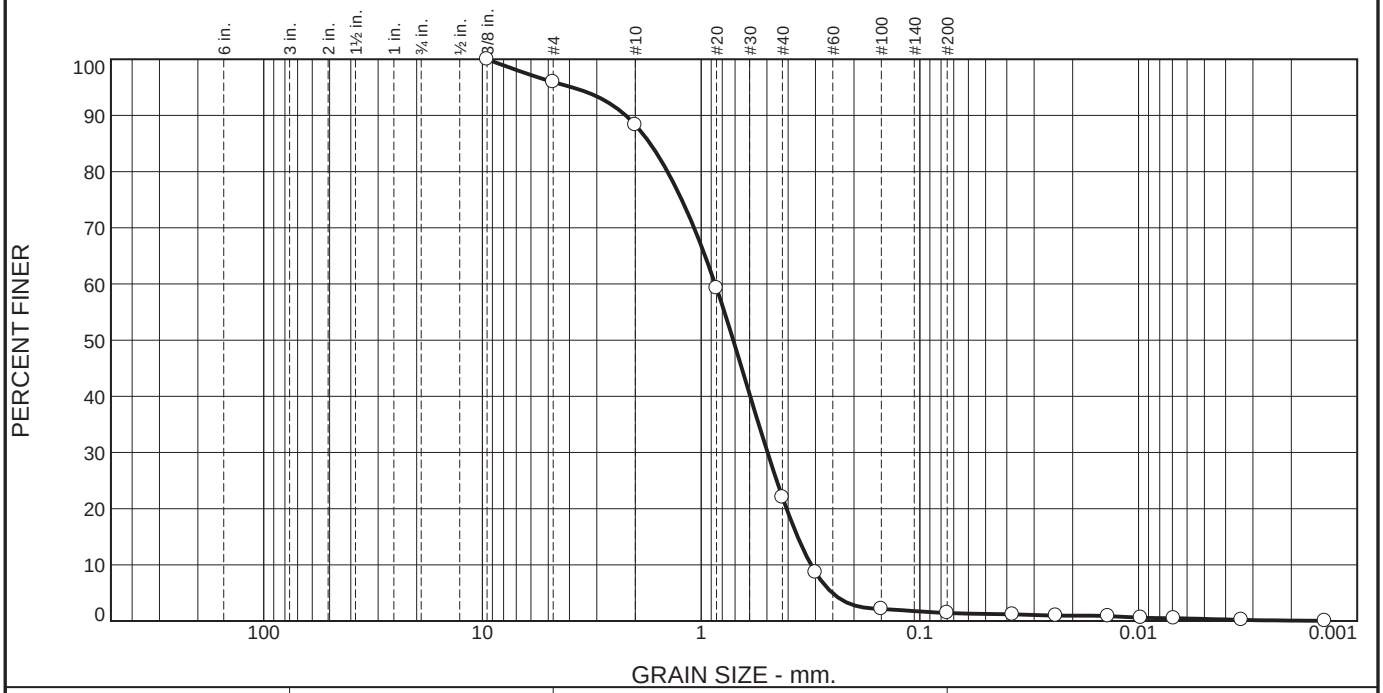
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 067

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.0	7.7	66.3	20.6	1.0	0.4

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	96.0		
#10	88.3		
#20	59.3		
#40	22.0		
#50	8.7		
#100	2.2		
#200	1.4		
0.0377 mm.	1.2		
0.0239 mm.	1.0		
0.0138 mm.	0.9		
0.0098 mm.	0.6		
0.0069 mm.	0.5		
0.0034 mm.	0.2		
0.0014 mm.	0.0		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP **AASHTO (M 145)=**

Coefficients

D_{90}= 2.2125 D_{85}= 1.7108 D_{60}= 0.8629
D_{50}= 0.7131 D_{30}= 0.4970 D_{15}= 0.3622
D_{10}= 0.3142 C_u= 2.75 C_c= 0.91

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34393-6
Sample Number: 15-1177

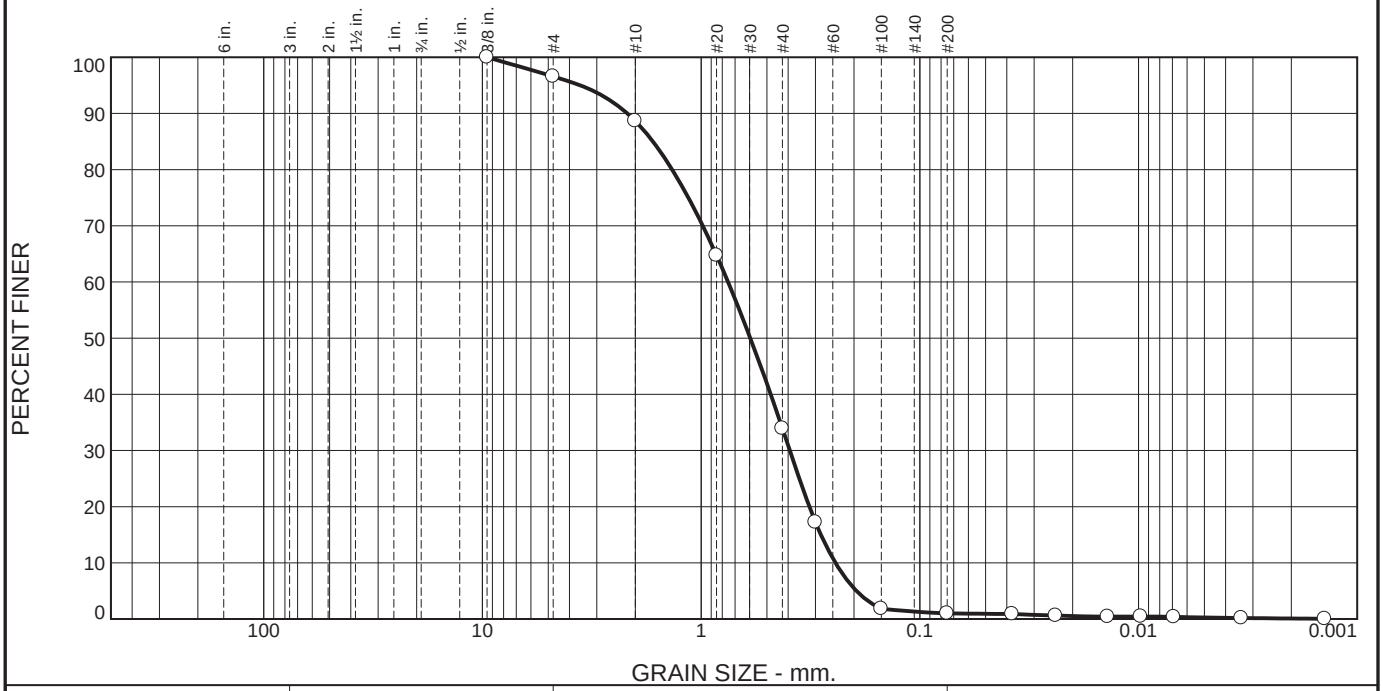
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 068

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.4	8.0	54.7	32.9	0.7	0.3

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	96.6		
#10	88.6		
#20	64.7		
#40	33.9		
#50	17.2		
#100	1.8		
#200	1.0		
0.0378 mm.	0.9		
0.0239 mm.	0.6		
0.0138 mm.	0.4		
0.0098 mm.	0.4		
0.0069 mm.	0.4		
0.0034 mm.	0.2		
0.0014 mm.	0.0		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP **AASHTO (M 145)=**

Coefficients

D_{90}= 2.1759 D_{85}= 1.6611 D_{60}= 0.7535
D_{50}= 0.5959 D_{30}= 0.3932 D_{15}= 0.2834
D_{10}= 0.2432 C_u= 3.10 C_c= 0.84

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34393-7
Sample Number: 15-1178

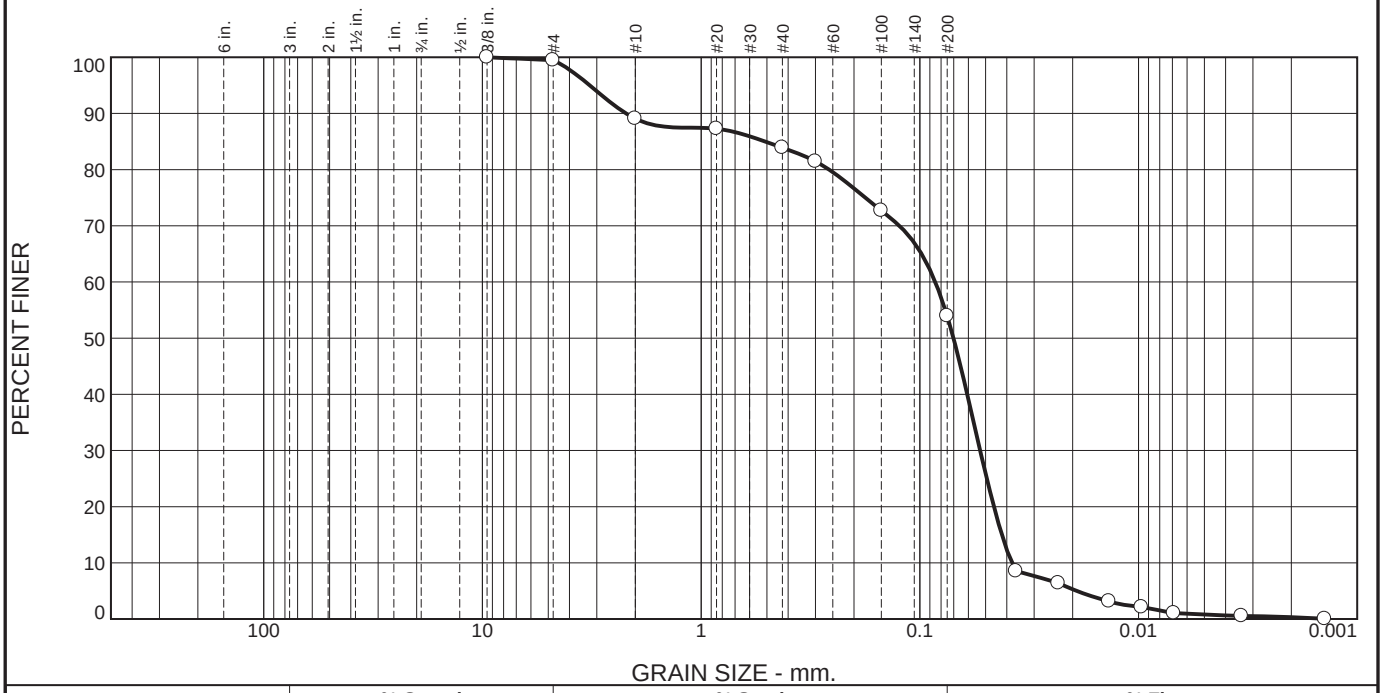
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 069

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	10.4	5.2	29.9	53.2	0.8

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	99.5		
#10	89.1		
#20	87.3		
#40	83.9		
#50	81.5		
#100	72.7		
#200	54.0		
0.0363 mm.	8.5		
0.0232 mm.	6.4		
0.0136 mm.	3.2		
0.0097 mm.	2.1		
0.0069 mm.	1.0		
0.0034 mm.	0.5		
0.0014 mm.	0.0		

* (no specification provided)

Material Description

Sandy silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= ML **AASHTO (M 145)=**

Coefficients

D_{90}= 2.2063 D_{85}= 0.5096 D_{60}= 0.0849
D_{50}= 0.0702 D_{30}= 0.0530 D_{15}= 0.0422
D_{10}= 0.0379 C_u= 2.24 C_c= 0.87

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34393-8
Sample Number: 15-1179

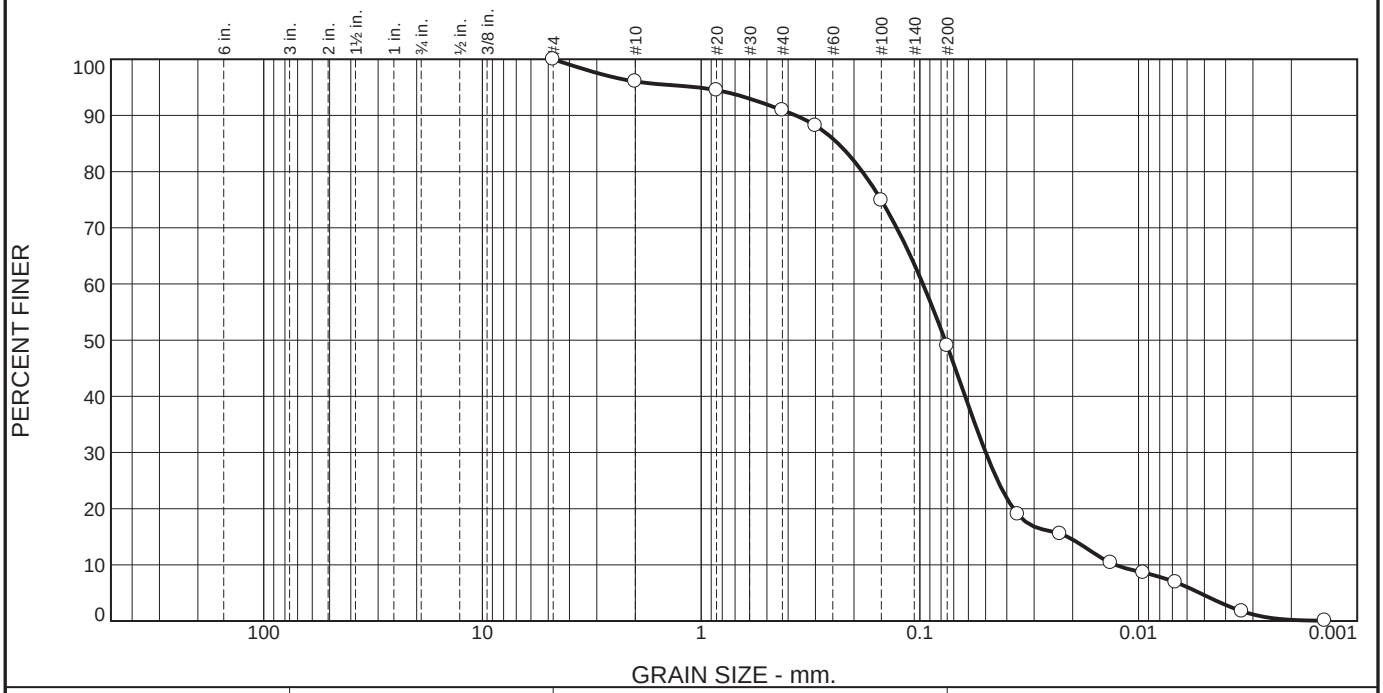
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 070

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	4.0	5.1	41.9	44.4	4.6

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	96.0		
#20	94.5		
#40	90.9		
#50	88.2		
#100	74.9		
#200	49.0		
0.0357 mm.	19.0		
0.0228 mm.	15.5		
0.0134 mm.	10.4		
0.0095 mm.	8.6		
0.0068 mm.	6.9		
0.0034 mm.	1.7		
0.0014 mm.	0.1		

* (no specification provided)

Material Description

Silty sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=**

Coefficients

D_{90}= 0.3695 D_{85}= 0.2365 D_{60}= 0.0968
D_{50}= 0.0766 D_{30}= 0.0499 D_{15}= 0.0212
D_{10}= 0.0127 C_u= 7.60 C_c= 2.02

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34393-9
Sample Number: 15-1180

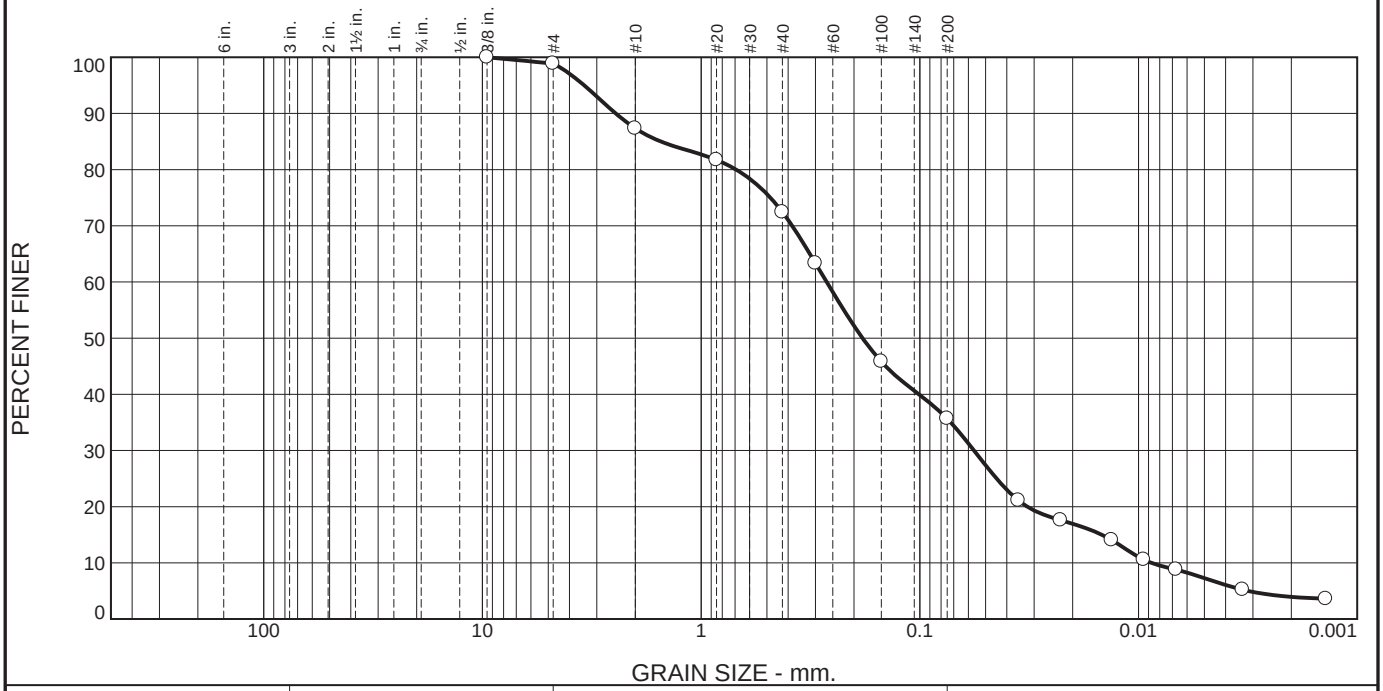
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 071

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	11.6	14.9	36.7	28.4	7.3

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	98.9		
#10	87.3		
#20	81.7		
#40	72.4		
#50	63.3		
#100	45.8		
#200	35.7		
0.0355 mm.	21.1		
0.0227 mm.	17.6		
0.0133 mm.	14.1		
0.0095 mm.	10.6		
0.0067 mm.	8.8		
0.0033 mm.	5.2		
0.0014 mm.	3.6		

* (no specification provided)

Material Description

Silty, clayey sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SC-SM **AASHTO (M 145)=**

Coefficients

D_{90}= 2.4571 D_{85}= 1.5277 D_{60}= 0.2667
D_{50}= 0.1827 D_{30}= 0.0565 D_{15}= 0.0147
D_{10}= 0.0087 C_u= 30.48 C_c= 1.37

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34393-10
Sample Number: 15-1181

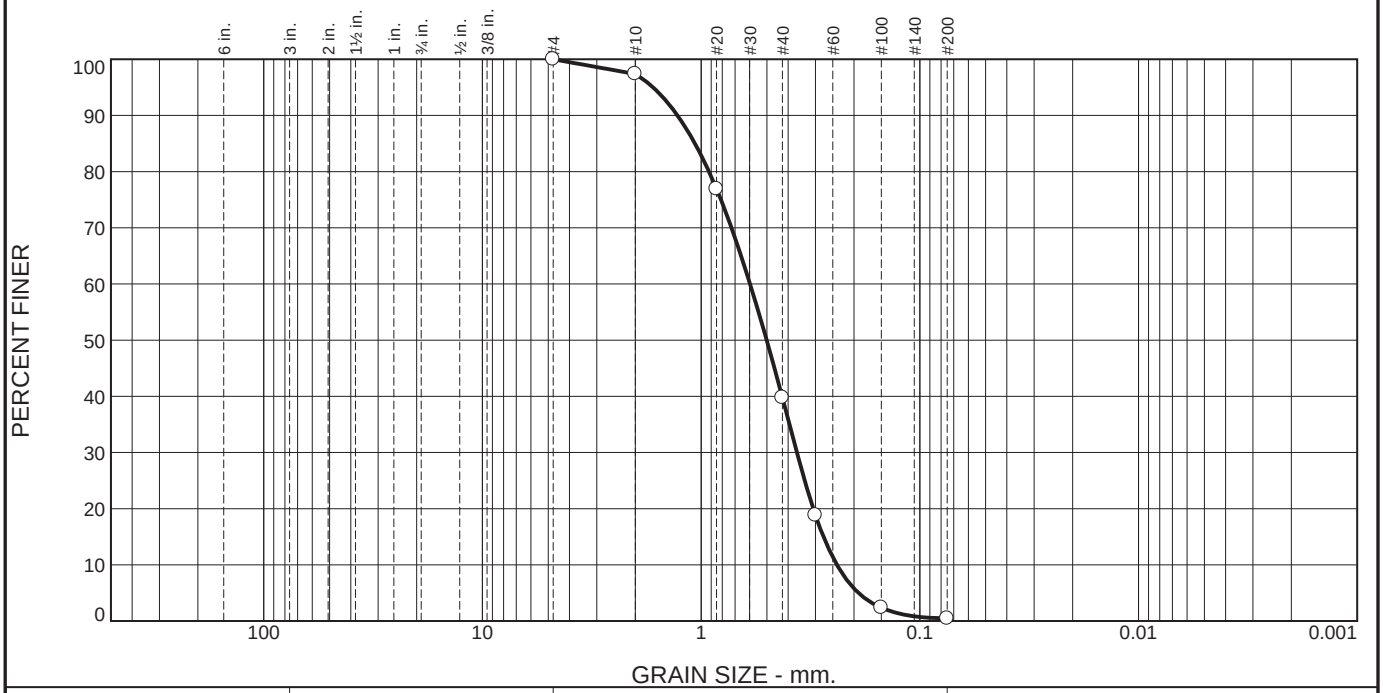
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 072

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.6	57.6	39.3	0.5	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	97.4		
#20	76.9		
#40	39.8		
#50	18.8		
#100	2.4		
#200	0.5		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SP AASHTO (M 145)=

Coefficients

D_{90}= 1.2824 D_{85}= 1.0672 D_{60}= 0.5974
D_{50}= 0.5016 D_{30}= 0.3648 D_{15}= 0.2759
D_{10}= 0.2394 C_u= 2.50 C_c= 0.93

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34393-11
Sample Number: 15-1182

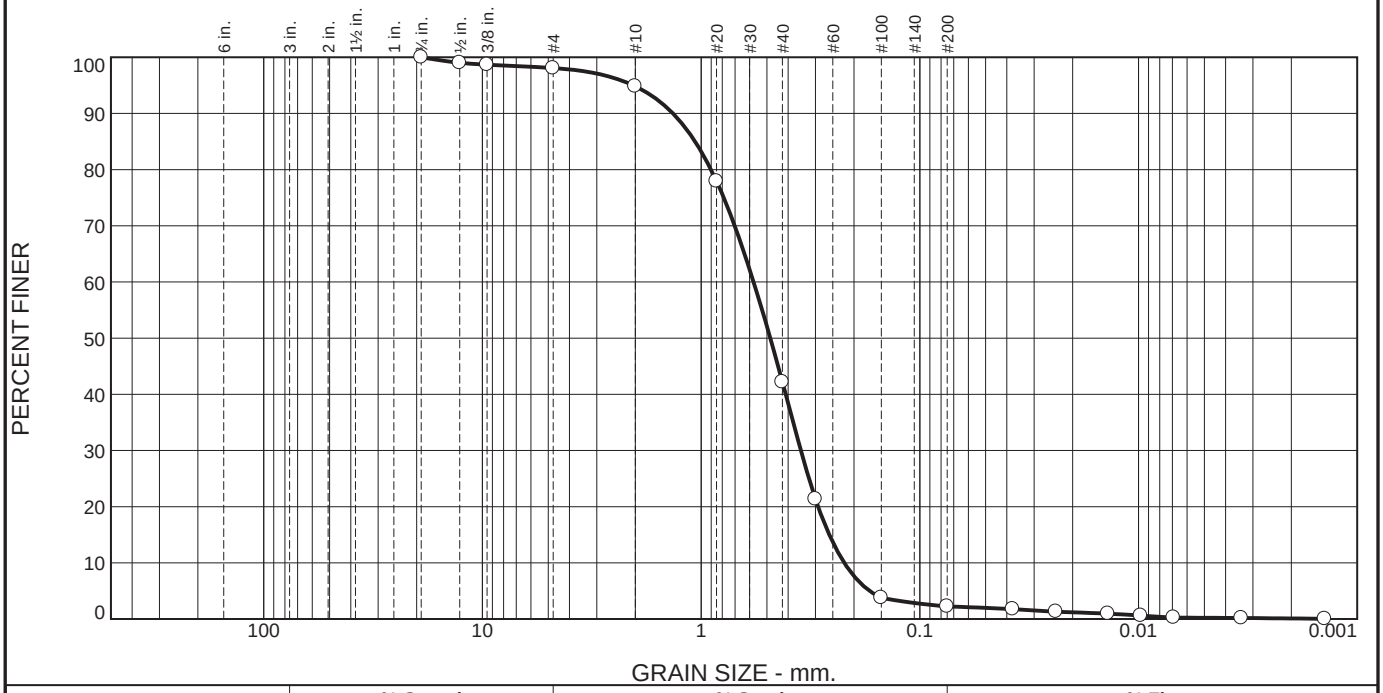
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 073

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.9	3.3	52.6	40.0	2.0	0.2

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
1/2	99.0		
3/8	98.7		
#4	98.1		
#10	94.8		
#20	77.9		
#40	42.2		
#50	21.4		
#100	3.8		
#200	2.2		
0.0376 mm.	1.8		
0.0238 mm.	1.3		
0.0138 mm.	1.0		
0.0098 mm.	0.6		
0.0069 mm.	0.3		
0.0034 mm.	0.2		
0.0014 mm.	0.0		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SP AASHTO (M 145)=

Coefficients

D_{90}= 1.3448 D_{85}= 1.0656 D_{60}= 0.5755
D_{50}= 0.4828 D_{30}= 0.3499 D_{15}= 0.2594
D_{10}= 0.2216 C_u= 2.60 C_c= 0.96

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34393-12
Sample Number: 15-1183

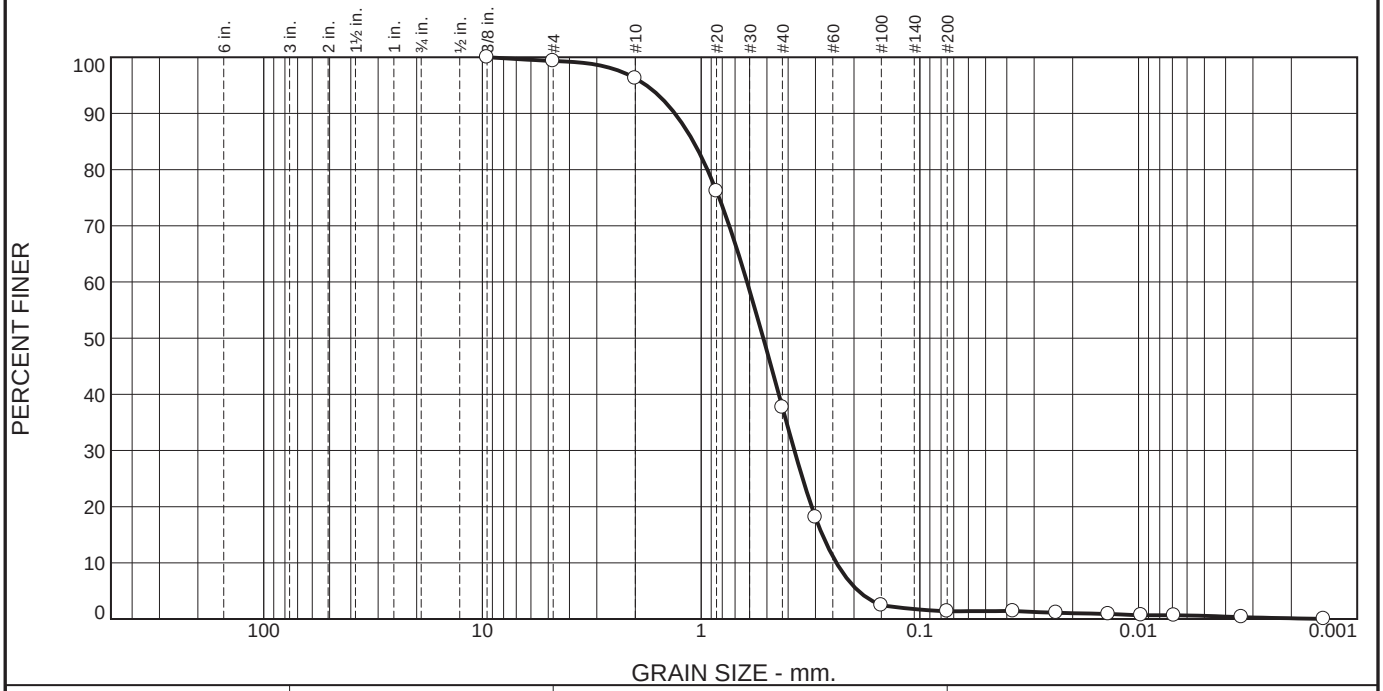
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 074

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	3.0	58.6	36.3	0.8	0.6

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	99.3		
#10	96.3		
#20	76.2		
#40	37.7		
#50	18.1		
#100	2.4		
#200	1.4		
0.0375 mm.	1.4		
0.0238 mm.	1.1		
0.0137 mm.	0.9		
0.0097 mm.	0.7		
0.0069 mm.	0.7		
0.0034 mm.	0.3		
0.0014 mm.	0.0		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP **AASHTO (M 145)=**

Coefficients

D_{90}= 1.3180 D_{85}= 1.0855 D_{60}= 0.6165
D_{50}= 0.5199 D_{30}= 0.3747 D_{15}= 0.2790
D_{10}= 0.2408 C_u= 2.56 C_c= 0.95

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34393-13
Sample Number: 15-1184

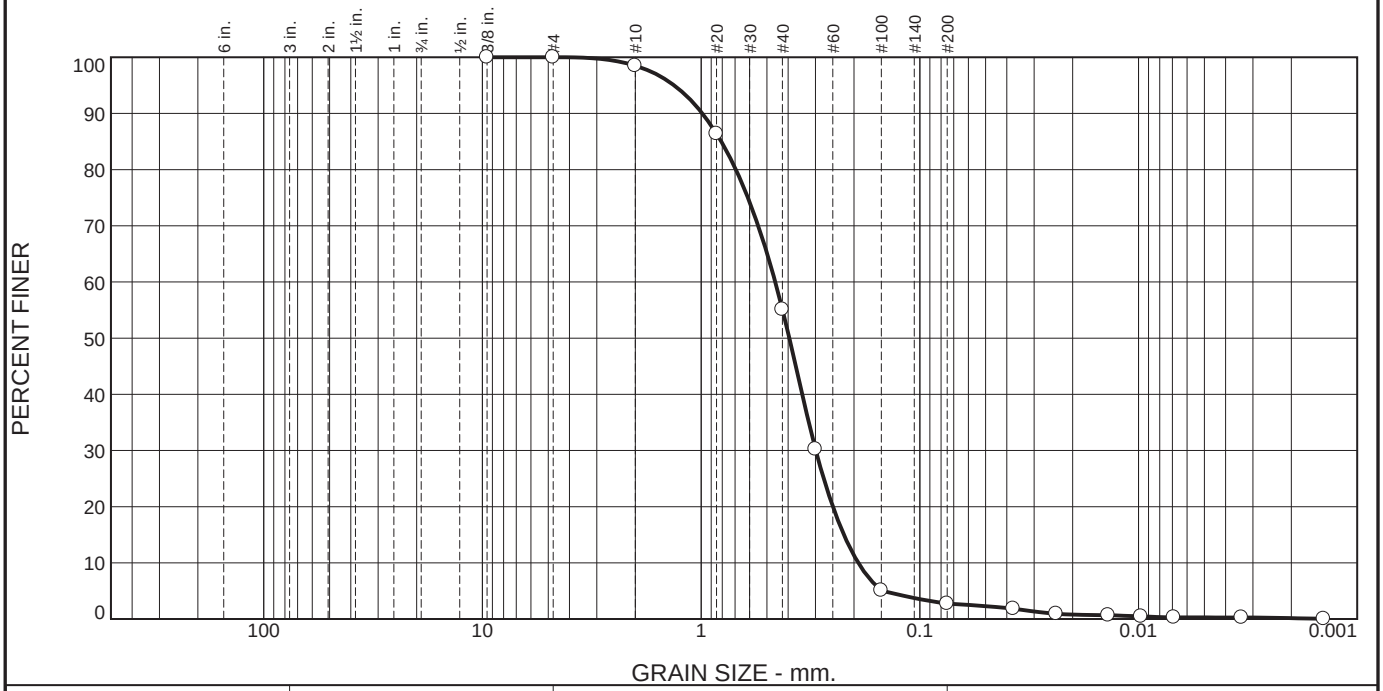
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 075

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.5	43.4	52.4	2.4	0.3

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	100.0		
#10	98.5		
#20	86.4		
#40	55.1		
#50	30.2		
#100	5.1		
#200	2.7		
0.0374 mm.	1.8		
0.0238 mm.	0.9		
0.0137 mm.	0.7		
0.0097 mm.	0.5		
0.0069 mm.	0.3		
0.0034 mm.	0.3		
0.0014 mm.	0.0		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SP AASHTO (M 145)=

Coefficients

D_{90}= 0.9877 D_{85}= 0.8093 D_{60}= 0.4582
D_{50}= 0.3952 D_{30}= 0.2989 D_{15}= 0.2225
D_{10}= 0.1911 C_u= 2.40 C_c= 1.02

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34393-14
Sample Number: 15-1185

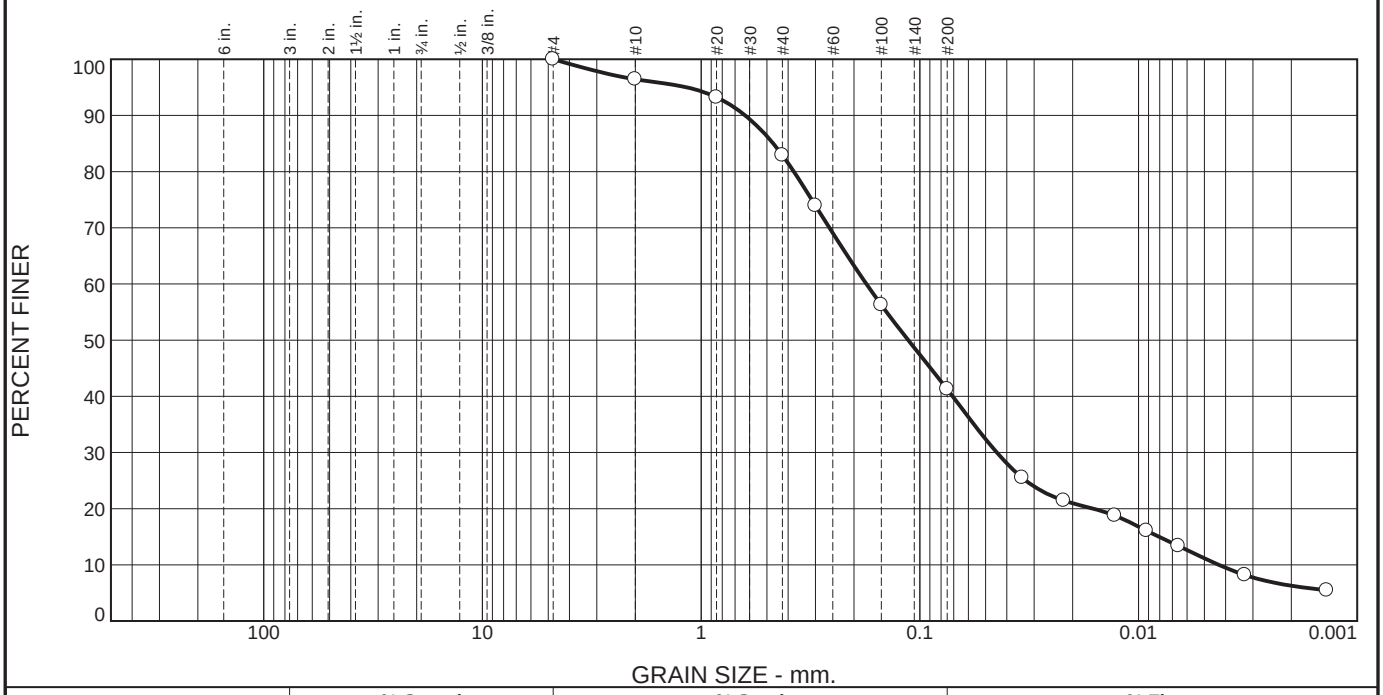
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 076

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	3.6	13.5	41.6	30.1	11.2

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	96.4		
#20	93.2		
#40	82.9		
#50	73.9		
#100	56.3		
#200	41.3		
0.0341 mm.	25.5		
0.0220 mm.	21.5		
0.0128 mm.	18.8		
0.0092 mm.	16.1		
0.0066 mm.	13.4		
0.0033 mm.	8.2		
0.0014 mm.	5.5		

* (no specification provided)

Material Description

Silty, clayey sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SC-SM **AASHTO (M 145)=**

Coefficients

D_{90}= 0.6288 D_{85}= 0.4681 D_{60}= 0.1755
D_{50}= 0.1130 D_{30}= 0.0445 D_{15}= 0.0081
D_{10}= 0.0043 C_u= 40.88 C_c= 2.63

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34393-15
Sample Number: 15-1186

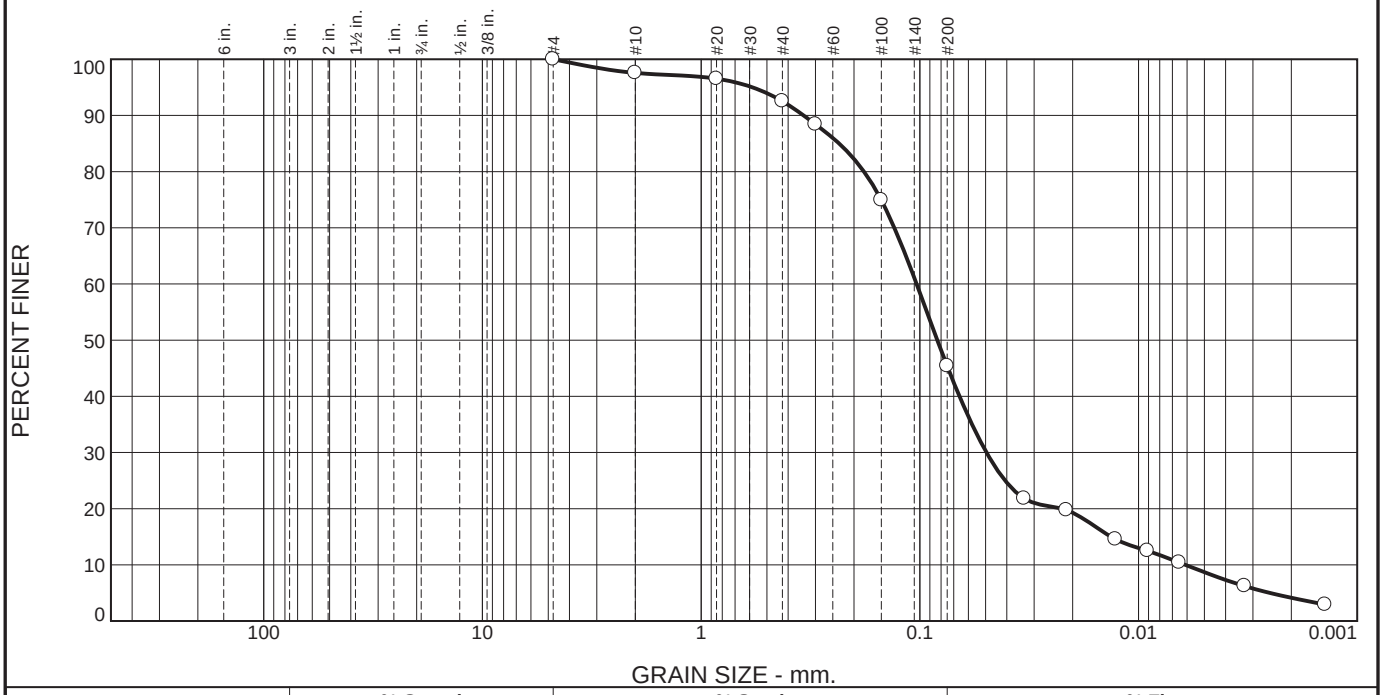
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 077

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.4	5.1	47.1	36.7	8.7

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	97.6		
#20	96.5		
#40	92.5		
#50	88.4		
#100	74.9		
#200	45.4		
0.0333 mm.	21.8		
0.0214 mm.	19.8		
0.0127 mm.	14.6		
0.0091 mm.	12.5		
0.0065 mm.	10.4		
0.0033 mm.	6.2		
0.0014 mm.	2.9		

* (no specification provided)

Material Description

Silty, clayey sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SC-SM **AASHTO (M 145)=**

Coefficients

D_{90}= 0.3402 D_{85}= 0.2339 D_{60}= 0.1035
D_{50}= 0.0831 D_{30}= 0.0495 D_{15}= 0.0134
D_{10}= 0.0061 C_u= 16.94 C_c= 3.89

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34393-16
Sample Number: 15-1187

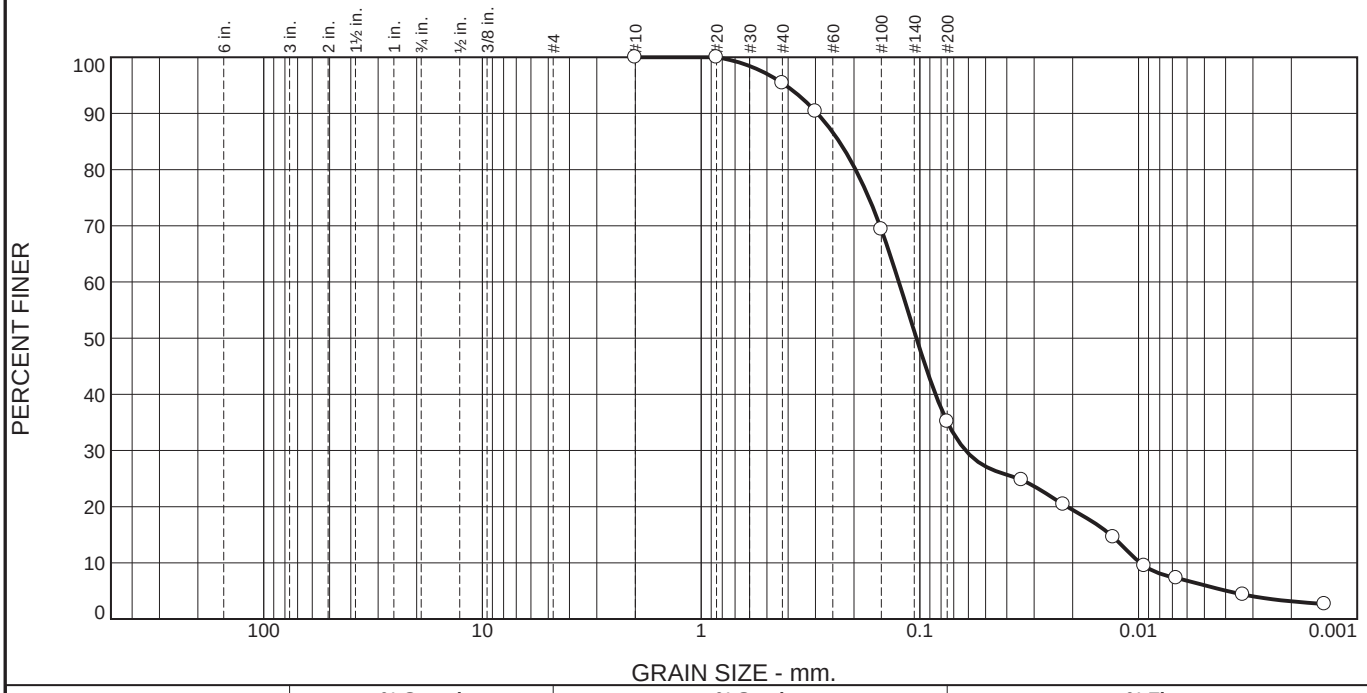
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 078

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.6	60.3	29.1	6.0

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#10	100.0		
#20	100.0		
#40	95.4		
#50	90.4		
#100	69.4		
#200	35.1		
0.0342 mm.	24.8		
0.0221 mm.	20.4		
0.0131 mm.	14.6		
0.0094 mm.	9.5		
0.0067 mm.	7.3		
0.0033 mm.	4.4		
0.0014 mm.	2.7		

* (no specification provided)

Material Description

Silty, clayey sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SC-SM **AASHTO (M 145)=**

Coefficients

D_{90}= 0.2941 D_{85}= 0.2338 D_{60}= 0.1247
D_{50}= 0.1037 D_{30}= 0.0617 D_{15}= 0.0134
D_{10}= 0.0098 C_u= 12.72 C_c= 3.12

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34393-17
Sample Number: 15-1188

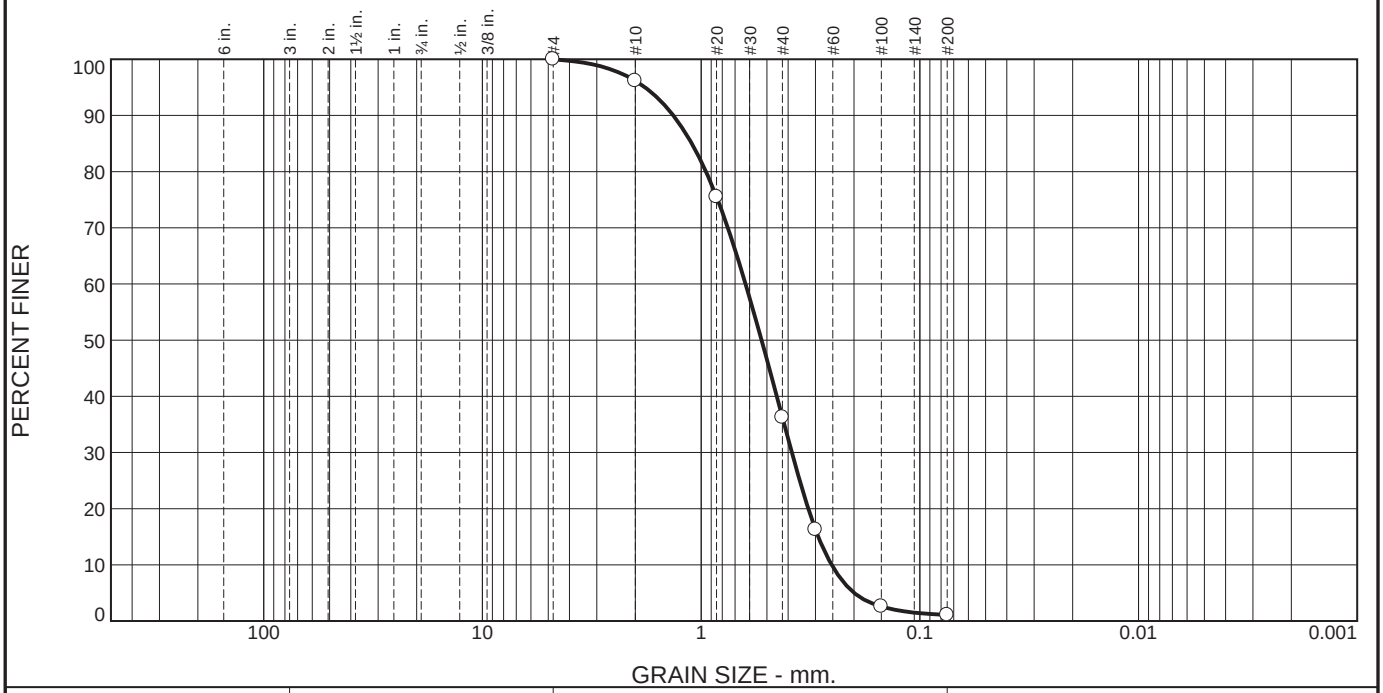
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 079

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	3.8	59.9	35.2	1.1	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	96.2		
#20	75.5		
#40	36.3		
#50	16.3		
#100	2.6		
#200	1.1		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SP AASHTO (M 145)=

Coefficients

D_{90}= 1.3404 D_{85}= 1.1033 D_{60}= 0.6264
D_{50}= 0.5293 D_{30}= 0.3848 D_{15}= 0.2914
D_{10}= 0.2532 C_u= 2.47 C_c= 0.93

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34395-1
Sample Number: 15-1189

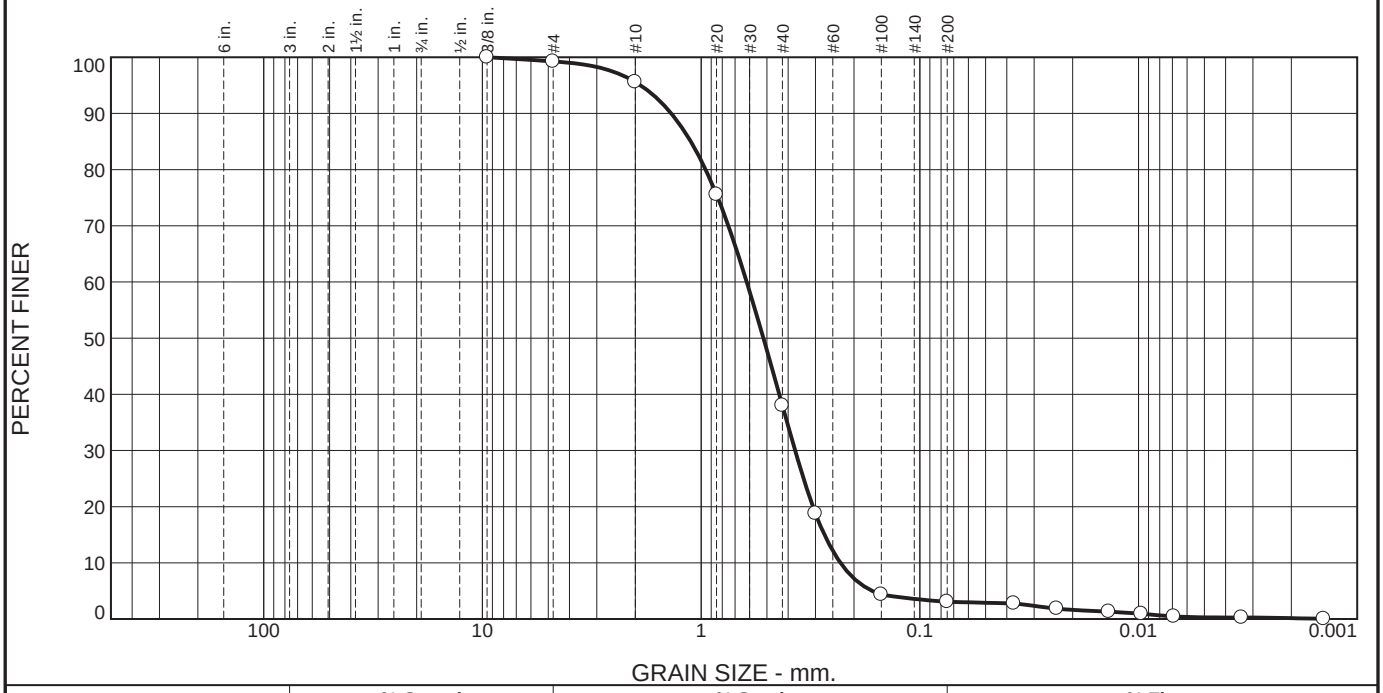
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 080

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	3.7	57.6	34.9	2.8	0.3

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	99.3		
#10	95.6		
#20	75.5		
#40	38.0		
#50	18.8		
#100	4.3		
#200	3.1		
0.0372 mm.	2.8		
0.0236 mm.	1.9		
0.0137 mm.	1.3		
0.0097 mm.	0.9		
0.0069 mm.	0.5		
0.0034 mm.	0.3		
0.0014 mm.	0.0		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP **AASHTO (M 145)=**

Coefficients

D_{90}= 1.3700 D_{85}= 1.1153 D_{60}= 0.6186
D_{50}= 0.5192 D_{30}= 0.3718 D_{15}= 0.2732
D_{10}= 0.2308 C_u= 2.68 C_c= 0.97

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34395-2
Sample Number: 15-1190

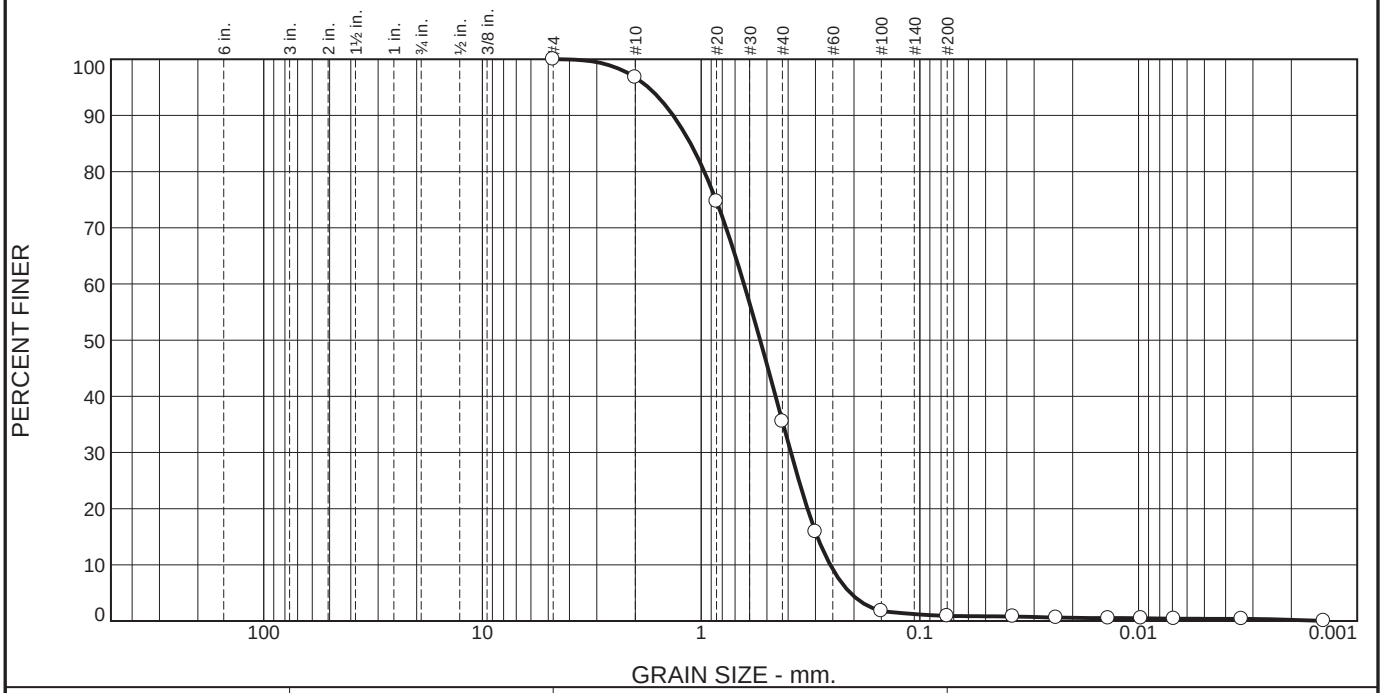
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 081

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	3.2	61.3	34.6	0.5	0.4

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	96.8		
#20	74.7		
#40	35.5		
#50	15.9		
#100	1.8		
#200	0.9		
0.0376 mm.	0.8		
0.0238 mm.	0.6		
0.0138 mm.	0.5		
0.0097 mm.	0.5		
0.0069 mm.	0.4		
0.0034 mm.	0.4		
0.0014 mm.	0.0		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP **AASHTO (M 145)=**

Coefficients

D_{90}= 1.3422 D_{85}= 1.1180 D_{60}= 0.6371
D_{50}= 0.5372 D_{30}= 0.3886 D_{15}= 0.2941
D_{10}= 0.2569 C_u= 2.48 C_c= 0.92

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34395-3
Sample Number: 15-1191

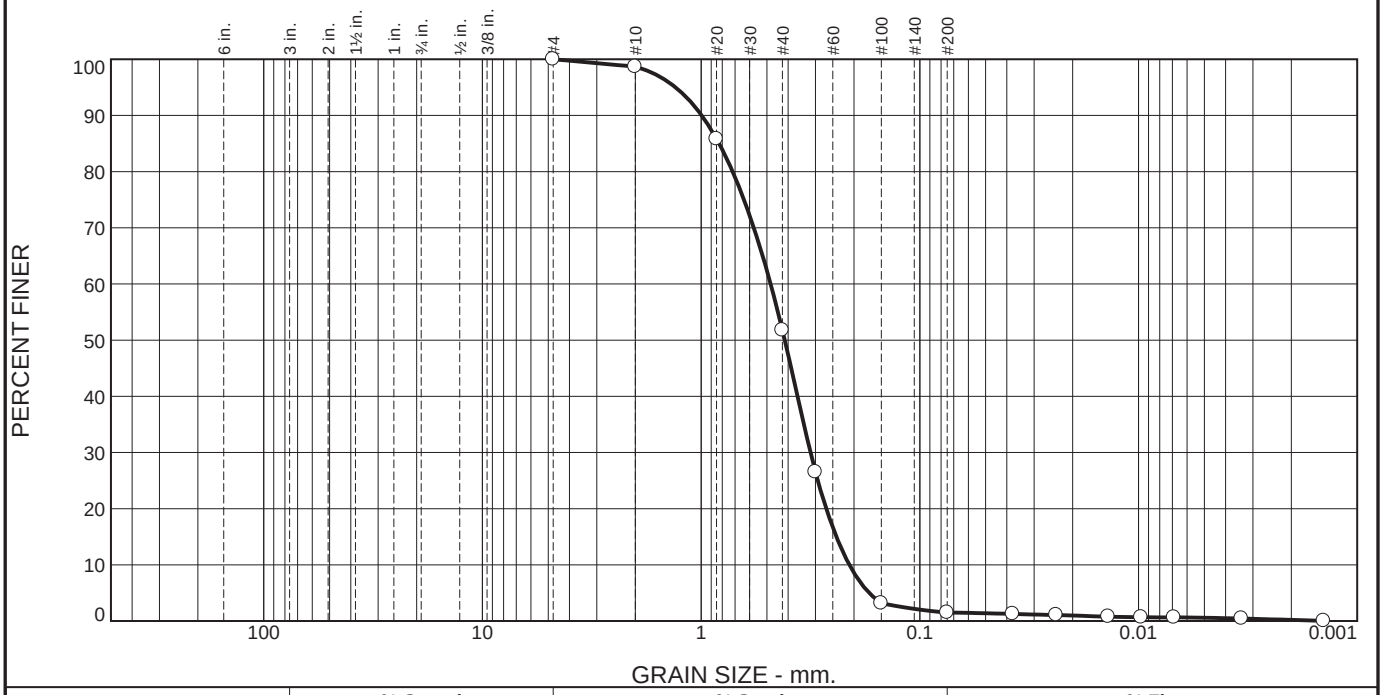
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 082

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.3	46.9	50.3	0.9	0.6

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	98.7		
#20	85.8		
#40	51.8		
#50	26.5		
#100	3.2		
#200	1.5		
0.0376 mm.	1.3		
0.0238 mm.	1.1		
0.0137 mm.	0.8		
0.0097 mm.	0.7		
0.0069 mm.	0.6		
0.0034 mm.	0.4		
0.0014 mm.	0.0		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SP AASHTO (M 145)=

Coefficients

D_{90}= 0.9946 D_{85}= 0.8278 D_{60}= 0.4811
D_{50}= 0.4146 D_{30}= 0.3161 D_{15}= 0.2409
D_{10}= 0.2100 C_u= 2.29 C_c= 0.99

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34395-4
Sample Number: 15-1192

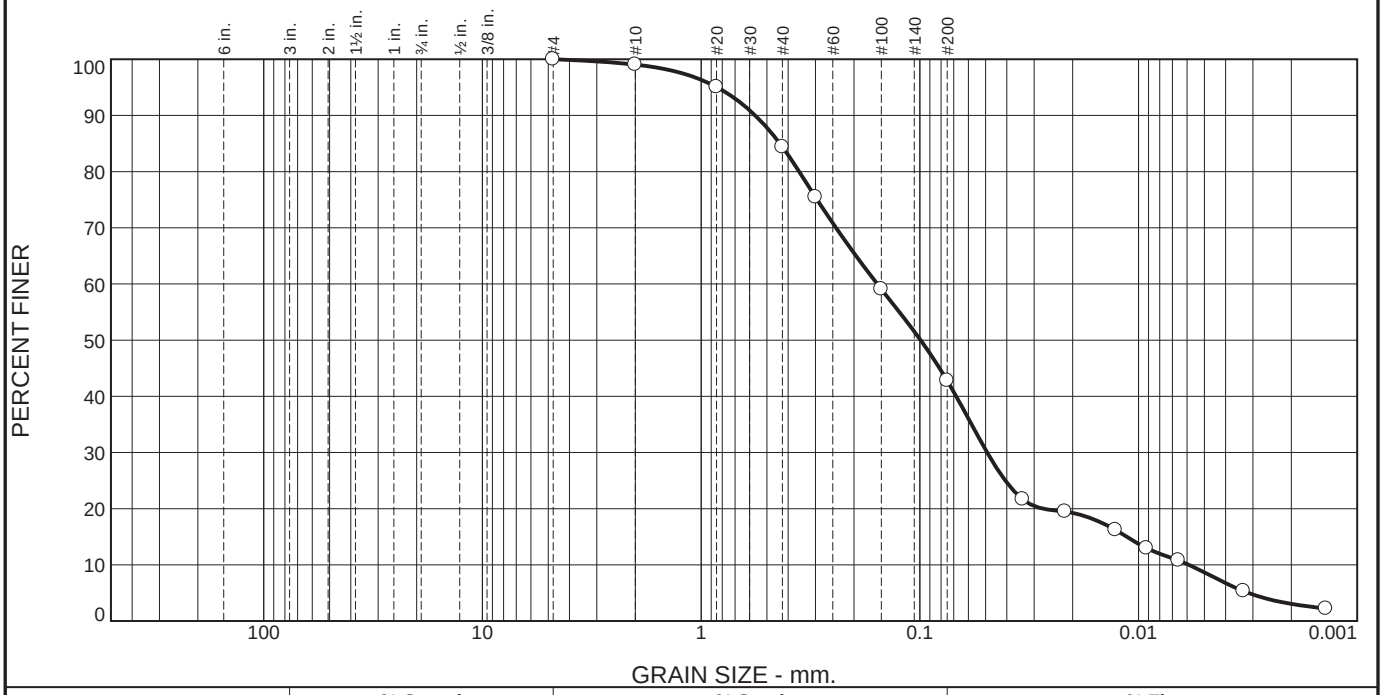
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 083

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	14.6	41.6	34.1	8.7

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.0		
#20	95.1		
#40	84.4		
#50	75.5		
#100	59.1		
#200	42.8		
0.0339 mm.	21.7		
0.0217 mm.	19.5		
0.0128 mm.	16.2		
0.0092 mm.	13.0		
0.0066 mm.	10.8		
0.0033 mm.	5.3		
0.0014 mm.	2.2		

* (no specification provided)

Material Description

Silty, clayey sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SC-SM **AASHTO (M 145)=**

Coefficients

D_{90}= 0.5660 D_{85}= 0.4365 D_{60}= 0.1565
D_{50}= 0.0992 D_{30}= 0.0492 D_{15}= 0.0113
D_{10}= 0.0059 C_u= 26.56 C_c= 2.62

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34395-5
Sample Number: 15-1193

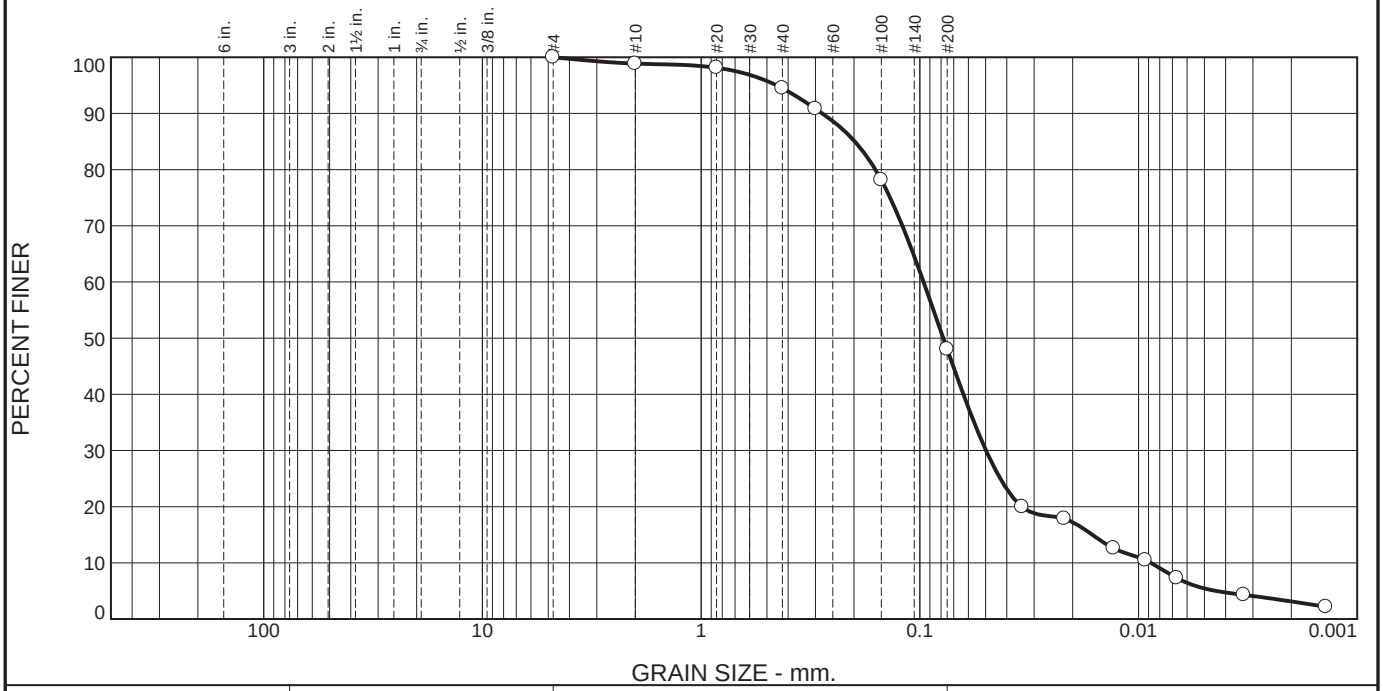
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 084

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.1	4.4	46.5	42.6	5.4

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	98.9		
#20	98.1		
#40	94.5		
#50	90.8		
#100	78.2		
#200	48.0		
0.0341 mm.	20.0		
0.0218 mm.	17.9		
0.0130 mm.	12.6		
0.0093 mm.	10.5		
0.0067 mm.	7.3		
0.0033 mm.	4.3		
0.0014 mm.	2.2		

* (no specification provided)

Material Description

Silty, clayey sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SC-SM **AASHTO (M 145)=**

Coefficients

D_{90}= 0.2795 D_{85}= 0.1981 D_{60}= 0.0961
D_{50}= 0.0781 D_{30}= 0.0498 D_{15}= 0.0163
D_{10}= 0.0088 C_u= 10.93 C_c= 2.93

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34395-6
Sample Number: 15-1194

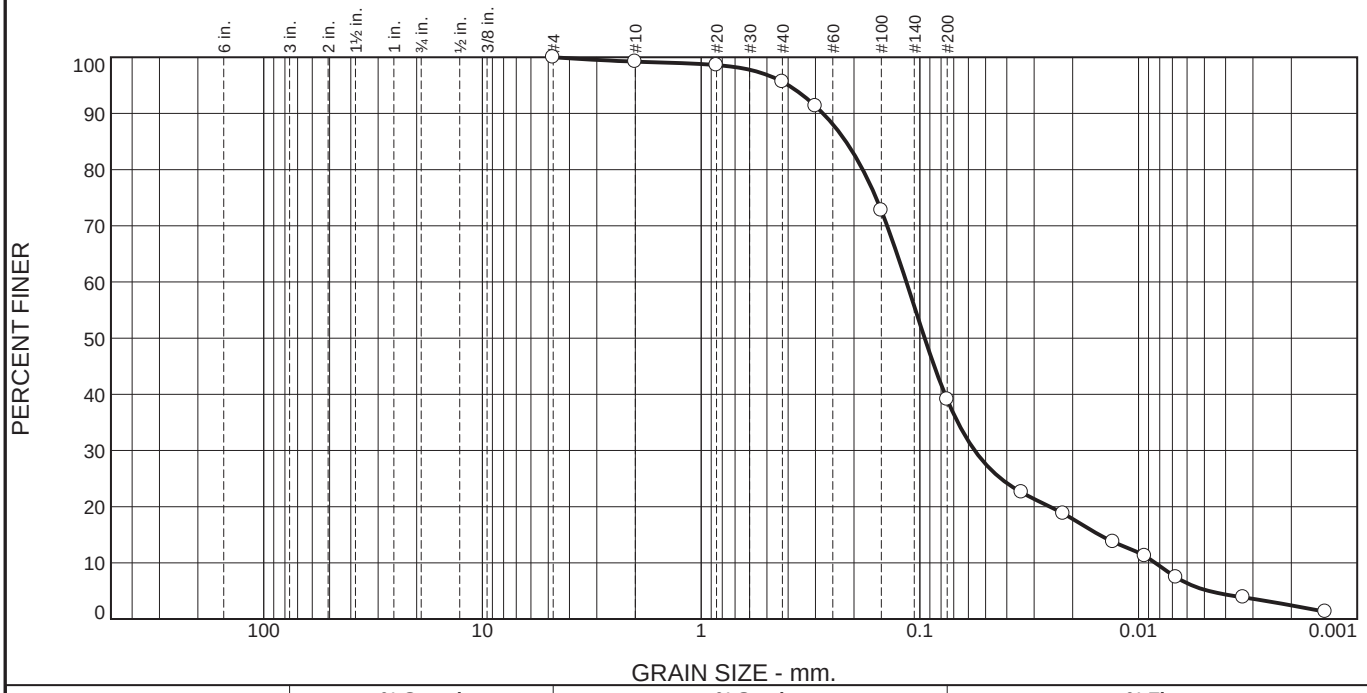
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 085

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.8	3.6	56.5	33.9	5.2

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.2		
#20	98.6		
#40	95.6		
#50	91.3		
#100	72.7		
#200	39.1		
0.0343 mm.	22.6		
0.0221 mm.	18.8		
0.0131 mm.	13.7		
0.0094 mm.	11.2		
0.0067 mm.	7.4		
0.0033 mm.	3.9		
0.0014 mm.	1.3		

* (no specification provided)

Material Description

Silty, clayey sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SC-SM **AASHTO (M 145)=**

Coefficients

D_{90}= 0.2773 D_{85}= 0.2177 D_{60}= 0.1152
D_{50}= 0.0950 D_{30}= 0.0561 D_{15}= 0.0151
D_{10}= 0.0084 C_u= 13.76 C_c= 3.26

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

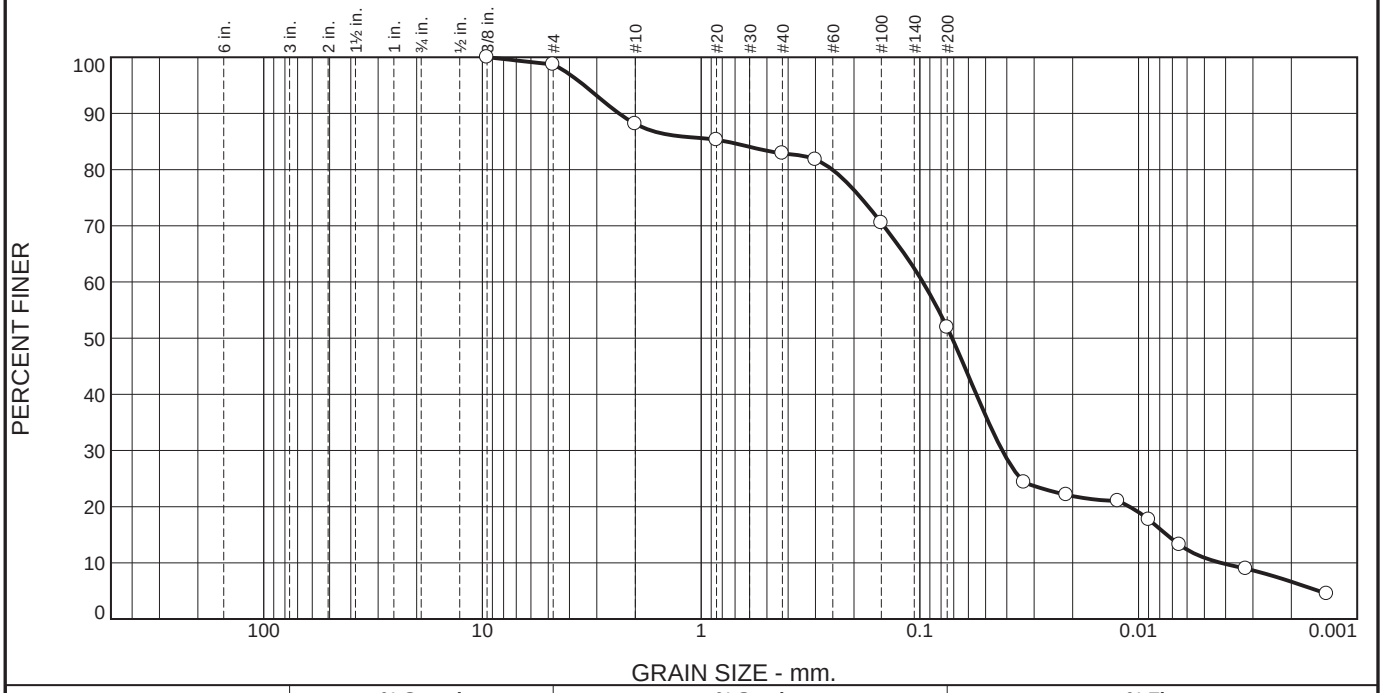
Location: 34395-7
Sample Number: 15-1195

Date Sampled: 9-9-15

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 086

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	10.6	5.2	31.0	41.0	10.9

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/8	100.0		
#4	98.7		
#10	88.1		
#20	85.3		
#40	82.9		
#50	81.8		
#100	70.5		
#200	51.9		
0.0334 mm.	24.3		
0.0214 mm.	22.1		
0.0124 mm.	21.0		
0.0090 mm.	17.7		
0.0065 mm.	13.2		
0.0032 mm.	9.0		
0.0014 mm.	4.5		

* (no specification provided)

Material Description

Sandy silty clay

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= CL-ML **AASHTO (M 145)=**

Coefficients

D_{90}= 2.3750 D_{85}= 0.7685 D_{60}= 0.0970
D_{50}= 0.0712 D_{30}= 0.0420 D_{15}= 0.0074
D_{10}= 0.0042 C_u= 23.06 C_c= 4.32

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34395-8
Sample Number: 15-1196

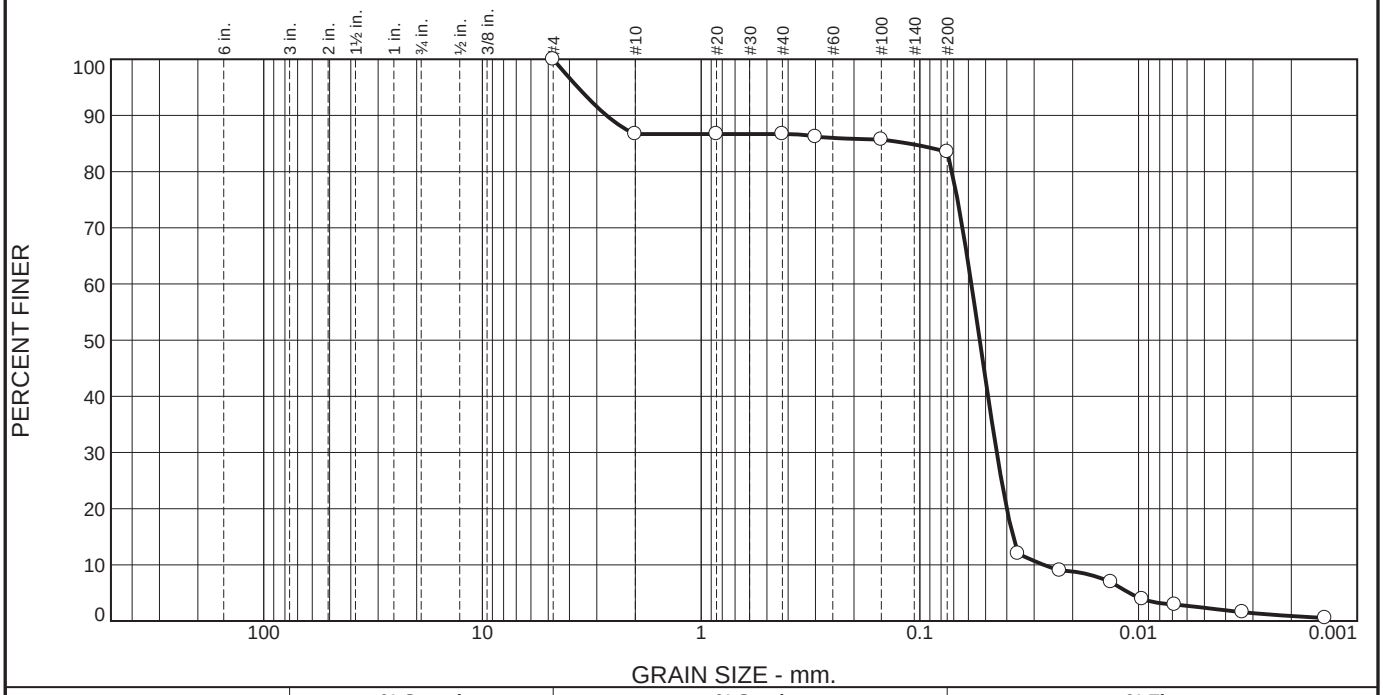
Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 087

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	13.3	0.0	3.2	81.1	2.4

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	86.7		
#20	86.7		
#40	86.7		
#50	86.2		
#100	85.7		
#200	83.5		
0.0356 mm.	12.0		
0.0229 mm.	9.0		
0.0134 mm.	7.0		
0.0096 mm.	3.9		
0.0068 mm.	2.9		
0.0033 mm.	1.6		
0.0014 mm.	0.6		

* (no specification provided)

Material Description

Sandy silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= ML **AASHTO (M 145)=**

Coefficients

D_{90}= 2.7077 D_{85}= 0.1124 D_{60}= 0.0581
D_{50}= 0.0532 D_{30}= 0.0445 D_{15}= 0.0374
D_{10}= 0.0271 C_u= 2.14 C_c= 1.26

Remarks

Date Received: 9-25-15 **Date Tested:** 10-13-15

Tested By: Ted Moody

Checked By: Jeff Young

Title: Lab Manager

Location: 34395-9
Sample Number: 15-1197

Date Sampled: 9-9-15

JTC GEOTECHNICAL • CONSTRUCTION

Client: Absolute Resource Associates
Project: Miscellaneous Testing

Project No: 15-25-006 **Figure** 088

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

29 November 2016

Bart Chadwick
Navy -- SPAWAR
Environmental Science and Applied System Branch, 536(
San Diego, CA 92152

RE: Quantico

Enclosed are the results of analyses for samples received by the laboratory on 26-Aug-2016. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jenifer Milam For Dale Rosado, Ph. D.
Chemist

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Bart Chadwick

Reported:
29-Nov-2016

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
QT25-1-0002-SedChem	6082611-01	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-1-0205-SedChem	6082611-02	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-1-0507-SedChem	6082611-03	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-1-0002-SedChem-AI	6082611-04	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-1-0002-SedChem-BI	6082611-05	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-1-0205-SedChem-BI	6082611-06	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-1-0507-SedChem-BI	6082611-07	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-2-0002-SedChem	6082611-08	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-2-0205-SedChem	6082611-09	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-2-0507-SedChem	6082611-10	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-2-0002-SedChem-AI	6082611-11	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-2-0002-SedChem-BI	6082611-12	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-2-0205-SedChem-BI	6082611-13	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-2-0507-SedChem-BI	6082611-14	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-3-0002-SedChem	6082611-15	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-3-0205-SedChem	6082611-16	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-3-0507-SedChem	6082611-17	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-3-0002-SedChem-AI	6082611-18	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-3-0002-SedChem-BI	6082611-19	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-3-0205-SedChem-BI	6082611-20	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-3-0507-SedChem-BI	6082611-21	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-4-0002-SedChem	6082611-22	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-4-0205-SedChem	6082611-23	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-4-0507-SedChem	6082611-24	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-4-0002-SedChem-AI	6082611-25	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-4-0002-SedChem-BI	6082611-26	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-4-0205-SedChem-BI	6082611-27	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-4-0507-SedChem-BI	6082611-28	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-5-0002-SedChem	6082611-29	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-5-0205-SedChem	6082611-30	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-5-0507-SedChem	6082611-31	Soil/Sediment	24-Aug-2016	26-Aug-2016

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Bart Chadwick

Reported:
29-Nov-2016

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
QT25-5-0002-SedChem-AI	6082611-32	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-5-0002-SedChem-BI	6082611-33	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-5-0205-SedChem-BI	6082611-34	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-5-0507-SedChem-BI	6082611-35	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-5DUP-0002-SedChem	6082611-36	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-5DUP-0205-SedChem	6082611-37	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-5DUP-0507-SedChem	6082611-38	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-5DUP-002-SedChem-AI	6082611-39	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-5DUP-002-SedChem-BI	6082611-40	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-5DUP-0205-SedChem-BI	6082611-41	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-5DUP-0507-SedChem-BI	6082611-42	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-6-GRAB-SedChem	6082611-43	Soil/Sediment	24-Aug-2016	26-Aug-2016
QT25-7-GRAB-SedChem	6082611-44	Soil/Sediment	24-Aug-2016	26-Aug-2016

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

Case Narrative

No issues were experienced during the analysis of Work Order 6082611 unless specified below.

Surrogate was inadvertently left out of sample 6082600-08, however, there was no sample to re-extract.

In many samples, the 4,4-DDT values between the primary and confirmation columns had RPDs >40%. This also occured in a few samples for 2,4-DDE and 2,4-DDT. Many samples also had PCBs present which could be responsible for the differences in the the concentrations. Per SW 846, the lower value was reported.

Congener data will be sent as a separate excel file.

QT25-1-0002-SedChem-AI 6082611-04, QT25-2-0002-SedChem 6082611-08, QT25-5-0507-SedChem-BI 6082611-35 were analyzed by both TOCWalkey Black and TOC9060.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

Notes and Definitions

U	Analyte included in the analysis, but not detected
RPD-04	RPD between primary and confirmation column values >40%. Per SW846 8000C, the lower result has been reported.
QM-08	Spike or surrogate was inadvertently left out of this sample.
P	Duplicate analysis does not meet the acceptance criteria for precision
M2	Sample was diluted due to matrix interference.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-1-0002-SedChem

6082611-01 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Solids	**76.5**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**20.4**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**10.5**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.24**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDD	**23.6**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**16.7**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**46.1**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.70**		*50.0 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.42**		*71.0 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-1-0002-SedChem

6082611-01RE1 (Soil/Sediment)

Air Water and Soil Laboratories, Inc.

Wet Chemistry Analysis

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
TOC	**1820**	800	1000	mg/kg	15-Sep-2016	15-Sep-2016	SW9060A	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-1-0205-SedChem

6082611-02 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**72.9**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**11.6**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**3.74**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.18**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	J
4,4´-DDD	**58.2**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**11.4**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**5.50**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.75**		*50.5 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.72**		*78.5 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-1-0205-SedChem

6082611-02RE1 (Soil/Sediment)

Air Water and Soil Laboratories, Inc.

Wet Chemistry Analysis

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
TOC	**1860**	800	1000	mg/kg	15-Sep-2016	15-Sep-2016	SW9060A	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-1-0507-SedChem

6082611-03 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**75.3**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**12.5**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**5.73**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.35**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDD	**66.2**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**12.2**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**4.15**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.75**		*51.8 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.47**		*73.0 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-1-0507-SedChem

6082611-03RE1 (Soil/Sediment)

Air Water and Soil Laboratories, Inc.

Wet Chemistry Analysis

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
TOC	**1790**	800	1000	mg/kg	15-Sep-2016	15-Sep-2016	SW9060A	

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-1-0002-SedChem-AI

6082611-04 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**85.5**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**3.34**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**1.30**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
2,4´-DDT	ND	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**14.6**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**2.87**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**0.48**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.67**		*55.8 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.18**		*73.0 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	ND	500	500	mg/kg	15-Sep-2016	15-Sep-2016	SW9060A	
WALKLEY_BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	ND	67	250	mg/Kg		21-Sep-2016	WALKLEY BLACK	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Bart Chadwick

Reported:
29-Nov-2016

QT25-1-0002-SedChem-BI

6082611-05 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**78.5**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**21.8**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**11.6**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	ND	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**685**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**15.9**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**8.52**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.72**		*52.4 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.99**		*60.4 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**1460**	800	1000	mg/kg	15-Sep-2016	15-Sep-2016	SW9060A	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico
Project Manager: Bart Chadwick

Reported:
29-Nov-2016

QT25-1-0205-SedChem-BI

6082611-06 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**77.2**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**12.4**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**3.90**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**1.54**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDD	**52.7**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**10.7**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**3.96**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.70**		*50.6 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.18**		*65.0 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**1700**	800	1000	mg/kg	15-Sep-2016	15-Sep-2016	SW9060A	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Bart Chadwick

Reported:
29-Nov-2016

QT25-1-0507-SedChem-BI

6082611-07 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**77.1**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**7.58**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**3.29**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	ND	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**29.7**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**5.42**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**1.02**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.54**		*44.8 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.48**		*72.2 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**1700**	800	1000	mg/kg	15-Sep-2016	15-Sep-2016	SW9060A	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Bart Chadwick

Reported:
29-Nov-2016

QT25-2-0002-SedChem

6082611-08 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**86.8**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**1.01**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**0.15**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**3.93**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**0.16**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	J
4,4´-DDT	**0.09**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**ND**		*%*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	*QM-08, U*
Surrogate: Decachlorobiphenyl	**ND**		*%*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	*QM-08, U*
Wet Chemistry Analysis								
TOC	**455**	80.0	100	mg/kg	15-Sep-2016	15-Sep-2016	SW9060A	
WALKLEY BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**340**	67	250	mg/Kg		21-Sep-2016	WALKLEY BLACK	

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San Diego CA, 92152

Project: Quantico

Project Manager: Bart Chadwick

Reported:
29-Nov-2016

QT25-2-0205-SedChem

6082611-09 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**86.1**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**1.48**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**0.53**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	ND	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**7.60**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**0.99**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**0.21**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.57**		*52.5 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.92**		*64.4 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**477**	80.0	100	mg/kg	15-Sep-2016	15-Sep-2016	SW9060A	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Bart Chadwick

Reported:
29-Nov-2016

QT25-2-0507-SedChem

6082611-10 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**87.4**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.85**	0.06	0.18	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**0.34**	0.06	0.18	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	ND	0.06	0.18	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**3.51**	0.06	0.18	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**0.54**	0.06	0.18	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**0.18**	0.06	0.18	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.70**		*57.5 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.05**		*69.3 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**245**	80.0	100	mg/kg	15-Sep-2016	15-Sep-2016	SW9060A	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico
Project Manager: Bart Chadwick

Reported:
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QT25-2-0002-SedChem-AI

6082611-11 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**86.9**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.10**	0.06	0.18	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	J
2,4´-DDE	**0.14**	0.06	0.18	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04, J
2,4´-DDT	ND	0.06	0.18	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**3.83**	0.06	0.18	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**0.07**	0.06	0.18	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	J
4,4´-DDT	**0.12**	0.06	0.18	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.53**		*52.9 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.93**		*66.4 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**107**	80.0	100	mg/kg	19-Sep-2016	19-Sep-2016	SW9060A	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-2-0002-SedChem-BI

6082611-12 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**79.9**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**20.6**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**22.7**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.51**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
4,4´-DDD	**159**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**10.6**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**16.5**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.60**		*50.6 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.33**		*73.6 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**1090**	80.0	100	mg/kg	19-Sep-2016	19-Sep-2016	SW9060A	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-2-0205-SedChem-BI

6082611-13 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**75.8**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**39.5**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**20.0**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	ND	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**257**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**23.3**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**21.4**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.78**		*80.5 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.86**		*83.0 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
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QT25-2-0205-SedChem-BI

6082611-13RE1 (Soil/Sediment)

Air Water and Soil Laboratories, Inc.

Wet Chemistry Analysis

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
TOC	**2740**	400	500	mg/kg	19-Sep-2016	19-Sep-2016	SW9060A	

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San Diego CA, 92152

Project: Quantico
Project Manager: Bart Chadwick

Reported:
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QT25-2-0507-SedChem-BI

6082611-14 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**78.2**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**25.5**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**31.6**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
2,4´-DDT	**1.32**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDD	**2570**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**17.3**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**47.5**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.66**		*50.1 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.79**		*84.3 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-2-0507-SedChem-BI

6082611-14RE1 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Air Water and Soil Laboratories, Inc.								
Wet Chemistry Analysis								
TOC	**2020**	400	500	mg/kg	19-Sep-2016	19-Sep-2016	SW9060A	

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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-3-0002-SedChem

6082611-15 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**68.0**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**11.2**	0.08	0.24	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**2.63**	0.08	0.24	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.55**	0.08	0.24	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDD	**59.0**	0.08	0.24	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**10.3**	0.08	0.24	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**20.4**	0.08	0.24	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.31**		*34.1 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.36**		*61.5 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-3-0002-SedChem

6082611-15RE1 (Soil/Sediment)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Air Water and Soil Laboratories, Inc.								
Wet Chemistry Analysis								
TOC	**2300**	400	500	mg/kg	19-Sep-2016	19-Sep-2016	SW9060A	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Bart Chadwick

Reported:
29-Nov-2016

QT25-3-0205-SedChem

6082611-16 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**74.8**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**10.8**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**4.98**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.25**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDD	**52.1**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**11.1**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**4.07**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.79**		*52.0 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.71**		*78.7 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**1490**	80.0	100	mg/kg	19-Sep-2016	19-Sep-2016	SW9060A	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-3-0507-SedChem

6082611-17 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**72.4**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**21.1**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**4.77**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.28**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDD	**98.2**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**17.6**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**2.89**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.97**		*55.6 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.37**		*67.0 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**1550**	80.0	100	mg/kg	19-Sep-2016	19-Sep-2016	SW9060A	

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San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-3-0002-SedChem-AI

6082611-18 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**87.8**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**2.32**	0.06	0.18	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**0.96**	0.06	0.18	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	ND	0.06	0.18	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**7.55**	0.06	0.18	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**1.49**	0.06	0.18	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**0.44**	0.06	0.18	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.51**		*52.1 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.92**		*66.2 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**147**	80.0	100	mg/kg	19-Sep-2016	19-Sep-2016	SW9060A	

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San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-3-0002-SedChem-BI

6082611-19 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**81.4**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**65.1**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**18.7**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.99**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
4,4´-DDD	**399**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**19.8**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**27.0**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.68**		*53.7 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.24**		*71.4 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**552**	80.0	100	mg/kg	19-Sep-2016	19-Sep-2016	SW9060A	

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San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-3-0205-SedChem-BI

6082611-20 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**79.0**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**31.2**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**9.90**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.14**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04, J
4,4´-DDD	**158**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**16.8**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**3.27**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.52**		*47.1 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.00**		*61.7 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**686**	80.0	100	mg/kg	19-Sep-2016	19-Sep-2016	SW9060A	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Bart Chadwick

Reported:
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QT25-3-0507-SedChem-BI

6082611-21 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**81.0**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**27.8**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**13.4**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.42**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDD	**109**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**25.2**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**5.54**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.67**		*53.5 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.24**		*71.7 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**1810**	400	500	mg/kg	20-Sep-2016	20-Sep-2016	SW9060A	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-4-0002-SedChem

6082611-22 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**83.2**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**4.72**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**1.43**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	ND	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**19.1**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**3.61**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**0.51**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.38**		*45.2 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.98**		*64.8 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**599**	80.0	100	mg/kg	20-Sep-2016	20-Sep-2016	SW9060A	

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QT25-4-0205-SedChem

6082611-23 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**82.4**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**6.47**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**1.79**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
2,4´-DDT	**0.09**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	J
4,4´-DDD	**22.4**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**9.85**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**0.65**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.58**		*50.1 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.27**		*72.2 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**772**	80.0	100	mg/kg	20-Sep-2016	20-Sep-2016	SW9060A	

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Environmental Science and Applied System Branch, 5360		**Reported:**
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QT25-4-0507-SedChem

6082611-24 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**84.8**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**4.69**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**1.26**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.06**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04, J
4,4´-DDD	**18.1**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**3.37**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**0.58**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.69**		*54.7 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.15**		*69.5 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**379**	80.0	100	mg/kg	20-Sep-2016	20-Sep-2016	SW9060A	

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San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-4-0002-SedChem-AI

6082611-25 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**83.9**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**1.11**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**0.57**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	ND	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**4.08**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**0.92**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**0.15**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04, J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.52**		*50.5 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.99**		*66.0 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**157**	80.0	100	mg/kg	20-Sep-2016	20-Sep-2016	SW9060A	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Bart Chadwick

Reported:
29-Nov-2016

QT25-4-0002-SedChem-BI

6082611-26 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**63.2**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**18.5**	0.08	0.26	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**5.55**	0.08	0.26	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.35**	0.08	0.26	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDD	**84.0**	0.08	0.26	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**20.3**	0.08	0.26	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**3.31**	0.08	0.26	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.95**		*47.0 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.31**		*79.8 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**2650**	800	1000	mg/kg	20-Sep-2016	20-Sep-2016	SW9060A	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-4-0205-SedChem-BI

6082611-27 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**51.7**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**11.7**	0.10	0.32	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**4.73**	0.10	0.32	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.33**	0.10	0.32	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDD	**72.9**	0.10	0.32	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**26.2**	0.10	0.32	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**5.47**	0.10	0.32	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.78**		*54.2 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**4.30**		*83.7 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**3940**	800	1000	mg/kg	20-Sep-2016	20-Sep-2016	SW9060A	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-4-0507-SedChem-BI

6082611-28 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**48.4**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**12.9**	0.11	0.33	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**4.52**	0.11	0.33	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**1.22**	0.11	0.33	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDD	**80.6**	0.11	0.33	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**36.4**	0.11	0.33	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**7.48**	0.11	0.33	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.38**		*64.2 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**4.45**		*84.4 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**4230**	800	1000	mg/kg	20-Sep-2016	20-Sep-2016	SW9060A	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico
Project Manager: Bart Chadwick

Reported:
29-Nov-2016

QT25-5-0002-SedChem

6082611-29 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**83.1**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.23**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**0.07**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04, J
2,4´-DDT	ND	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**0.86**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**0.37**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**0.06**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04, J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.47**		*47.2 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.98**		*63.8 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**360**	80.0	100	mg/kg	20-Sep-2016	20-Sep-2016	SW9060A	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-5-0205-SedChem

6082611-30 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**83.8**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.38**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**0.21**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	ND	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**1.70**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**0.93**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**0.27**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.61**		*51.5 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.09**		*66.9 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**214**	80.0	100	mg/kg	20-Sep-2016	20-Sep-2016	SW9060A	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-5-0507-SedChem

6082611-31 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**84.8**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.20**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**0.09**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**0.82**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**0.41**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**0.09**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.41**		*46.7 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.81**		*60.1 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**185**	80.0	100	mg/kg	20-Sep-2016	20-Sep-2016	SW9060A	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-5-0002-SedChem-AI

6082611-32 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**84.8**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.29**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**0.14**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**1.05**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**0.26**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**0.06**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04, J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.06**		*35.0 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.63**		*53.5 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**138**	80.0	100	mg/kg	20-Sep-2016	20-Sep-2016	SW9060A	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico
Project Manager: Bart Chadwick

Reported:
29-Nov-2016

QT25-5-0002-SedChem-BI

6082611-33 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**72.8**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**17.9**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**8.29**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.45**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDD	**81.5**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**20.2**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**3.43**	0.07	0.22	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.42**		*40.4 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.59**		*73.5 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**2600**	800	1000	mg/kg	21-Sep-2016	21-Sep-2016	SW9060A	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico
Project Manager: Bart Chadwick

Reported:
29-Nov-2016

QT25-5-0205-SedChem-BI

6082611-34 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**63.4**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**62.2**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**35.9**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**1.16**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDD	**286**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**61.6**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**15.6**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.17**		*54.0 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.33**		*58.0 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**2890**	800	1000	mg/kg	21-Sep-2016	21-Sep-2016	SW9060A	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Bart Chadwick

Reported:
29-Nov-2016

QT25-5-0507-SedChem-BI

6082611-35 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**63.2**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**30.0**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**21.7**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.47**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDD	**205**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**49.9**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**8.45**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.50**		*37.4 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.41**		*60.0 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**2680**	800	1000	mg/kg	21-Sep-2016	21-Sep-2016	SW9060A	
WALKLEY_BLACK Organic Carbon, Total (TOC)								
Total Organic Carbon	**9100**	67	250	mg/Kg		21-Sep-2016	WALKLEY BLACK	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-5DUP-0002-SedChem

6082611-36 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**84.2**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.28**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**0.13**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**1.15**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**0.45**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**0.07**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04, J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.28**		*42.8 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.72**		*57.5 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**562**	400	500	mg/kg	21-Sep-2016	21-Sep-2016	SW9060A	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-5DUP-0205-SedChem

6082611-37 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**82.7**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.27**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**0.12**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	J
2,4´-DDT	ND	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**1.04**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**0.48**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**0.06**	0.06	0.20	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04, J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.38**		*43.6 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.85**		*58.5 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**327**	80.0	100	mg/kg	20-Sep-2016	20-Sep-2016	SW9060A	

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Bart Chadwick

Reported:
29-Nov-2016

QT25-5DUP-0507-SedChem

6082611-38 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**84.7**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.18**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	J
2,4´-DDE	**0.09**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**0.71**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**0.46**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**0.08**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.41**		*46.2 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.10**		*68.5 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**225**	80.0	100	mg/kg	20-Sep-2016	20-Sep-2016	SW9060A	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Bart Chadwick

Reported:
29-Nov-2016

QT25-5DUP-002-SedChem-AI

6082611-39 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**85.6**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDD	**0.11**	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	J
4,4´-DDE	ND	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.30**		*43.8 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.03**		*68.0 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**112**	80.0	100	mg/kg	20-Sep-2016	20-Sep-2016	SW9060A	

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Navy -- SPAWAR	Project: Quantico	
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San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-5DUP-002-SedChem-BI

6082611-40 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**76.8**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**25.5**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**14.1**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.51**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDD	**140**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**27.7**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**13.9**	0.07	0.21	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.54**		*46.0 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.12**		*63.5 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**2080**	800	1000	mg/kg	21-Sep-2016	21-Sep-2016	SW9060A	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico
Project Manager: Bart Chadwick

Reported:
29-Nov-2016

QT25-5DUP-0205-SedChem-BI

6082611-41 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**65.7**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**57.8**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**28.9**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.67**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDD	**257**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**60.9**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**9.98**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.04**		*52.0 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.38**		*60.5 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**2840**	800	1000	mg/kg	21-Sep-2016	21-Sep-2016	SW9060A	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-5DUP-0507-SedChem-BI

6082611-42 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**64.4**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**36.8**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**27.1**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.66**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDD	**223**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**45.3**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**10.8**	0.08	0.25	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.29**		*56.5 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.65**		*65.5 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**2410**	800	1000	mg/kg	21-Sep-2016	21-Sep-2016	SW9060A	

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3909 Halls Ferry Road
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-6-GRAB-SedChem

6082611-43 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**39.1**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**2.43**	0.14	0.42	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**1.06**	0.14	0.42	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDT	**0.16**	0.14	0.42	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	J
4,4´-DDD	**12.4**	0.14	0.42	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**5.61**	0.14	0.42	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**0.81**	0.14	0.42	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.98**		*58.5 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**4.89**		*72.0 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**2740**	800	1000	mg/kg	21-Sep-2016	21-Sep-2016	SW9060A	

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

QT25-7-GRAB-SedChem

6082611-44 (Soil/Sediment)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Solids	**28.8**	0.500	0.500	% Solids	26-Sep-2016	26-Sep-2016	% Calculation	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**2.08**	0.18	0.56	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
2,4´-DDE	**0.77**	0.18	0.56	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
2,4´-DDT	**1.94**	0.18	0.56	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDD	**7.91**	0.18	0.56	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDE	**5.15**	0.18	0.56	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	
4,4´-DDT	**0.73**	0.18	0.56	ug/kg dry	19-Sep-2016	11-Oct-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**4.56**		*50.5 %*	*40-125*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**7.05**		*78.0 %*	*40-130*	*19-Sep-2016*	*11-Oct-2016*	*EPA 8081A*	
Wet Chemistry Analysis								
TOC	**3770**	800	1000	mg/kg	21-Sep-2016	21-Sep-2016	SW9060A	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B609299 - EPA 3545											
Blank (B609299-BLK1)				Prepared: 19-Sep-2016 Analyzed: 11-Oct-2016							
2,4´-DDD	ND	0.08	0.25	ug/kg wet							U
2,4´-DDE	ND	0.08	0.25	ug/kg wet							U
2,4´-DDT	ND	0.08	0.25	ug/kg wet							U
4,4´-DDD	ND	0.08	0.25	ug/kg wet							U
4,4´-DDE	ND	0.08	0.25	ug/kg wet							U
4,4´-DDT	ND	0.08	0.25	ug/kg wet							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.14*			*ug/kg wet*	*4.000*		*53.5*	*40-125*			
Surrogate: Decachlorobiphenyl	*2.64*			*ug/kg wet*	*4.000*		*66.0*	*40-130*			
Blank (B609299-BLK2)				Prepared: 19-Sep-2016 Analyzed: 11-Oct-2016							
2,4´-DDD	ND	0.08	0.25	ug/kg wet							U
2,4´-DDE	ND	0.08	0.25	ug/kg wet							U
2,4´-DDT	ND	0.08	0.25	ug/kg wet							U
4,4´-DDD	ND	0.08	0.25	ug/kg wet							U
4,4´-DDE	ND	0.08	0.25	ug/kg wet							U
4,4´-DDT	ND	0.08	0.25	ug/kg wet							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.62*			*ug/kg wet*	*4.000*		*65.5*	*40-125*			
Surrogate: Decachlorobiphenyl	*2.96*			*ug/kg wet*	*4.000*		*74.0*	*40-130*			
Blank (B609299-BLK3)				Prepared: 19-Sep-2016 Analyzed: 11-Oct-2016							
2,4´-DDD	ND	0.08	0.25	ug/kg wet							U
2,4´-DDE	ND	0.08	0.25	ug/kg wet							U
2,4´-DDT	ND	0.08	0.25	ug/kg wet							U
4,4´-DDD	ND	0.08	0.25	ug/kg wet							U
4,4´-DDE	ND	0.08	0.25	ug/kg wet							U
4,4´-DDT	ND	0.08	0.25	ug/kg wet							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.50*			*ug/kg wet*	*4.000*		*62.5*	*40-125*			
Surrogate: Decachlorobiphenyl	*2.94*			*ug/kg wet*	*4.000*		*73.5*	*40-130*			

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B609299 - EPA 3545											
LCS (B609299-BS1)					Prepared: 19-Sep-2016 Analyzed: 11-Oct-2016						
2,4´-DDD	2.7	0.08	0.25	ug/kg wet	4.000		67.0	40-125			
2,4´-DDE	2.7	0.08	0.25	ug/kg wet	4.000		68.5	40-125			
2,4´-DDT	2.4	0.08	0.25	ug/kg wet	4.000		60.0	40-125			
4,4´-DDD	2.6	0.08	0.25	ug/kg wet	4.000		64.0	40-125			
4,4´-DDE	2.6	0.08	0.25	ug/kg wet	4.000		64.5	40-125			
4,4´-DDT	2.2	0.08	0.25	ug/kg wet	4.000		55.0	45-125			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.92*			*ug/kg wet*	*4.000*		*47.9*	*40-125*			
Surrogate: Decachlorobiphenyl	*2.54*			*ug/kg wet*	*4.000*		*63.5*	*40-130*			
LCS (B609299-BS2)					Prepared: 19-Sep-2016 Analyzed: 11-Oct-2016						
2,4´-DDD	3.0	0.08	0.25	ug/kg wet	4.000		74.0	40-125			
2,4´-DDE	3.2	0.08	0.25	ug/kg wet	4.000		79.0	40-125			
2,4´-DDT	2.7	0.08	0.25	ug/kg wet	4.000		67.0	40-125			
4,4´-DDD	3.0	0.08	0.25	ug/kg wet	4.000		74.0	40-125			
4,4´-DDE	3.0	0.08	0.25	ug/kg wet	4.000		75.5	40-125			
4,4´-DDT	2.4	0.08	0.25	ug/kg wet	4.000		61.0	45-125			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.04*			*ug/kg wet*	*4.000*		*51.0*	*40-125*			
Surrogate: Decachlorobiphenyl	*2.82*			*ug/kg wet*	*4.000*		*70.5*	*40-130*			
LCS (B609299-BS3)					Prepared: 19-Sep-2016 Analyzed: 11-Oct-2016						
2,4´-DDD	3.2	0.08	0.25	ug/kg wet	4.000		80.0	40-125			
2,4´-DDE	3.3	0.08	0.25	ug/kg wet	4.000		83.0	40-125			
2,4´-DDT	3.0	0.08	0.25	ug/kg wet	4.000		74.5	40-125			
4,4´-DDD	3.1	0.08	0.25	ug/kg wet	4.000		77.0	40-125			
4,4´-DDE	3.2	0.08	0.25	ug/kg wet	4.000		80.0	40-125			
4,4´-DDT	2.7	0.08	0.25	ug/kg wet	4.000		67.0	45-125			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.58*			*ug/kg wet*	*4.000*		*64.5*	*40-125*			
Surrogate: Decachlorobiphenyl	*3.04*			*ug/kg wet*	*4.000*		*76.0*	*40-130*			

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Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Bart Chadwick

Reported:
29-Nov-2016

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B609299 - EPA 3545											
LCS Dup (B609299-BSD1)					Prepared: 19-Sep-2016 Analyzed: 11-Oct-2016						
2,4´-DDD	ND	0.08	0.25	ug/kg wet	4.000			40-125		30	U
2,4´-DDE	ND	0.08	0.25	ug/kg wet	4.000			40-125		30	U
2,4´-DDT	ND	0.08	0.25	ug/kg wet	4.000			40-125		30	U
4,4´-DDD	ND	0.08	0.25	ug/kg wet	4.000			40-125		30	U
4,4´-DDE	ND	0.08	0.25	ug/kg wet	4.000			40-125		30	U
4,4´-DDT	ND	0.08	0.25	ug/kg wet	4.000			45-125		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*ND*			*ug/kg wet*	*4.000*			*40-125*			*U*
Surrogate: Decachlorobiphenyl	*ND*			*ug/kg wet*	*4.000*			*40-130*			*U*
Matrix Spike (B609299-MS2)		**Source: 6082611-43**			Prepared: 19-Sep-2016 Analyzed: 11-Oct-2016						
2,4´-DDD	9.5	0.19	0.60	ug/kg dry	9.610	2.4	73.2	40-125			
2,4´-DDE	9.0	0.19	0.60	ug/kg dry	9.610	1.1	82.5	40-125			
2,4´-DDT	5.1	0.19	0.60	ug/kg dry	9.610	0.2	53.5	40-125			
4,4´-DDD	15.8	0.19	0.60	ug/kg dry	9.610	12.4	34.5	40-125			
4,4´-DDE	13.3	0.19	0.60	ug/kg dry	9.610	5.6	80.1	40-125			
4,4´-DDT	9.1	0.19	0.60	ug/kg dry	9.610	0.8	86.6	45-125			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*4.95*			*ug/kg dry*	*9.610*		*51.5*	*40-125*			
Surrogate: Decachlorobiphenyl	*7.06*			*ug/kg dry*	*9.610*		*73.5*	*40-130*			
Matrix Spike (B609299-MS3)		**Source: 6082611-44**			Prepared: 19-Sep-2016 Analyzed: 11-Oct-2016						
2,4´-DDD	11.6	0.27	0.84	ug/kg dry	13.36	2.1	71.4	40-125			
2,4´-DDE	10.2	0.27	0.84	ug/kg dry	13.36	0.8	70.3	40-125			
2,4´-DDT	7.4	0.27	0.84	ug/kg dry	13.36	1.9	41.0	40-125			
4,4´-DDD	18.0	0.27	0.84	ug/kg dry	13.36	7.9	75.3	40-125			
4,4´-DDE	15.0	0.27	0.84	ug/kg dry	13.36	5.2	73.9	40-125			
4,4´-DDT	9.2	0.27	0.84	ug/kg dry	13.36	0.7	63.0	45-125			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*6.88*			*ug/kg dry*	*13.36*		*51.5*	*40-125*			
Surrogate: Decachlorobiphenyl	*9.82*			*ug/kg dry*	*13.36*		*73.5*	*40-130*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B609299 - EPA 3545											
Matrix Spike Dup (B609299-MSD2)	**Source: 6082611-43**				Prepared: 19-Sep-2016 Analyzed: 11-Oct-2016						
2,4´-DDD	8.6	0.19	0.58	ug/kg dry	9.321	2.4	66.4	40-125	9.33	30	
2,4´-DDE	7.3	0.19	0.58	ug/kg dry	9.321	1.1	67.1	40-125	20.5	30	
2,4´-DDT	4.5	0.19	0.58	ug/kg dry	9.321	0.2	48.5	40-125	12.8	30	
4,4´-DDD	15.8	0.19	0.58	ug/kg dry	9.321	12.4	36.5	40-125	0.539	30	
4,4´-DDE	11.0	0.19	0.58	ug/kg dry	9.321	5.6	58.3	40-125	18.6	30	
4,4´-DDT	5.9	0.19	0.58	ug/kg dry	9.321	0.8	54.9	45-125	42.7	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*4.66*			*ug/kg dry*	*9.321*		*50.0*	*40-125*			
Surrogate: Decachlorobiphenyl	*6.57*			*ug/kg dry*	*9.321*		*70.5*	*40-130*			
Matrix Spike Dup (B609299-MSD3)	**Source: 6082611-44**				Prepared: 19-Sep-2016 Analyzed: 11-Oct-2016						
2,4´-DDD	12.2	0.26	0.83	ug/kg dry	13.23	2.1	76.3	40-125	4.63	30	
2,4´-DDE	11.0	0.26	0.83	ug/kg dry	13.23	0.8	77.2	40-125	7.85	30	
2,4´-DDT	7.9	0.26	0.83	ug/kg dry	13.23	1.9	45.4	40-125	6.84	30	
4,4´-DDD	18.1	0.26	0.83	ug/kg dry	13.23	7.9	77.2	40-125	0.886	30	
4,4´-DDE	16.3	0.26	0.83	ug/kg dry	13.23	5.2	84.6	40-125	8.37	30	
4,4´-DDT	9.1	0.26	0.83	ug/kg dry	13.23	0.7	63.0	45-125	0.956	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*7.15*			*ug/kg dry*	*13.23*		*54.0*	*40-125*			
Surrogate: Decachlorobiphenyl	*9.86*			*ug/kg dry*	*13.23*		*74.5*	*40-130*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

Wet Chemistry Analysis - Quality Control

Air Water and Soil Laboratories, Inc.

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BZI0443 - No Prep Halides											
Blank (BZI0443-BLK1)					Prepared & Analyzed: 15-Sep-2016						
TOC	ND	80.0	100	mg/kg				-			
LCS (BZI0443-BS1)					Prepared & Analyzed: 15-Sep-2016						
TOC	978	80.0	100	mg/kg	954		102	80-120			
LCS Dup (BZI0443-BSD1)					Prepared & Analyzed: 15-Sep-2016						
TOC	915	80.0	100	mg/kg	890		103	80-120	6.58	20	
Matrix Spike (BZI0443-MS1)		**Source: 6082611-10**			Prepared & Analyzed: 15-Sep-2016						
TOC	1060	80.0	100	mg/kg	894	245	91.4	75-125			
Matrix Spike Dup (BZI0443-MSD1)		**Source: 6082611-10**			Prepared & Analyzed: 15-Sep-2016						
TOC	1030	80.0	100	mg/kg	882	245	89.1	75-125	3.06	20	
Batch BZI0518 - No Prep Halides											
Blank (BZI0518-BLK1)					Prepared & Analyzed: 20-Sep-2016						
TOC	ND	80.0	100	mg/kg				-			
LCS (BZI0518-BS1)					Prepared & Analyzed: 20-Sep-2016						
TOC	937	80.0	100	mg/kg	893		105	80-120			
LCS Dup (BZI0518-BSD1)					Prepared & Analyzed: 20-Sep-2016						
TOC	1020	80.0	100	mg/kg	962		106	80-120	8.09	20	
Matrix Spike (BZI0518-MS1)		**Source: 6082611-30**			Prepared & Analyzed: 20-Sep-2016						
TOC	1110	80.0	100	mg/kg	909	214	98.7	75-125			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

Wet Chemistry Analysis - Quality Control

Air Water and Soil Laboratories, Inc.

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BZI0518 - No Prep Halides											
Matrix Spike Dup (BZI0518-MSD1)	**Source: 6082611-30**				Prepared & Analyzed: 20-Sep-2016						
TOC	978	80.0	100	mg/kg	820	214	93.2	75-125	12.8	20	
Batch BZI0520 - No Prep Halides											
Blank (BZI0520-BLK1)					Prepared & Analyzed: 20-Sep-2016						
TOC	ND	80.0	100	mg/kg				-			
LCS (BZI0520-BS1)					Prepared & Analyzed: 20-Sep-2016						
TOC	849	80.0	100	mg/kg	847		100	80-120			
LCS Dup (BZI0520-BSD1)					Prepared & Analyzed: 20-Sep-2016						
TOC	948	80.0	100	mg/kg	943		101	80-120	11.1	20	
Matrix Spike (BZI0520-MS1)	**Source: 6082611-31**				Prepared & Analyzed: 20-Sep-2016						
TOC	845	80.0	100	mg/kg	704	185	93.8	75-125			
Matrix Spike Dup (BZI0520-MSD1)	**Source: 6082611-31**				Prepared & Analyzed: 20-Sep-2016						
TOC	1110	80.0	100	mg/kg	962	185	96.4	75-125	27.3	20	P
Batch BZI0521 - No Prep Halides											
Blank (BZI0521-BLK1)					Prepared & Analyzed: 19-Sep-2016						
TOC	ND	80.0	100	mg/kg				-			
LCS (BZI0521-BS1)					Prepared & Analyzed: 19-Sep-2016						
TOC	928	80.0	100	mg/kg	940		98.7	80-120			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

Wet Chemistry Analysis - Quality Control

Air Water and Soil Laboratories, Inc.

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BZI0521 - No Prep Halides											
LCS Dup (BZI0521-BSD1)					Prepared & Analyzed: 19-Sep-2016						
TOC	931	80.0	100	mg/kg	929		100	80-120	0.363	20	
Matrix Spike (BZI0521-MS1)		**Source: 6082611-20**			Prepared & Analyzed: 19-Sep-2016						
TOC	1570	80.0	100	mg/kg	998	686	88.9	75-125			
Matrix Spike Dup (BZI0521-MSD1)		**Source: 6082611-20**			Prepared & Analyzed: 19-Sep-2016						
TOC	1430	80.0	100	mg/kg	931	686	79.4	75-125	9.90	20	
Batch BZI0542 - No Prep Halides											
Blank (BZI0542-BLK1)					Prepared & Analyzed: 21-Sep-2016						
TOC	ND	80.0	100	mg/kg				-			
LCS (BZI0542-BS1)					Prepared & Analyzed: 21-Sep-2016						
TOC	876	80.0	100	mg/kg	867		101	80-120			
LCS Dup (BZI0542-BSD1)					Prepared & Analyzed: 21-Sep-2016						
TOC	859	80.0	100	mg/kg	856		100	80-120	1.88	20	
Matrix Spike (BZI0542-MS1)		**Source: 6082611-41**			Prepared & Analyzed: 21-Sep-2016						
TOC	3000	800	1000	mg/kg	947	2840	17.4	75-125			M2
Matrix Spike Dup (BZI0542-MSD1)		**Source: 6082611-41**			Prepared & Analyzed: 21-Sep-2016						
TOC	3450	800	1000	mg/kg	919	2840	67.0	75-125	14.0	20	M2

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	29-Nov-2016

WALKLEY_BLACK Organic Carbon, Total (TOC) - Quality Control

TestAmerica Pittsburgh

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 188635 -											
LCS (180-1886351)					Prepared:	Analyzed: 21-Sep-2016					
Total Organic Carbon	481000	67	250	mg/Kg	471000		102	80-120			
MB (180-1886352)					Prepared:	Analyzed: 21-Sep-2016					
Total Organic Carbon	ND	67	250	mg/Kg				-			
DU (180-58707-1DU)	**Source: 6082611-04**				Prepared:	Analyzed: 21-Sep-2016					
Total Organic Carbon	797	67	250	mg/Kg		ND		-	NC	20	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

3 6082641

CHAIN OF CUSTODY RECORD

Sampling Company:	Ramboll-Environ	**Client:**	SPAWAR Systems Center Pacific	**Laboratory:**	USACE ERDC-EP-C
POC:	Melissa Grover	**POC:**	Dr. Bart Chadwick	**POC:**	Madeline Tarasar
Address:	16644 West Bernardo Drive, Suite 301	**Address:**	53475 Strothe Road	**Address:**	3909 Halls Ferry RD Bldg 3299
	San Diego, California 92127		San Diego, CA 92152		Vicksburg, MS 39180
Email:	mgrover@geosyntec.com; kfetters@ramboll.com	**Email:**	bart.chadwick@navy.mil	**Email:**	madeline..k.tarasar@usace.army.mil
Phone:	858-716-2928	**Phone:**	619-553-5333	**Phone:**	601-634-3966
Project Name/Location:	Quantico 25-Month; Quantico, VA.	**Project Number:**			

Sampler: M Grover Signature: M Grover

Sample ID	Sample Date	Sample Time	Sample Depth (ft)	Matrix Sediment (S), Benthos (B), SPME (SP)	# of Containers	Preservation	Requested Analyses: DDx EPA 8081A	TOC EPA 9060	ASTM D422 Grain Size						Comments
QT25-1-0002-SEDCHEM	8/24/16	8:50	na	S	1	N.P.	x	x							
QT25-1-0205-SEDCHEM			na	S	1	N.P.	x	x							
QT25-1-0507-SEDCHEM			na	S	1	N.P.	x	x							
QT25-1-0002-SEDCHEM-AI			na	S	1	N.P.	x	x							
QT25-1-0002-SEDCHEM-BI			na	S	1	N.P.	x	x							
QT25-1-0205-SEDCHEM-BI			na	S	1	N.P.	x	x							
QT25-1-0507-SEDCHEM-BI			na	S	1	N.P.	x	x							
QT25-2-0002-SEDCHEM		10:30	na	S	1	N.P.	x	x							
QT25-2-0205-SEDCHEM			na	S	1	N.P.	x	x							
QT25-2-0507-SEDCHEM			na	S	1	N.P.	x	x							
QT25-2-0002-SEDCHEM-AI			na	S	1	N.P.	x	x							
QT25-2-0002-SEDCHEM-BI			na	S	1	N.P.	x	x							
Total					12		12	12	0						

Please return coolers to :

1. I hereby transfer the sample containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.

Total # of Containers	Name	Date	Time
12	M. Grover	8-25-16	13:30

2. I accept these samples for transfer to ERDC:

Total # of Containers	Name	Date	Time
	MP		

3. Condition of samples upon arrival at ERDC:

4 Cooler temperature upon arrival at ERDC:

5. Additional Information:
N.P. = not preserved, HNO3 = preserved with nitric acid, H2SO4 = preserved with sulfuric acid
Alison Holman to work with contractor to run TOC (EPA TOC 9060)

6. Send Copy of COC	**USACE-ERDC-EP-C**
POC:	**Amber Russell, Madeline Tarasar and Jenifer Milam**
Email:	amber.l.russell@usace.army.mil madeline.k.tarasar@usace.army.mil jenifer.milam@usace.army.mil
Phone:	**601-634-4302 & 601-634-7431**

CHAIN OF CUSTODY RECORD

Sampling Company:	Ramboll-Environ	**Client:**	SPAWAR Systems Center Pacific	**Laboratory:**	USACE ERDC-EP-C
POC:	Melissa Grover	**POC:**	Dr. Bart Chadwick	**POC:**	Madeline Tarasar
Address:	16644 West Bernardo Drive, Suite 301	**Address:**	53475 Strothe Road	**Address:**	3909 Halls Ferry RD Bldg 3299
	San Diego, California 92127		San Diego, CA 92152		Vicksburg, MS 39180
Email:	mgrover@geosyntec.com; kfetters@ramboll.com	**Email:**	bart.chadwick@navy.mil	**Email:**	madeline..k.tarasar@usace.army.mil
Phone:	858-716-2928	**Phone:**	619-553-5333	**Phone:**	601-634-3966
Project Name/Location:	Quantico 25-Month; Quantico, VA.	**Project Number:**			

Sampler: M. Grover Signature: M. Grover

Sample ID	Sample Date	Sample Time	Sample Depth (ft)	Matrix Sediment (S), Benthos (B), SPME (SP)	# of Containers	Preservation	Requested Analyses: DDx EPA 8081A	TOC EPA 9060	ASTM D422 Grain Size						Comments
QT25-2-0205-SEDCHEM-BI	8/24/16	10:30	na	S	1	N.P.	x	x							
QT25-2-0507-SEDCHEM-BI	↓	↓	na	S	1	N.P.	x	x							
QT25-3-0002-SEDCHEM		11:05	na	S	1	N.P.	x	x							
QT25-3-0205-SEDCHEM		↓	na	S	1	N.P.	x	x							
QT25-3-0507-SEDCHEM			na	S	1	N.P.	x	x							
QT25-3-0002-SEDCHEM-AI			na	S	1	N.P.	x	x							
QT25-3-0002-SEDCHEM-BI			na	S	1	N.P.	x	x							
QT25-3-0205-SEDCHEM-BI			na	S	1	N.P.	x	x							
QT25-3-0507-SEDCHEM-BI		↓	na	S	1	N.P.	x	x							
QT25-4-0002-SEDCHEM		11:30	na	S	1	N.P.	x	x							
QT25-4-0205-SEDCHEM		↓	na	S	1	N.P.	x	x							
QT25-4-0507-SEDCHEM	↓	↓	na	S	1	N.P.	x	x							
Total					12		12	12	0						

Please return coolers to :

1. I hereby transfer the sample containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.

Total # of Containers	Name	Date	Time
12	M. Grover	8-25-16	13:30

2. I accept these samples for transfer to ERDC:

Total # of Containers	Name	Date	Time
	MP		

3. Condition of samples upon arrival at ERDC:

4 Cooler temperature upon arrival at ERDC:

5. Additional Information:
N.P. = no preserved, HNO3 = preserved with nitric acid, H2SO4 = preserved with sulfuric acid
Alison Holman to work with contractor to run TOC (EPA TOC 9060)

6. Send Copy of COC	**USACE-ERDC-EP-C**
POC:	**Amber Russell, Madeline Tarasar and Jenifer Milam**
Email:	amber.l.russell@usace.army.mil madeline.k.tarasar@usace.army.mil jenifer.milam@usace.army.mil
Phone:	**601-634-4302 & 601-634-7431**

CHAIN OF CUSTODY RECORD

3

Sampling Company:	Ramboll-Environ	**Client:**	SPAWAR Systems Center Pacific	**Laboratory:**	USACE ERDC-EP-C
POC:	Melissa Grover	**POC:**	Dr. Bart Chadwick	**POC:**	Madeline Tarasar
Address:	16644 West Bernardo Drive, Suite 301	**Address:**	53475 Strothe Road	**Address:**	3909 Halls Ferry RD Bldg 3299
	San Diego, California 92127		San Diego, CA 92152		Vicksburg, MS 39180
Email:	mgrover@geosyntec.com; kfetters@ramboll.com	**Email:**	bart.chadwick@navy.mil	**Email:**	madeline..k.tarasar@usace.army.mil
Phone:	858-716-2928	**Phone:**	619-553-5333	**Phone:**	601-634-3966
Project Name/Location:	Quantico 25-Month; Quantico, VA.	**Project Number:**			

Sampler: M. Grover Signature:

Sample ID	Sample Date	Sample Time	Sample Depth (ft)	Matrix Sediment (S), Benthos (B), SPME (SP)	# of Containers	Preservation	Requested Analyses: DDx EPA 8081A	TOC EPA 9060	ASTM D422 Grain Size						Comments
QT25-4-0002-SEDCHEM-AI	8/24/16	11:30	na	S	1	N.P.	x	x							
QT25-4-0002-SEDCHEM-BI			na	S	1	N.P.	x	x							
QT25-4-0205-SEDCHEM-BI			na	S	1	N.P.	x	x							
QT25-4-0507-SEDCHEM-BI			na	S	1	N.P.	x	x							
QT25-5-0002-SEDCHEM		1340	na	S	1	N.P.	x	x							
QT25-5-0205-SEDCHEM			na	S	1	N.P.	x	x							
QT25-5-0507-SEDCHEM			na	S	1	N.P.	x	x							
QT25-5-0002-SEDCHEM-AI			na	S	1	N.P.	x	x							
QT25-5-0002-SEDCHEM-BI			na	S	1	N.P.	x	x							
QT25-5-0205-SEDCHEM-BI			na	S	1	N.P.	x	x							
QT25-5-0507-SEDCHEM-BI			na	S	1	N.P.	x	x							
QT25-5DUP-0002-SEDCHEM			na	S	1	N.P.	x	x							
Total					12		12	12	0						

Please return coolers to :

1. I hereby transfer the sample containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.

Total # of Containers	Name	Date	Time
12	M. Grover	8-25-16	13:30

2. I accept these samples for transfer to ERDC:

Total # of Containers	Name	Date	Time

3. Condition of samples upon arrival at ERDC:

4. Cooler temperature upon arrival at ERDC:

5. Additional Information:
N.P. = no preserved, HNO3 = preserved with nitric acid, H2SO4 = preserved with sulfuric acid
Alison Holman to work with contractor to run TOC (EPA TOC 9060)

6. Send Copy of COC	**USACE-ERDC-EP-C**
POC:	**Amber Russell, Madeline Tarasar and Jenifer Milam**
Email:	amber.l.russell@usace.army.mil madeline.k.tarasar@usace.army.mil jenifer.milam@usace.army.mil
Phone:	**601-634-4302 & 601-634-7431**

CHAIN OF CUSTODY RECORD

3

Sampling Company:	Ramboll-Environ	**Client:**	SPAWAR Systems Center Pacific	**Laboratory:**	USACE ERDC-EP-C
POC:	Melissa Grover	**POC:**	Dr. Bart Chadwick	**POC:**	Madeline Tarasar
Address:	16644 West Bernardo Drive, Suite 301	**Address:**	53475 Strothe Road	**Address:**	3909 Halls Ferry RD Bldg 3299
	San Diego, California 92127		San Diego, CA 92152		Vicksburg, MS 39180
Email:	mgrover@geosyntec.com; kfetters@ramboll.com	**Email:**	bart.chadwick@navy.mil	**Email:**	madeline..k.tarasar@usace.army.mil
Phone:	858-716-2928	**Phone:**	619-553-5333	**Phone:**	601-634-3966
Project Name/Location:	Quantico 25-Month; Quantico, VA.	**Project Number:**			

Sampler: M Grover Signature: M Grover

Sample ID	Sample Date	Sample Time	Sample Depth (ft)	Matrix Sediment (S), Benthos (B), SPME (SP)	# of Containers	Preservation	Requested Analyses: DDx EPA 8081A	TOC EPA 9060	ASTM D422 Grain Size						Comments
QT25-5DUP-0205-SEDCHEM	8/24/16	13:40	na	S	1	N.P.	x	x							
QT25-5DUP-0507-SEDCHEM			na	S	1	N.P.	x	x							
QT25-5DUP-0002-SEDCHEM-AI			na	S	1	N.P.	x	x							
QT25-5DUP-0002-SEDCHEM-BI			na	S	1	N.P.	x	x							
QT25-5DUP-0205-SEDCHEM-BI			na	S	1	N.P.	x	x							
QT25-5DUP-0507-SEDCHEM-BI			na	S	1	N.P.	x	x							
QT25-6-GRAB-SEDCHEM		15:40	na	S	1	N.P.	x	x							
QT25-7-GRAB-SEDCHEM		15:22	na	S	1	N.P.	x	x							
~~QT25-1-0002-GS~~			~~na~~	~~S~~	~~1~~	~~N.P.~~			x						
~~QT25-1-0205-GS~~			~~na~~	~~S~~	~~1~~	~~N.P.~~			x						
~~QT25-1-0507-GS~~			~~na~~	~~S~~	~~1~~	~~N.P.~~			x						
QT25-1-0002-GS-AI			~~na~~	~~S~~	~~1~~	N.P.			x						
Total					~~8~~ 12		8	8	~~4~~						

Please return coolers to :

1. I hereby transfer the sample containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.

Total # of Containers	Name	Date	Time
8	M. Grover	8.25.16	13:30

2. I accept these samples for transfer to ERDC:

Total # of Containers	Name	Date	Time

3. Condition of samples upon arrival at ERDC:

4. Cooler temperature upon arrival at ERDC:

5. Additional Information:
N.P. = no preserved, HNO3 = preserved with nitric acid, H2SO4 = preserved with sulfuric acid
Alison Holman to work with contractor to run TOC (EPA TOC 9060)

6. Send Copy of COC	USACE-ERDC-EP-C
POC:	Amber Russell, Madeline Tarasar and Jenifer Milam
Email:	amber.l.russell@usace.army.mil madeline.k.tarasar@usace.army.mil jenifer.milam@usace.army.mil
Phone:	601-634-4302 & 601-634-7431

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
			Data included from: W:\TransferIn\6082611 TRANSFER 22 Nov 2016 1503.mdb
			Data included from: W:\TransferIn\6082611 TRANSFER 31 Oct 2016 1411.mdb

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

24 February 2017

Bart Chadwick
Navy -- SPAWAR
Environmental Science and Applied System Branch, 536(
San Diego, CA 92152

RE: Quantico

Enclosed are the results of analyses for samples received by the laboratory on 26-Aug-2016. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Madeline Tarasar For Dale Rosado, Ph. D.
Chemist

CHAIN OF CUSTODY RECORD

6082610

Sampling Company:	Ramboll-Environ	Client:	SPAWAR Systems Center Pacific	Laboratory:	USACE ERDC-EP-C
POC:	Melissa Grover	POC:	Dr. Bart Chadwick	POC:	Madeline Tarasar
Address:	16644 West Bernardo Drive, Suite 301	Address:	53475 Strothe Road	Address:	3909 Halls Ferry RD Bldg 3299
	San Diego, California 92127		San Diego, CA 92152		Vicksburg, MS 39180
Email:	mgrover@geosyntec.com; kfetters@ramboli.com	Email:	bart.chadwick@navy.mil	Email:	madeline.k.tarasar@usace.army.mil
Phone:	858-716-2928	Phone:	619-553-5333	Phone:	601-634-3966
Project Name/Location:	Quantico 25-Month; Quantico, VA.	Project Number:			

Sampler: M. Grover Signature: MGrover

Sample ID	Sample Date	Sample Time	Sample Depth (ft)	Matrix Sediment (S), Benthos (B), SPME (SP)	# of Containers	Preservation	Requested Analyses: DDx EPA 8081A	TOC EPA 9060	ASTM D422 Grain Size						Comments
QT25-1-0002-GS-BI	8-24-16	8:50	na	S	1	N.P.			x						
QT25-1-0205-GS-BI	8-24-16	↓	na	S	1	N.P.			x						
QT25-1-0507-GS-BI	8-24-16	↓	na	S	1	N.P.			x						
QT25-2-0002-GS	8-24-16	10:30	na	S	1	N.P.			x						
QT25-2-0205-GS	8-24-16	↓	na	S	1	N.P.			x						
QT25-2-0507-GS	↓	↓	na	S	1	N.P.			x						
QT25-2-0002-GS-AI			na	S	1	N.P.			x						
QT25-2-0002-GS-BI			na	S	1	N.P.			x						
QT25-2-0205-GS-BI			na	S	1	N.P.			x						
QT25-2-0507-GS-BI		↓	na	S	1	N.P.			x						
QT25-3-0002-GS		11:05	na	S	1	N.P.			x						
QT25-3-0205-GS	↓	↓	na	S	1	N.P.			x						
Total					12		0	0	12						

Please return coolers to :

1. I hereby transfer the sample containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.
   12 (Total # of Containers) — M. Grover (Name) — 8-25-16 (Date) — 13:30 (Time)
2. I accept these samples for transfer to ERDC:
   _____ (Total # of Containers) — _____ (Name) — _____ (Date) — _____ (Time)
3. Condition of samples upon arrival at ERDC:
4. Cooler temperature upon arrival at ERDC:

5. Additional Information:
N.P. = no preserved, HNO3 = preserved with nitric acid, H2SO4 = preserved with sulfuric acid
Alison Holman to work with contractor to run TOC (EPA TOC 9060)

6. Send Copy of COC: USACE-ERDC-EP-C
POC: Amber Russell, Madeline Tarasar and Jenifer Milam
Email: amber.l.russell@usace.army.mil; madeline.k.tarasar@usace.army.mil; jenifer.milam@usace.army.mil
Phone: 601-634-4302 & 601-634-7431

CHAIN OF CUSTODY RECORD

2

Sampling Company:	Ramboll-Environ	Client:	SPAWAR Systems Center Pacific	Laboratory:	USACE ERDC-EP-C
POC:	Melissa Grover	POC:	Dr. Bart Chadwick	POC:	Madeline Tarasar
Address:	16644 West Bernardo Drive, Suite 301 San Diego, California 92127	Address:	53475 Strothe Road San Diego, CA 92152	Address:	3909 Halls Ferry RD Bldg 3299 Vicksburg, MS 39180
Email:	mgrover@geosyntec.com; kfetters@ramboll.com	Email:	bart.chadwick@navy.mil	Email:	madeline..k.tarasar@usace.army.mil
Phone:	858-716-2928	Phone:	619-553-5333	Phone:	601-634-3966
Project Name/Location:	Quantico 25-Month; Quantico, VA.	Project Number:			

Sampler: M. Grover Signature:

Sample ID	Sample Date	Sample Time	Sample Depth (ft)	Matrix Sediment (S), Benthos (B), SPME (SP)	# of Containers	Preservation	Requested Analyses: DDx EPA 8081A	TOC EPA 9060	ASTM D422 Grain Size						Comments
QT25-3-0507-GS	8/24/16	11:05	na	S	1	N.P.			x						
QT25-3-0002-GS-AI			na	S	1	N.P.			x						
QT25-3-0002-GS-BI			na	S	1	N.P.			x						
QT25-3-0205-GS-BI			na	S	1	N.P.			x						
QT25-3-0507-GS-BI			na	S	1	N.P.			x						
QT25-4-0002-GS		11:30	na	S	1	N.P.			x						
QT25-4-0205-GS			na	S	1	N.P.			x						
QT25-4-0507-GS			na	S	1	N.P.			x						
QT25-4-0002-GS-AI			na	S	1	N.P.			x						
QT25-4-0002-GS-BI			na	S	1	N.P.			x						
QT25-4-0205-GS-BI			na	S	1	N.P.			x						
QT25-4-0507-GS-BI			na	S	1	N.P.			x						
Total					12		0	0	12						

Please return coolers to :

1. I hereby transfer the sample containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.

12 — Total # of Containers | M. Grover — Name | 8.25.16 — Date | 13:30 — Time

2. I accept these samples for transfer to ERDC:

Total # of Containers | Name | Date | Time

3. Condition of samples upon arrival at ERDC:

4. Cooler temperature upon arrival at ERDC:

5. Additional Information:
N.P. = no preserved, HNO3 = preserved with nitric acid, H2SO4 = preserved with sulfuric acid
Alison Holman to work with contractor to run TOC (EPA TOC 9060)

6. Send Copy of COC — USACE-ERDC-EP-C
POC: Amber Russell, Madeline Tarasar and Jenifer Milam
Email: amber.l.russell@usace.army.mil; madeline.k.tarasar@usace.army.mil; jenifer.milam@usace.army.mil
Phone: 601-634-4302 & 601-634-7431

CHAIN OF CUSTODY RECORD

2

pling Company:	amboll-Environ	Client:	SPAWAR Systems Center Pacific	Laboratory:	USACE ERDC-EP-C
:	elissa Grover	POC:	Dr. Bart Chadwick	POC:	Madeline Tarasar
ress:	6644 West Bernardo Drive, Suite 301	Address:	53475 Strothe Road	Address:	3909 Halls Ferry RD Bldg 3299
	San Diego, California 92127		San Diego, CA 92152		Vicksburg, MS 39180
ail:	grover@geosyntec.com; fetters@ramboll.com	Email:	bart.chadwick@navy.mil	Email:	madeline..k.tarasar@usace.army.mil
one:	858-716-2928	Phone:	619-553-5333	Phone:	601-634-3966
oject Name/Location:	Quantico 25-Month; Quantico, VA.	Project Number:			

mpler: M. Grover Signature

Sample ID	Sample Date	Sample Time	Sample Depth (ft)	Matrix Sediment (S), Benthos (B), SPME (SP)	# of Containers	Preservation	Requested Analyses: DDx EPA 8081A	TOC EPA 9060	ASTM D422 Grain Size						Comments
QT25-5DUP05-GS-BI	8/24/16	1340	na	S	1	N.P.			x						
QT25-5DUP07-GS-BI	↓	↓	na	S	1	N.P.			x						
QT25-6-AB-GS		1540	na	S	1	N.P.			x						
QT25-7-AB-GS	↓	1522	na	S	1	N.P.			x						
QT25-1-0002-GS	8/24/16	8:50	na	S	1	N.P.			X						
QT25-1-0205-GS	↓	↓	na	S	1	N.P.			X						
QT25-1-0507-GS			na	S	1	N.P.			X						
QT25-10002-GS-AI			na	S	1	N.P.			X						
			na	S	1	N.P.									
			na	S	1	N.P.									
			na	S	1	N.P.									
			na	S	1	N.P.									
Total					8 12		0	0	4 4						

Please return coolers to :

1. I hereby transfer the samp containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.
   Total # of containers: 8 — M. Grover — 8-25-16 — 13:30
   Name — Date — Time
2. I accept these samples for nsfer to ERDC:
   Total # of containers: — Name: NF — Date — Time
3. Condition of samples upon rival at ERDC
4. Cooler temperature upon al at ERDC:

5. Additional Information:
N.P. = no preserved, HNO3 = preserved with nitric acid, H2SO4 = preserved with sulfuric acid
Alison Holman to work with contractor to run TOC (EPA TOC 9060)

6. Send Copy of COC: USACE-ERDC-EP-C
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Phone: 601-634-4302 & 601-634-7431

2

CHAIN OF CUSTODY RECORD

Sampling Company:	Ramboll-Environ	Client:	SPAWAR Systems Center Pacific	Laboratory:	USACE ERDC-EP-C
POC:	Melissa Grover	POC:	Dr. Bart Chadwick	POC:	Madeline Tarasar
Address:	16644 West Bernardo Drive, Suite 301	Address:	53475 Strothe Road	Address:	3909 Halls Ferry RD Bldg 3299
	San Diego, California 92127		San Diego, CA 92152		Vicksburg, MS 39180
Email:	mgrover@geosyntec.com; kfetters@ramboll.com	Email:	bart.chadwick@navy.mil	Email:	madeline..k.tarasar@usace.army.mil
Phone:	858-716-2928	Phone:	619-553-5333	Phone:	601-634-3966
Project Name/Location:	Quantico 25-Month; Quantico, VA.	Project Number:			

Sampler: M. Grover Signature: M. Grover

Sample ID	Sample Date	Sample Time	Sample Depth (ft)	Matrix Sediment (S), Benthos (B), SPME (SP)	# of Containers	Preservation	Requested Analyses: DDx EPA 8081A	TOC EPA 9060	ASTM D422 Grain Size						Comments
QT25-5-0002-GS	8/24/16	1340	na	S	1	N.P.			x						
QT25-5-0205-GS	↓	↓	na	S	1	N.P.			x						
QT25-5-0507-GS			na	S	1	N.P.			x						
QT25-5-0002-GS-AI			na	S	1	N.P.			x						
QT25-5-0002-GS-BI			na	S	1	N.P.			x						
QT25-5-0205-GS-BI			na	S	1	N.P.			x						
QT25-5-0507-GS-BI			na	S	1	N.P.			x						
QT25-5DUP-0002-GS			na	S	1	N.P.			x						
QT25-5DUP-0205-GS			na	S	1	N.P.			x						
QT25-5DUP-0507-GS			na	S	1	N.P.			x						
QT25-5DUP-0002-GS-AI			na	S	1	N.P.			x						
QT25-5DUP-0002-GS-BI	↓	↓	na	S	1	N.P.			x						
Total					12		0	0	12						

Please return coolers to :

1. I hereby transfer the sample containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.

12 — Total # of Containers | M. Grover — Name | 8-25-16 — Date | 13:30 — Time

2. I accept these samples for transfer to ERDC:

_____ — Total # of Containers | _____ — Name | _____ — Date | _____ — Time

3. Condition of samples upon arrival at ERDC:

4 Cooler temperature upon arrival at ERDC:

5. Additional Information:
N.P. = no preserved, HNO3 = preserved with nitric acid, H2SO4 = preserved with sulfuric acid
Alison Holman to work with contractor to run TOC (EPA TOC 9060)

6. Send Copy of COC	USACE-ERDC-EP-C
POC:	Amber Russell, Madeline Tarasar and Jenifer Milam
Email:	amber.l.russell@usace.army.mil madeline.k.tarasar@usace.army.mil jenifer.milam@usace.army.mil
Phone:	601-634-4302 & 601-634-7431

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-1
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	002-GS-BI
		Lab Sample	37829001

Sample Color: **BROWN**
USCS Group Name: **SILTY SAND**
USCS Group Symbol: **sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	63
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	0
Wet Wt Passing Split, gm	63
Dry Wt. Passing Split, gm	49
Total Sample Dry Wt, gm	49

Split Sample - Passing No. 4	
Tare No.	14
Tare + WS., gm	144.16
Tare + DS., gm	130.19
Tare, gm	81.48
Water Content of Split Sample	**28.7%**
Wt. of DS., gm	48.71
Wt. of +#200 Sample, gm	42.27

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	0	0.0%	100.0%	
No. 10	2	1.21	2.5%	97.5%	
No. 20	0.85	3.81	7.8%	89.7%	
No. 40	0.425	8.46	17.4%	72.3%	
No. 60	0.25	8.45	17.3%	55.0%	
No. 140	0.106	14.38	29.5%	25.5%	
No. 200	0.075	5.96	12.2%	13.2%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

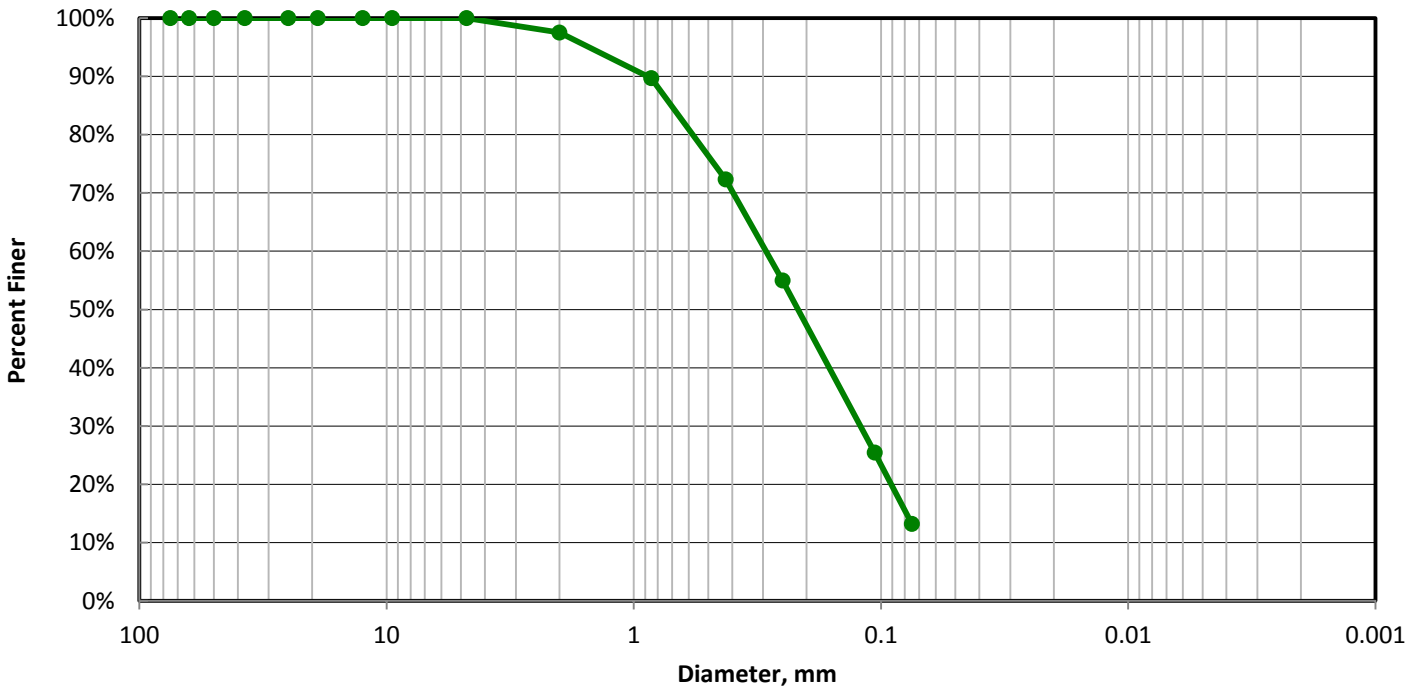
% Gravel (-3" & +#4)	**0.0**	Silt=NA Clay=NA	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	**86.8**	D30, mm	NA
Coarse=2.5; Medium=25.2; Fine=59.1		D10, mm	NA
% Fines (-#200)	**13.2**	Cc	NA
% Plus #200 (-3")	**86.8**	Cu	NA

USCS Description

SILTY SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sm	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-1
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0205-GS-BI
		Lab Sample	37829002

Sample Color: **BROWN**
USCS Group Name: **SILTY SAND**
USCS Group Symbol: **sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	55
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	0
Wet Wt Passing Split, gm	55
Dry Wt. Passing Split, gm	41
Total Sample Dry Wt, gm	41

Split Sample - Passing No. 4	
Tare No.	109
Tare + WS., gm	138.46
Tare + DS., gm	125.03
Tare, gm	83.53
Water Content of Split Sample	**32.4%**
Wt. of DS., gm	41.50
Wt. of +#200 Sample, gm	34.28

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	0	0.0%	100.0%	
No. 10	2	1.43	3.4%	96.6%	
No. 20	0.85	5.44	13.1%	83.4%	
No. 40	0.425	8.79	21.2%	62.3%	
No. 60	0.25	7.05	17.0%	45.3%	
No. 140	0.106	7.62	18.4%	26.9%	
No. 200	0.075	3.95	9.5%	17.4%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

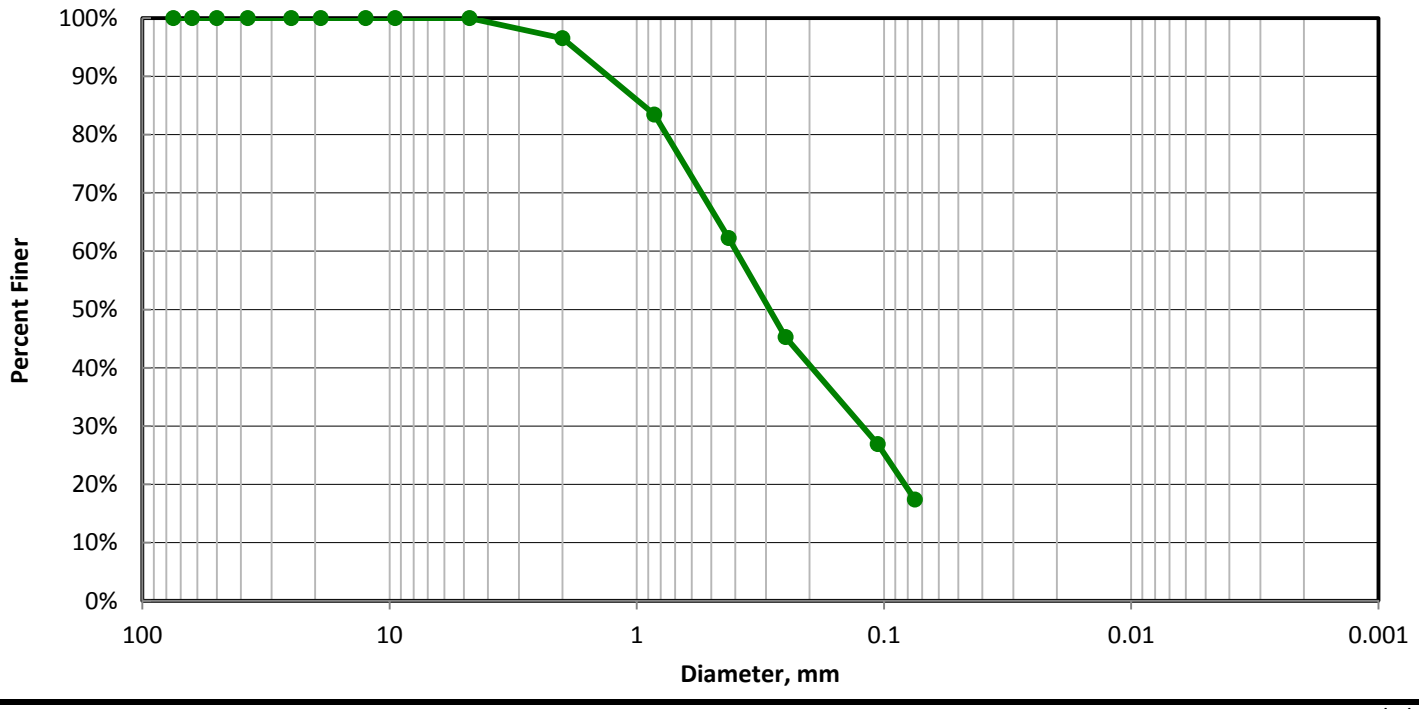
% Gravel (-3" & +#4)	**0.0**	Silt=NA Clay=NA	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	**82.6**	D30, mm	NA
Coarse=3.4; Medium=34.3; Fine=44.9		D10, mm	NA
% Fines (-#200)	**17.4**	Cc	NA
% Plus #200 (-3")	**82.6**	Cu	NA

USCS Description

SILTY SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sm	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-1
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0507-GS-BI
		Lab Sample	37829003

Sample Color: **BROWN**
USCS Group Name: **SILTY SAND**
USCS Group Symbol: **sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	105
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	3
Wet Wt Passing Split, gm	102
Dry Wt. Passing Split, gm	81
Total Sample Dry Wt, gm	84

Split Sample - Passing No. 4	
Tare No.	20
Tare + WS., gm	181.6
Tare + DS., gm	160.5
Tare, gm	80.72
Water Content of Split Sample	**26.4%**
Wt. of DS., gm	79.78
Wt. of +#200 Sample, gm	60.88

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	2.28	2.7%	97.3%	
No. 4	4.75	0.98	1.2%	96.1%	
No. 10	2	1.14	1.4%	94.7%	
No. 20	0.85	3.58	4.3%	90.4%	
No. 40	0.425	10.92	13.2%	77.3%	
No. 60	0.25	9.03	10.9%	66.4%	
No. 140	0.106	21.47	25.9%	40.5%	
No. 200	0.075	14.74	17.8%	22.8%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

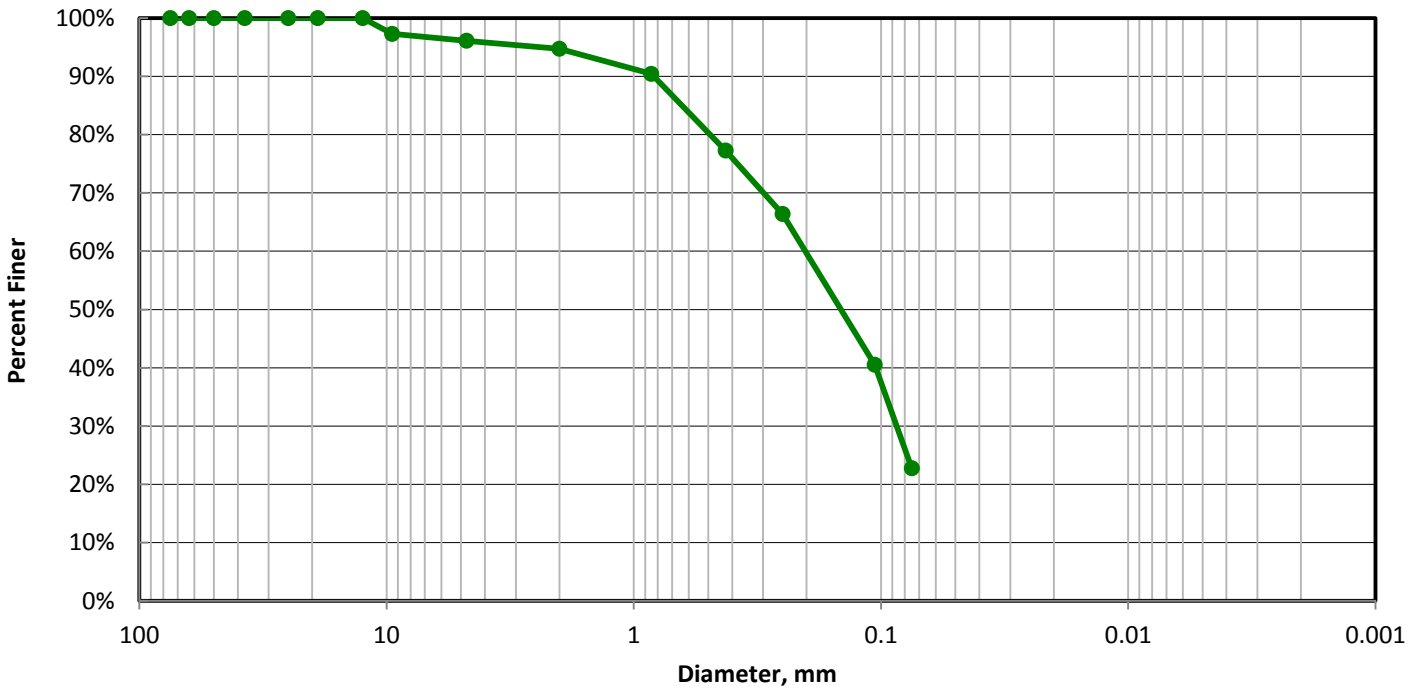
% Gravel (-3" & +#4)	**3.9**	Silt=NA Clay=NA	
Coarse=0; Fine=3.9		D60, mm	NA
% Sand (-#4 & +#200)	**73.3**	D30, mm	NA
Coarse=1.4; Medium=17.5; Fine=54.5		D10, mm	NA
% Fines (-#200)	**22.8**	Cc	NA
% Plus #200 (-3")	**77.2**	Cu	NA

USCS Description

SILTY SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sm	np - Non-Plastic (assumed)

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-2
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0002-GS
		Lab Sample	37829004

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND**
USCS Group Symbol: **sp** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	123
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	5
Wet Wt Passing Split, gm	118
Dry Wt. Passing Split, gm	101
Total Sample Dry Wt, gm	106

Split Sample - Passing No. 4	
Tare No.	101
Tare + WS., gm	194.06
Tare + DS., gm	178.29
Tare, gm	83.02
Water Content of Split Sample	**16.6%**
Wt. of DS., gm	95.27
Wt. of +#200 Sample, gm	93.04

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	4.51	4.3%	95.7%	
No. 10	2	6.81	6.8%	88.9%	
No. 20	0.85	15.24	15.3%	73.6%	
No. 40	0.425	30.03	30.2%	43.4%	
No. 60	0.25	28.27	28.4%	15.0%	
No. 140	0.106	11.48	11.5%	3.5%	
No. 200	0.075	1.21	1.2%	2.2%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

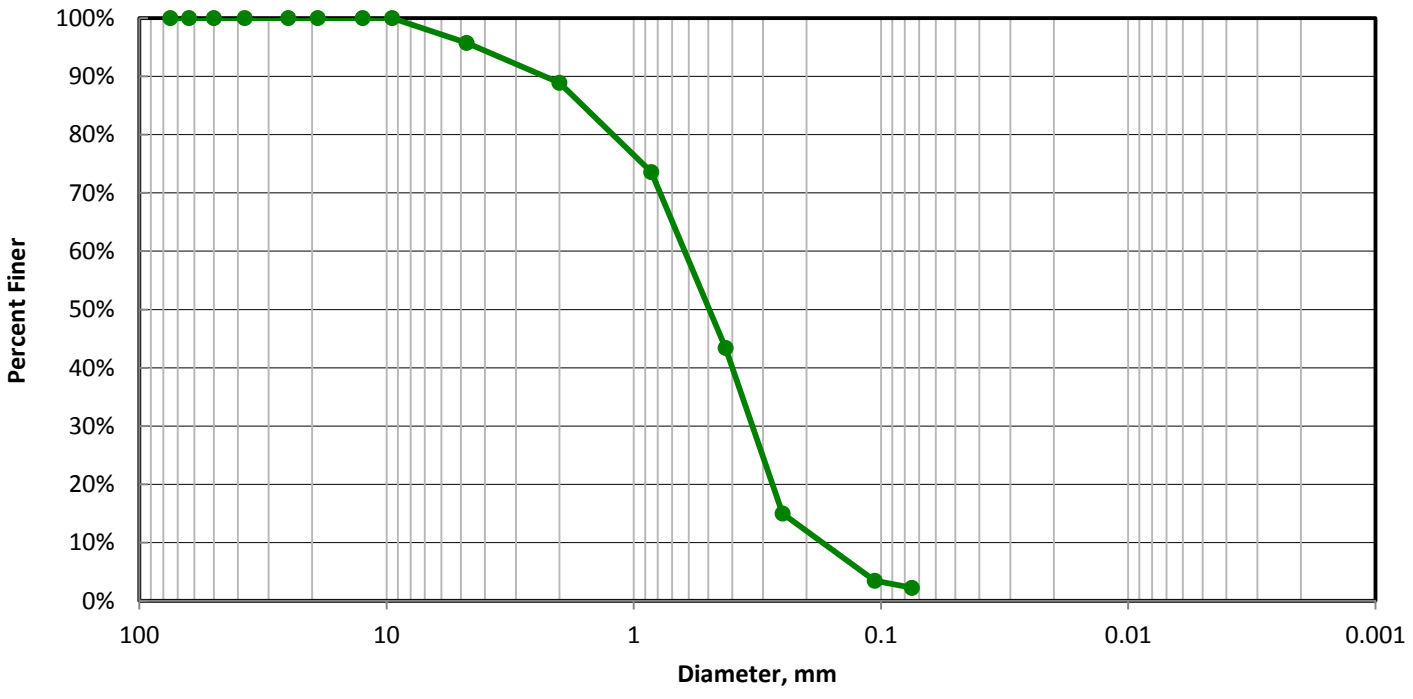
% Gravel (-3" & +#4)	**4.3**	Silt=NA Clay=NA	
Coarse=0; Fine=4.3		D60, mm	0.62
% Sand (-#4 & +#200)	**93.5**	D30, mm	0.33
Coarse=6.8; Medium=45.5; Fine=41.2		D10, mm	0.17
% Fines (-#200)	**2.2**	Cc	1.02
% Plus #200 (-3")	**97.8**	Cu	3.61

USCS Description

POORLY GRADED SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sp	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-2
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0205-GS
		Lab Sample	37829005

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND**
USCS Group Symbol: **sp** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	242
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	8
Wet Wt Passing Split, gm	233
Dry Wt. Passing Split, gm	200
Total Sample Dry Wt, gm	208

Split Sample - Passing No. 4	
Tare No.	46
Tare + WS., gm	302.41
Tare + DS., gm	271.25
Tare, gm	84.84
Water Content of Split Sample	**16.7%**
Wt. of DS., gm	186.41
Wt. of +#200 Sample, gm	183.49

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	8.26	4.0%	96.0%	
No. 10	2	14.8	7.6%	88.4%	
No. 20	0.85	33.32	17.2%	71.2%	
No. 40	0.425	60.16	31.0%	40.2%	
No. 60	0.25	55.14	28.4%	11.8%	
No. 140	0.106	18.88	9.7%	2.1%	
No. 200	0.075	1.19	0.6%	1.5%	

USCS SOIL CLASSIFICATION

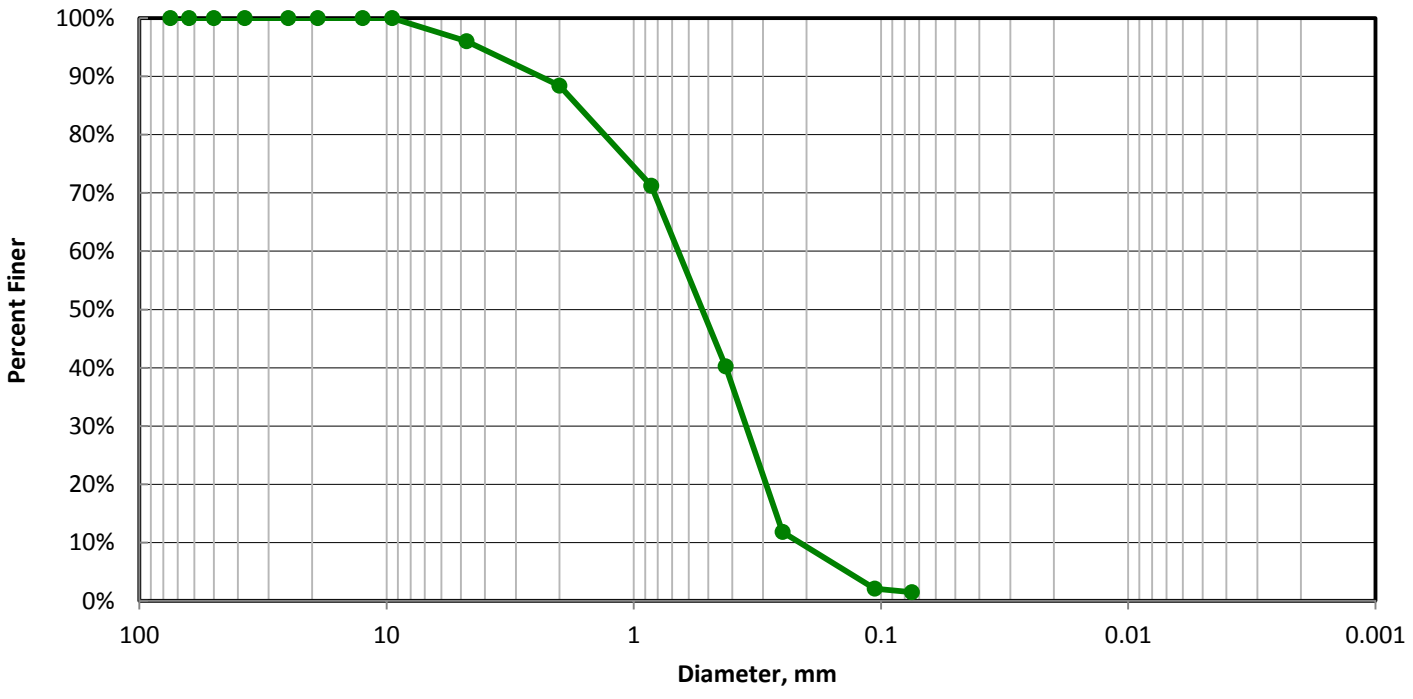
Corrected For 100% Passing a 3" Sieve

% Gravel (-3" & +#4)	**4.0**	Silt=NA Clay=NA	
Coarse=0; Fine=4		D60, mm	0.66
% Sand (-#4 & +#200)	**94.5**	D30, mm	0.35
Coarse=7.6; Medium=48.2; Fine=38.7		D10, mm	0.21
% Fines (-#200)	**1.5**	Cc	0.88
% Plus #200 (-3")	**98.5**	Cu	3.11

USCS Description
POORLY GRADED SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sp	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-2
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0507-GS
		Lab Sample	37829006

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND**
USCS Group Symbol: **sp** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	188
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	8
Wet Wt Passing Split, gm	180
Dry Wt. Passing Split, gm	156
Total Sample Dry Wt, gm	164

Split Sample - Passing No. 4	
Tare No.	B11
Tare + WS., gm	249.47
Tare + DS., gm	227.79
Tare, gm	84.88
Water Content of Split Sample	**15.2%**
Wt. of DS., gm	142.91
Wt. of +#200 Sample, gm	140.60

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	7.59	4.6%	95.4%	
No. 10	2	12.55	8.4%	87.0%	
No. 20	0.85	29.57	19.7%	67.3%	
No. 40	0.425	47.68	31.8%	35.4%	
No. 60	0.25	38.24	25.5%	9.9%	
No. 140	0.106	11.39	7.6%	2.3%	
No. 200	0.075	1.17	0.8%	1.5%	

USCS SOIL CLASSIFICATION

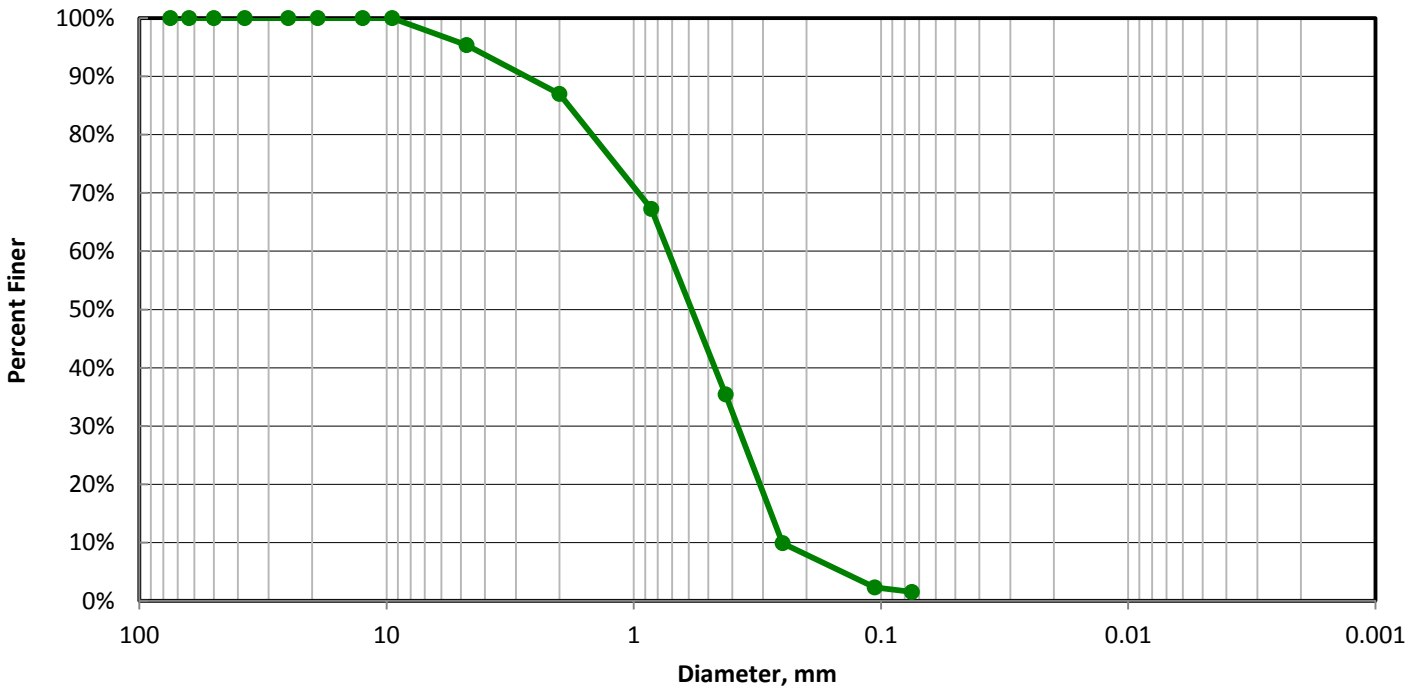
Corrected For 100% Passing a 3" Sieve

% Gravel (-3" & +#4)	**4.6**	Silt=NA Clay=NA	
Coarse=0; Fine=4.6		D60, mm	0.73
% Sand (-#4 & +#200)	**93.8**	D30, mm	0.38
Coarse=8.4; Medium=51.6; Fine=33.9		D10, mm	0.25
% Fines (-#200)	**1.5**	Cc	0.79
% Plus #200 (-3")	**98.5**	Cu	2.90

USCS Description
POORLY GRADED SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sp	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-2
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0002-GS-AI
		Lab Sample	37829007

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND**
USCS Group Symbol: **sp** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	130
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	9
Wet Wt Passing Split, gm	121
Dry Wt. Passing Split, gm	105
Total Sample Dry Wt, gm	114

Split Sample - Passing No. 4	
Tare No.	119
Tare + WS., gm	196
Tare + DS., gm	180.87
Tare, gm	83.75
Water Content of Split Sample	**15.6%**
Wt. of DS., gm	97.12
Wt. of +#200 Sample, gm	96.64

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	9.24	8.1%	91.9%	
No. 10	2	9.33	8.8%	83.1%	
No. 20	0.85	13.7	13.0%	70.1%	
No. 40	0.425	27.44	26.0%	44.1%	
No. 60	0.25	34.49	32.6%	11.5%	
No. 140	0.106	11.43	10.8%	0.7%	
No. 200	0.075	0.25	0.2%	0.5%	

USCS SOIL CLASSIFICATION

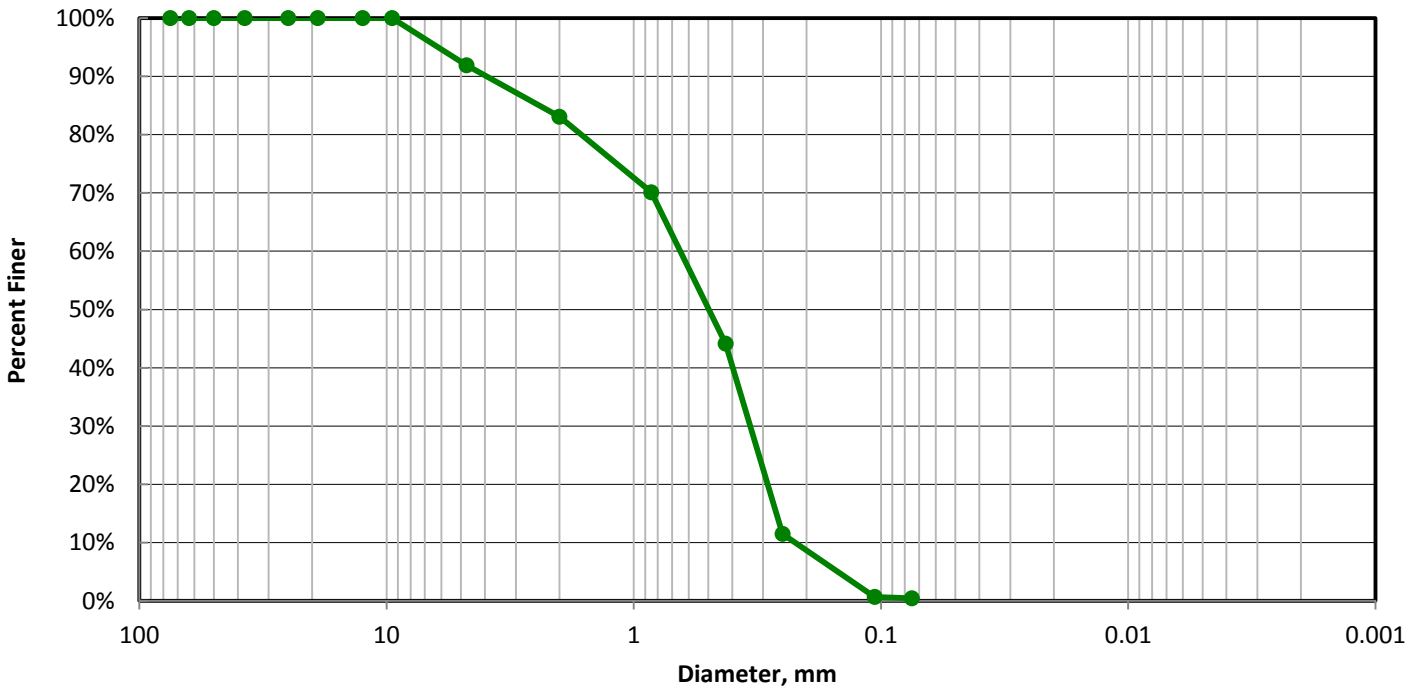
Corrected For 100% Passing a 3" Sieve

% Gravel (-3" & +#4)	**8.1**	Silt=NA Clay=NA	
Coarse=0; Fine=8.1		D60, mm	0.65
% Sand (-#4 & +#200)	**91.4**	D30, mm	0.34
Coarse=8.8; Medium=38.9; Fine=43.7		D10, mm	0.22
% Fines (-#200)	**0.5**	Cc	0.79
% Plus #200 (-3")	**99.5**	Cu	2.93

USCS Description
POORLY GRADED SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sp	np - Non-Plastic (assumed)

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-2
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0002-GS-BI
		Lab Sample	37829008

Sample Color: **GRAY**
USCS Group Name: **POORLY GRADED SAND WITH SILT**
USCS Group Symbol: **sp-sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	159
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	5
Wet Wt Passing Split, gm	154
Dry Wt. Passing Split, gm	123
Total Sample Dry Wt, gm	128

Split Sample - Passing No. 4	
Tare No.	462
Tare + WS., gm	226.88
Tare + DS., gm	198.29
Tare, gm	85.57
Water Content of Split Sample	**25.4%**
Wt. of DS., gm	112.72
Wt. of +#200 Sample, gm	101.93

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	5.33	4.2%	95.8%	
No. 10	2	2.2	1.9%	94.0%	
No. 20	0.85	7.35	6.2%	87.7%	
No. 40	0.425	19.95	17.0%	70.8%	
No. 60	0.25	29.74	25.3%	45.5%	
No. 140	0.106	34.8	29.6%	15.9%	
No. 200	0.075	7.89	6.7%	9.2%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

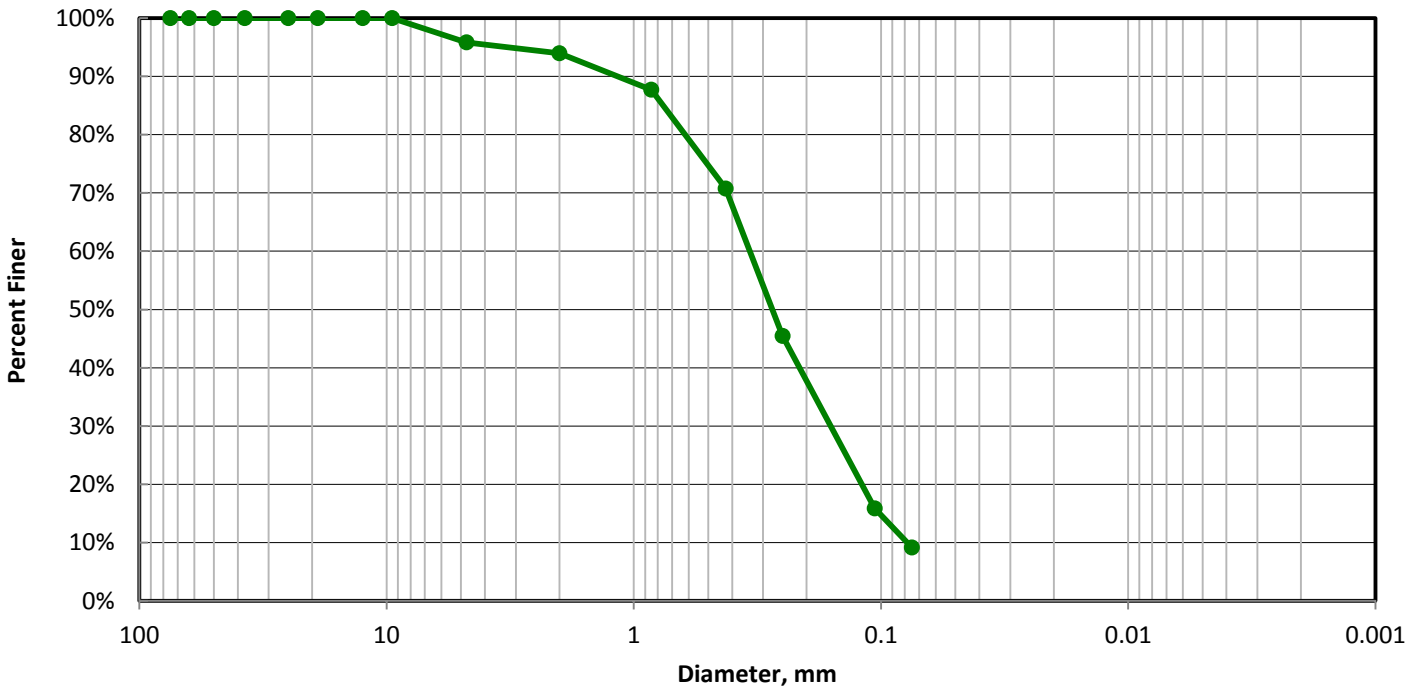
% Gravel (-3" & +#4)	**4.2**	Silt=NA Clay=NA	
Coarse=0; Fine=4.2		D60, mm	0.34
% Sand (-#4 & +#200)	**86.7**	D30, mm	0.16
Coarse=1.9; Medium=23.2; Fine=61.6		D10, mm	0.08
% Fines (-#200)	**9.2**	Cc	0.96
% Plus #200 (-3")	**90.8**	Cu	4.33

USCS Description

POORLY GRADED SAND WITH SILT

USCS Group Symbol	Atterberg Limits Group Symbol
sp-sm	np - Non-Plastic (assumed)

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-2
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0205-GS-BI
		Lab Sample	37829009

Sample Color: **GRAY**
USCS Group Name: **SILTY SAND**
USCS Group Symbol: **sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	245
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	1
Wet Wt Passing Split, gm	245
Dry Wt. Passing Split, gm	187
Total Sample Dry Wt, gm	188

Split Sample - Passing No. 4	
Tare No.	33
Tare + WS., gm	312.24
Tare + DS., gm	258.65
Tare, gm	84.03
Water Content of Split Sample	**30.7%**
Wt. of DS., gm	174.62
Wt. of +#200 Sample, gm	145.91

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	0.6	0.3%	99.7%	
No. 10	2	2.09	1.2%	98.5%	
No. 20	0.85	4.02	2.3%	96.2%	
No. 40	0.425	14.33	8.2%	88.0%	
No. 60	0.25	34.23	19.5%	68.5%	
No. 140	0.106	75.01	42.8%	25.7%	
No. 200	0.075	16.23	9.3%	16.4%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

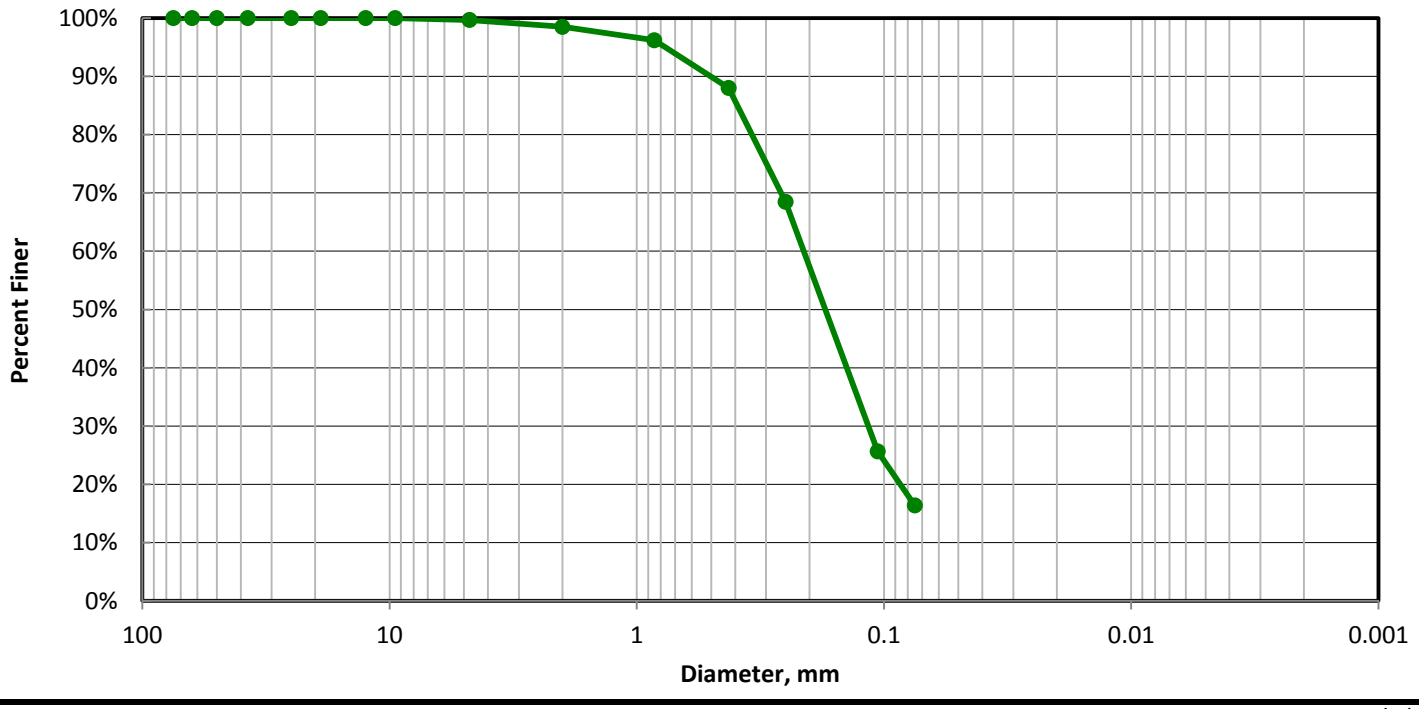
% Gravel (-3" & +#4)	**0.3**	Silt=NA Clay=NA	
Coarse=0; Fine=0.3		D60, mm	NA
% Sand (-#4 & +#200)	**83.3**	D30, mm	NA
Coarse=1.2; Medium=10.5; Fine=71.6		D10, mm	NA
% Fines (-#200)	**16.4**	Cc	NA
% Plus #200 (-3")	**83.6**	Cu	NA

USCS Description

SILTY SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sm	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-2
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0507-GS-BI
		Lab Sample	37829010

Sample Color: **GRAY**
USCS Group Name: **SILTY SAND**
USCS Group Symbol: **sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	168
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	1
Wet Wt Passing Split, gm	167
Dry Wt. Passing Split, gm	129
Total Sample Dry Wt, gm	130

Split Sample - Passing No. 4	
Tare No.	441
Tare + WS., gm	238.26
Tare + DS., gm	203.2
Tare, gm	83.7
Water Content of Split Sample	**29.3%**
Wt. of DS., gm	119.50
Wt. of +#200 Sample, gm	99.82

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	1.12	0.9%	99.1%	
No. 10	2	2.22	1.8%	97.3%	
No. 20	0.85	4.19	3.5%	93.8%	
No. 40	0.425	11.59	9.6%	84.2%	
No. 60	0.25	21.65	18.0%	66.2%	
No. 140	0.106	49.6	41.1%	25.1%	
No. 200	0.075	10.57	8.8%	16.3%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

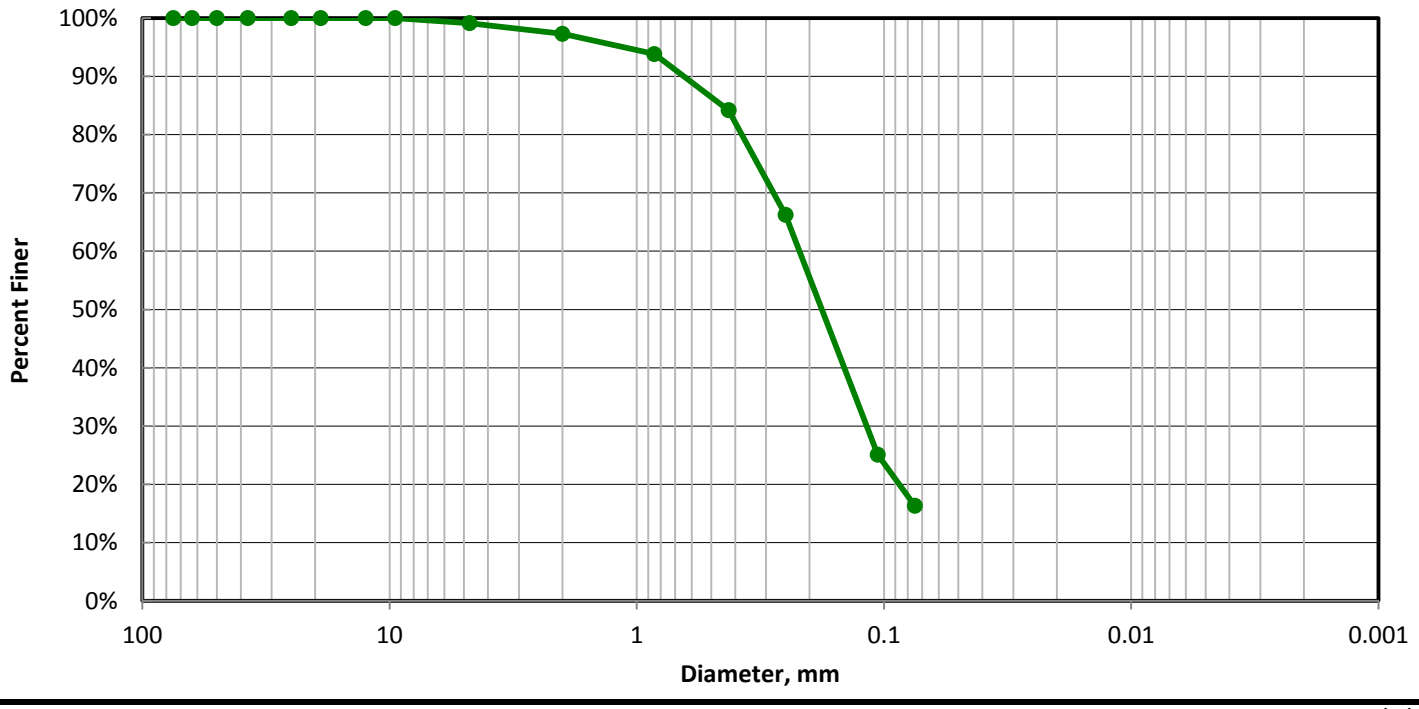
% Gravel (-3" & +#4)	**0.9**	Silt=NA Clay=NA	
Coarse=0; Fine=0.9		D60, mm	NA
% Sand (-#4 & +#200)	**82.8**	D30, mm	NA
Coarse=1.8; Medium=13.1; Fine=67.9		D10, mm	NA
% Fines (-#200)	**16.3**	Cc	NA
% Plus #200 (-3")	**83.7**	Cu	NA

USCS Description

SILTY SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sm	np - Non-Plastic (assumed)

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-3
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0002-GS
		Lab Sample	37829011

Sample Color: **BROWN**
USCS Group Name: **SILTY SAND**
USCS Group Symbol: **sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	25
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	2
Wet Wt Passing Split, gm	24
Dry Wt. Passing Split, gm	16
Total Sample Dry Wt, gm	18

Split Sample - Passing No. 4	
Tare No.	451
Tare + WS., gm	104.5
Tare + DS., gm	98.18
Tare, gm	83.7
Water Content of Split Sample	**43.6%**
Wt. of DS., gm	14.48
Wt. of +#200 Sample, gm	10.98

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	1.55	8.5%	91.5%	
3/8"	9.5	0	0.0%	91.5%	
No. 4	4.75	0.43	2.3%	89.2%	
No. 10	2	0.71	4.4%	84.8%	
No. 20	0.85	1.95	12.0%	72.8%	
No. 40	0.425	3.29	20.3%	52.5%	
No. 60	0.25	2.53	15.6%	37.0%	
No. 140	0.106	1.75	10.8%	26.2%	
No. 200	0.075	0.75	4.6%	21.6%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

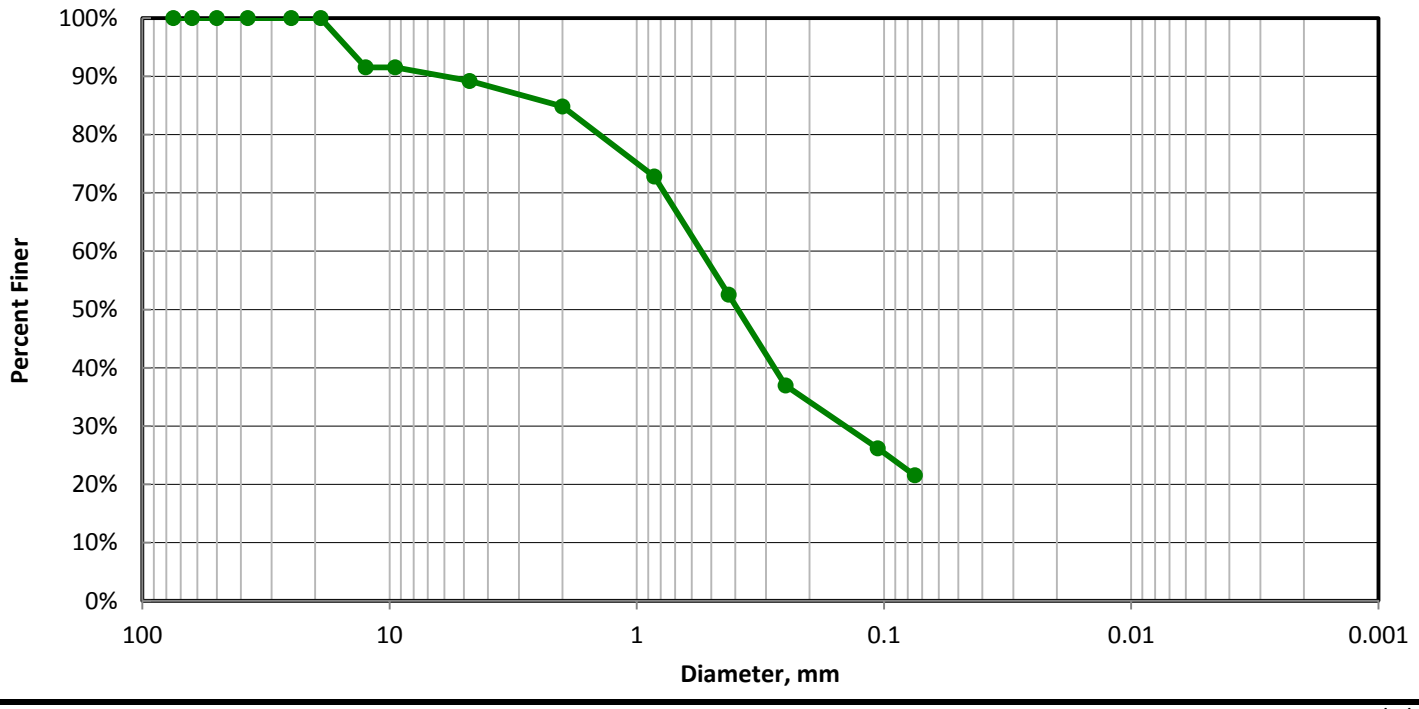
% Gravel (-3" & +#4)	**10.8**	Silt=NA Clay=NA	
Coarse=0; Fine=10.8		D60, mm	NA
% Sand (-#4 & +#200)	**67.6**	D30, mm	NA
Coarse=4.4; Medium=32.3; Fine=31		D10, mm	NA
% Fines (-#200)	**21.6**	Cc	NA
% Plus #200 (-3")	**78.4**	Cu	NA

USCS Description

SILTY SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sm	**ml - Silt (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-3
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0205-GS
		Lab Sample	37829012

Sample Color: **GRAY**
USCS Group Name: **SILTY SAND**
USCS Group Symbol: **sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	67
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	5
Wet Wt Passing Split, gm	62
Dry Wt. Passing Split, gm	49
Total Sample Dry Wt, gm	54

Split Sample - Passing No. 4	
Tare No.	67
Tare + WS., gm	139.97
Tare + DS., gm	128.43
Tare, gm	84.32
Water Content of Split Sample	**26.2%**
Wt. of DS., gm	44.11
Wt. of +#200 Sample, gm	38.32

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	1.83	3.4%	96.6%	
No. 4	4.75	2.67	5.0%	91.6%	
No. 10	2	3.49	7.2%	84.4%	
No. 20	0.85	9.12	18.9%	65.4%	
No. 40	0.425	12.85	26.7%	38.7%	
No. 60	0.25	7.5	15.6%	23.2%	
No. 140	0.106	4.28	8.9%	14.3%	
No. 200	0.075	1.08	2.2%	12.0%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

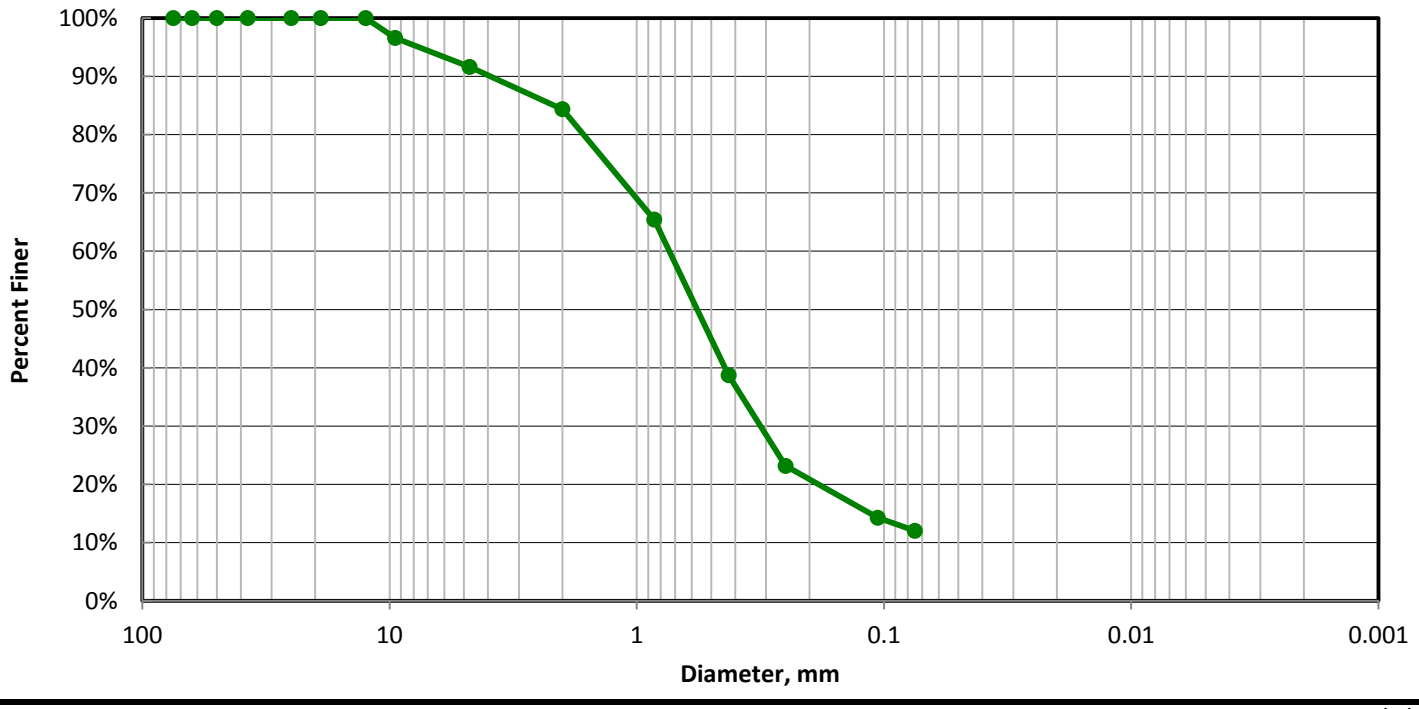
% Gravel (-3" & +#4)	**8.4**	Silt=NA Clay=NA	
Coarse=0; Fine=8.4		D60, mm	NA
% Sand (-#4 & +#200)	**79.6**	D30, mm	NA
Coarse=7.2; Medium=45.6; Fine=26.7		D10, mm	NA
% Fines (-#200)	**12.0**	Cc	NA
% Plus #200 (-3")	**88.0**	Cu	NA

USCS Description

SILTY SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sm	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-3
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0507-GS
		Lab Sample	37829013

Sample Color: **BROWN**
USCS Group Name: **SILTY SAND**
USCS Group Symbol: **sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	38
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	1
Wet Wt Passing Split, gm	37
Dry Wt. Passing Split, gm	27
Total Sample Dry Wt, gm	28

Split Sample - Passing No. 4	
Tare No.	455
Tare + WS., gm	118.95
Tare + DS., gm	110.29
Tare, gm	85.44
Water Content of Split Sample	**34.8%**
Wt. of DS., gm	24.85
Wt. of +#200 Sample, gm	21.24

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	0.74	2.6%	97.4%	
No. 10	2	1.2	4.7%	92.7%	
No. 20	0.85	4.29	16.8%	75.8%	
No. 40	0.425	7.06	27.7%	48.2%	
No. 60	0.25	4.49	17.6%	30.6%	
No. 140	0.106	2.84	11.1%	19.5%	
No. 200	0.075	1.36	5.3%	14.1%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

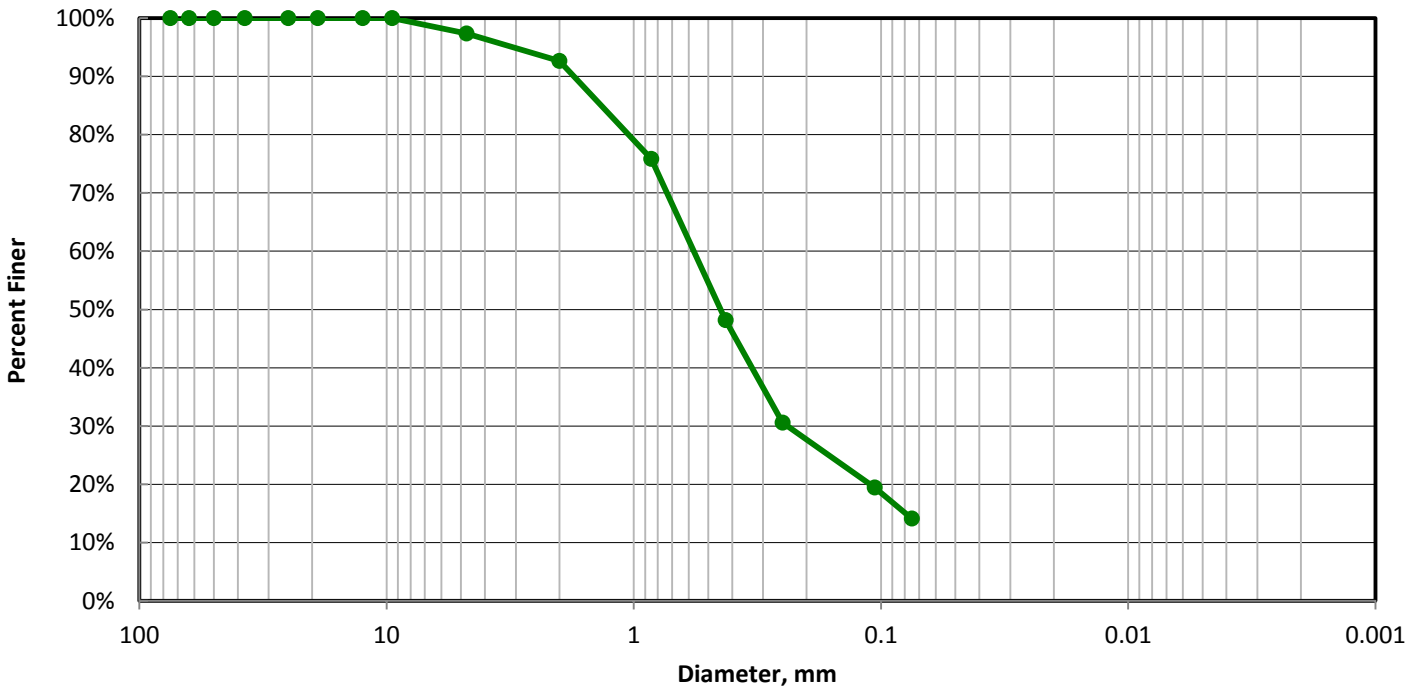
% Gravel (-3" & +#4)	**2.6**	Silt=NA Clay=NA	
Coarse=0; Fine=2.6		D60, mm	NA
% Sand (-#4 & +#200)	**83.2**	D30, mm	NA
Coarse=4.7; Medium=44.5; Fine=34		D10, mm	NA
% Fines (-#200)	**14.1**	Cc	NA
% Plus #200 (-3")	**85.9**	Cu	NA

USCS Description

SILTY SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sm	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-3
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0002-GS-AI
		Lab Sample	37829014

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND**
USCS Group Symbol: **sp** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	114
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	3
Wet Wt Passing Split, gm	111
Dry Wt. Passing Split, gm	97
Total Sample Dry Wt, gm	100

Split Sample - Passing No. 4	
Tare No.	461
Tare + WS., gm	190.81
Tare + DS., gm	177.99
Tare, gm	87.02
Water Content of Split Sample	**14.1%**
Wt. of DS., gm	90.97
Wt. of +#200 Sample, gm	90.13

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	2.67	2.7%	97.3%	
No. 10	2	10.15	10.9%	86.5%	
No. 20	0.85	27.65	29.6%	56.9%	
No. 40	0.425	31.06	33.2%	23.7%	
No. 60	0.25	16.33	17.5%	6.2%	
No. 140	0.106	4.66	5.0%	1.2%	
No. 200	0.075	0.28	0.3%	0.9%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

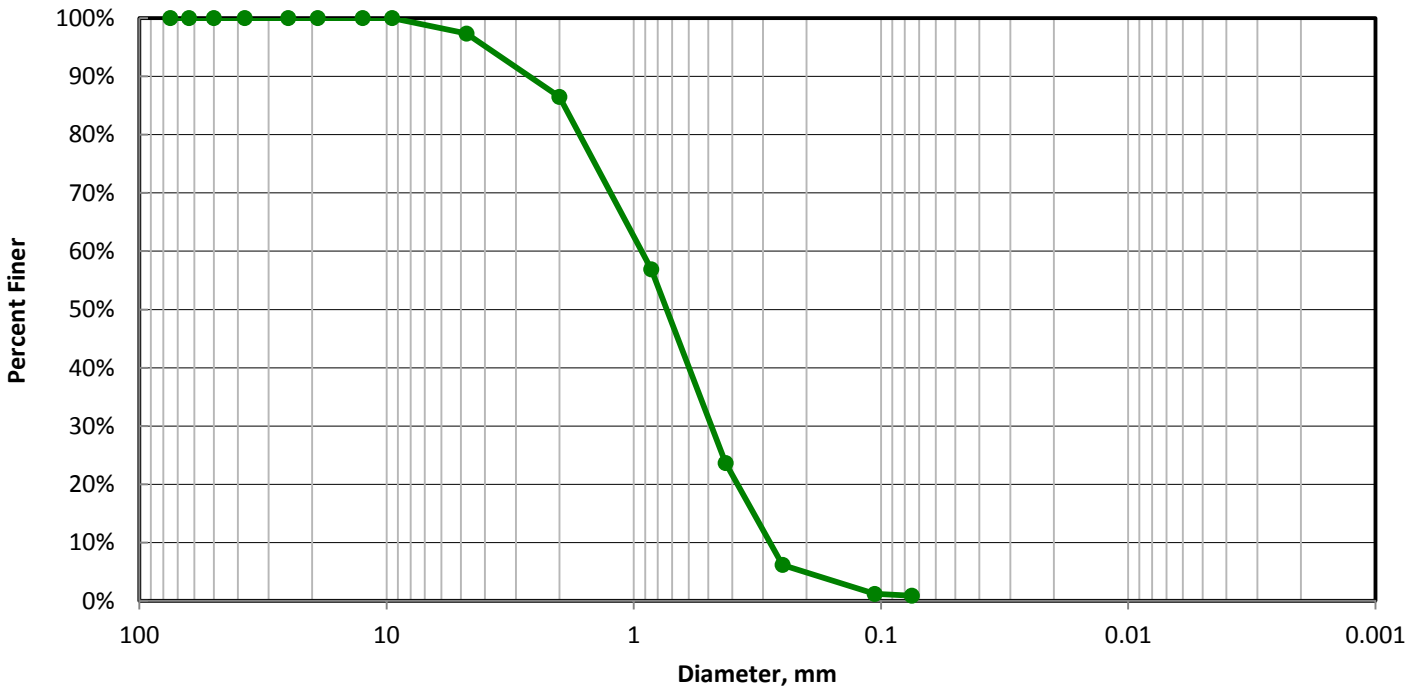
% Gravel (-3" & +#4)	**2.7**	Silt=NA Clay=NA	
Coarse=0; Fine=2.7		D60, mm	0.93
% Sand (-#4 & +#200)	**96.4**	D30, mm	0.49
Coarse=10.9; Medium=62.8; Fine=22.8		D10, mm	0.28
% Fines (-#200)	**0.9**	Cc	0.90
% Plus #200 (-3")	**99.1**	Cu	3.31

USCS Description

POORLY GRADED SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sp	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-3
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0002-GS-BI
		Lab Sample	37829015

Sample Color: **GRAY**
USCS Group Name: **SILTY SAND**
USCS Group Symbol: **sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	141
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	3
Wet Wt Passing Split, gm	138
Dry Wt. Passing Split, gm	113
Total Sample Dry Wt, gm	116

Split Sample - Passing No. 4	
Tare No.	38
Tare + WS., gm	208.89
Tare + DS., gm	186.25
Tare, gm	84.12
Water Content of Split Sample	**22.2%**
Wt. of DS., gm	102.13
Wt. of +#200 Sample, gm	84.46

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	1.15	1.0%	99.0%	
No. 4	4.75	2.05	1.8%	97.2%	
No. 10	2	8.21	7.8%	89.4%	
No. 20	0.85	17.91	17.1%	72.4%	
No. 40	0.425	26.23	25.0%	47.4%	
No. 60	0.25	16.54	15.7%	31.7%	
No. 140	0.106	13.15	12.5%	19.1%	
No. 200	0.075	2.42	2.3%	16.8%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

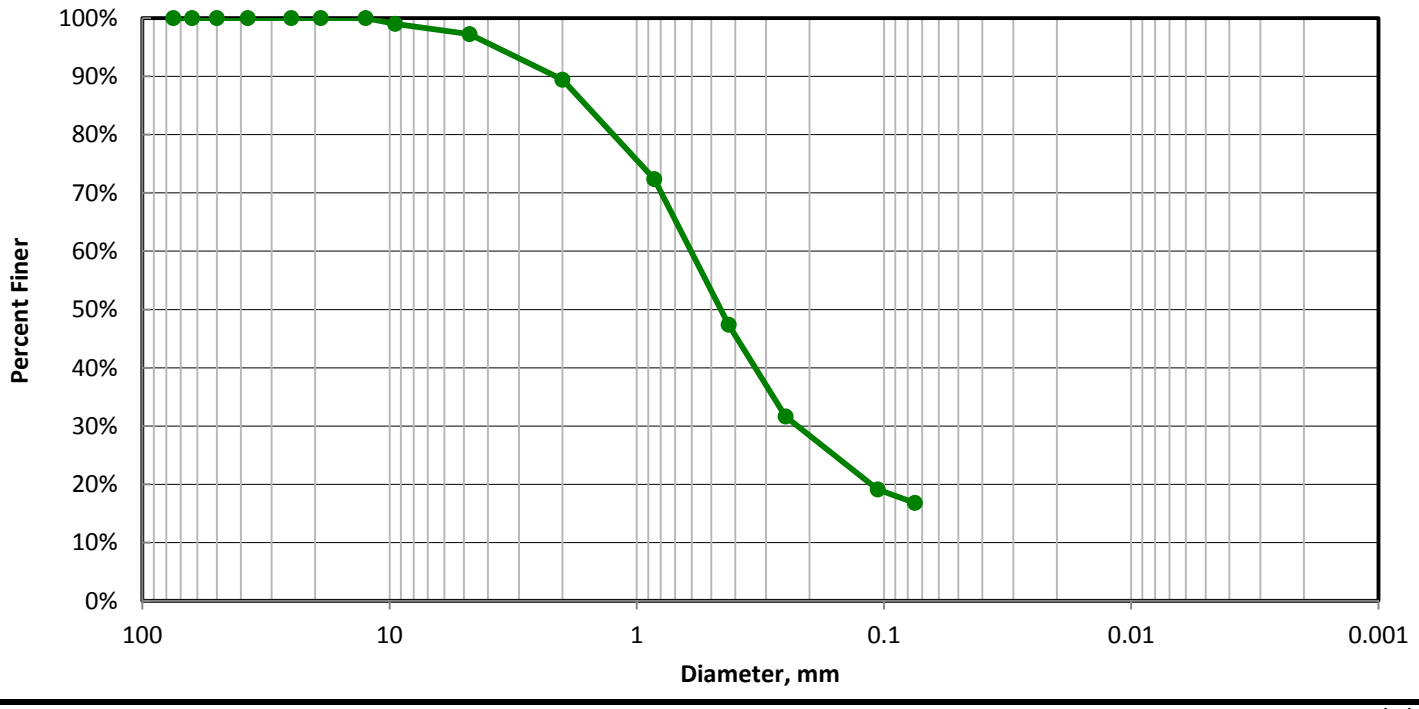
% Gravel (-3" & +#4)	**2.8**	Silt=NA Clay=NA	
Coarse=0; Fine=2.8		D60, mm	NA
% Sand (-#4 & +#200)	**80.4**	D30, mm	NA
Coarse=7.8; Medium=42; Fine=30.6		D10, mm	NA
% Fines (-#200)	**16.8**	Cc	NA
% Plus #200 (-3")	**83.2**	Cu	NA

USCS Description

SILTY SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sm	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-3
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0205-GS-BI
		Lab Sample	37829016

Sample Color: **GRAY**
USCS Group Name: **SILTY SAND**
USCS Group Symbol: **sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	169
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	1
Wet Wt Passing Split, gm	168
Dry Wt. Passing Split, gm	135
Total Sample Dry Wt, gm	136

Split Sample - Passing No. 4	
Tare No.	62
Tare + WS., gm	238.36
Tare + DS., gm	208.05
Tare, gm	85.12
Water Content of Split Sample	**24.7%**
Wt. of DS., gm	122.93
Wt. of +#200 Sample, gm	98.43

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	1.43	1.1%	98.9%	
No. 10	2	5.71	4.6%	94.4%	
No. 20	0.85	19.45	15.7%	78.7%	
No. 40	0.425	35.92	28.9%	49.8%	
No. 60	0.25	19.63	15.8%	34.0%	
No. 140	0.106	14.88	12.0%	22.0%	
No. 200	0.075	2.84	2.3%	19.7%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

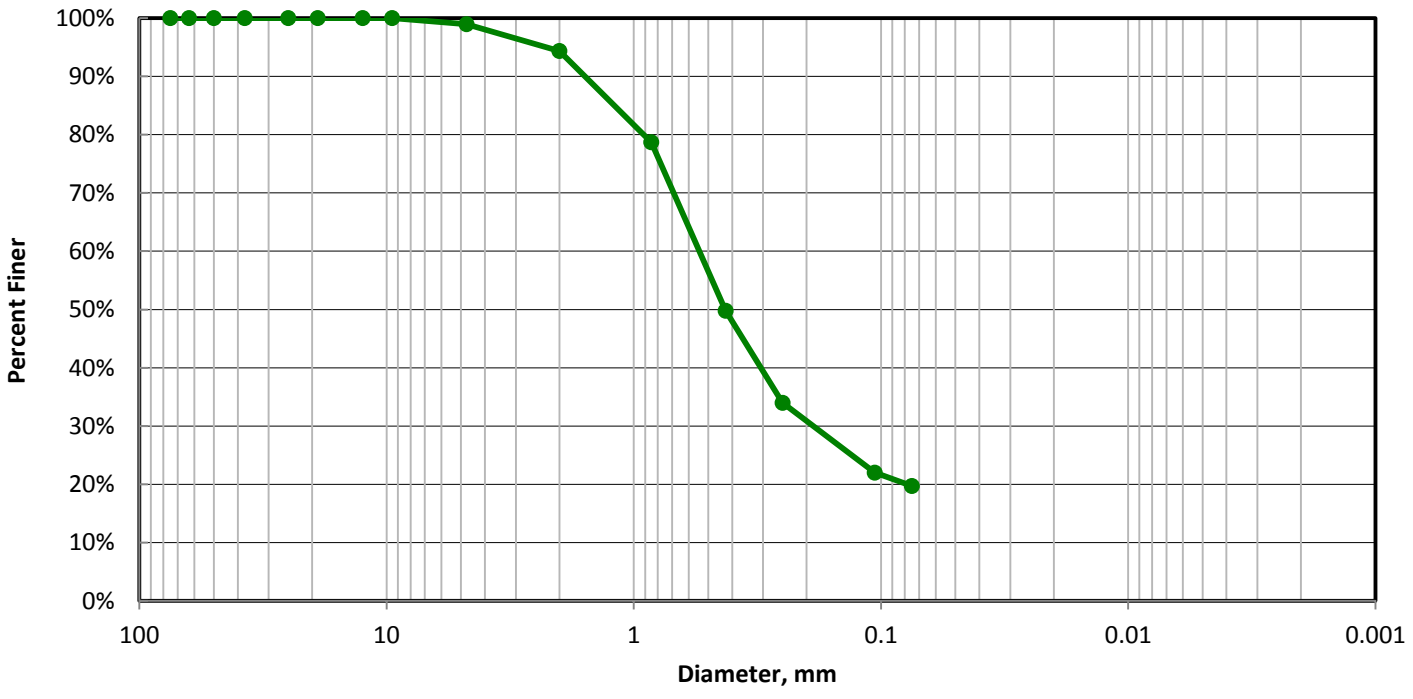
% Gravel (-3" & +#4)	**1.1**	Silt=NA Clay=NA	
Coarse=0; Fine=1.1		D60, mm	NA
% Sand (-#4 & +#200)	**79.2**	D30, mm	NA
Coarse=4.6; Medium=44.6; Fine=30.1		D10, mm	NA
% Fines (-#200)	**19.7**	Cc	NA
% Plus #200 (-3")	**80.3**	Cu	NA

USCS Description

SILTY SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sm	**ml - Silt (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-3
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0507-GS-BI
		Lab Sample	37829017

Sample Color: **GRAY**
USCS Group Name: **SILTY SAND**
USCS Group Symbol: **sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	141
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	3
Wet Wt Passing Split, gm	138
Dry Wt. Passing Split, gm	111
Total Sample Dry Wt, gm	114

Split Sample - Passing No. 4	
Tare No.	2061
Tare + WS., gm	271.72
Tare + DS., gm	248.13
Tare, gm	150.93
Water Content of Split Sample	**24.3%**
Wt. of DS., gm	97.20
Wt. of +#200 Sample, gm	81.52

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	2.79	2.5%	97.5%	
No. 10	2	4.39	4.4%	93.1%	
No. 20	0.85	16.45	16.5%	76.6%	
No. 40	0.425	30.62	30.7%	45.9%	
No. 60	0.25	17.24	17.3%	28.6%	
No. 140	0.106	10.34	10.4%	18.2%	
No. 200	0.075	2.48	2.5%	15.7%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

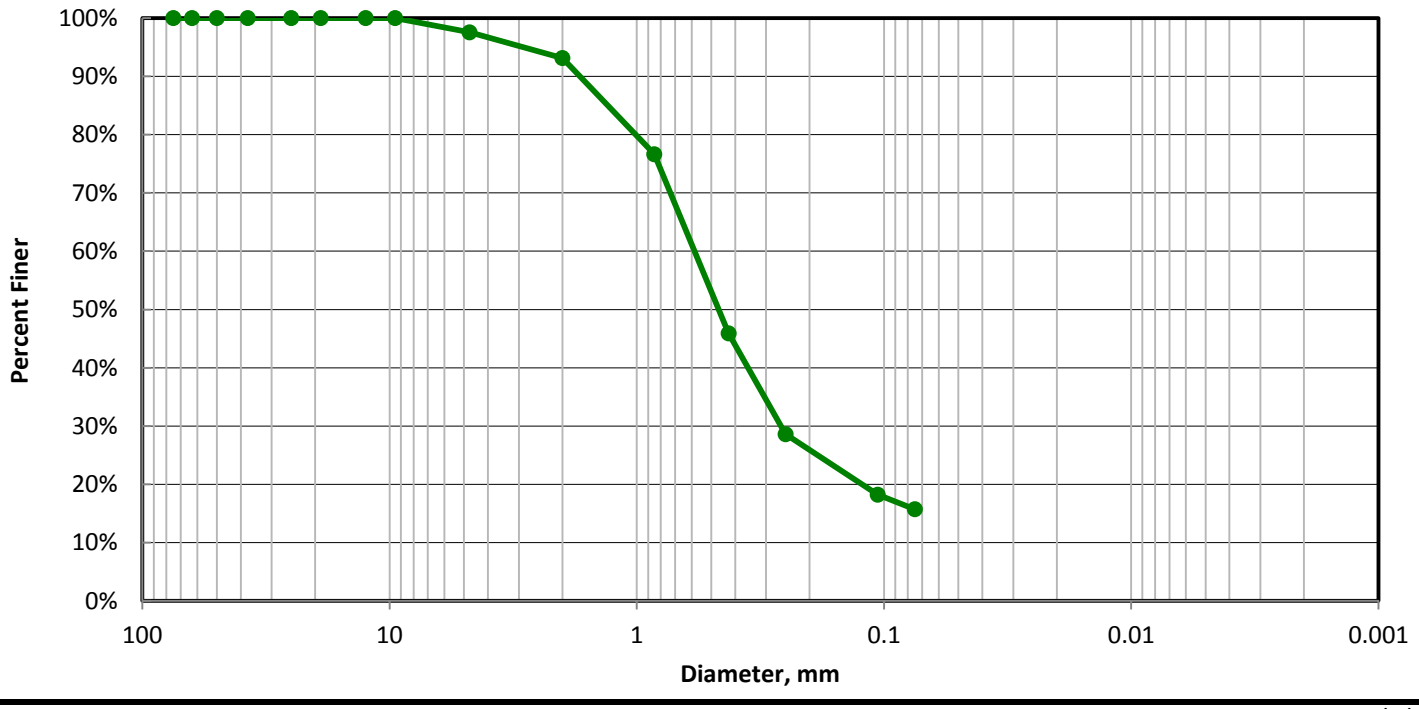
% Gravel (-3" & +#4)	**2.5**	Silt=NA Clay=NA	
Coarse=0; Fine=2.5		D60, mm	NA
% Sand (-#4 & +#200)	**81.8**	D30, mm	NA
Coarse=4.4; Medium=47.2; Fine=30.2		D10, mm	NA
% Fines (-#200)	**15.7**	Cc	NA
% Plus #200 (-3")	**84.3**	Cu	NA

USCS Description

SILTY SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sm	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-4
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0002-GS
		Lab Sample	37829018

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND WITH SILT**
USCS Group Symbol: **sp-sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	44
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	1
Wet Wt Passing Split, gm	43
Dry Wt. Passing Split, gm	35
Total Sample Dry Wt, gm	36

Split Sample - Passing No. 4	
Tare No.	2073
Tare + WS., gm	193.6
Tare + DS., gm	185.99
Tare, gm	151.79
Water Content of Split Sample	**22.3%**
Wt. of DS., gm	34.20
Wt. of +#200 Sample, gm	32.37

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	0.52	1.4%	98.6%	
No. 10	2	1.61	4.6%	93.9%	
No. 20	0.85	5.25	15.1%	78.8%	
No. 40	0.425	9.01	26.0%	52.8%	
No. 60	0.25	9.95	28.7%	24.1%	
No. 140	0.106	5.65	16.3%	7.9%	
No. 200	0.075	0.9	2.6%	5.3%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

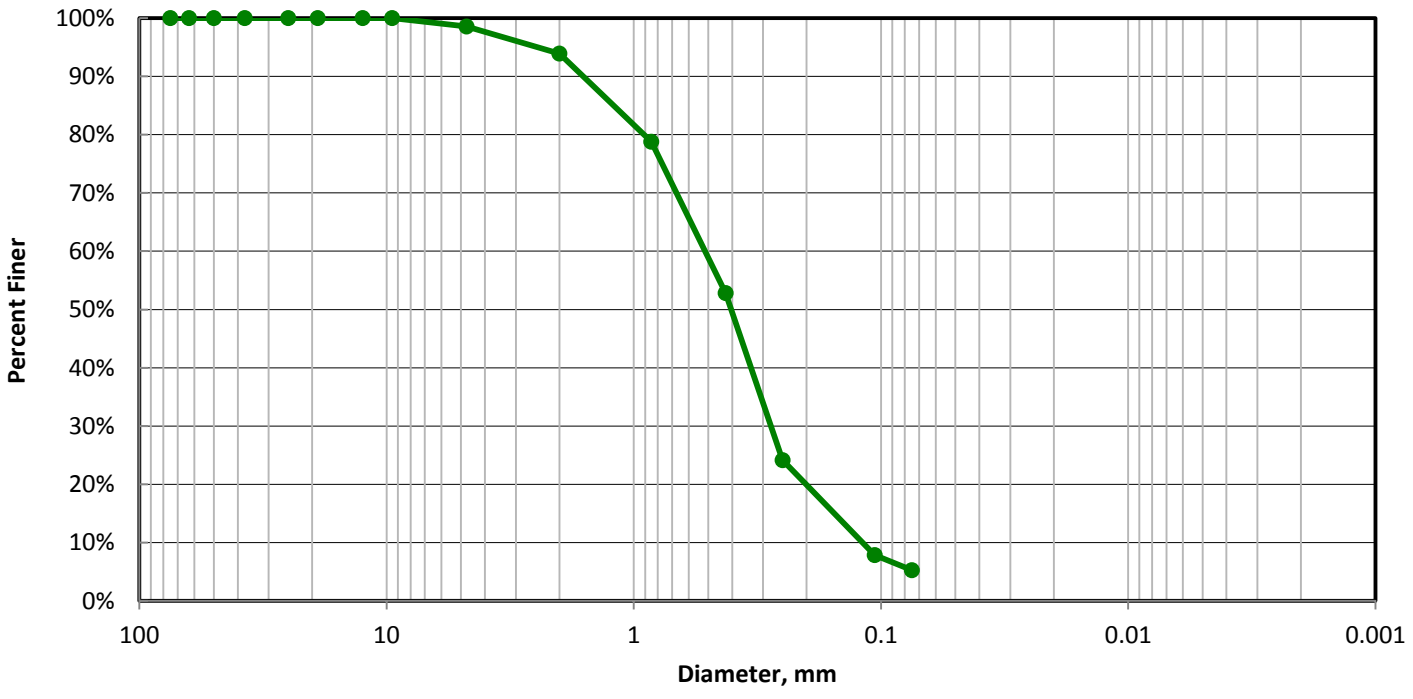
% Gravel (-3" & +#4)	**1.4**	Silt=NA Clay=NA	
Coarse=0; Fine=1.4		D60, mm	0.52
% Sand (-#4 & +#200)	**93.3**	D30, mm	0.28
Coarse=4.6; Medium=41.1; Fine=47.5		D10, mm	0.12
% Fines (-#200)	**5.3**	Cc	1.27
% Plus #200 (-3")	**94.7**	Cu	4.34

USCS Description

POORLY GRADED SAND WITH SILT

USCS Group Symbol	Atterberg Limits Group Symbol
sp-sm	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-4
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0205-GS
		Lab Sample	37829019

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND**
USCS Group Symbol: **sp** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	189
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	4
Wet Wt Passing Split, gm	185
Dry Wt. Passing Split, gm	156
Total Sample Dry Wt, gm	159

Split Sample - Passing No. 4	
Tare No.	2012
Tare + WS., gm	324.29
Tare + DS., gm	296.91
Tare, gm	151.75
Water Content of Split Sample	**18.9%**
Wt. of DS., gm	145.16
Wt. of +#200 Sample, gm	138.48

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	3.6	2.3%	97.7%	
No. 10	2	8.14	5.5%	92.3%	
No. 20	0.85	28.59	19.3%	73.0%	
No. 40	0.425	42.6	28.7%	44.3%	
No. 60	0.25	38.24	25.7%	18.6%	
No. 140	0.106	18.3	12.3%	6.3%	
No. 200	0.075	2.61	1.8%	4.5%	

USCS SOIL CLASSIFICATION

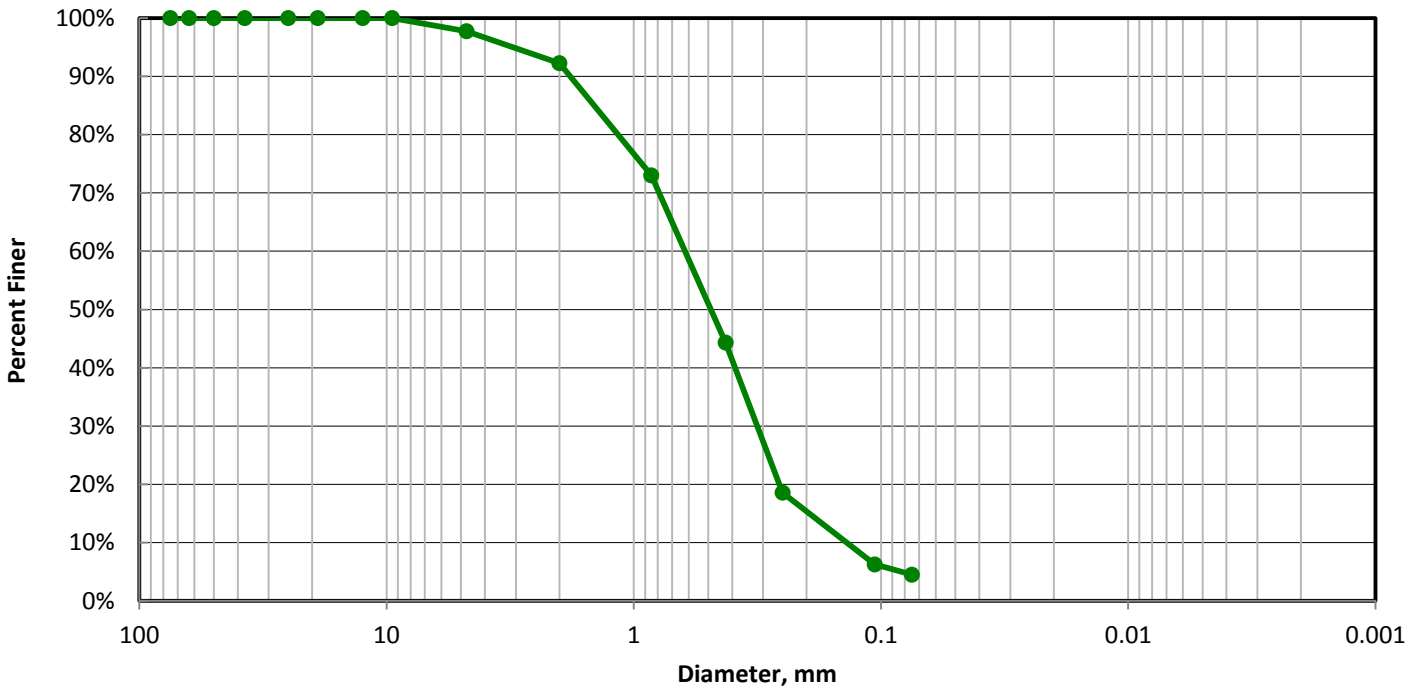
Corrected For 100% Passing a 3" Sieve

% Gravel (-3" & +#4)	**2.3**	Silt=NA Clay=NA	
Coarse=0; Fine=2.3		D60, mm	0.62
% Sand (-#4 & +#200)	**93.2**	D30, mm	0.32
Coarse=5.5; Medium=47.9; Fine=39.8		D10, mm	0.14
% Fines (-#200)	**4.5**	Cc	1.17
% Plus #200 (-3")	**95.5**	Cu	4.51

USCS Description
POORLY GRADED SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sp	np - Non-Plastic (assumed)

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-4
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0507-GS
		Lab Sample	37829020

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND**
USCS Group Symbol: **sp** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	130
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	2
Wet Wt Passing Split, gm	128
Dry Wt. Passing Split, gm	108
Total Sample Dry Wt, gm	110

Split Sample - Passing No. 4	
Tare No.	2055
Tare + WS., gm	270.72
Tare + DS., gm	252.78
Tare, gm	153.96
Water Content of Split Sample	**18.2%**
Wt. of DS., gm	98.82
Wt. of +#200 Sample, gm	95.90

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	2.04	1.8%	98.2%	
No. 10	2	6.62	6.6%	91.6%	
No. 20	0.85	20.64	20.5%	71.1%	
No. 40	0.425	29.8	29.6%	41.5%	
No. 60	0.25	26.06	25.9%	15.6%	
No. 140	0.106	11.43	11.4%	4.2%	
No. 200	0.075	1.35	1.3%	2.9%	

USCS SOIL CLASSIFICATION

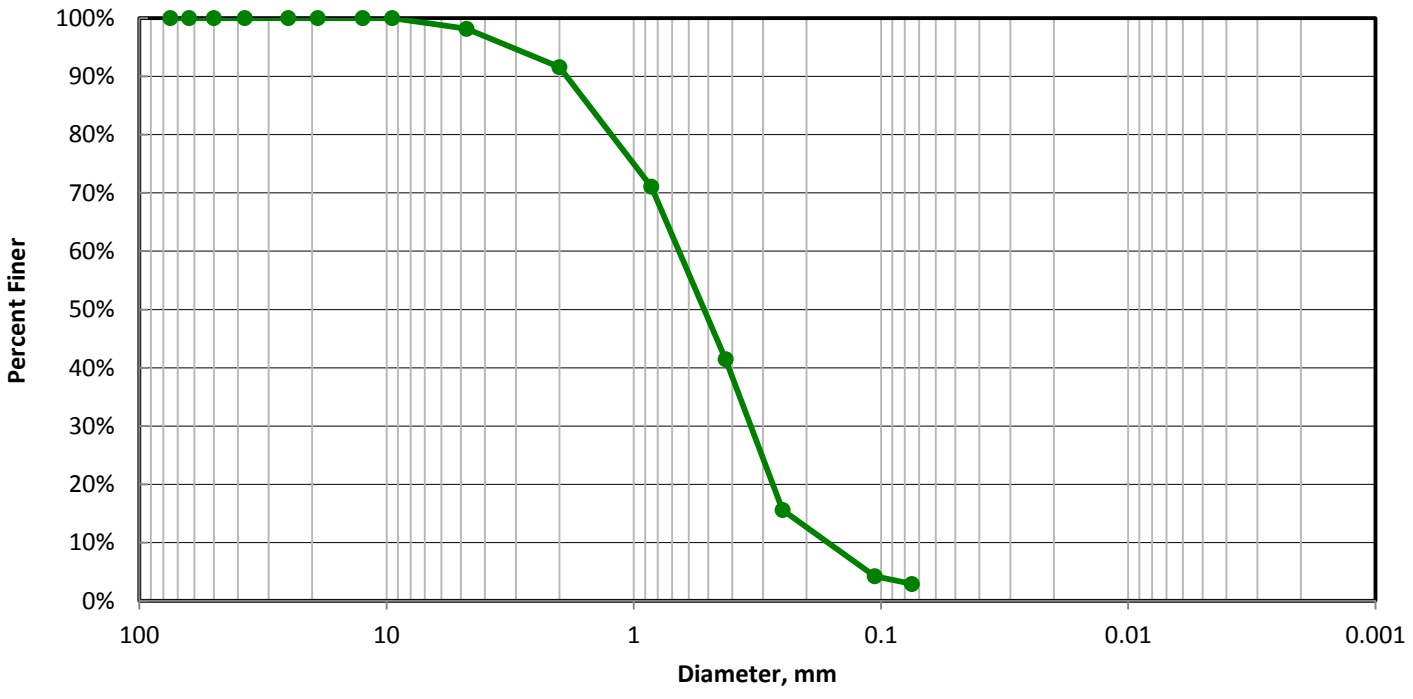
Corrected For 100% Passing a 3" Sieve

% Gravel (-3" & +#4)	**1.8**	Silt=NA Clay=NA	
Coarse=0; Fine=1.8		D60, mm	0.66
% Sand (-#4 & +#200)	**95.3**	D30, mm	0.34
Coarse=6.6; Medium=50.1; Fine=38.6		D10, mm	0.16
% Fines (-#200)	**2.9**	Cc	1.05
% Plus #200 (-3")	**97.1**	Cu	4.00

USCS Description
POORLY GRADED SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sp	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-4
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0002-GS-AI
		Lab Sample	37829021

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND**
USCS Group Symbol: **sp** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	57
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	1
Wet Wt Passing Split, gm	56
Dry Wt. Passing Split, gm	47
Total Sample Dry Wt, gm	48

Split Sample - Passing No. 4	
Tare No.	K16
Tare + WS., gm	117.8
Tare + DS., gm	109.85
Tare, gm	65.29
Water Content of Split Sample	**17.8%**
Wt. of DS., gm	44.56
Wt. of +#200 Sample, gm	44.07

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	0.78	1.6%	98.4%	
No. 10	2	2.06	4.5%	93.8%	
No. 20	0.85	7.03	15.5%	78.3%	
No. 40	0.425	12.96	28.6%	49.7%	
No. 60	0.25	15.61	34.5%	15.2%	
No. 140	0.106	6.2	13.7%	1.5%	
No. 200	0.075	0.21	0.5%	1.1%	

USCS SOIL CLASSIFICATION

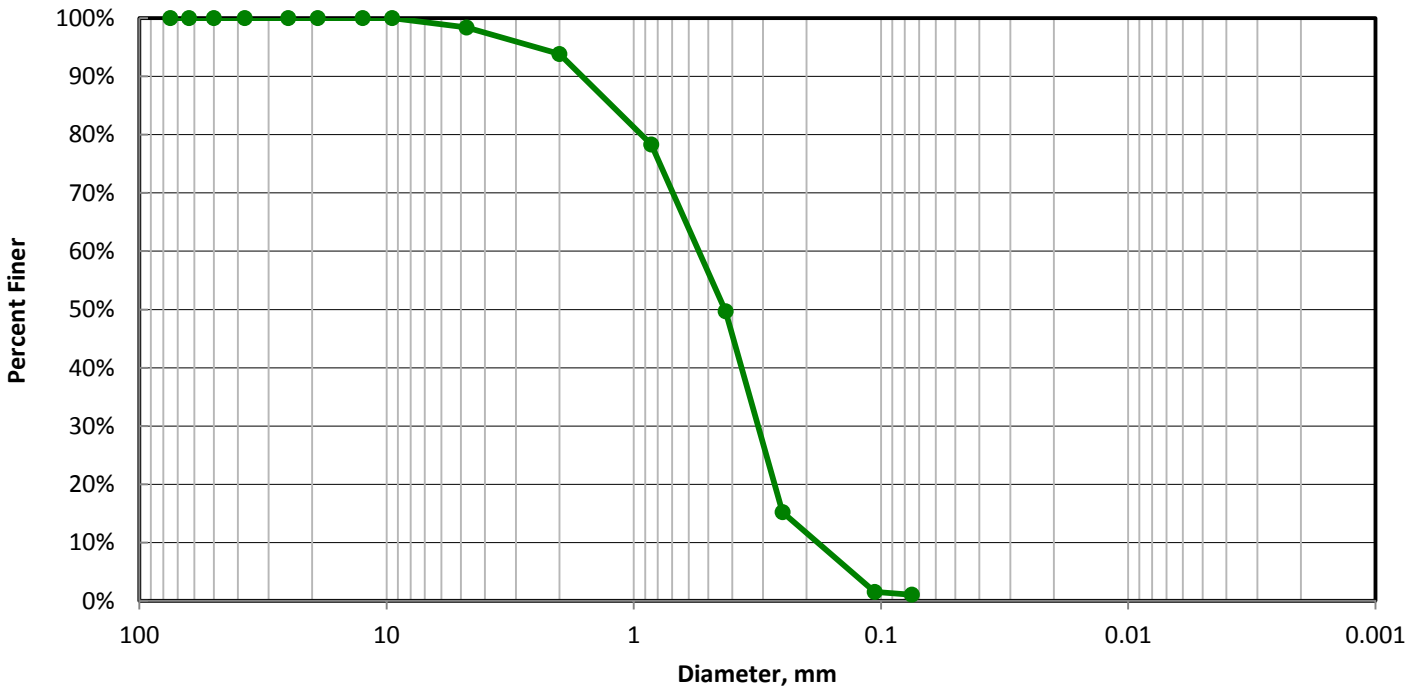
Corrected For 100% Passing a 3" Sieve

% Gravel (-3" & +#4)	**1.6**	Silt=NA Clay=NA	
Coarse=0; Fine=1.6		D60, mm	0.55
% Sand (-#4 & +#200)	**97.3**	D30, mm	0.31
Coarse=4.5; Medium=44.1; Fine=48.6		D10, mm	0.18
% Fines (-#200)	**1.1**	Cc	1.00
% Plus #200 (-3")	**98.9**	Cu	3.03

USCS Description
POORLY GRADED SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sp	np - Non-Plastic (assumed)

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-4
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0002-GS-BI
		Lab Sample	37829022

Sample Color: **GRAY**
USCS Group Name: **SILTY SAND**
USCS Group Symbol: **sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	84
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	1
Wet Wt Passing Split, gm	83
Dry Wt. Passing Split, gm	54
Total Sample Dry Wt, gm	55

Split Sample - Passing No. 4	
Tare No.	K22
Tare + WS., gm	145.44
Tare + DS., gm	117.58
Tare, gm	65.53
Water Content of Split Sample	**53.5%**
Wt. of DS., gm	52.05
Wt. of +#200 Sample, gm	34.70

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	0.85	1.5%	98.5%	
No. 10	2	0.7	1.3%	97.1%	
No. 20	0.85	2.53	4.8%	92.3%	
No. 40	0.425	7.81	14.8%	77.6%	
No. 60	0.25	12.01	22.7%	54.9%	
No. 140	0.106	7.36	13.9%	40.9%	
No. 200	0.075	4.29	8.1%	32.8%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

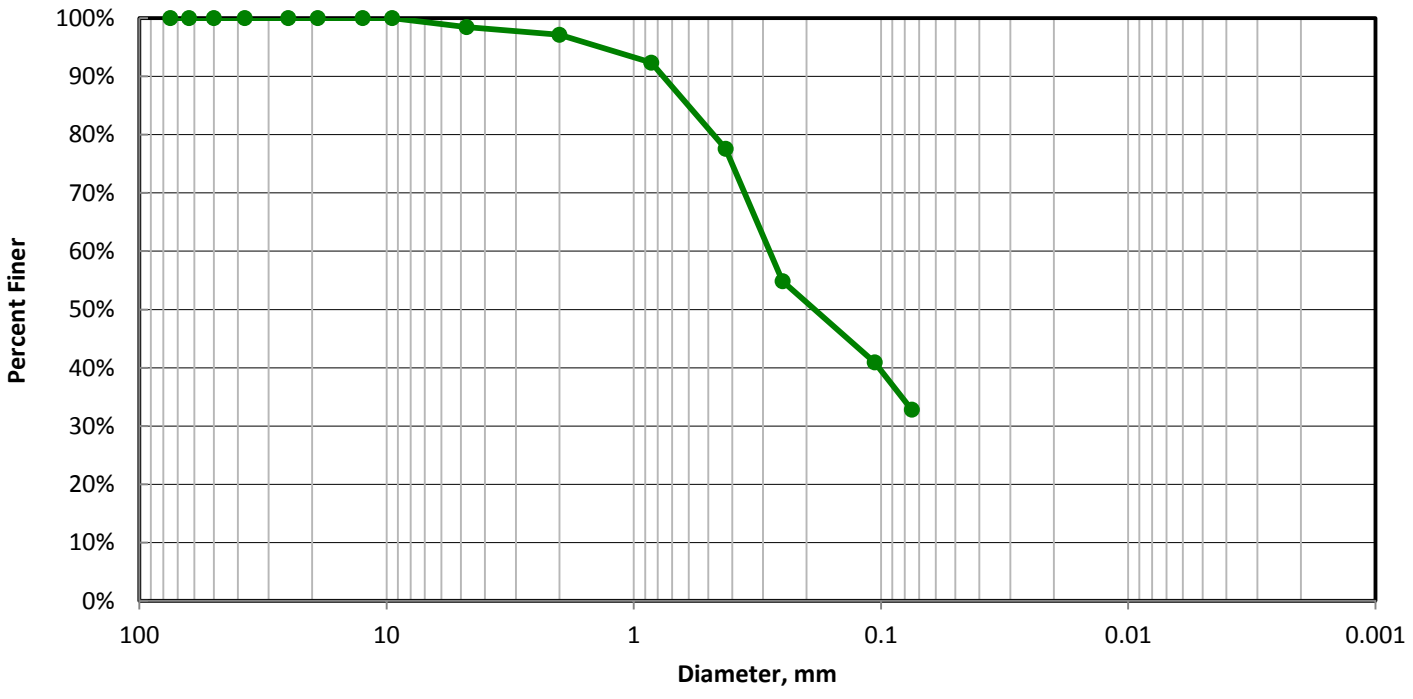
% Gravel (-3" & +#4)	**1.5**	Silt=NA Clay=NA	
Coarse=0; Fine=1.5		D60, mm	NA
% Sand (-#4 & +#200)	**65.6**	D30, mm	NA
Coarse=1.3; Medium=19.6; Fine=44.8		D10, mm	NA
% Fines (-#200)	**32.8**	Cc	NA
% Plus #200 (-3")	**67.2**	Cu	NA

USCS Description

SILTY SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sm	**ml - Silt (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-4
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0205-GS-BI
		Lab Sample	37829023

Sample Color: **GRAY**
USCS Group Name: **SANDY SILT**
USCS Group Symbol: **ml** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	155
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	0
Wet Wt Passing Split, gm	155
Dry Wt. Passing Split, gm	81
Total Sample Dry Wt, gm	81

Split Sample - Passing No. 4	
Tare No.	K38
Tare + WS., gm	219.48
Tare + DS., gm	145.69
Tare, gm	64.95
Water Content of Split Sample	**91.4%**
Wt. of DS., gm	80.74
Wt. of +#200 Sample, gm	24.47

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	0	0.0%	100.0%	
No. 10	2	0.13	0.2%	99.8%	
No. 20	0.85	1.17	1.4%	98.4%	
No. 40	0.425	3.48	4.3%	94.1%	
No. 60	0.25	4.78	5.9%	88.2%	
No. 140	0.106	8.06	10.0%	78.2%	
No. 200	0.075	6.85	8.5%	69.7%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

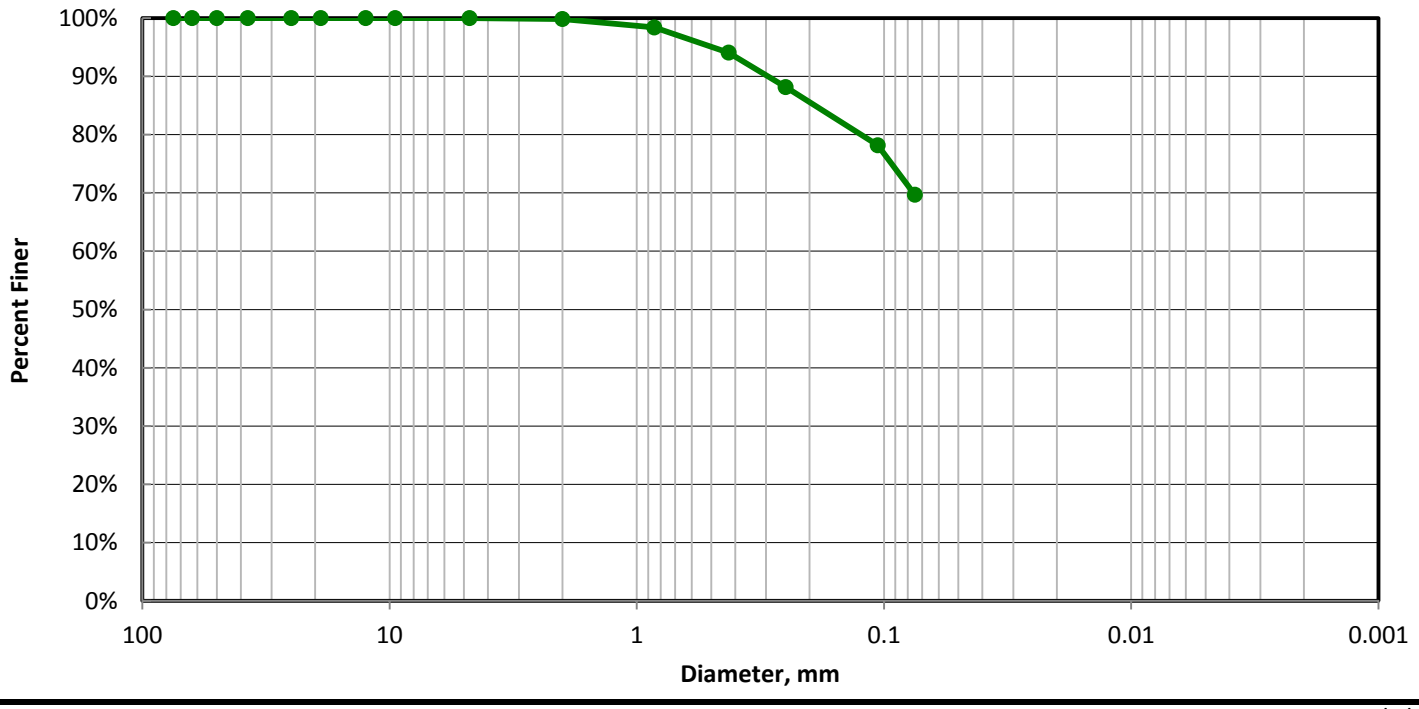
% Gravel (-3" & +#4)	**0.0**	Silt=NA Clay=NA	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	**30.3**	D30, mm	NA
Coarse=0.2; Medium=5.8; Fine=24.4		D10, mm	NA
% Fines (-#200)	**69.7**	Cc	NA
% Plus #200 (-3")	**30.3**	Cu	NA

USCS Description

SANDY SILT

USCS Group Symbol	Atterberg Limits Group Symbol
ml	**ml - Silt (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-4
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0507-GS-BI
		Lab Sample	37829024

Sample Color: **GRAY**
USCS Group Name: **SILT WITH SAND**
USCS Group Symbol: **ml** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	62
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	0
Wet Wt Passing Split, gm	62
Dry Wt. Passing Split, gm	32
Total Sample Dry Wt, gm	32

Split Sample - Passing No. 4	
Tare No.	K9
Tare + WS., gm	127.4
Tare + DS., gm	97.55
Tare, gm	65.44
Water Content of Split Sample	**93.0%**
Wt. of DS., gm	32.11
Wt. of +#200 Sample, gm	6.19

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	0	0.0%	100.0%	
No. 10	2	0	0.0%	100.0%	
No. 20	0.85	0.24	0.7%	99.3%	
No. 40	0.425	0.62	1.9%	97.3%	
No. 60	0.25	0.74	2.3%	95.0%	
No. 140	0.106	1.92	6.0%	89.0%	
No. 200	0.075	2.67	8.3%	80.7%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

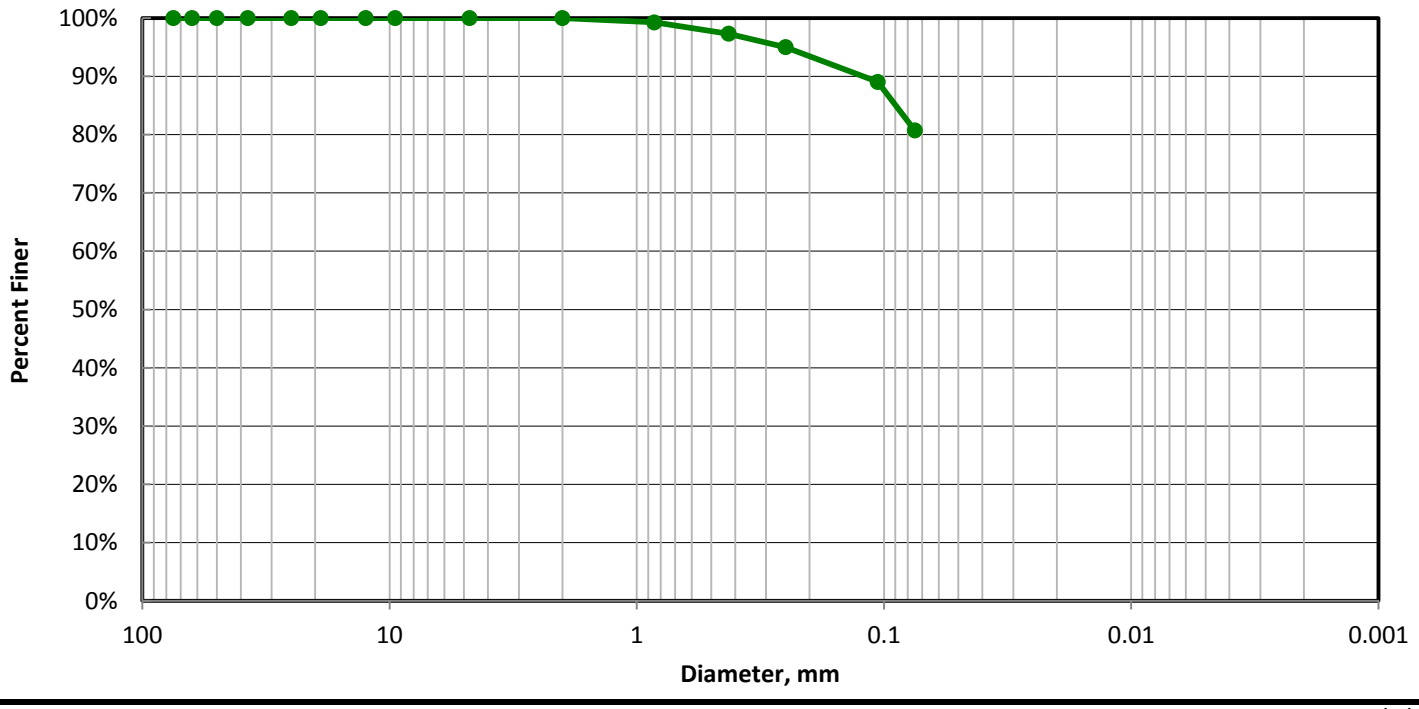
% Gravel (-3" & +#4)	**0.0**	Silt=NA Clay=NA	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	**19.3**	D30, mm	NA
Coarse=0; Medium=2.7; Fine=16.6		D10, mm	NA
% Fines (-#200)	**80.7**	Cc	NA
% Plus #200 (-3")	**19.3**	Cu	NA

USCS Description

SILT WITH SAND

USCS Group Symbol	Atterberg Limits Group Symbol
ml	**ml - Silt (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-5DUP
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0205-GS-BI
		Lab Sample	37829025

Sample Color: **GRAY**
USCS Group Name: **SANDY SILT**
USCS Group Symbol: **ml** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	158
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	0
Wet Wt Passing Split, gm	158
Dry Wt. Passing Split, gm	101
Total Sample Dry Wt, gm	101

Split Sample - Passing No. 4	
Tare No.	K39
Tare + WS., gm	222.98
Tare + DS., gm	165.99
Tare, gm	64.9
Water Content of Split Sample	**56.4%**
Wt. of DS., gm	101.09
Wt. of +#200 Sample, gm	46.85

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	0	0.0%	100.0%	
No. 10	2	0.82	0.8%	99.2%	
No. 20	0.85	1.58	1.6%	97.6%	
No. 40	0.425	4.68	4.6%	93.0%	
No. 60	0.25	7.14	7.1%	85.9%	
No. 140	0.106	18.63	18.4%	67.5%	
No. 200	0.075	14	13.8%	53.7%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

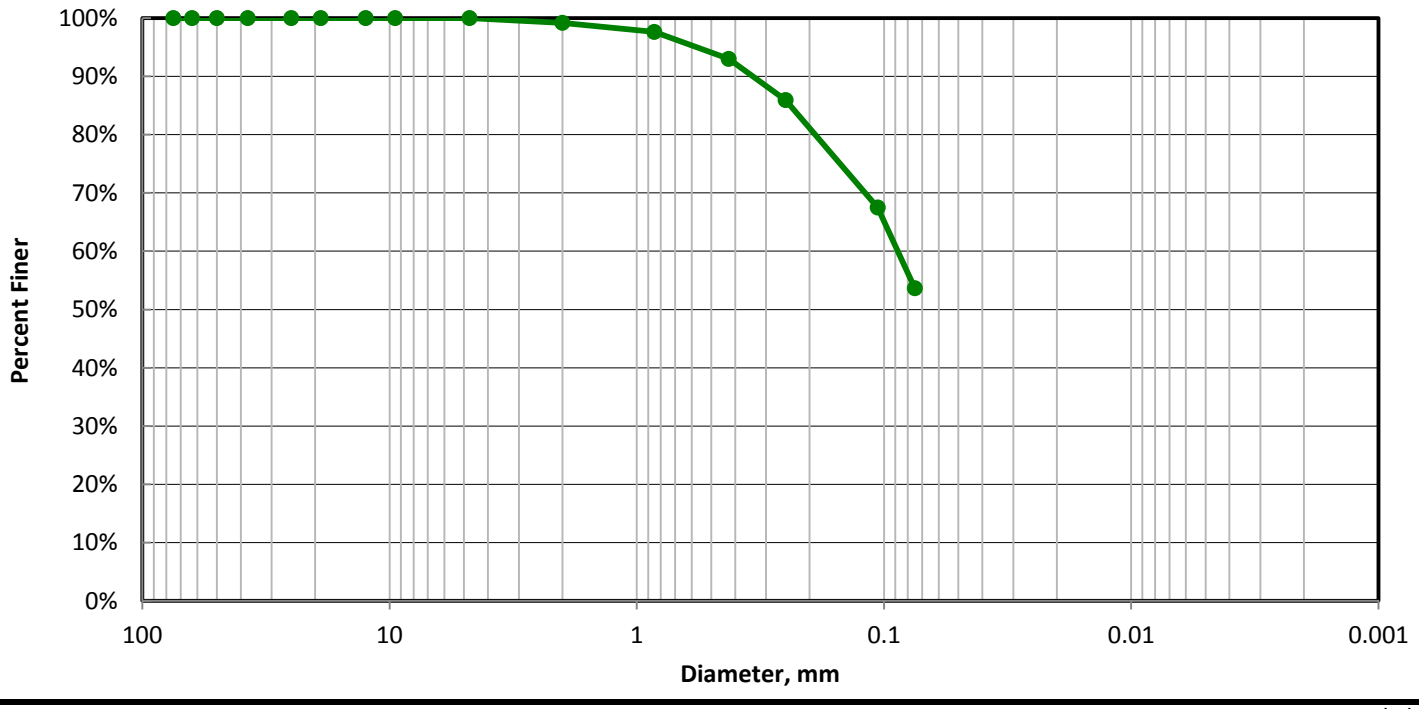
% Gravel (-3" & +#4)	**0.0**	Silt=NA Clay=NA	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	**46.3**	D30, mm	NA
Coarse=0.8; Medium=6.2; Fine=39.3		D10, mm	NA
% Fines (-#200)	**53.7**	Cc	NA
% Plus #200 (-3")	**46.3**	Cu	NA

USCS Description

SANDY SILT

USCS Group Symbol	Atterberg Limits Group Symbol
ml	**ml - Silt (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-5DUP
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0507-GS-BI
		Lab Sample	37829026

Sample Color: **GRAY**
USCS Group Name: **SANDY SILT**
USCS Group Symbol: **ml** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	141
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	0
Wet Wt Passing Split, gm	141
Dry Wt. Passing Split, gm	94
Total Sample Dry Wt, gm	94

Split Sample - Passing No. 4	
Tare No.	K36
Tare + WS., gm	206.19
Tare + DS., gm	158.81
Tare, gm	64.75
Water Content of Split Sample	**50.4%**
Wt. of DS., gm	94.06
Wt. of +#200 Sample, gm	35.02

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	0	0.0%	100.0%	
No. 10	2	0.25	0.3%	99.7%	
No. 20	0.85	0.76	0.8%	98.9%	
No. 40	0.425	2.85	3.0%	95.9%	
No. 60	0.25	4.05	4.3%	91.6%	
No. 140	0.106	13.24	14.1%	77.5%	
No. 200	0.075	13.87	14.7%	62.8%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

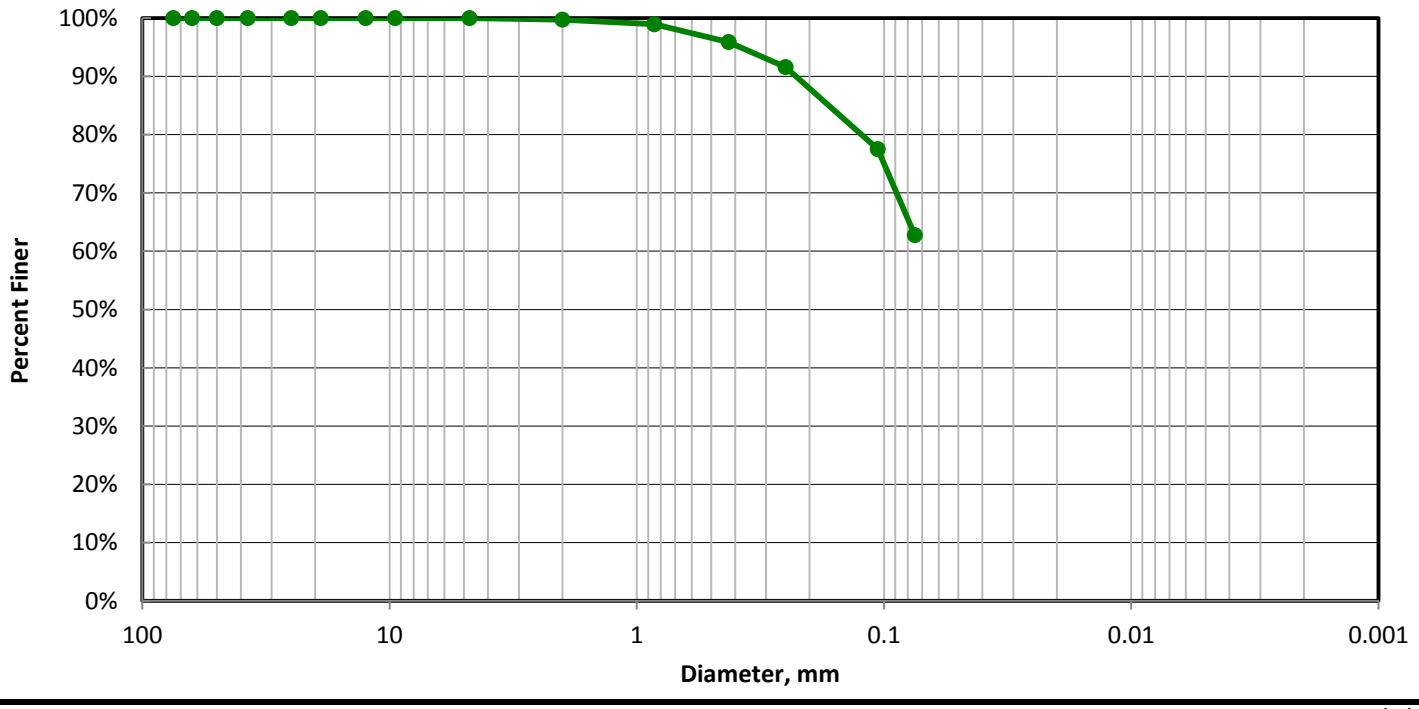
% Gravel (-3" & +#4)	**0.0**	Silt=NA Clay=NA	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	**37.2**	D30, mm	NA
Coarse=0.3; Medium=3.8; Fine=33.1		D10, mm	NA
% Fines (-#200)	**62.8**	Cc	NA
% Plus #200 (-3")	**37.2**	Cu	NA

USCS Description

SANDY SILT

USCS Group Symbol	Atterberg Limits Group Symbol
ml	**ml - Silt (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-6
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	GRAB-GS
		Lab Sample	37829027

Sample Color: **GRAY**
USCS Group Name: **SANDY SILT**
USCS Group Symbol: **ml** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	861
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	2
Wet Wt Passing Split, gm	859
Dry Wt. Passing Split, gm	350
Total Sample Dry Wt, gm	352

Split Sample - Passing No. 4	
Tare No.	548
Tare + WS., gm	1059.3
Tare + DS., gm	548.91
Tare, gm	198.11
Water Content of Split Sample	**145.5%**
Wt. of DS., gm	350.80
Wt. of +#200 Sample, gm	124.00

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	1.15	0.3%	99.7%	
3/8"	9.5	0	0.0%	99.7%	
No. 4	4.75	1.17	0.3%	99.3%	
No. 10	2	0.87	0.2%	99.1%	
No. 20	0.85	4.22	1.2%	97.9%	
No. 40	0.425	6.17	1.7%	96.2%	
No. 60	0.25	4.99	1.4%	94.7%	
No. 140	0.106	77.91	22.1%	72.7%	
No. 200	0.075	29.84	8.5%	64.2%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

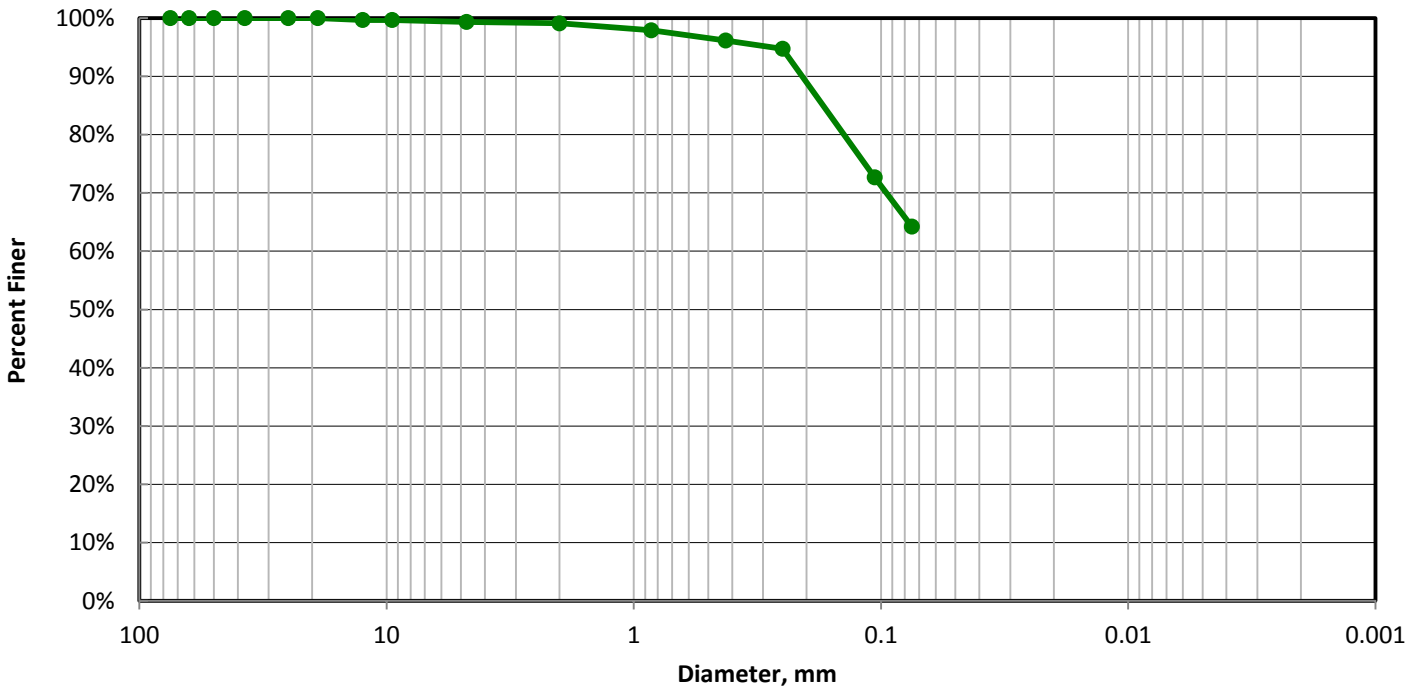
% Gravel (-3" & +#4)	**0.7**	Silt=NA Clay=NA	
Coarse=0; Fine=0.7		D60, mm	NA
% Sand (-#4 & +#200)	**35.1**	D30, mm	NA
Coarse=0.2; Medium=2.9; Fine=31.9		D10, mm	NA
% Fines (-#200)	**64.2**	Cc	NA
% Plus #200 (-3")	**35.8**	Cu	NA

USCS Description

SANDY SILT

USCS Group Symbol	Atterberg Limits Group Symbol
ml	**ml - Silt (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-7
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0002-GS
		Lab Sample	37829028

Sample Color: **GRAY**
USCS Group Name: **SILT**
USCS Group Symbol: **ml** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	981
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	0
Wet Wt Passing Split, gm	981
Dry Wt. Passing Split, gm	293
Total Sample Dry Wt, gm	293

Split Sample - Passing No. 4	
Tare No.	558
Tare + WS., gm	1173.32
Tare + DS., gm	485.08
Tare, gm	192.06
Water Content of Split Sample	**234.9%**
Wt. of DS., gm	293.02
Wt. of +#200 Sample, gm	24.57

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	0	0.0%	100.0%	
No. 10	2	0.2	0.1%	99.9%	
No. 20	0.85	2.44	0.8%	99.1%	
No. 40	0.425	4.04	1.4%	97.7%	
No. 60	0.25	2.78	0.9%	96.8%	
No. 140	0.106	6.27	2.1%	94.6%	
No. 200	0.075	8.84	3.0%	91.6%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

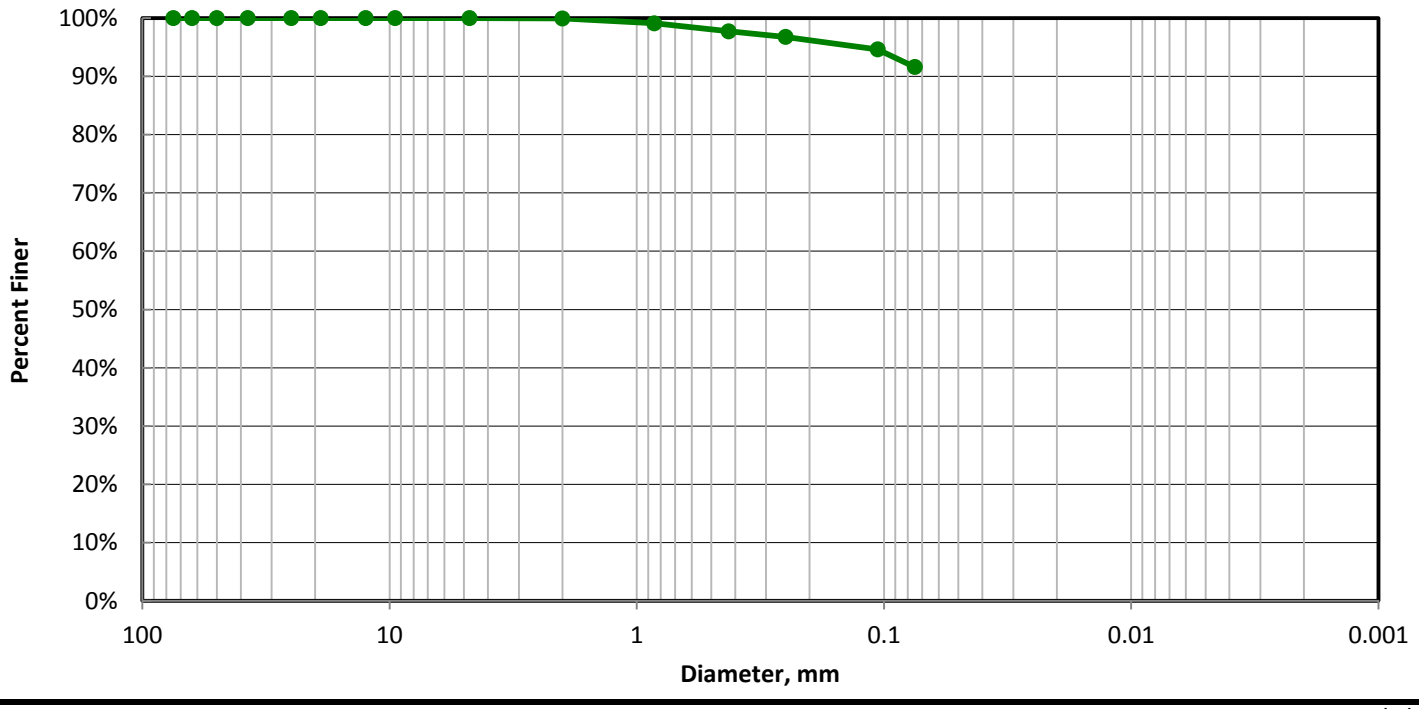
% Gravel (-3" & +#4)	**0.0**	Silt=NA Clay=NA	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	**8.4**	D30, mm	NA
Coarse=0.1; Medium=2.2; Fine=6.1		D10, mm	NA
% Fines (-#200)	**91.6**	Cc	NA
% Plus #200 (-3")	**8.4**	Cu	NA

USCS Description

SILT

USCS Group Symbol	Atterberg Limits Group Symbol
ml	**ml - Silt (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client: Air Water & Soil Laboratories, Inc. Boring: QT25-1

Group Name: **POORLY GRADED SAND WITH SILT**

USCS Group Symbol: **sp-sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	128
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	1
Wet Wt Passing Split, gm	128
Dry Wt. Passing Split, gm	103
Total Sample Dry Wt, gm	103

Split Sample - Passing No. 4	
Tare No.	K20
Tare + WS., gm	190.2
Tare + DS., gm	165.67
Tare, gm	65.28
Water Content of Split Sample	**24.4%**
Wt. of DS., gm	100.39
Wt. of +#200 Sample, gm	88.73

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0.5	0.5%	99.5%	
No. 4	4.75	0	0.0%	99.5%	
No. 10	2	4.04	4.0%	95.5%	
No. 20	0.85	10.39	10.3%	85.2%	
No. 40	0.425	19.06	18.9%	66.3%	
No. 60	0.25	19.27	19.1%	47.2%	
No. 140	0.106	28.29	28.0%	19.2%	
No. 200	0.075	7.68	7.6%	11.6%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

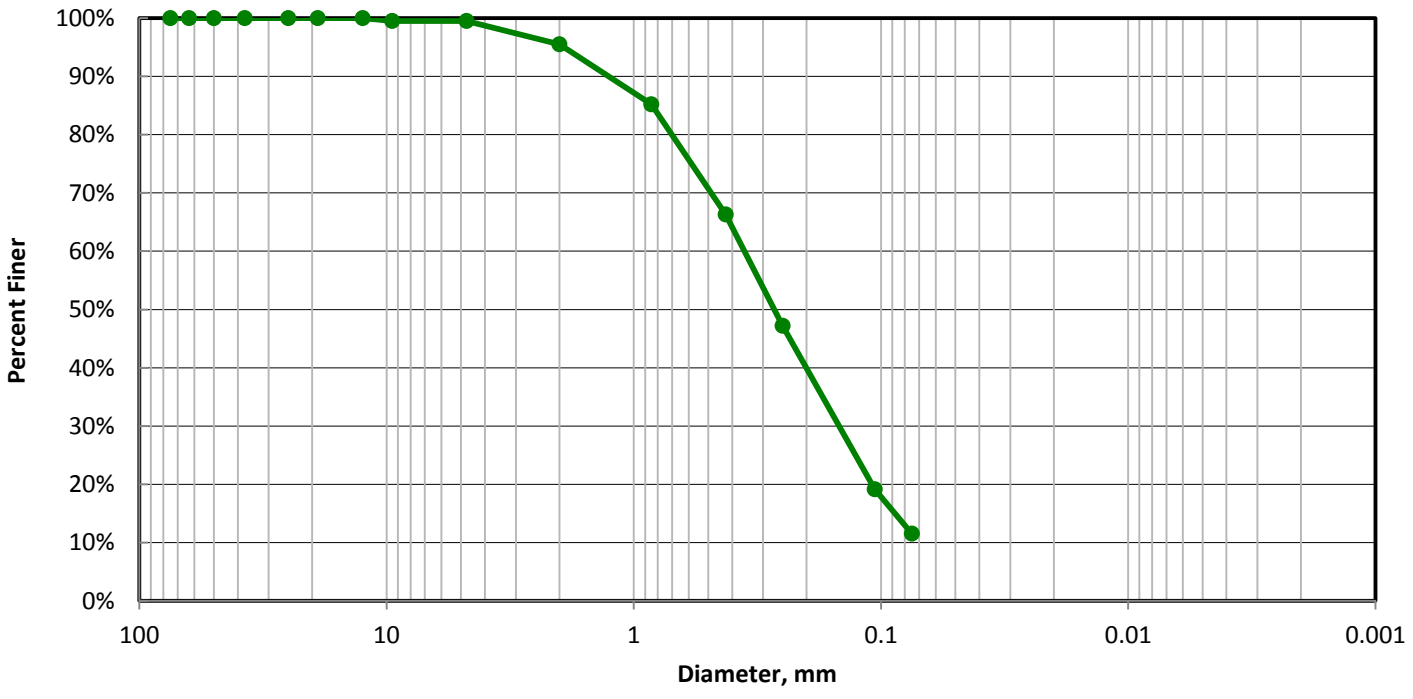
% Gravel (-3" & +#4)	**0.5**	Silt=NA Clay=NA	
Coarse=0; Fine=0.5		D60, mm	0.36
% Sand (-#4 & +#200)	**88.0**	D30, mm	0.15
Coarse=4; Medium=29.2; Fine=54.8		D10, mm	0.07
% Fines (-#200)	**11.6**	Cc	0.87
% Plus #200 (-3")	**88.4**	Cu	5.10

USCS Description

POORLY GRADED SAND WITH SILT

USCS Group Symbol	Atterberg Limits Group Symbol
sp-sm	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-1
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0205-GS
		Lab Sample	37829030

Sample Color: **GRAY**
USCS Group Name: **SILTY SAND**
USCS Group Symbol: **sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	139
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	1
Wet Wt Passing Split, gm	138
Dry Wt. Passing Split, gm	109
Total Sample Dry Wt, gm	110

Split Sample - Passing No. 4	
Tare No.	K26
Tare + WS., gm	202.2
Tare + DS., gm	173.7
Tare, gm	66.73
Water Content of Split Sample	**26.6%**
Wt. of DS., gm	106.97
Wt. of +#200 Sample, gm	86.44

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	0.75	0.7%	99.3%	
No. 10	2	2.2	2.0%	97.3%	
No. 20	0.85	7.48	6.9%	90.3%	
No. 40	0.425	22.07	20.5%	69.8%	
No. 60	0.25	17.93	16.6%	53.2%	
No. 140	0.106	24.37	22.6%	30.6%	
No. 200	0.075	12.39	11.5%	19.1%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

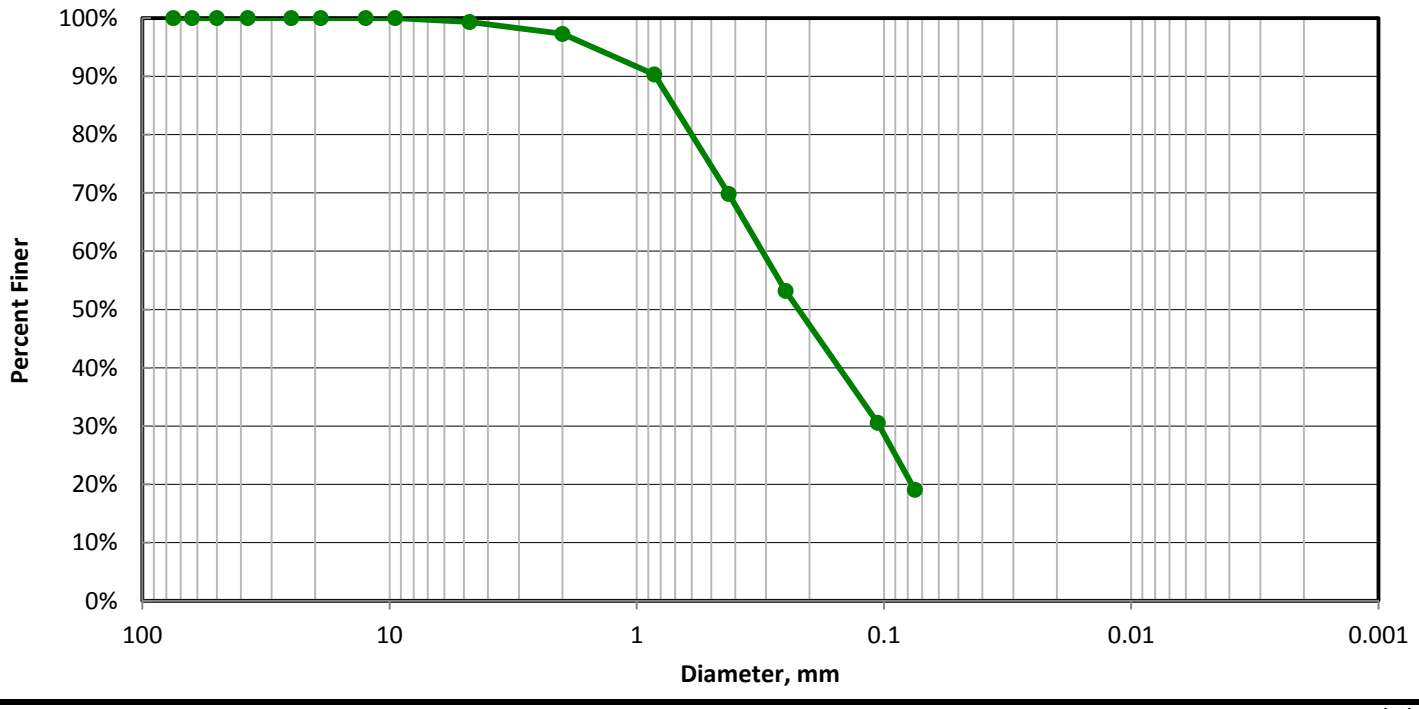
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Coarse=0; Fine=0.7		D60, mm	NA
% Sand (-#4 & +#200)	**80.3**	D30, mm	NA
Coarse=2; Medium=27.4; Fine=50.8		D10, mm	NA
% Fines (-#200)	**19.1**	Cc	NA
% Plus #200 (-3")	**80.9**	Cu	NA

USCS Description

SILTY SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sm	**ml - Silt (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-1
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0507-GS
		Lab Sample	37829031

Sample Color: **GRAY**
USCS Group Name: **SILTY SAND**
USCS Group Symbol: **sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	65
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	0
Wet Wt Passing Split, gm	65
Dry Wt. Passing Split, gm	52
Total Sample Dry Wt, gm	52

Split Sample - Passing No. 4	
Tare No.	115
Tare + WS., gm	144.56
Tare + DS., gm	132.5
Tare, gm	85
Water Content of Split Sample	**25.4%**
Wt. of DS., gm	47.50
Wt. of +#200 Sample, gm	41.21

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	0	0.0%	100.0%	
No. 10	2	1.62	3.4%	96.6%	
No. 20	0.85	6.24	13.1%	83.5%	
No. 40	0.425	11.27	23.7%	59.7%	
No. 60	0.25	10.01	21.1%	38.7%	
No. 140	0.106	9.39	19.8%	18.9%	
No. 200	0.075	2.68	5.6%	13.2%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

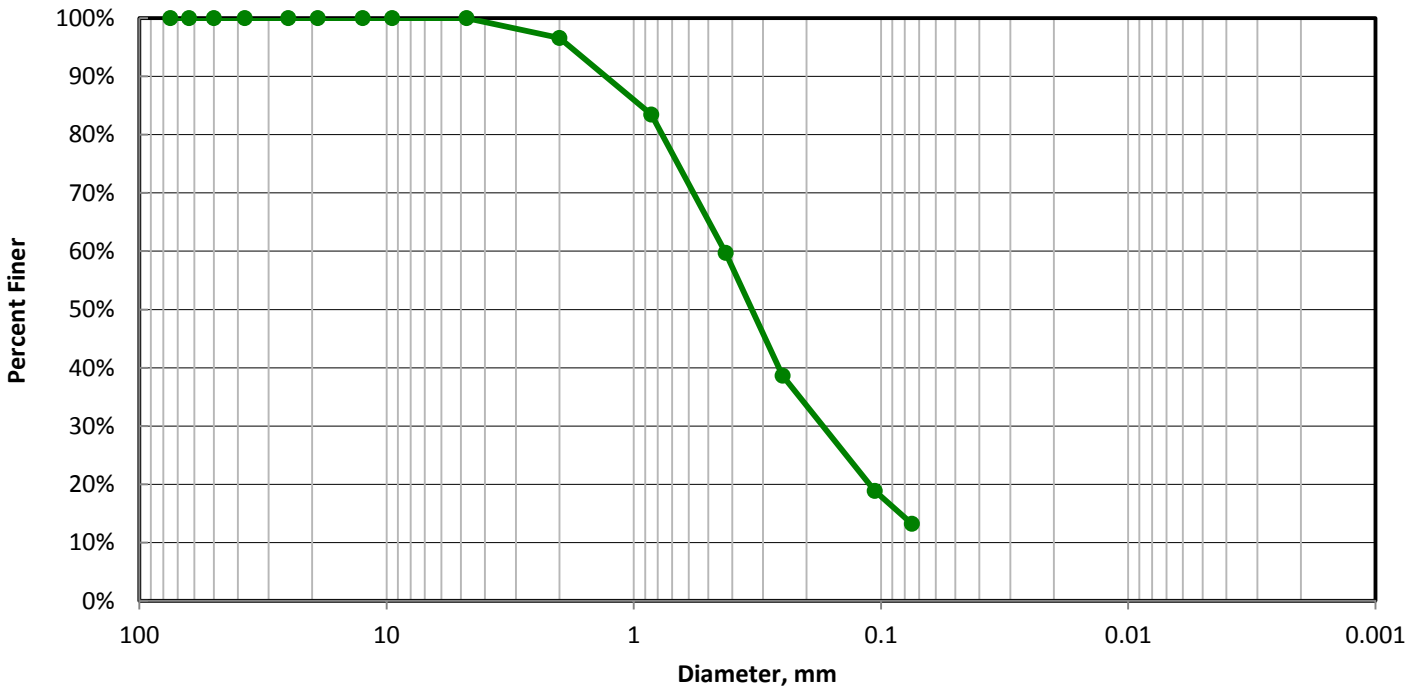
% Gravel (-3" & +#4)	**0.0**	Silt=NA Clay=NA	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	**86.8**	D30, mm	NA
Coarse=3.4; Medium=36.9; Fine=46.5		D10, mm	NA
% Fines (-#200)	**13.2**	Cc	NA
% Plus #200 (-3")	**86.8**	Cu	NA

USCS Description

SILTY SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sm	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-5
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0002-GS
		Lab Sample	37829032

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND**
USCS Group Symbol: **sp** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	60
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	1
Wet Wt Passing Split, gm	59
Dry Wt. Passing Split, gm	50
Total Sample Dry Wt, gm	51

Split Sample - Passing No. 4	
Tare No.	K5
Tare + WS., gm	121.19
Tare + DS., gm	112.67
Tare, gm	65.54
Water Content of Split Sample	**18.1%**
Wt. of DS., gm	47.13
Wt. of +#200 Sample, gm	45.95

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	0.6	1.2%	98.8%	
No. 10	2	2.46	5.2%	93.7%	
No. 20	0.85	6.21	13.0%	80.6%	
No. 40	0.425	16.4	34.4%	46.3%	
No. 60	0.25	16.8	35.2%	11.0%	
No. 140	0.106	3.45	7.2%	3.8%	
No. 200	0.075	0.63	1.3%	2.5%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

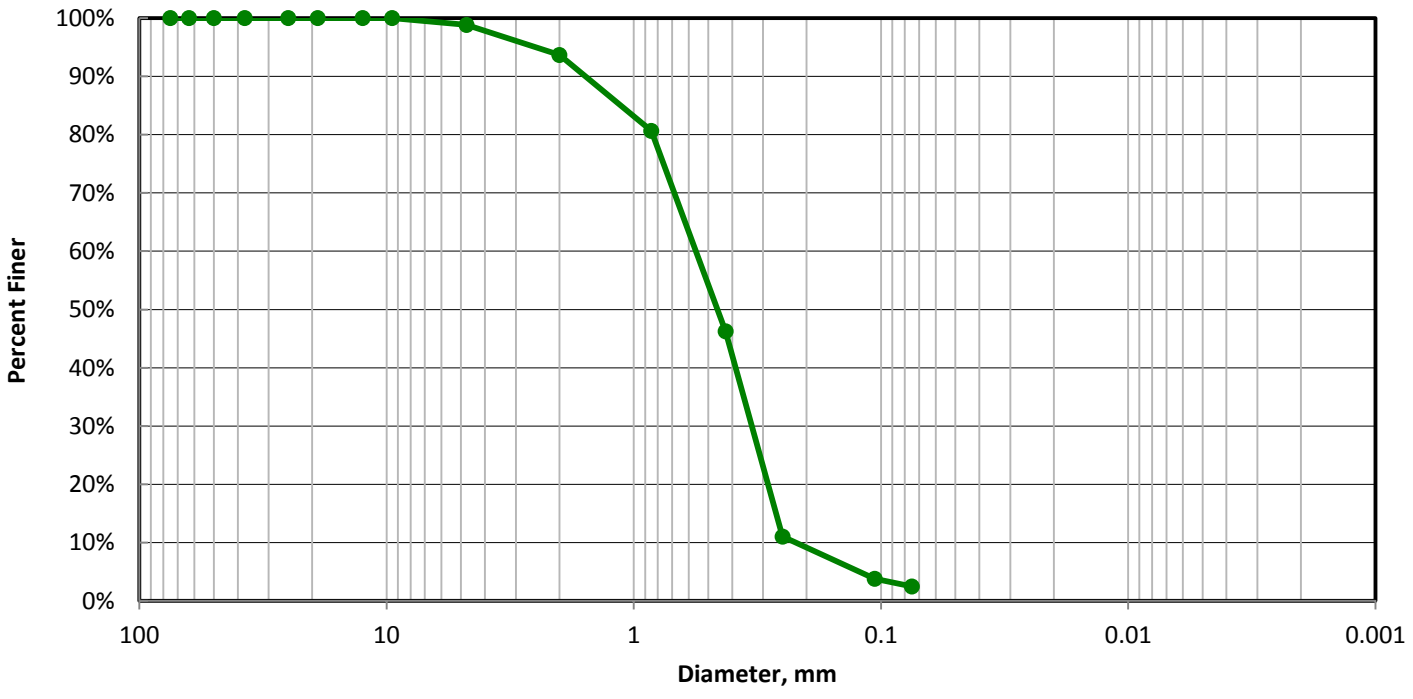
% Gravel (-3" & +#4)	**1.2**	Silt=NA Clay=NA	
Coarse=0; Fine=1.2		D60, mm	0.56
% Sand (-#4 & +#200)	**96.3**	D30, mm	0.33
Coarse=5.2; Medium=47.4; Fine=43.8		D10, mm	0.22
% Fines (-#200)	**2.5**	Cc	0.89
% Plus #200 (-3")	**97.5**	Cu	2.53

USCS Description

POORLY GRADED SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sp	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-5
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0205-GS
		Lab Sample	37829033

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND**
USCS Group Symbol: **sp** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	183
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	2
Wet Wt Passing Split, gm	181
Dry Wt. Passing Split, gm	153
Total Sample Dry Wt, gm	155

Split Sample - Passing No. 4	
Tare No.	K24
Tare + WS., gm	230.59
Tare + DS., gm	205.1
Tare, gm	64.37
Water Content of Split Sample	**18.1%**
Wt. of DS., gm	140.73
Wt. of +#200 Sample, gm	139.14

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	2.29	1.5%	98.5%	
No. 10	2	6.89	4.8%	93.7%	
No. 20	0.85	20.1	14.1%	79.6%	
No. 40	0.425	48.6	34.0%	45.6%	
No. 60	0.25	52.7	36.9%	8.7%	
No. 140	0.106	10.61	7.4%	1.3%	
No. 200	0.075	0.24	0.2%	1.1%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

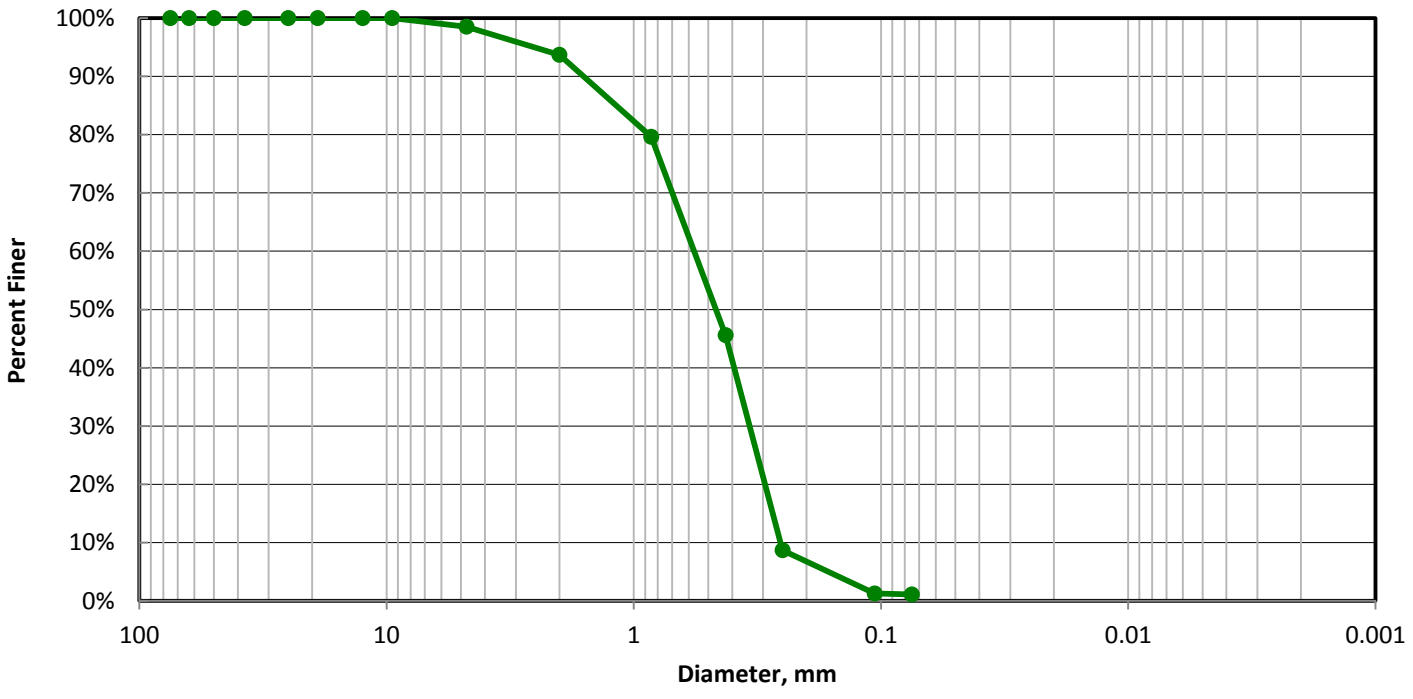
% Gravel (-3" & +#4)	**1.5**	Silt=NA Clay=NA	
Coarse=0; Fine=1.5		D60, mm	0.57
% Sand (-#4 & +#200)	**97.4**	D30, mm	0.34
Coarse=4.8; Medium=48.1; Fine=44.5		D10, mm	0.26
% Fines (-#200)	**1.1**	Cc	0.79
% Plus #200 (-3")	**98.9**	Cu	2.24

USCS Description

POORLY GRADED SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sp	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-5
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0507-GS
		Lab Sample	37829034

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND**
USCS Group Symbol: **sp** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	133
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	2
Wet Wt Passing Split, gm	131
Dry Wt. Passing Split, gm	110
Total Sample Dry Wt, gm	113

Split Sample - Passing No. 4	
Tare No.	K23
Tare + WS., gm	186.3
Tare + DS., gm	167.03
Tare, gm	64.67
Water Content of Split Sample	**18.8%**
Wt. of DS., gm	102.36
Wt. of +#200 Sample, gm	100.35

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	2.4	2.1%	97.9%	
No. 10	2	4.02	3.8%	94.0%	
No. 20	0.85	15.62	14.9%	79.1%	
No. 40	0.425	36.94	35.3%	43.8%	
No. 60	0.25	36.73	35.1%	8.7%	
No. 140	0.106	6.32	6.0%	2.6%	
No. 200	0.075	0.72	0.7%	1.9%	

USCS SOIL CLASSIFICATION

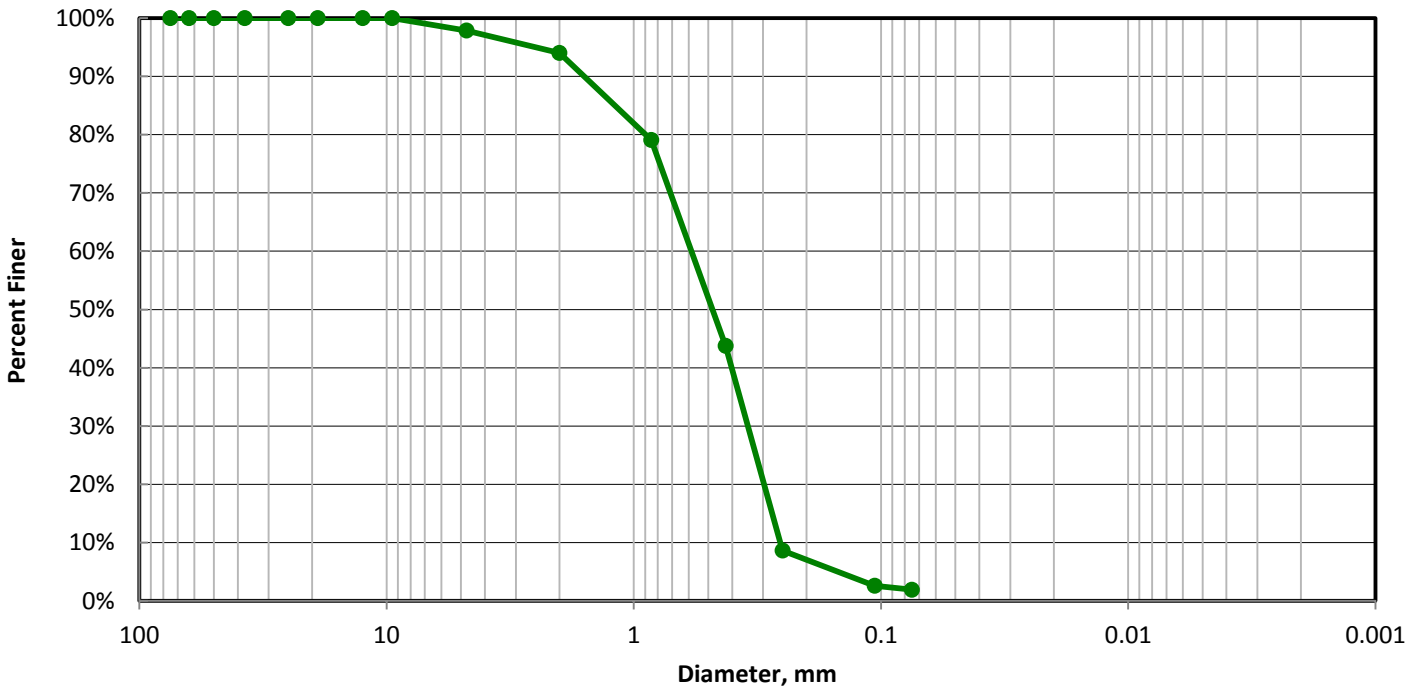
Corrected For 100% Passing a 3" Sieve

% Gravel (-3" & +#4)	**2.1**	Silt=NA Clay=NA	
Coarse=0; Fine=2.1		D60, mm	0.58
% Sand (-#4 & +#200)	**95.9**	D30, mm	0.35
Coarse=3.8; Medium=50.3; Fine=41.8		D10, mm	0.26
% Fines (-#200)	**1.9**	Cc	0.80
% Plus #200 (-3")	**98.1**	Cu	2.29

USCS Description
POORLY GRADED SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sp	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-5
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0002-GS-AI
		Lab Sample	37829035

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND**
USCS Group Symbol: **sp** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	127
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	1
Wet Wt Passing Split, gm	125
Dry Wt. Passing Split, gm	107
Total Sample Dry Wt, gm	108

Split Sample - Passing No. 4	
Tare No.	K14
Tare + WS., gm	182.6
Tare + DS., gm	165.55
Tare, gm	65.01
Water Content of Split Sample	**17.0%**
Wt. of DS., gm	100.54
Wt. of +#200 Sample, gm	99.60

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	1.15	1.1%	98.9%	
No. 10	2	7.99	7.9%	91.1%	
No. 20	0.85	26.19	25.8%	65.3%	
No. 40	0.425	35.1	34.5%	30.8%	
No. 60	0.25	23.78	23.4%	7.4%	
No. 140	0.106	6.32	6.2%	1.1%	
No. 200	0.075	0.22	0.2%	0.9%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

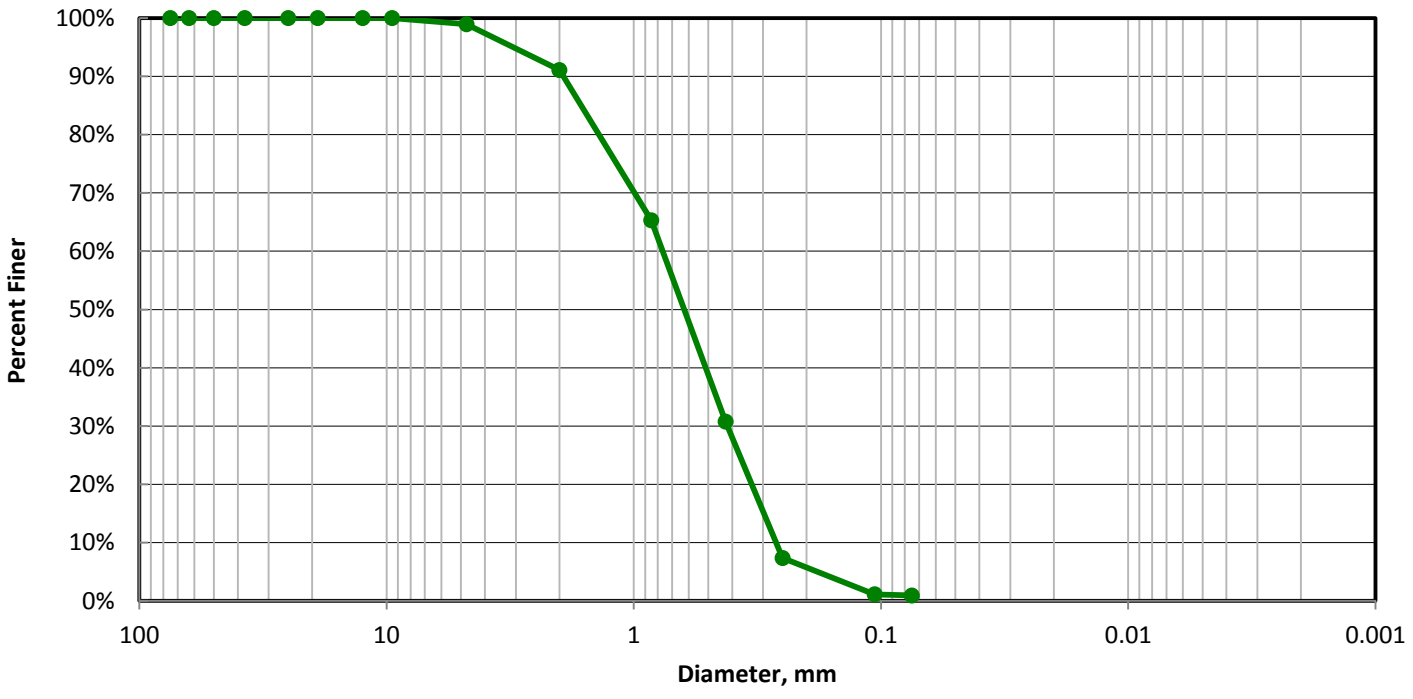
% Gravel (-3" & +#4)	**1.1**	Silt=NA Clay=NA	
Coarse=0; Fine=1.1		D60, mm	0.76
% Sand (-#4 & +#200)	**98.0**	D30, mm	0.42
Coarse=7.9; Medium=60.3; Fine=29.8		D10, mm	0.27
% Fines (-#200)	**0.9**	Cc	0.86
% Plus #200 (-3")	**99.1**	Cu	2.88

USCS Description

POORLY GRADED SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sp	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-5
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0002-GS-BI
		Lab Sample	37829036

Sample Color: **GRAY**
USCS Group Name: **SILTY SAND**
USCS Group Symbol: **sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	153
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	3
Wet Wt Passing Split, gm	150
Dry Wt. Passing Split, gm	107
Total Sample Dry Wt, gm	110

Split Sample - Passing No. 4	
Tare No.	K6
Tare + WS., gm	207.88
Tare + DS., gm	167.09
Tare, gm	65.23
Water Content of Split Sample	**40.0%**
Wt. of DS., gm	101.86
Wt. of +#200 Sample, gm	72.87

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	2.64	2.4%	97.6%	
No. 10	2	6.39	6.1%	91.5%	
No. 20	0.85	12.15	11.6%	79.8%	
No. 40	0.425	16.37	15.7%	64.1%	
No. 60	0.25	15.37	14.7%	49.4%	
No. 140	0.106	13.97	13.4%	36.0%	
No. 200	0.075	8.62	8.3%	27.8%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

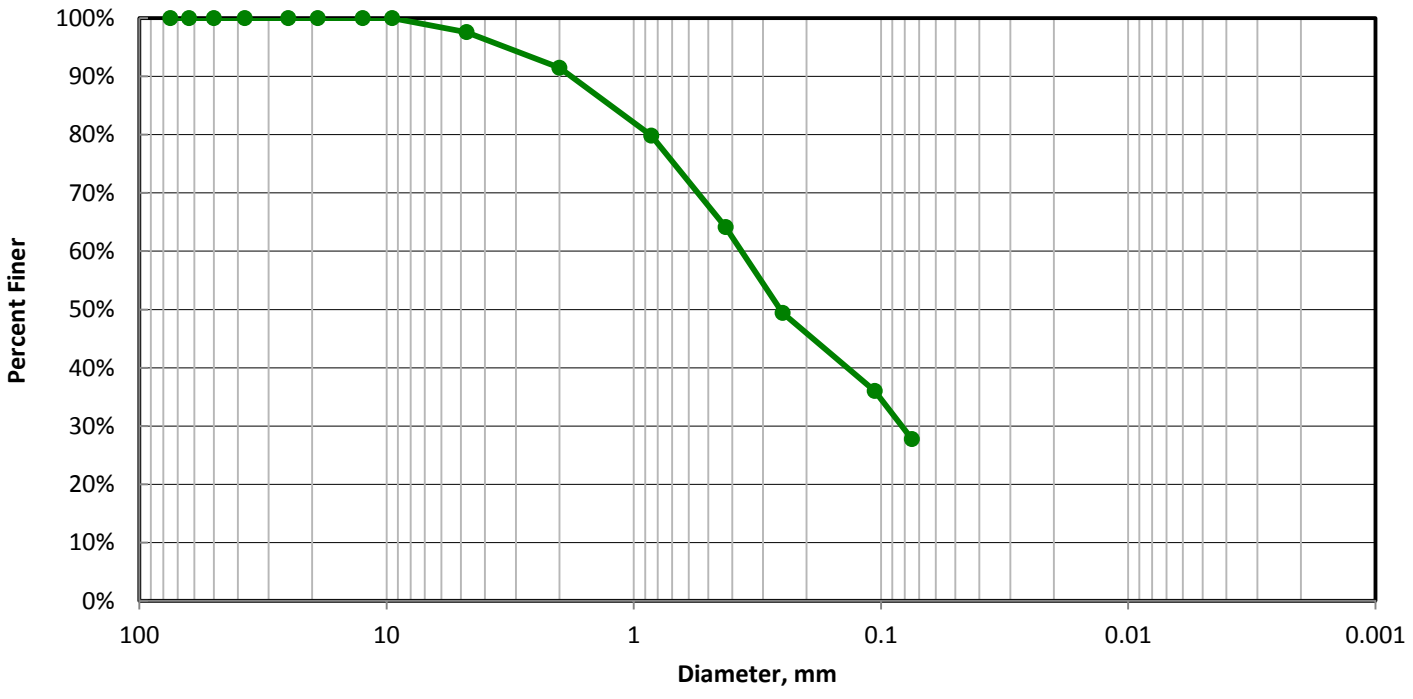
% Gravel (-3" & +#4)	**2.4**	Silt=NA Clay=NA	
Coarse=0; Fine=2.4		D60, mm	NA
% Sand (-#4 & +#200)	**69.8**	D30, mm	NA
Coarse=6.1; Medium=27.3; Fine=36.4		D10, mm	NA
% Fines (-#200)	**27.8**	Cc	NA
% Plus #200 (-3")	**72.2**	Cu	NA

USCS Description

SILTY SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sm	**ml - Silt (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-5
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0205-GS-BI
		Lab Sample	37829037

Sample Color: **GRAY**
USCS Group Name: **SILTY SAND**
USCS Group Symbol: **sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	188
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	0
Wet Wt Passing Split, gm	188
Dry Wt. Passing Split, gm	120
Total Sample Dry Wt, gm	121

Split Sample - Passing No. 4	
Tare No.	K300
Tare + WS., gm	250.71
Tare + DS., gm	183.89
Tare, gm	65.08
Water Content of Split Sample	**56.2%**
Wt. of DS., gm	118.81
Wt. of +#200 Sample, gm	60.20

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	0.17	0.1%	99.9%	
No. 10	2	1.4	1.2%	98.7%	
No. 20	0.85	3.15	2.6%	96.0%	
No. 40	0.425	8.51	7.2%	88.9%	
No. 60	0.25	10.88	9.1%	79.7%	
No. 140	0.106	22.08	18.6%	61.2%	
No. 200	0.075	14.18	11.9%	49.3%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

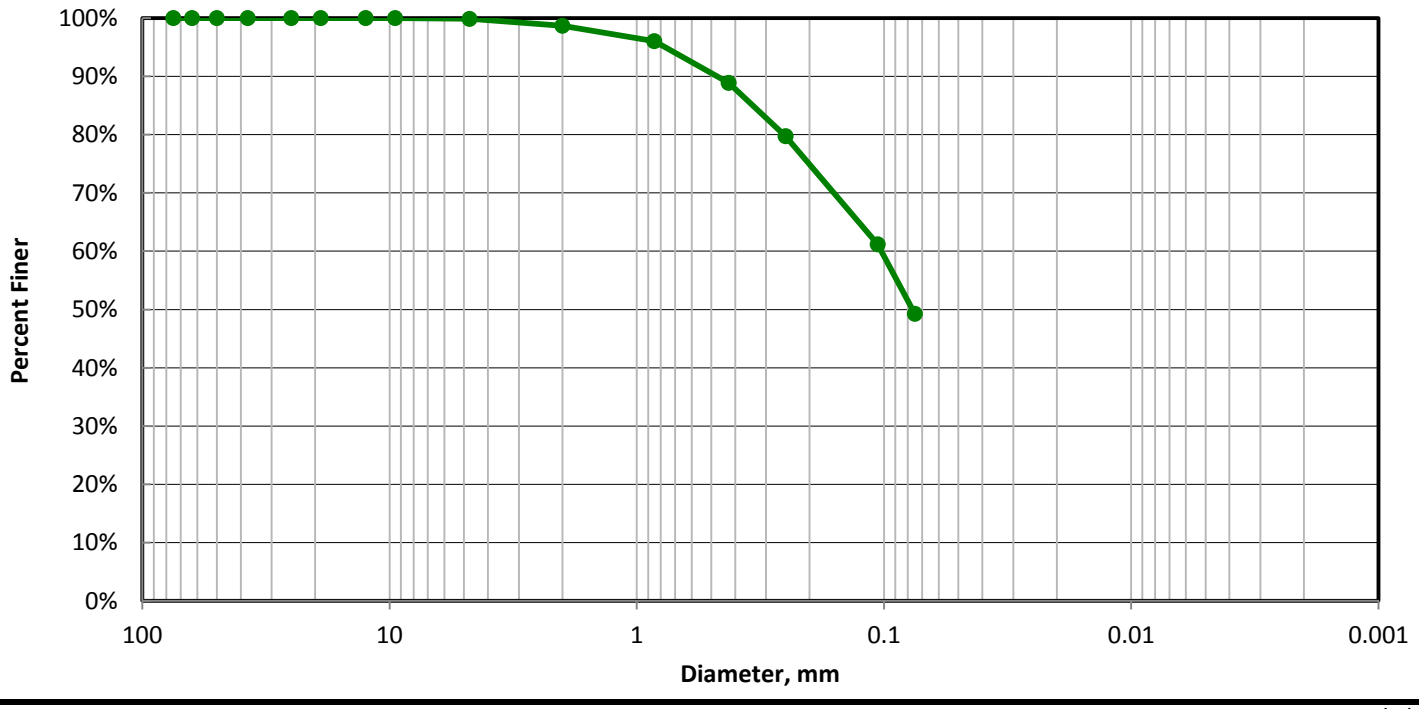
% Gravel (-3" & +#4)	**0.1**	Silt=NA Clay=NA	
Coarse=0; Fine=0.1		D60, mm	NA
% Sand (-#4 & +#200)	**50.6**	D30, mm	NA
Coarse=1.2; Medium=9.8; Fine=39.6		D10, mm	NA
% Fines (-#200)	**49.3**	Cc	NA
% Plus #200 (-3")	**50.7**	Cu	NA

USCS Description

SILTY SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sm	**ml - Silt (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-5
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0507-GS-BI
		Lab Sample	37829038

Sample Color: **GRAY**
USCS Group Name: **SANDY SILT**
USCS Group Symbol: **ml** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	106
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	0
Wet Wt Passing Split, gm	106
Dry Wt. Passing Split, gm	68
Total Sample Dry Wt, gm	68

Split Sample - Passing No. 4	
Tare No.	K37
Tare + WS., gm	170.75
Tare + DS., gm	133.26
Tare, gm	65.96
Water Content of Split Sample	**55.7%**
Wt. of DS., gm	67.30
Wt. of +#200 Sample, gm	21.31

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	0.24	0.4%	99.6%	
No. 10	2	0.2	0.3%	99.4%	
No. 20	0.85	0.98	1.5%	97.9%	
No. 40	0.425	2.9	4.3%	93.6%	
No. 60	0.25	3.17	4.7%	88.9%	
No. 140	0.106	7.37	10.9%	78.0%	
No. 200	0.075	6.69	9.9%	68.1%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

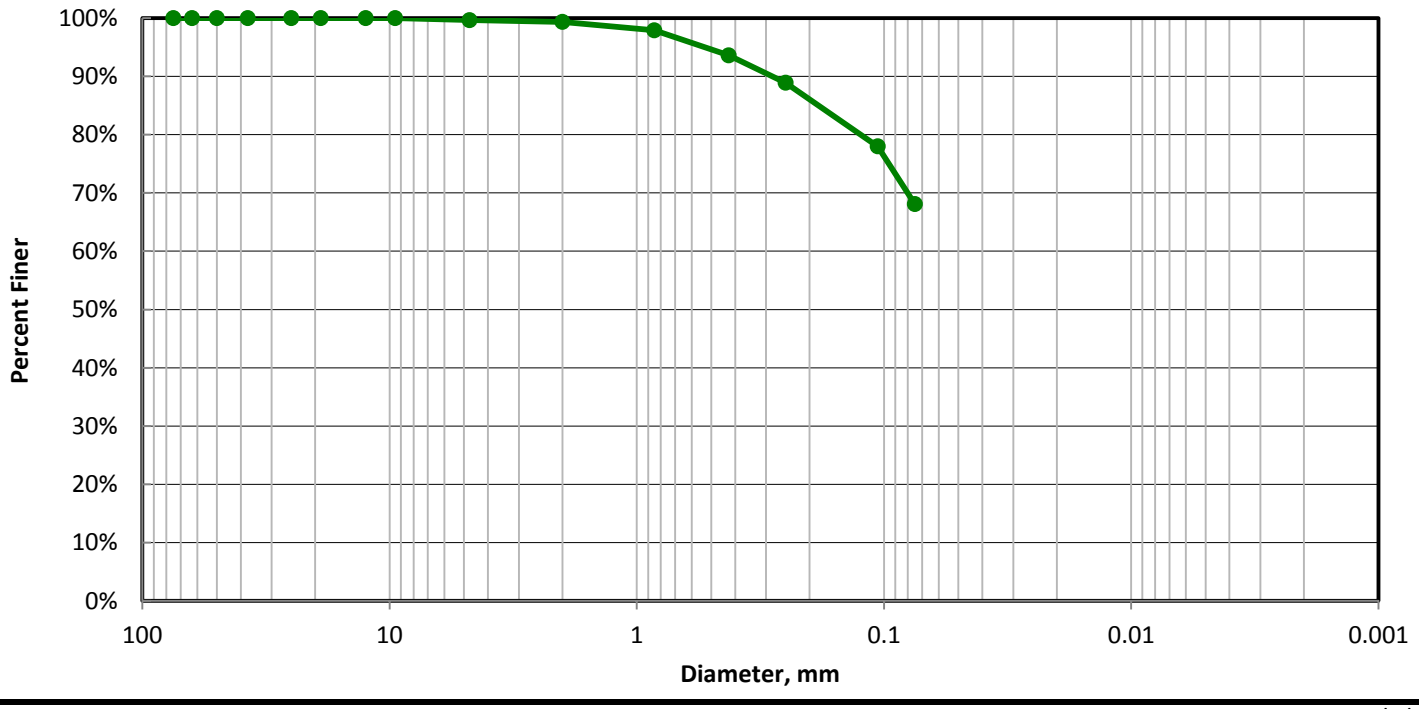
% Gravel (-3" & +#4)	**0.4**	Silt=NA Clay=NA	
Coarse=0; Fine=0.4		D60, mm	NA
% Sand (-#4 & +#200)	**31.6**	D30, mm	NA
Coarse=0.3; Medium=5.7; Fine=25.5		D10, mm	NA
% Fines (-#200)	**68.1**	Cc	NA
% Plus #200 (-3")	**31.9**	Cu	NA

USCS Description

SANDY SILT

USCS Group Symbol	Atterberg Limits Group Symbol
ml	**ml - Silt (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-5DUP
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0002-GS
		Lab Sample	37829039

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND**
USCS Group Symbol: **sp** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	78
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	1
Wet Wt Passing Split, gm	76
Dry Wt. Passing Split, gm	65
Total Sample Dry Wt, gm	66

Split Sample - Passing No. 4	
Tare No.	K35
Tare + WS., gm	140.59
Tare + DS., gm	129.58
Tare, gm	67.93
Water Content of Split Sample	**17.9%**
Wt. of DS., gm	61.65
Wt. of +#200 Sample, gm	60.21

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	1.47	2.2%	97.8%	
No. 10	2	2.67	4.2%	93.5%	
No. 20	0.85	8.46	13.4%	80.1%	
No. 40	0.425	20.09	31.9%	48.3%	
No. 60	0.25	22.54	35.8%	12.5%	
No. 140	0.106	6.22	9.9%	2.6%	
No. 200	0.075	0.23	0.4%	2.3%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

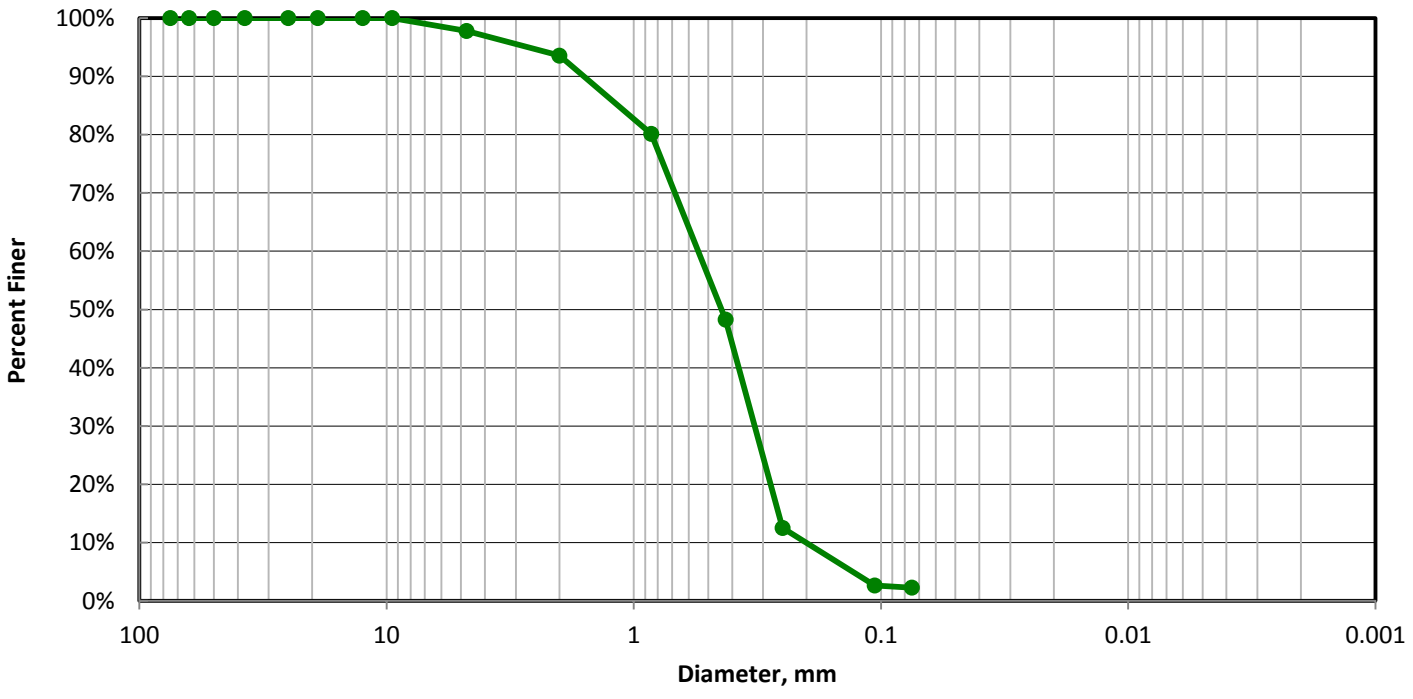
% Gravel (-3" & +#4)	**2.2**	Silt=NA Clay=NA	
Coarse=0; Fine=2.2		D60, mm	0.55
% Sand (-#4 & +#200)	**95.5**	D30, mm	0.32
Coarse=4.2; Medium=45.3; Fine=46		D10, mm	0.20
% Fines (-#200)	**2.3**	Cc	0.95
% Plus #200 (-3")	**97.7**	Cu	2.73

USCS Description

POORLY GRADED SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sp	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-5DUP
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0205-GS
		Lab Sample	37829040

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND**
USCS Group Symbol: **sp** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	197
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	4
Wet Wt Passing Split, gm	193
Dry Wt. Passing Split, gm	161
Total Sample Dry Wt, gm	166

Split Sample - Passing No. 4	
Tare No.	K21
Tare + WS., gm	245.9
Tare + DS., gm	216.02
Tare, gm	64.73
Water Content of Split Sample	**19.8%**
Wt. of DS., gm	151.29
Wt. of +#200 Sample, gm	148.35

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	4.47	2.7%	97.3%	
No. 10	2	9.45	6.1%	91.2%	
No. 20	0.85	22.36	14.4%	76.8%	
No. 40	0.425	52.43	33.7%	43.1%	
No. 60	0.25	52.06	33.5%	9.6%	
No. 140	0.106	11.15	7.2%	2.5%	
No. 200	0.075	0.9	0.6%	1.9%	

USCS SOIL CLASSIFICATION

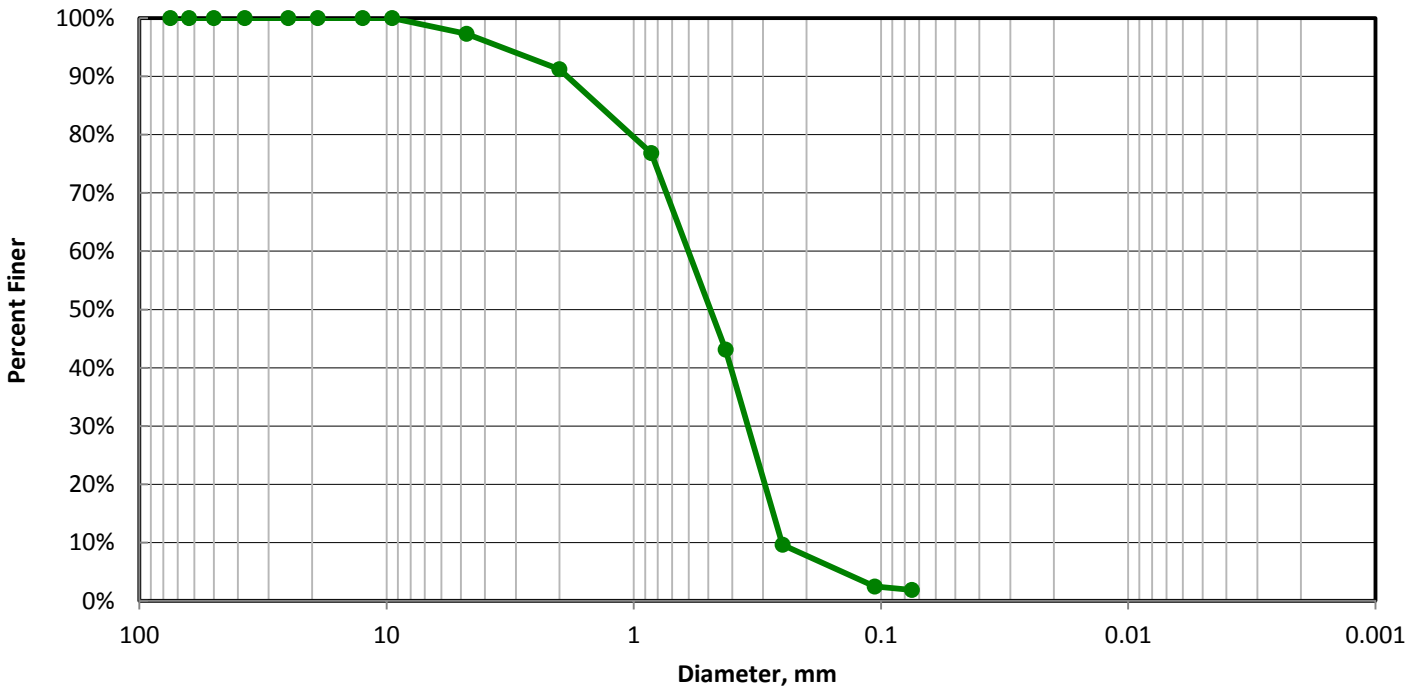
Corrected For 100% Passing a 3" Sieve

% Gravel (-3" & +#4)	**2.7**	Silt=NA Clay=NA	
Coarse=0; Fine=2.7		D60, mm	0.60
% Sand (-#4 & +#200)	**95.4**	D30, mm	0.35
Coarse=6.1; Medium=48.1; Fine=41.2		D10, mm	0.25
% Fines (-#200)	**1.9**	Cc	0.79
% Plus #200 (-3")	**98.1**	Cu	2.39

USCS Description
POORLY GRADED SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sp	np - Non-Plastic (assumed)

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-5DUP
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0507-GS
		Lab Sample	37829041

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND**
USCS Group Symbol: **sp** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	154
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	4
Wet Wt Passing Split, gm	150
Dry Wt. Passing Split, gm	127
Total Sample Dry Wt, gm	131

Split Sample - Passing No. 4	
Tare No.	K8
Tare + WS., gm	205.65
Tare + DS., gm	184.46
Tare, gm	65.6
Water Content of Split Sample	**17.8%**
Wt. of DS., gm	118.86
Wt. of +#200 Sample, gm	117.36

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	3.68	2.8%	97.2%	
No. 10	2	6.24	5.1%	92.1%	
No. 20	0.85	17.99	14.7%	77.4%	
No. 40	0.425	42.59	34.8%	42.6%	
No. 60	0.25	41.5	33.9%	8.6%	
No. 140	0.106	6.61	5.4%	3.2%	
No. 200	0.075	2.43	2.0%	1.2%	

USCS SOIL CLASSIFICATION

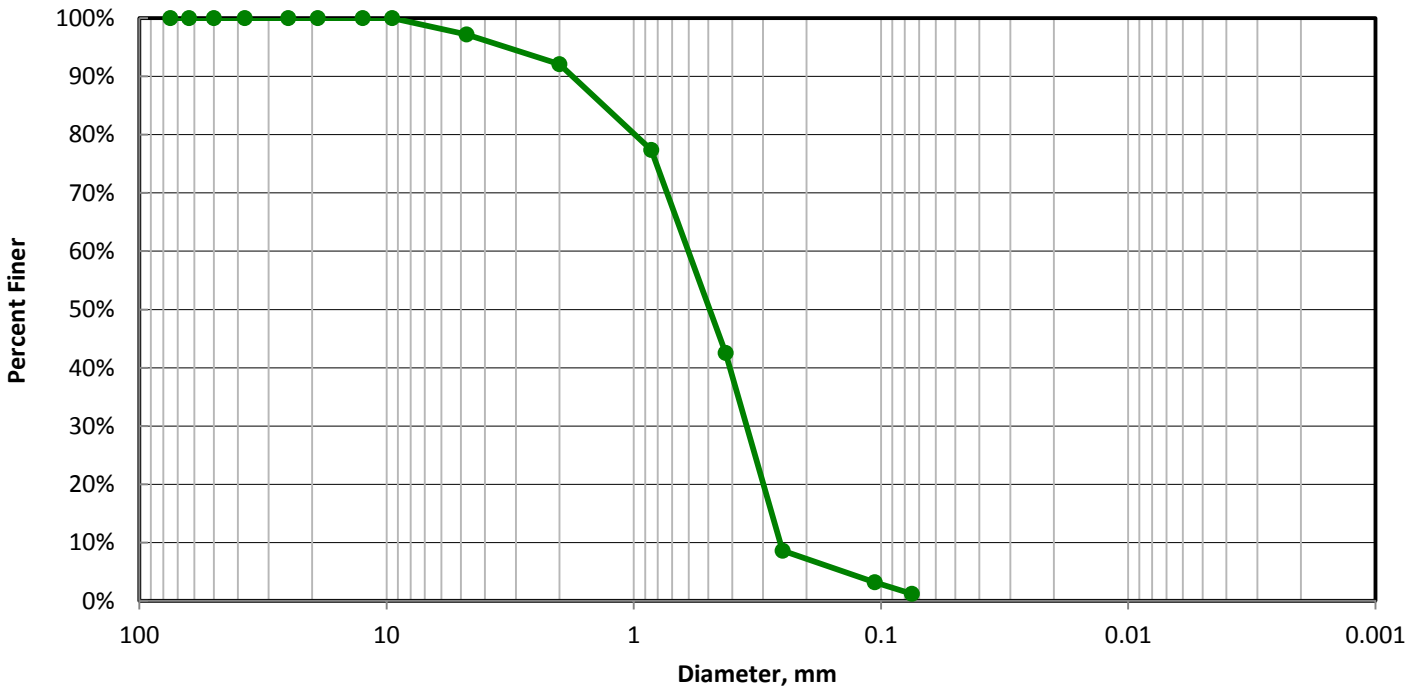
Corrected For 100% Passing a 3" Sieve

% Gravel (-3" & +#4)	**2.8**	Silt=NA Clay=NA	
Coarse=0; Fine=2.8		D60, mm	0.60
% Sand (-#4 & +#200)	**96.0**	D30, mm	0.35
Coarse=5.1; Medium=49.5; Fine=41.3		D10, mm	0.26
% Fines (-#200)	**1.2**	Cc	0.79
% Plus #200 (-3")	**98.8**	Cu	2.35

USCS Description
POORLY GRADED SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sp	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-5DUP
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0002-GS-AI
		Lab Sample	37829042

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND**
USCS Group Symbol: **sp** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	169
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	1
Wet Wt Passing Split, gm	167
Dry Wt. Passing Split, gm	143
Total Sample Dry Wt, gm	145

Split Sample - Passing No. 4	
Tare No.	K7
Tare + WS., gm	225.03
Tare + DS., gm	202.34
Tare, gm	65.75
Water Content of Split Sample	**16.6%**
Wt. of DS., gm	136.59
Wt. of +#200 Sample, gm	136.13

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	1.32	0.9%	99.1%	
No. 10	2	10.97	8.0%	91.1%	
No. 20	0.85	40.37	29.3%	61.8%	
No. 40	0.425	51.2	37.1%	24.7%	
No. 60	0.25	28	20.3%	4.4%	
No. 140	0.106	5.53	4.0%	0.4%	
No. 200	0.075	0.06	0.0%	0.3%	

USCS SOIL CLASSIFICATION

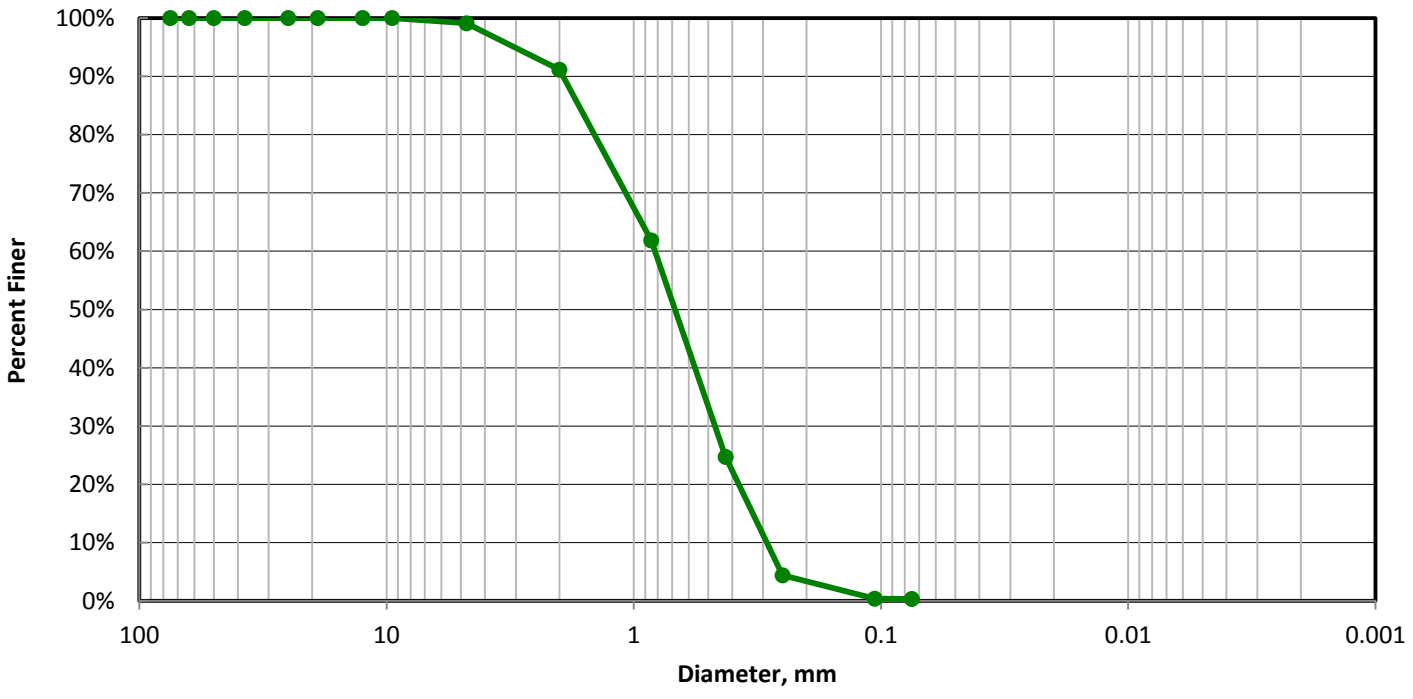
Corrected For 100% Passing a 3" Sieve

% Gravel (-3" & +#4)	**0.9**	Silt=NA Clay=NA	
Coarse=0; Fine=0.9		D60, mm	0.82
% Sand (-#4 & +#200)	**98.8**	D30, mm	0.47
Coarse=8; Medium=66.4; Fine=24.4		D10, mm	0.29
% Fines (-#200)	**0.3**	Cc	0.93
% Plus #200 (-3")	**99.7**	Cu	2.84

USCS Description
POORLY GRADED SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sp	np - Non-Plastic (assumed)

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-5DUP
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0002-GS-BI
		Lab Sample	37829043

Sample Color: **GRAY**
USCS Group Name: **SILTY SAND**
USCS Group Symbol: **sm** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	117
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	2
Wet Wt Passing Split, gm	115
Dry Wt. Passing Split, gm	85
Total Sample Dry Wt, gm	87

Split Sample - Passing No. 4	
Tare No.	K12
Tare + WS., gm	175.51
Tare + DS., gm	146.43
Tare, gm	64.71
Water Content of Split Sample	**35.6%**
Wt. of DS., gm	81.72
Wt. of +#200 Sample, gm	59.51

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	1.86	2.1%	97.9%	
No. 10	2	7.99	9.6%	88.3%	
No. 20	0.85	10.58	12.7%	75.6%	
No. 40	0.425	12.22	14.6%	61.0%	
No. 60	0.25	10.88	13.0%	48.0%	
No. 140	0.106	11.64	13.9%	34.0%	
No. 200	0.075	6.2	7.4%	26.6%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

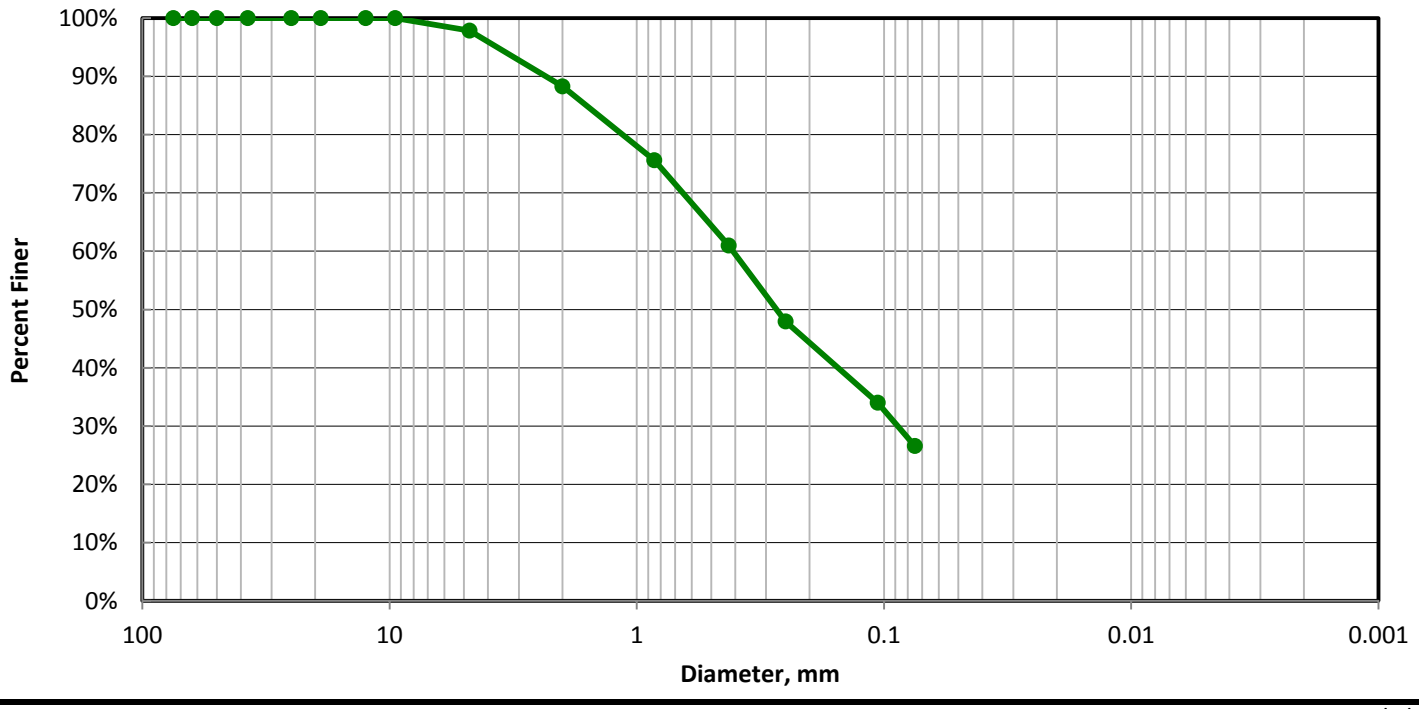
% Gravel (-3" & +#4)	**2.1**	Silt=NA Clay=NA	
Coarse=0; Fine=2.1		D60, mm	NA
% Sand (-#4 & +#200)	**71.3**	D30, mm	NA
Coarse=9.6; Medium=27.3; Fine=34.4		D10, mm	NA
% Fines (-#200)	**26.6**	Cc	NA
% Plus #200 (-3")	**73.4**	Cu	NA

USCS Description

SILTY SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sm	**ml - Silt (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422

Client	Air Water & Soil Laboratories, Inc.	Boring	QT25-1
Client Project	ERDC-EL-EP-C 6082610-44	Depth	9-2-16
Project No.	37829	Sample	0002-GS-AI
		Lab Sample	37829044

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND**
USCS Group Symbol: **sp** USDA: **NA** AASHTO: **NA**

MECHANICAL SIEVE

Total Sample	
Total Sample Wet Wt, gm (-3")	95
Sample Split on Sieve	No. 4
Coarse Washed Dry Sample, gm	0
Wet Wt Passing Split, gm	94
Dry Wt. Passing Split, gm	82
Total Sample Dry Wt, gm	82

Split Sample - Passing No. 4	
Tare No.	454
Tare + WS., gm	174.98
Tare + DS., gm	163.05
Tare, gm	85.75
Water Content of Split Sample	**15.4%**
Wt. of DS., gm	77.30
Wt. of +#200 Sample, gm	75.87

Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split Normalized % Retained	Split Normalized % Finer	Project Specifications
3"	75	0	0.0%	100.0%	
2-1/2"	63	0	0.0%	100.0%	
2"	50	0	0.0%	100.0%	
1-1/2"	37.5	0	0.0%	100.0%	
1"	25	0	0.0%	100.0%	
3/4"	19	0	0.0%	100.0%	
1/2"	12.5	0	0.0%	100.0%	
3/8"	9.5	0	0.0%	100.0%	
No. 4	4.75	0.46	0.6%	99.4%	
No. 10	2	4.54	5.8%	93.6%	
No. 20	0.85	18.15	23.3%	70.3%	
No. 40	0.425	26.99	34.7%	35.5%	
No. 60	0.25	16.25	20.9%	14.6%	
No. 140	0.106	8.17	10.5%	4.1%	
No. 200	0.075	1.77	2.3%	1.8%	

USCS SOIL CLASSIFICATION

Corrected For 100% Passing a 3" Sieve

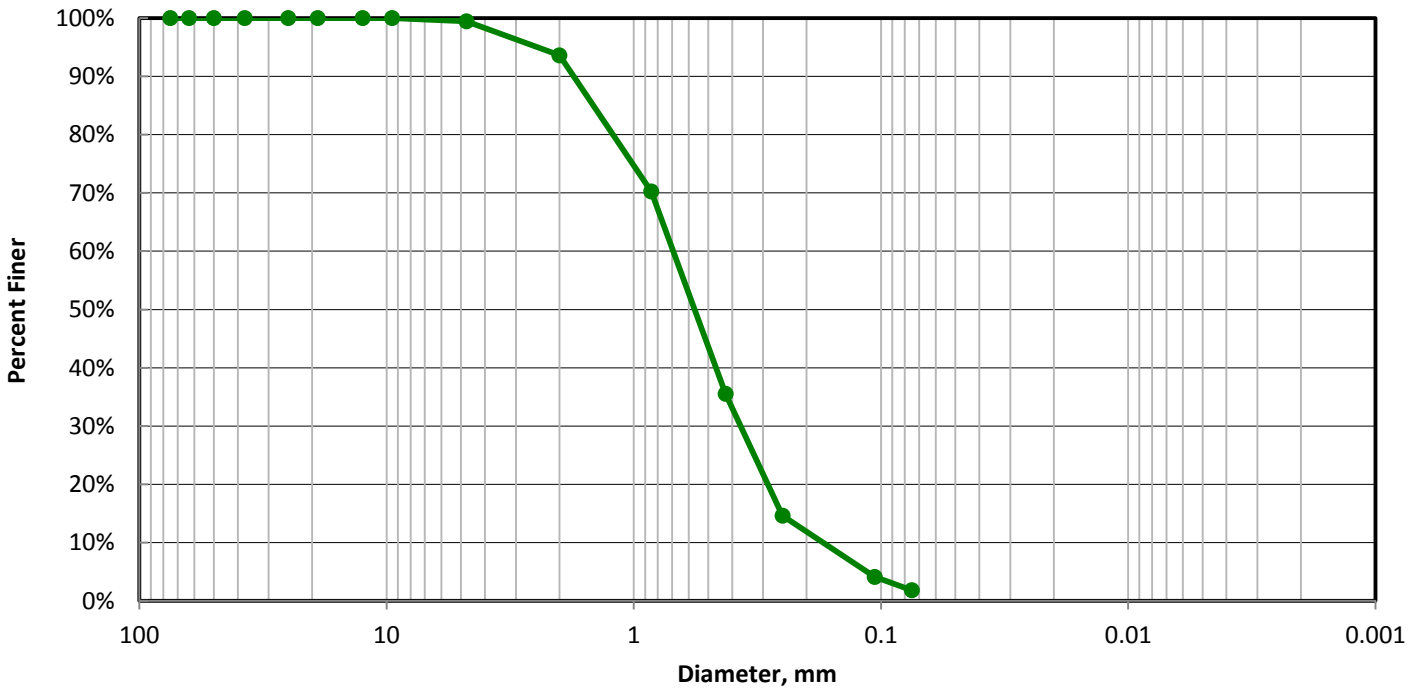
% Gravel (-3" & +#4)	**0.6**	Silt=NA Clay=NA	
Coarse=0; Fine=0.6		D60, mm	0.69
% Sand (-#4 & +#200)	**97.6**	D30, mm	0.37
Coarse=5.8; Medium=58.1; Fine=33.7		D10, mm	0.17
% Fines (-#200)	**1.8**	Cc	1.15
% Plus #200 (-3")	**98.2**	Cu	4.04

USCS Description

POORLY GRADED SAND

USCS Group Symbol	Atterberg Limits Group Symbol
sp	**np - Non-Plastic (assumed)**

Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0



Input Validation tmp Reviewed By: tmp Date Tested 9/6/2016

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Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception

Appendix E-5

Ex Situ Porewater Chemistry

Data Compilation, Calculations and Laboratory Reports

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
Baseline 2	CAP3	2	0-2	Sample	In Cap	B2-CAP03-0002	In Cap	2,4´-DDD	1.086
Baseline 2	CAP3	2	0-2	Sample	In Cap	B2-CAP03-0002	In Cap	2,4´-DDE	<0.07
Baseline 2	CAP3	2	0-2	Sample	In Cap	B2-CAP03-0002	In Cap	2,4´-DDT	<0.19
Baseline 2	CAP3	2	0-2	Sample	In Cap	B2-CAP03-0002	In Cap	4,4´-DDD	3.443
Baseline 2	CAP3	2	0-2	Sample	In Cap	B2-CAP03-0002	In Cap	4,4´-DDE	0.998
Baseline 2	CAP3	2	0-2	Sample	In Cap	B2-CAP03-0002	In Cap	4,4´-DDT	<0.23
Baseline 2	CAP3	2	0-2	Sample	In Cap	B2-CAP03-0002	In Cap	Total DDX	5.527
Baseline 2	CAP3	2	2-5	Sample	In Cap	B2-CAP03-0205	In Cap	2,4´-DDD	1.980
Baseline 2	CAP3	2	2-5	Sample	In Cap	B2-CAP03-0205	In Cap	2,4´-DDE	<0.07
Baseline 2	CAP3	2	2-5	Sample	In Cap	B2-CAP03-0205	In Cap	2,4´-DDT	<0.19
Baseline 2	CAP3	2	2-5	Sample	In Cap	B2-CAP03-0205	In Cap	4,4´-DDD	13.412
Baseline 2	CAP3	2	2-5	Sample	In Cap	B2-CAP03-0205	In Cap	4,4´-DDE	1.200
Baseline 2	CAP3	2	2-5	Sample	In Cap	B2-CAP03-0205	In Cap	4,4´-DDT	<0.23
Baseline 2	CAP3	2	2-5	Sample	In Cap	B2-CAP03-0205	In Cap	Total DDX	16.592
Baseline 2	CAP3	2	5-7	Sample	In Cap	B2-CAP03-0507	In Cap	2,4´-DDD	0.958
Baseline 2	CAP3	2	5-7	Sample	In Cap	B2-CAP03-0507	In Cap	2,4´-DDE	<0.07
Baseline 2	CAP3	2	5-7	Sample	In Cap	B2-CAP03-0507	In Cap	2,4´-DDT	<0.19
Baseline 2	CAP3	2	5-7	Sample	In Cap	B2-CAP03-0507	In Cap	4,4´-DDD	8.894
Baseline 2	CAP3	2	5-7	Sample	In Cap	B2-CAP03-0507	In Cap	4,4´-DDE	0.934
Baseline 2	CAP3	2	5-7	Sample	In Cap	B2-CAP03-0507	In Cap	4,4´-DDT	<0.23
Baseline 2	CAP3	2	5-7	Sample	In Cap	B2-CAP03-0507	In Cap	Total DDX	10.786
Baseline 2	CAP3	2	0-10	Sample	In Cap	B2-CAP3-GRAB	In Cap	2,4´-DDD	0.383
Baseline 2	CAP3	2	0-10	Sample	In Cap	B2-CAP3-GRAB	In Cap	2,4´-DDE	<0.07
Baseline 2	CAP3	2	0-10	Sample	In Cap	B2-CAP3-GRAB	In Cap	2,4´-DDT	<0.19
Baseline 2	CAP3	2	0-10	Sample	In Cap	B2-CAP3-GRAB	In Cap	4,4´-DDD	3.012
Baseline 2	CAP3	2	0-10	Sample	In Cap	B2-CAP3-GRAB	In Cap	4,4´-DDE	0.092
Baseline 2	CAP3	2	0-10	Sample	In Cap	B2-CAP3-GRAB	In Cap	4,4´-DDT	<0.23
Baseline 2	CAP3	2	0-10	Sample	In Cap	B2-CAP3-GRAB	In Cap	Total DDX	3.487
Baseline 2	CAP2	3	0-2	Sample	In Cap	B2-CAP02-0002	In Cap	2,4´-DDD	0.703
Baseline 2	CAP2	3	0-2	Sample	In Cap	B2-CAP02-0002	In Cap	2,4´-DDE	<0.07
Baseline 2	CAP2	3	0-2	Sample	In Cap	B2-CAP02-0002	In Cap	2,4´-DDT	<0.19
Baseline 2	CAP2	3	0-2	Sample	In Cap	B2-CAP02-0002	In Cap	4,4´-DDD	6.025
Baseline 2	CAP2	3	0-2	Sample	In Cap	B2-CAP02-0002	In Cap	4,4´-DDE	0.678
Baseline 2	CAP2	3	0-2	Sample	In Cap	B2-CAP02-0002	In Cap	4,4´-DDT	<0.23
Baseline 2	CAP2	3	0-2	Sample	In Cap	B2-CAP02-0002	In Cap	Total DDX	7.405
Baseline 2	CAP2	3	2-5	Sample	In Cap	B2-CAP02-0205	In Cap	2,4´-DDD	1.277
Baseline 2	CAP2	3	2-5	Sample	In Cap	B2-CAP02-0205	In Cap	2,4´-DDE	<0.07
Baseline 2	CAP2	3	2-5	Sample	In Cap	B2-CAP02-0205	In Cap	2,4´-DDT	<0.19
Baseline 2	CAP2	3	2-5	Sample	In Cap	B2-CAP02-0205	In Cap	4,4´-DDD	6.312
Baseline 2	CAP2	3	2-5	Sample	In Cap	B2-CAP02-0205	In Cap	4,4´-DDE	0.284
Baseline 2	CAP2	3	2-5	Sample	In Cap	B2-CAP02-0205	In Cap	4,4´-DDT	<0.23
Baseline 2	CAP2	3	2-5	Sample	In Cap	B2-CAP02-0205	In Cap	Total DDX	7.873
Baseline 2	CAP2	3	5-7	Sample	In Cap	B2-CAP02-0507	In Cap	2,4´-DDD	2.342
Baseline 2	CAP2	3	5-7	Sample	In Cap	B2-CAP02-0507	In Cap	2,4´-DDE	<0.08
Baseline 2	CAP2	3	5-7	Sample	In Cap	B2-CAP02-0507	In Cap	2,4´-DDT	<0.22
Baseline 2	CAP2	3	5-7	Sample	In Cap	B2-CAP02-0507	In Cap	4,4´-DDD	3.825
Baseline 2	CAP2	3	5-7	Sample	In Cap	B2-CAP02-0507	In Cap	4,4´-DDE	0.570
Baseline 2	CAP2	3	5-7	Sample	In Cap	B2-CAP02-0507	In Cap	4,4´-DDT	<0.26
Baseline 2	CAP2	3	5-7	Sample	In Cap	B2-CAP02-0507	In Cap	Total DDX	6.737
Baseline 2	CAP2	3	0-10	Sample	In Cap	B2-CAP2-GRAB	In Cap	2,4´-DDD	0.909

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
Baseline 2	CAP2	3	0-10	Sample	In Cap	B2-CAP2-GRAB	In Cap	2,4´-DDE	<0.08
Baseline 2	CAP2	3	0-10	Sample	In Cap	B2-CAP2-GRAB	In Cap	2,4´-DDT	<0.2
Baseline 2	CAP2	3	0-10	Sample	In Cap	B2-CAP2-GRAB	In Cap	4,4´-DDD	1.459
Baseline 2	CAP2	3	0-10	Sample	In Cap	B2-CAP2-GRAB	In Cap	4,4´-DDE	1.174
Baseline 2	CAP2	3	0-10	Sample	In Cap	B2-CAP2-GRAB	In Cap	4,4´-DDT	<0.24
Baseline 2	CAP2	3	0-10	Sample	In Cap	B2-CAP2-GRAB	In Cap	Total DDX	3.542
Baseline 2	CAP1	5	0-2	Primary	In Cap	B2-CAP01-0002	In Cap	2,4´-DDD	<1.15
Baseline 2	CAP1	5	0-2	Primary	In Cap	B2-CAP01-0002	In Cap	2,4´-DDE	<0.07
Baseline 2	CAP1	5	0-2	Primary	In Cap	B2-CAP01-0002	In Cap	2,4´-DDT	<0.19
Baseline 2	CAP1	5	0-2	Primary	In Cap	B2-CAP01-0002	In Cap	4,4´-DDD	3.371
Baseline 2	CAP1	5	0-2	Primary	In Cap	B2-CAP01-0002	In Cap	4,4´-DDE	1.090
Baseline 2	CAP1	5	0-2	Primary	In Cap	B2-CAP01-0002	In Cap	4,4´-DDT	<0.23
Baseline 2	CAP1	5	0-2	Primary	In Cap	B2-CAP01-0002	In Cap	Total DDX	4.461
Baseline 2	CAP1	5	0-2	Sample	In Cap	B2-CAP01-0002-Avg	In Cap	2,4´-DDD	<1.15
Baseline 2	CAP1	5	0-2	Sample	In Cap	B2-CAP01-0002-Avg	In Cap	2,4´-DDE	<0.07
Baseline 2	CAP1	5	0-2	Sample	In Cap	B2-CAP01-0002-Avg	In Cap	2,4´-DDT	<0.19
Baseline 2	CAP1	5	0-2	Sample	In Cap	B2-CAP01-0002-Avg	In Cap	4,4´-DDD	2.15
Baseline 2	CAP1	5	0-2	Sample	In Cap	B2-CAP01-0002-Avg	In Cap	4,4´-DDE	0.86
Baseline 2	CAP1	5	0-2	Sample	In Cap	B2-CAP01-0002-Avg	In Cap	4,4´-DDT	<0.23
Baseline 2	CAP1	5	0-2	Sample	In Cap	B2-CAP01-0002-Avg	In Cap	Total DDX	3.01
Baseline 2	CAP1	5	2-5	Primary	In Cap	B2-CAP01-0205	In Cap	2,4´-DDD	<1.24
Baseline 2	CAP1	5	2-5	Primary	In Cap	B2-CAP01-0205	In Cap	2,4´-DDE	<0.08
Baseline 2	CAP1	5	2-5	Primary	In Cap	B2-CAP01-0205	In Cap	2,4´-DDT	<0.21
Baseline 2	CAP1	5	2-5	Primary	In Cap	B2-CAP01-0205	In Cap	4,4´-DDD	1.851
Baseline 2	CAP1	5	2-5	Primary	In Cap	B2-CAP01-0205	In Cap	4,4´-DDE	0.325
Baseline 2	CAP1	5	2-5	Primary	In Cap	B2-CAP01-0205	In Cap	4,4´-DDT	<0.25
Baseline 2	CAP1	5	2-5	Primary	In Cap	B2-CAP01-0205	In Cap	Total DDX	2.176
Baseline 2	CAP1	5	2-5	Sample	In Cap	B2-CAP01-0205-Avg	In Cap	2,4´-DDD	0.44
Baseline 2	CAP1	5	2-5	Sample	In Cap	B2-CAP01-0205-Avg	In Cap	2,4´-DDE	<0.08
Baseline 2	CAP1	5	2-5	Sample	In Cap	B2-CAP01-0205-Avg	In Cap	2,4´-DDT	<0.21
Baseline 2	CAP1	5	2-5	Sample	In Cap	B2-CAP01-0205-Avg	In Cap	4,4´-DDD	1.36
Baseline 2	CAP1	5	2-5	Sample	In Cap	B2-CAP01-0205-Avg	In Cap	4,4´-DDE	0.84
Baseline 2	CAP1	5	2-5	Sample	In Cap	B2-CAP01-0205-Avg	In Cap	4,4´-DDT	<0.25
Baseline 2	CAP1	5	2-5	Sample	In Cap	B2-CAP01-0205-Avg	In Cap	Total DDX	2.63
Baseline 2	CAP1	5	5-7	Primary	In Cap	B2-CAP01-0507	In Cap	2,4´-DDD	0.128
Baseline 2	CAP1	5	5-7	Primary	In Cap	B2-CAP01-0507	In Cap	2,4´-DDE	<0.07
Baseline 2	CAP1	5	5-7	Primary	In Cap	B2-CAP01-0507	In Cap	2,4´-DDT	<0.19
Baseline 2	CAP1	5	5-7	Primary	In Cap	B2-CAP01-0507	In Cap	4,4´-DDD	1.219
Baseline 2	CAP1	5	5-7	Primary	In Cap	B2-CAP01-0507	In Cap	4,4´-DDE	0.971
Baseline 2	CAP1	5	5-7	Primary	In Cap	B2-CAP01-0507	In Cap	4,4´-DDT	<0.23
Baseline 2	CAP1	5	5-7	Primary	In Cap	B2-CAP01-0507	In Cap	Total DDX	2.318
Baseline 2	CAP1	5	5-7	Sample	In Cap	B2-CAP01-0507-Avg	In Cap	2,4´-DDD	0.35
Baseline 2	CAP1	5	5-7	Sample	In Cap	B2-CAP01-0507-Avg	In Cap	2,4´-DDE	<0.07
Baseline 2	CAP1	5	5-7	Sample	In Cap	B2-CAP01-0507-Avg	In Cap	2,4´-DDT	<0.19
Baseline 2	CAP1	5	5-7	Sample	In Cap	B2-CAP01-0507-Avg	In Cap	4,4´-DDD	1.97
Baseline 2	CAP1	5	5-7	Sample	In Cap	B2-CAP01-0507-Avg	In Cap	4,4´-DDE	0.70
Baseline 2	CAP1	5	5-7	Sample	In Cap	B2-CAP01-0507-Avg	In Cap	4,4´-DDT	<0.23
Baseline 2	CAP1	5	5-7	Sample	In Cap	B2-CAP01-0507-Avg	In Cap	Total DDX	3.02
Baseline 2	CAP1	5	0-10	Sample	In Cap	B2-CAP1-GRAB	In Cap	2,4´-DDD	<1.15

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
Baseline 2	CAP1	5	0-10	Sample	In Cap	B2-CAP1-GRAB	In Cap	2,4´-DDE	<0.07
Baseline 2	CAP1	5	0-10	Sample	In Cap	B2-CAP1-GRAB	In Cap	2,4´-DDT	<0.19
Baseline 2	CAP1	5	0-10	Sample	In Cap	B2-CAP1-GRAB	In Cap	4,4´-DDD	5.092
Baseline 2	CAP1	5	0-10	Sample	In Cap	B2-CAP1-GRAB	In Cap	4,4´-DDE	0.101
Baseline 2	CAP1	5	0-10	Sample	In Cap	B2-CAP1-GRAB	In Cap	4,4´-DDT	2.120
Baseline 2	CAP1	5	0-10	Sample	In Cap	B2-CAP1-GRAB	In Cap	Total DDX	7.313
Baseline 2	CAP1	5	0-2	Duplicate	In Cap	B2-CAPX-0002	In Cap	2,4´-DDD	<1.15
Baseline 2	CAP1	5	0-2	Duplicate	In Cap	B2-CAPX-0002	In Cap	2,4´-DDE	<0.07
Baseline 2	CAP1	5	0-2	Duplicate	In Cap	B2-CAPX-0002	In Cap	2,4´-DDT	<0.19
Baseline 2	CAP1	5	0-2	Duplicate	In Cap	B2-CAPX-0002	In Cap	4,4´-DDD	0.932
Baseline 2	CAP1	5	0-2	Duplicate	In Cap	B2-CAPX-0002	In Cap	4,4´-DDE	0.632
Baseline 2	CAP1	5	0-2	Duplicate	In Cap	B2-CAPX-0002	In Cap	4,4´-DDT	<0.23
Baseline 2	CAP1	5	0-2	Duplicate	In Cap	B2-CAPX-0002	In Cap	Total DDX	1.564
Baseline 2	CAP1	5	2-5	Duplicate	In Cap	B2-CAPX-0205	In Cap	2,4´-DDD	0.255
Baseline 2	CAP1	5	2-5	Duplicate	In Cap	B2-CAPX-0205	In Cap	2,4´-DDE	<0.07
Baseline 2	CAP1	5	2-5	Duplicate	In Cap	B2-CAPX-0205	In Cap	2,4´-DDT	<0.19
Baseline 2	CAP1	5	2-5	Duplicate	In Cap	B2-CAPX-0205	In Cap	4,4´-DDD	0.861
Baseline 2	CAP1	5	2-5	Duplicate	In Cap	B2-CAPX-0205	In Cap	4,4´-DDE	1.356
Baseline 2	CAP1	5	2-5	Duplicate	In Cap	B2-CAPX-0205	In Cap	4,4´-DDT	<0.23
Baseline 2	CAP1	5	2-5	Duplicate	In Cap	B2-CAPX-0205	In Cap	Total DDX	2.472
Baseline 2	CAP1	5	5-7	Duplicate	In Cap	B2-CAPX-0507	In Cap	2,4´-DDD	<1.15
Baseline 2	CAP1	5	5-7	Duplicate	In Cap	B2-CAPX-0507	In Cap	2,4´-DDE	<0.07
Baseline 2	CAP1	5	5-7	Duplicate	In Cap	B2-CAPX-0507	In Cap	2,4´-DDT	<0.19
Baseline 2	CAP1	5	5-7	Duplicate	In Cap	B2-CAPX-0507	In Cap	4,4´-DDD	2.725
Baseline 2	CAP1	5	5-7	Duplicate	In Cap	B2-CAPX-0507	In Cap	4,4´-DDE	0.430
Baseline 2	CAP1	5	5-7	Duplicate	In Cap	B2-CAPX-0507	In Cap	4,4´-DDT	<0.23
Baseline 2	CAP1	5	5-7	Duplicate	In Cap	B2-CAPX-0507	In Cap	Total DDX	3.156
Baseline 2	OFF2	6	0-10	Sample	Off Cap	B2-OFF2-GRAB	Off Cap	2,4´-DDD	<1.15
Baseline 2	OFF2	6	0-10	Sample	Off Cap	B2-OFF2-GRAB	Off Cap	2,4´-DDE	<0.07
Baseline 2	OFF2	6	0-10	Sample	Off Cap	B2-OFF2-GRAB	Off Cap	2,4´-DDT	<0.19
Baseline 2	OFF2	6	0-10	Sample	Off Cap	B2-OFF2-GRAB	Off Cap	4,4´-DDD	<1.43
Baseline 2	OFF2	6	0-10	Sample	Off Cap	B2-OFF2-GRAB	Off Cap	4,4´-DDE	<0.08
Baseline 2	OFF2	6	0-10	Sample	Off Cap	B2-OFF2-GRAB	Off Cap	4,4´-DDT	<0.23
Baseline 2	OFF2	6	0-10	Sample	Off Cap	B2-OFF2-GRAB	Off Cap	Total DDX	<1.43
Baseline 2	OFF1	7	0-10	Sample	Off Cap	B2-OFF1-GRAB	Off Cap	2,4´-DDD	<1.19
Baseline 2	OFF1	7	0-10	Sample	Off Cap	B2-OFF1-GRAB	Off Cap	2,4´-DDE	<0.08
Baseline 2	OFF1	7	0-10	Sample	Off Cap	B2-OFF1-GRAB	Off Cap	2,4´-DDT	<0.2
Baseline 2	OFF1	7	0-10	Sample	Off Cap	B2-OFF1-GRAB	Off Cap	4,4´-DDD	<1.48
Baseline 2	OFF1	7	0-10	Sample	Off Cap	B2-OFF1-GRAB	Off Cap	4,4´-DDE	<0.09
Baseline 2	OFF1	7	0-10	Sample	Off Cap	B2-OFF1-GRAB	Off Cap	4,4´-DDT	<0.24
Baseline 2	OFF1	7	0-10	Sample	Off Cap	B2-OFF1-GRAB	Off Cap	Total DDX	<1.48
2-Month	1	1	0-2	Sample	In Cap	QT2-1-0002	In Cap	2,4´-DDD	<0.412
2-Month	1	1	0-2	Sample	In Cap	QT2-1-0002	In Cap	2,4´-DDE	<0.06
2-Month	1	1	0-2	Sample	In Cap	QT2-1-0002	In Cap	2,4´-DDT	<0.055
2-Month	1	1	0-2	Sample	In Cap	QT2-1-0002	In Cap	4,4´-DDD	15.403
2-Month	1	1	0-2	Sample	In Cap	QT2-1-0002	In Cap	4,4´-DDE	<0.059
2-Month	1	1	0-2	Sample	In Cap	QT2-1-0002	In Cap	4,4´-DDT	<0.108
2-Month	1	1	0-2	Sample	In Cap	QT2-1-0002	In Cap	Total DDX	15.403
2-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-1-0002-AI	In Cap	2,4´-DDD	<0.077

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
2-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-1-0002-AI	In Cap	2,4´-DDE	<0.011
2-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-1-0002-AI	In Cap	2,4´-DDT	<0.01
2-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-1-0002-AI	In Cap	4,4´-DDD	0.649
2-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-1-0002-AI	In Cap	4,4´-DDE	0.039
2-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-1-0002-AI	In Cap	4,4´-DDT	0.533
2-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-1-0002-AI	In Cap	Total DDX	1.221
2-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0002-BI	In Cap	2,4´-DDD	<0.393
2-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0002-BI	In Cap	2,4´-DDE	<0.057
2-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0002-BI	In Cap	2,4´-DDT	<0.052
2-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0002-BI	In Cap	4,4´-DDD	0.588
2-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0002-BI	In Cap	4,4´-DDE	<0.056
2-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0002-BI	In Cap	4,4´-DDT	<0.103
2-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0002-BI	In Cap	Total DDX	0.588
2-Month	1	1	2-5	Sample	In Cap	QT2-1-0205	In Cap	2,4´-DDD	<0.393
2-Month	1	1	2-5	Sample	In Cap	QT2-1-0205	In Cap	2,4´-DDE	0.086
2-Month	1	1	2-5	Sample	In Cap	QT2-1-0205	In Cap	2,4´-DDT	<0.052
2-Month	1	1	2-5	Sample	In Cap	QT2-1-0205	In Cap	4,4´-DDD	1.618
2-Month	1	1	2-5	Sample	In Cap	QT2-1-0205	In Cap	4,4´-DDE	0.235
2-Month	1	1	2-5	Sample	In Cap	QT2-1-0205	In Cap	4,4´-DDT	0.120
2-Month	1	1	2-5	Sample	In Cap	QT2-1-0205	In Cap	Total DDX	2.059
2-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0205-BI	In Cap	2,4´-DDD	<0.395
2-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0205-BI	In Cap	2,4´-DDE	<0.058
2-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0205-BI	In Cap	2,4´-DDT	<0.052
2-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0205-BI	In Cap	4,4´-DDD	0.812
2-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0205-BI	In Cap	4,4´-DDE	<0.057
2-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0205-BI	In Cap	4,4´-DDT	<0.103
2-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0205-BI	In Cap	Total DDX	0.812
2-Month	1	1	5-7	Sample	In Cap	QT2-1-0507	In Cap	2,4´-DDD	<0.379
2-Month	1	1	5-7	Sample	In Cap	QT2-1-0507	In Cap	2,4´-DDE	<0.055
2-Month	1	1	5-7	Sample	In Cap	QT2-1-0507	In Cap	2,4´-DDT	<0.05
2-Month	1	1	5-7	Sample	In Cap	QT2-1-0507	In Cap	4,4´-DDD	0.709
2-Month	1	1	5-7	Sample	In Cap	QT2-1-0507	In Cap	4,4´-DDE	<0.054
2-Month	1	1	5-7	Sample	In Cap	QT2-1-0507	In Cap	4,4´-DDT	<0.099
2-Month	1	1	5-7	Sample	In Cap	QT2-1-0507	In Cap	Total DDX	0.709
2-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0507-BI	In Cap	2,4´-DDD	<0.378
2-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0507-BI	In Cap	2,4´-DDE	<0.055
2-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0507-BI	In Cap	2,4´-DDT	<0.05
2-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0507-BI	In Cap	4,4´-DDD	1.201
2-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0507-BI	In Cap	4,4´-DDE	<0.054
2-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0507-BI	In Cap	4,4´-DDT	<0.099
2-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-1-0507-BI	In Cap	Total DDX	1.201
2-Month	2	2	0-2	Sample	In Cap	QT2-2-0002	In Cap	2,4´-DDD	<0.388
2-Month	2	2	0-2	Sample	In Cap	QT2-2-0002	In Cap	2,4´-DDE	<0.057
2-Month	2	2	0-2	Sample	In Cap	QT2-2-0002	In Cap	2,4´-DDT	<0.051
2-Month	2	2	0-2	Sample	In Cap	QT2-2-0002	In Cap	4,4´-DDD	3.560
2-Month	2	2	0-2	Sample	In Cap	QT2-2-0002	In Cap	4,4´-DDE	<0.056
2-Month	2	2	0-2	Sample	In Cap	QT2-2-0002	In Cap	4,4´-DDT	<0.101
2-Month	2	2	0-2	Sample	In Cap	QT2-2-0002	In Cap	Total DDX	3.560
2-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-2-0002-AI	In Cap	2,4´-DDD	0.629

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
2-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-2-0002-AI	In Cap	2,4´-DDE	0.092
2-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-2-0002-AI	In Cap	2,4´-DDT	<0.05
2-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-2-0002-AI	In Cap	4,4´-DDD	5.087
2-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-2-0002-AI	In Cap	4,4´-DDE	0.090
2-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-2-0002-AI	In Cap	4,4´-DDT	0.625
2-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-2-0002-AI	In Cap	Total DDX	6.523
2-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0002-BI	In Cap	2,4´-DDD	<0.393
2-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0002-BI	In Cap	2,4´-DDE	0.067
2-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0002-BI	In Cap	2,4´-DDT	<0.052
2-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0002-BI	In Cap	4,4´-DDD	0.956
2-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0002-BI	In Cap	4,4´-DDE	0.122
2-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0002-BI	In Cap	4,4´-DDT	<0.103
2-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0002-BI	In Cap	Total DDX	1.145
2-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0205-BI	In Cap	2,4´-DDD	<0.382
2-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0205-BI	In Cap	2,4´-DDE	0.074
2-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0205-BI	In Cap	2,4´-DDT	<0.051
2-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0205-BI	In Cap	4,4´-DDD	0.786
2-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0205-BI	In Cap	4,4´-DDE	<0.055
2-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0205-BI	In Cap	4,4´-DDT	<0.1
2-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0205-BI	In Cap	Total DDX	0.861
2-Month	2	2	5-7	Sample	In Cap	QT2-2-0507	In Cap	4,4´-DDE	<0.357
2-Month	2	2	5-7	Sample	In Cap	QT2-2-0507	In Cap	4,4´-DDT	<0.65
2-Month	2	2	5-7	Sample	In Cap	QT2-2-0507	In Cap	2,4´-DDD	<2.487
2-Month	2	2	5-7	Sample	In Cap	QT2-2-0507	In Cap	2,4´-DDE	<0.364
2-Month	2	2	5-7	Sample	In Cap	QT2-2-0507	In Cap	2,4´-DDT	<0.33
2-Month	2	2	5-7	Sample	In Cap	QT2-2-0507	In Cap	4,4´-DDD	<2.793
2-Month	2	2	5-7	Sample	In Cap	QT2-2-0507	In Cap	Total DDX	<2.793
2-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0507-BI	In Cap	2,4´-DDD	<0.388
2-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0507-BI	In Cap	2,4´-DDE	0.123
2-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0507-BI	In Cap	2,4´-DDT	<0.051
2-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0507-BI	In Cap	4,4´-DDD	2.107
2-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0507-BI	In Cap	4,4´-DDE	0.167
2-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0507-BI	In Cap	4,4´-DDT	0.152
2-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-2-0507-BI	In Cap	Total DDX	2.549
2-Month	3	3	0-2	Sample	In Cap	QT2-3-0002	In Cap	2,4´-DDD	0.549
2-Month	3	3	0-2	Sample	In Cap	QT2-3-0002	In Cap	2,4´-DDE	0.161
2-Month	3	3	0-2	Sample	In Cap	QT2-3-0002	In Cap	2,4´-DDT	<0.049
2-Month	3	3	0-2	Sample	In Cap	QT2-3-0002	In Cap	4,4´-DDD	2.877
2-Month	3	3	0-2	Sample	In Cap	QT2-3-0002	In Cap	4,4´-DDE	0.639
2-Month	3	3	0-2	Sample	In Cap	QT2-3-0002	In Cap	4,4´-DDT	0.367
2-Month	3	3	0-2	Sample	In Cap	QT2-3-0002	In Cap	Total DDX	4.591
2-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-3-0002-AI	In Cap	2,4´-DDD	<0.347
2-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-3-0002-AI	In Cap	2,4´-DDE	<0.051
2-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-3-0002-AI	In Cap	2,4´-DDT	<0.046
2-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-3-0002-AI	In Cap	4,4´-DDD	0.936
2-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-3-0002-AI	In Cap	4,4´-DDE	0.070
2-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-3-0002-AI	In Cap	4,4´-DDT	0.163
2-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-3-0002-AI	In Cap	Total DDX	1.169
2-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0002-BI	In Cap	2,4´-DDD	1.260

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
2-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0002-BI	In Cap	2,4´-DDE	0.291
2-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0002-BI	In Cap	2,4´-DDT	<0.053
2-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0002-BI	In Cap	4,4´-DDD	7.893
2-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0002-BI	In Cap	4,4´-DDE	0.751
2-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0002-BI	In Cap	4,4´-DDT	0.953
2-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0002-BI	In Cap	Total DDX	11.148
2-Month	3	3	2-5	Sample	In Cap	QT2-3-0205	In Cap	2,4´-DDD	1.011
2-Month	3	3	2-5	Sample	In Cap	QT2-3-0205	In Cap	2,4´-DDE	0.139
2-Month	3	3	2-5	Sample	In Cap	QT2-3-0205	In Cap	2,4´-DDT	<0.05
2-Month	3	3	2-5	Sample	In Cap	QT2-3-0205	In Cap	4,4´-DDD	3.050
2-Month	3	3	2-5	Sample	In Cap	QT2-3-0205	In Cap	4,4´-DDE	0.589
2-Month	3	3	2-5	Sample	In Cap	QT2-3-0205	In Cap	4,4´-DDT	0.347
2-Month	3	3	2-5	Sample	In Cap	QT2-3-0205	In Cap	Total DDX	5.135
2-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0205-BI	In Cap	2,4´-DDD	<0.378
2-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0205-BI	In Cap	2,4´-DDE	<0.055
2-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0205-BI	In Cap	2,4´-DDT	<0.05
2-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0205-BI	In Cap	4,4´-DDD	<0.424
2-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0205-BI	In Cap	4,4´-DDE	<0.054
2-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0205-BI	In Cap	4,4´-DDT	<0.099
2-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0205-BI	In Cap	Total DDX	<0.424
2-Month	3	3	5-7	Sample	In Cap	QT2-3-0507	In Cap	2,4´-DDD	<0.375
2-Month	3	3	5-7	Sample	In Cap	QT2-3-0507	In Cap	2,4´-DDE	<0.055
2-Month	3	3	5-7	Sample	In Cap	QT2-3-0507	In Cap	2,4´-DDT	<0.05
2-Month	3	3	5-7	Sample	In Cap	QT2-3-0507	In Cap	4,4´-DDD	0.561
2-Month	3	3	5-7	Sample	In Cap	QT2-3-0507	In Cap	4,4´-DDE	0.081
2-Month	3	3	5-7	Sample	In Cap	QT2-3-0507	In Cap	4,4´-DDT	<0.098
2-Month	3	3	5-7	Sample	In Cap	QT2-3-0507	In Cap	Total DDX	0.641
2-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0507-BI	In Cap	2,4´-DDD	<0.373
2-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0507-BI	In Cap	2,4´-DDE	<0.055
2-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0507-BI	In Cap	2,4´-DDT	<0.049
2-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0507-BI	In Cap	4,4´-DDD	2.165
2-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0507-BI	In Cap	4,4´-DDE	<0.054
2-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0507-BI	In Cap	4,4´-DDT	<0.098
2-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-3-0507-BI	In Cap	Total DDX	2.165
2-Month	4	4	0-2	Sample	In Cap	QT2-4-0002	In Cap	2,4´-DDD	<0.379
2-Month	4	4	0-2	Sample	In Cap	QT2-4-0002	In Cap	2,4´-DDE	<0.055
2-Month	4	4	0-2	Sample	In Cap	QT2-4-0002	In Cap	2,4´-DDT	<0.05
2-Month	4	4	0-2	Sample	In Cap	QT2-4-0002	In Cap	4,4´-DDD	<0.426
2-Month	4	4	0-2	Sample	In Cap	QT2-4-0002	In Cap	4,4´-DDE	0.127
2-Month	4	4	0-2	Sample	In Cap	QT2-4-0002	In Cap	4,4´-DDT	<0.099
2-Month	4	4	0-2	Sample	In Cap	QT2-4-0002	In Cap	Total DDX	0.127
2-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-4-0002-AI	In Cap	4,4´-DDE	<3.986
2-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-4-0002-AI	In Cap	4,4´-DDT	<7.265
2-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-4-0002-AI	In Cap	2,4´-DDD	<27.794
2-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-4-0002-AI	In Cap	2,4´-DDE	<4.063
2-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-4-0002-AI	In Cap	2,4´-DDT	<3.685

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
2-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-4-0002-AI	In Cap	4,4′-DDD	<31.209
2-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-4-0002-AI	In Cap	Total DDX	<31.209
2-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0002-BI	In Cap	2,4′-DDD	<0.41
2-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0002-BI	In Cap	2,4′-DDE	<0.06
2-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0002-BI	In Cap	2,4′-DDT	<0.054
2-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0002-BI	In Cap	4,4′-DDD	<0.46
2-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0002-BI	In Cap	4,4′-DDE	<0.059
2-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0002-BI	In Cap	4,4′-DDT	<0.107
2-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0002-BI	In Cap	Total DDX	<0.46
2-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0205-BI	In Cap	2,4′-DDD	<0.477
2-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0205-BI	In Cap	2,4′-DDE	<0.07
2-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0205-BI	In Cap	2,4′-DDT	<0.063
2-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0205-BI	In Cap	4,4′-DDD	0.804
2-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0205-BI	In Cap	4,4′-DDE	<0.068
2-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0205-BI	In Cap	4,4′-DDT	<0.125
2-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0205-BI	In Cap	Total DDX	0.804
2-Month	4	4	5-7	Sample	In Cap	QT2-4-0507	In Cap	2,4′-DDD	<0.388
2-Month	4	4	5-7	Sample	In Cap	QT2-4-0507	In Cap	2,4′-DDE	0.076
2-Month	4	4	5-7	Sample	In Cap	QT2-4-0507	In Cap	2,4′-DDT	<0.051
2-Month	4	4	5-7	Sample	In Cap	QT2-4-0507	In Cap	4,4′-DDD	0.944
2-Month	4	4	5-7	Sample	In Cap	QT2-4-0507	In Cap	4,4′-DDE	0.232
2-Month	4	4	5-7	Sample	In Cap	QT2-4-0507	In Cap	4,4′-DDT	<0.101
2-Month	4	4	5-7	Sample	In Cap	QT2-4-0507	In Cap	Total DDX	1.252
2-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0507-BI	In Cap	2,4′-DDD	<0.406
2-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0507-BI	In Cap	2,4′-DDE	0.099
2-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0507-BI	In Cap	2,4′-DDT	<0.054
2-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0507-BI	In Cap	4,4′-DDD	1.521
2-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0507-BI	In Cap	4,4′-DDE	0.340
2-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0507-BI	In Cap	4,4′-DDT	<0.106
2-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-4-0507-BI	In Cap	Total DDX	1.960
2-Month	5	5	0-2	Primary	In Cap	QT2-5-0002	In Cap	2,4′-DDD	<0.373
2-Month	5	5	0-2	Primary	In Cap	QT2-5-0002	In Cap	2,4′-DDE	<0.055
2-Month	5	5	0-2	Primary	In Cap	QT2-5-0002	In Cap	2,4′-DDT	<0.049
2-Month	5	5	0-2	Primary	In Cap	QT2-5-0002	In Cap	4,4′-DDD	<0.419
2-Month	5	5	0-2	Primary	In Cap	QT2-5-0002	In Cap	4,4′-DDE	<0.054
2-Month	5	5	0-2	Primary	In Cap	QT2-5-0002	In Cap	4,4′-DDT	<0.098
2-Month	5	5	0-2	Primary	In Cap	QT2-5-0002	In Cap	Total DDX	<0.419
2-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT2-5-0002-AI	In Cap	2,4′-DDD	<0.387
2-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT2-5-0002-AI	In Cap	2,4′-DDE	0.236
2-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT2-5-0002-AI	In Cap	2,4′-DDT	<0.051
2-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT2-5-0002-AI	In Cap	4,4′-DDD	2.171
2-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT2-5-0002-AI	In Cap	4,4′-DDE	0.730
2-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT2-5-0002-AI	In Cap	4,4′-DDT	0.219
2-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT2-5-0002-AI	In Cap	Total DDX	3.355

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
2-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-5-0002-AI-Avg	In Cap	2,4´-DDD	<2.732
2-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-5-0002-AI-Avg	In Cap	2,4´-DDE	0.35
2-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-5-0002-AI-Avg	In Cap	2,4´-DDT	<0.362
2-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-5-0002-AI-Avg	In Cap	4,4´-DDD	3.27
2-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-5-0002-AI-Avg	In Cap	4,4´-DDE	0.77
2-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-5-0002-AI-Avg	In Cap	4,4´-DDT	0.57
2-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT2-5-0002-AI-Avg	In Cap	Total DDX	4.97
2-Month	5	5	0-2	Sample	In Cap	QT2-5-0002-Avg	In Cap	2,4´-DDD	<0.373
2-Month	5	5	0-2	Sample	In Cap	QT2-5-0002-Avg	In Cap	2,4´-DDE	<0.055
2-Month	5	5	0-2	Sample	In Cap	QT2-5-0002-Avg	In Cap	2,4´-DDT	<0.049
2-Month	5	5	0-2	Sample	In Cap	QT2-5-0002-Avg	In Cap	4,4´-DDD	0.38
2-Month	5	5	0-2	Sample	In Cap	QT2-5-0002-Avg	In Cap	4,4´-DDE	0.08
2-Month	5	5	0-2	Sample	In Cap	QT2-5-0002-Avg	In Cap	4,4´-DDT	<0.098
2-Month	5	5	0-2	Sample	In Cap	QT2-5-0002-Avg	In Cap	Total DDX	0.46
2-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0002-BI	In Cap	2,4´-DDD	<0.376
2-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0002-BI	In Cap	2,4´-DDE	0.064
2-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0002-BI	In Cap	2,4´-DDT	<0.05
2-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0002-BI	In Cap	4,4´-DDD	1.830
2-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0002-BI	In Cap	4,4´-DDE	0.072
2-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0002-BI	In Cap	4,4´-DDT	<0.098
2-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0002-BI	In Cap	Total DDX	1.966
2-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0002-BI-Avg	In Cap	2,4´-DDD	<3.015
2-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0002-BI-Avg	In Cap	2,4´-DDE	0.14
2-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0002-BI-Avg	In Cap	2,4´-DDT	<0.4
2-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0002-BI-Avg	In Cap	4,4´-DDD	1.76
2-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0002-BI-Avg	In Cap	4,4´-DDE	0.14
2-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0002-BI-Avg	In Cap	4,4´-DDT	<0.788
2-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0002-BI-Avg	In Cap	Total DDX	2.05
2-Month	5	5	2-5	Primary	In Cap	QT2-5-0205	In Cap	2,4´-DDD	<0.384
2-Month	5	5	2-5	Primary	In Cap	QT2-5-0205	In Cap	2,4´-DDE	<0.056
2-Month	5	5	2-5	Primary	In Cap	QT2-5-0205	In Cap	2,4´-DDT	<0.051
2-Month	5	5	2-5	Primary	In Cap	QT2-5-0205	In Cap	4,4´-DDD	<0.431
2-Month	5	5	2-5	Primary	In Cap	QT2-5-0205	In Cap	4,4´-DDE	0.119
2-Month	5	5	2-5	Primary	In Cap	QT2-5-0205	In Cap	4,4´-DDT	<0.1
2-Month	5	5	2-5	Primary	In Cap	QT2-5-0205	In Cap	Total DDX	0.119
2-Month	5	5	2-5	Sample	In Cap	QT2-5-0205-Avg	In Cap	2,4´-DDD	<0.384
2-Month	5	5	2-5	Sample	In Cap	QT2-5-0205-Avg	In Cap	2,4´-DDE	0.05
2-Month	5	5	2-5	Sample	In Cap	QT2-5-0205-Avg	In Cap	2,4´-DDT	<0.051
2-Month	5	5	2-5	Sample	In Cap	QT2-5-0205-Avg	In Cap	4,4´-DDD	0.53
2-Month	5	5	2-5	Sample	In Cap	QT2-5-0205-Avg	In Cap	4,4´-DDE	0.17
2-Month	5	5	2-5	Sample	In Cap	QT2-5-0205-Avg	In Cap	4,4´-DDT	<0.1
2-Month	5	5	2-5	Sample	In Cap	QT2-5-0205-Avg	In Cap	Total DDX	0.75
2-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0205-BI	In Cap	2,4´-DDD	<0.398
2-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0205-BI	In Cap	2,4´-DDE	0.136
2-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0205-BI	In Cap	2,4´-DDT	<0.053

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
2-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0205-BI	In Cap	4,4′-DDD	5.361
2-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0205-BI	In Cap	4,4′-DDE	0.190
2-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0205-BI	In Cap	4,4′-DDT	<0.104
2-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0205-BI	In Cap	Total DDX	5.687
2-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0205-BI-Avg	In Cap	2,4′-DDD	<2.631
2-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0205-BI-Avg	In Cap	2,4′-DDE	0.16
2-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0205-BI-Avg	In Cap	2,4′-DDT	<0.349
2-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0205-BI-Avg	In Cap	4,4′-DDD	10.47
2-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0205-BI-Avg	In Cap	4,4′-DDE	0.19
2-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0205-BI-Avg	In Cap	4,4′-DDT	<0.688
2-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0205-BI-Avg	In Cap	Total DDX	10.82
2-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0507-BI	In Cap	2,4′-DDD	<0.391
2-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0507-BI	In Cap	2,4′-DDE	0.076
2-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0507-BI	In Cap	2,4′-DDT	<0.052
2-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0507-BI	In Cap	4,4′-DDD	1.758
2-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0507-BI	In Cap	4,4′-DDE	0.112
2-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0507-BI	In Cap	4,4′-DDT	<0.102
2-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT2-5-0507-BI	In Cap	Total DDX	1.946
2-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0507-BI-Avg	In Cap	2,4′-DDD	<2.96
2-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0507-BI-Avg	In Cap	2,4′-DDE	0.15
2-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0507-BI-Avg	In Cap	2,4′-DDT	<0.392
2-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0507-BI-Avg	In Cap	4,4′-DDD	1.71
2-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0507-BI-Avg	In Cap	4,4′-DDE	0.29
2-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0507-BI-Avg	In Cap	4,4′-DDT	<0.774
2-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT2-5-0507-BI-Avg	In Cap	Total DDX	2.15
2-Month	5	5	0-2	Duplicate	In Cap	QT2-5DUP-0002	In Cap	2,4′-DDD	<0.367
2-Month	5	5	0-2	Duplicate	In Cap	QT2-5DUP-0002	In Cap	2,4′-DDE	<0.054
2-Month	5	5	0-2	Duplicate	In Cap	QT2-5DUP-0002	In Cap	2,4′-DDT	<0.049
2-Month	5	5	0-2	Duplicate	In Cap	QT2-5DUP-0002	In Cap	4,4′-DDD	0.550
2-Month	5	5	0-2	Duplicate	In Cap	QT2-5DUP-0002	In Cap	4,4′-DDE	0.132
2-Month	5	5	0-2	Duplicate	In Cap	QT2-5DUP-0002	In Cap	4,4′-DDT	<0.096
2-Month	5	5	0-2	Duplicate	In Cap	QT2-5DUP-0002	In Cap	Total DDX	0.682
2-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT2-5DUP-0002-AI	In Cap	2,4′-DDD	<2.732
2-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT2-5DUP-0002-AI	In Cap	2,4′-DDE	0.469
2-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT2-5DUP-0002-AI	In Cap	2,4′-DDT	<0.362
2-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT2-5DUP-0002-AI	In Cap	4,4′-DDD	4.371
2-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT2-5DUP-0002-AI	In Cap	4,4′-DDE	0.813
2-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT2-5DUP-0002-AI	In Cap	4,4′-DDT	0.928
2-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT2-5DUP-0002-AI	In Cap	Total DDX	6.582
2-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0002-BI	In Cap	2,4′-DDD	<3.015
2-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0002-BI	In Cap	2,4′-DDE	<0.441
2-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0002-BI	In Cap	2,4′-DDT	<0.4
2-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0002-BI	In Cap	4,4′-DDD	<3.386
2-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0002-BI	In Cap	4,4′-DDE	<0.432
2-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0002-BI	In Cap	4,4′-DDT	<0.788
2-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0002-BI	In Cap	Total DDX	<3.386
2-Month	5	5	2-5	Duplicate	In Cap	QT2-5DUP-0205	In Cap	2,4′-DDD	<0.35
2-Month	5	5	2-5	Duplicate	In Cap	QT2-5DUP-0205	In Cap	2,4′-DDE	0.068

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
2-Month	5	5	2-5	Duplicate	In Cap	QT2-5DUP-0205	In Cap	2,4´-DDT	<0.046
2-Month	5	5	2-5	Duplicate	In Cap	QT2-5DUP-0205	In Cap	4,4´-DDD	0.851
2-Month	5	5	2-5	Duplicate	In Cap	QT2-5DUP-0205	In Cap	4,4´-DDE	0.217
2-Month	5	5	2-5	Duplicate	In Cap	QT2-5DUP-0205	In Cap	4,4´-DDT	<0.091
2-Month	5	5	2-5	Duplicate	In Cap	QT2-5DUP-0205	In Cap	Total DDX	1.137
2-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0205-BI	In Cap	2,4´-DDD	<2.631
2-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0205-BI	In Cap	2,4´-DDE	<0.385
2-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0205-BI	In Cap	2,4´-DDT	<0.349
2-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0205-BI	In Cap	4,4´-DDD	15.582
2-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0205-BI	In Cap	4,4´-DDE	<0.377
2-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0205-BI	In Cap	4,4´-DDT	<0.688
2-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0205-BI	In Cap	Total DDX	15.582
2-Month	5	5	5-7	Sample	In Cap	QT2-5DUP-0507	In Cap	2,4´-DDD	<2.829
2-Month	5	5	5-7	Sample	In Cap	QT2-5DUP-0507	In Cap	2,4´-DDE	<0.414
2-Month	5	5	5-7	Sample	In Cap	QT2-5DUP-0507	In Cap	2,4´-DDT	<0.375
2-Month	5	5	5-7	Sample	In Cap	QT2-5DUP-0507	In Cap	4,4´-DDD	<3.176
2-Month	5	5	5-7	Sample	In Cap	QT2-5DUP-0507	In Cap	4,4´-DDE	<0.406
2-Month	5	5	5-7	Sample	In Cap	QT2-5DUP-0507	In Cap	4,4´-DDT	<0.739
2-Month	5	5	5-7	Sample	In Cap	QT2-5DUP-0507	In Cap	Total DDX	<3.176
2-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0507-BI	In Cap	2,4´-DDD	<2.96
2-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0507-BI	In Cap	2,4´-DDE	<0.433
2-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0507-BI	In Cap	2,4´-DDT	<0.392
2-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0507-BI	In Cap	4,4´-DDD	<3.323
2-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0507-BI	In Cap	4,4´-DDE	0.467
2-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0507-BI	In Cap	4,4´-DDT	<0.774
2-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT2-5DUP-0507-BI	In Cap	Total DDX	0.467
2-Month	6	6	0-10	Sample	Off Cap	QT2-6-GRAB	Off Cap	2,4´-DDD	<0.327
2-Month	6	6	0-10	Sample	Off Cap	QT2-6-GRAB	Off Cap	2,4´-DDE	<0.048
2-Month	6	6	0-10	Sample	Off Cap	QT2-6-GRAB	Off Cap	2,4´-DDT	<0.043
2-Month	6	6	0-10	Sample	Off Cap	QT2-6-GRAB	Off Cap	4,4´-DDD	0.735
2-Month	6	6	0-10	Sample	Off Cap	QT2-6-GRAB	Off Cap	4,4´-DDE	0.05635
2-Month	6	6	0-10	Sample	Off Cap	QT2-6-GRAB	Off Cap	4,4´-DDT	<0.086
2-Month	6	6	0-10	Sample	Off Cap	QT2-6-GRAB	Off Cap	Total DDX	0.792
2-Month	7	7	0-10	Sample	Off Cap	QT2-7-GRAB	Off Cap	2,4´-DDD	<0.382
2-Month	7	7	0-10	Sample	Off Cap	QT2-7-GRAB	Off Cap	2,4´-DDE	<0.056
2-Month	7	7	0-10	Sample	Off Cap	QT2-7-GRAB	Off Cap	2,4´-DDT	<0.051
2-Month	7	7	0-10	Sample	Off Cap	QT2-7-GRAB	Off Cap	4,4´-DDD	<0.429
2-Month	7	7	0-10	Sample	Off Cap	QT2-7-GRAB	Off Cap	4,4´-DDE	<0.055
2-Month	7	7	0-10	Sample	Off Cap	QT2-7-GRAB	Off Cap	4,4´-DDT	<0.1
2-Month	7	7	0-10	Sample	Off Cap	QT2-7-GRAB	Off Cap	Total DDX	<0.429
14-Month	1	1	0-2	Sample	In Cap	QT12-1-0002	In Cap	2,4´-DDD	<0.333
14-Month	1	1	0-2	Sample	In Cap	QT12-1-0002	In Cap	2,4´-DDE	<0.049
14-Month	1	1	0-2	Sample	In Cap	QT12-1-0002	In Cap	2,4´-DDT	<0.044
14-Month	1	1	0-2	Sample	In Cap	QT12-1-0002	In Cap	4,4´-DDD	0.972
14-Month	1	1	0-2	Sample	In Cap	QT12-1-0002	In Cap	4,4´-DDE	0.229

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
14-Month	1	1	0-2	Sample	In Cap	QT12-1-0002	In Cap	4,4´-DDT	<0.087
14-Month	1	1	0-2	Sample	In Cap	QT12-1-0002	In Cap	Total DDX	1.201
14-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-1-0002-AI	In Cap	2,4´-DDD	<0.341
14-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-1-0002-AI	In Cap	2,4´-DDE	<0.05
14-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-1-0002-AI	In Cap	2,4´-DDT	<0.045
14-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-1-0002-AI	In Cap	4,4´-DDD	7.899
14-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-1-0002-AI	In Cap	4,4´-DDE	0.176
14-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-1-0002-AI	In Cap	4,4´-DDT	<0.089
14-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-1-0002-AI	In Cap	Total DDX	8.075
14-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0002-BI	In Cap	2,4´-DDD	0.688
14-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0002-BI	In Cap	2,4´-DDE	0.201
14-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0002-BI	In Cap	2,4´-DDT	<0.051
14-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0002-BI	In Cap	4,4´-DDD	13.137
14-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0002-BI	In Cap	4,4´-DDE	0.362
14-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0002-BI	In Cap	4,4´-DDT	5.456
14-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0002-BI	In Cap	Total DDX	19.844
14-Month	1	1	2-5	Sample	In Cap	QT12-1-0205	In Cap	2,4´-DDD	0.520
14-Month	1	1	2-5	Sample	In Cap	QT12-1-0205	In Cap	2,4´-DDE	<0.047
14-Month	1	1	2-5	Sample	In Cap	QT12-1-0205	In Cap	2,4´-DDT	<0.043
14-Month	1	1	2-5	Sample	In Cap	QT12-1-0205	In Cap	4,4´-DDD	4.742
14-Month	1	1	2-5	Sample	In Cap	QT12-1-0205	In Cap	4,4´-DDE	0.512
14-Month	1	1	2-5	Sample	In Cap	QT12-1-0205	In Cap	4,4´-DDT	0.458
14-Month	1	1	2-5	Sample	In Cap	QT12-1-0205	In Cap	Total DDX	6.232
14-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0205-BI	In Cap	2,4´-DDD	1.125
14-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0205-BI	In Cap	2,4´-DDE	0.230
14-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0205-BI	In Cap	2,4´-DDT	<0.05
14-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0205-BI	In Cap	4,4´-DDD	2.275
14-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0205-BI	In Cap	4,4´-DDE	0.452
14-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0205-BI	In Cap	4,4´-DDT	0.922
14-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0205-BI	In Cap	Total DDX	5.004
14-Month	1	1	5-7	Sample	In Cap	QT12-1-0507	In Cap	2,4´-DDD	<0.346
14-Month	1	1	5-7	Sample	In Cap	QT12-1-0507	In Cap	2,4´-DDE	<0.051
14-Month	1	1	5-7	Sample	In Cap	QT12-1-0507	In Cap	2,4´-DDT	<0.046
14-Month	1	1	5-7	Sample	In Cap	QT12-1-0507	In Cap	4,4´-DDD	1.787
14-Month	1	1	5-7	Sample	In Cap	QT12-1-0507	In Cap	4,4´-DDE	0.427
14-Month	1	1	5-7	Sample	In Cap	QT12-1-0507	In Cap	4,4´-DDT	<0.09
14-Month	1	1	5-7	Sample	In Cap	QT12-1-0507	In Cap	Total DDX	2.213
14-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0507-BI	In Cap	2,4´-DDD	<0.441
14-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0507-BI	In Cap	2,4´-DDE	<0.065
14-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0507-BI	In Cap	2,4´-DDT	<0.059
14-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0507-BI	In Cap	4,4´-DDD	12.790
14-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0507-BI	In Cap	4,4´-DDE	0.266
14-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0507-BI	In Cap	4,4´-DDT	0.877
14-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-1-0507-BI	In Cap	Total DDX	13.932
14-Month	2	2	0-2	Sample	In Cap	QT12-2-0002	In Cap	2,4´-DDD	0.505
14-Month	2	2	0-2	Sample	In Cap	QT12-2-0002	In Cap	2,4´-DDE	<0.046
14-Month	2	2	0-2	Sample	In Cap	QT12-2-0002	In Cap	2,4´-DDT	<0.042
14-Month	2	2	0-2	Sample	In Cap	QT12-2-0002	In Cap	4,4´-DDD	5.462
14-Month	2	2	0-2	Sample	In Cap	QT12-2-0002	In Cap	4,4´-DDE	0.245

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
14-Month	2	2	0-2	Sample	In Cap	QT12-2-0002	In Cap	4,4´-DDT	<0.083
14-Month	2	2	0-2	Sample	In Cap	QT12-2-0002	In Cap	Total DDX	6.211
14-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-2-0002-AI	In Cap	2,4´-DDD	<0.357
14-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-2-0002-AI	In Cap	2,4´-DDE	0.094
14-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-2-0002-AI	In Cap	2,4´-DDT	<0.047
14-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-2-0002-AI	In Cap	4,4´-DDD	2.403
14-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-2-0002-AI	In Cap	4,4´-DDE	0.174
14-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-2-0002-AI	In Cap	4,4´-DDT	<0.093
14-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-2-0002-AI	In Cap	Total DDX	2.671
14-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0002-BI	In Cap	2,4´-DDD	<0.47
14-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0002-BI	In Cap	2,4´-DDE	0.082
14-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0002-BI	In Cap	2,4´-DDT	<0.062
14-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0002-BI	In Cap	4,4´-DDD	4.011
14-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0002-BI	In Cap	4,4´-DDE	<0.067
14-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0002-BI	In Cap	4,4´-DDT	<0.123
14-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0002-BI	In Cap	Total DDX	4.094
14-Month	2	2	2-5	Sample	In Cap	QT12-2-0205	In Cap	2,4´-DDD	0.776
14-Month	2	2	2-5	Sample	In Cap	QT12-2-0205	In Cap	2,4´-DDE	0.208
14-Month	2	2	2-5	Sample	In Cap	QT12-2-0205	In Cap	2,4´-DDT	<0.043
14-Month	2	2	2-5	Sample	In Cap	QT12-2-0205	In Cap	4,4´-DDD	4.432
14-Month	2	2	2-5	Sample	In Cap	QT12-2-0205	In Cap	4,4´-DDE	0.510
14-Month	2	2	2-5	Sample	In Cap	QT12-2-0205	In Cap	4,4´-DDT	0.101
14-Month	2	2	2-5	Sample	In Cap	QT12-2-0205	In Cap	Total DDX	6.028
14-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0205-BI	In Cap	2,4´-DDD	<0.373
14-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0205-BI	In Cap	2,4´-DDE	0.153
14-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0205-BI	In Cap	2,4´-DDT	<0.05
14-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0205-BI	In Cap	4,4´-DDD	2.432
14-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0205-BI	In Cap	4,4´-DDE	0.278
14-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0205-BI	In Cap	4,4´-DDT	0.176
14-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0205-BI	In Cap	Total DDX	3.039
14-Month	2	2	5-7	Sample	In Cap	QT12-2-0507	In Cap	2,4´-DDD	1.109
14-Month	2	2	5-7	Sample	In Cap	QT12-2-0507	In Cap	2,4´-DDE	0.296
14-Month	2	2	5-7	Sample	In Cap	QT12-2-0507	In Cap	2,4´-DDT	<0.043
14-Month	2	2	5-7	Sample	In Cap	QT12-2-0507	In Cap	4,4´-DDD	4.761
14-Month	2	2	5-7	Sample	In Cap	QT12-2-0507	In Cap	4,4´-DDE	0.543
14-Month	2	2	5-7	Sample	In Cap	QT12-2-0507	In Cap	4,4´-DDT	0.153
14-Month	2	2	5-7	Sample	In Cap	QT12-2-0507	In Cap	Total DDX	6.861
14-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0507-BI	In Cap	2,4´-DDD	0.644
14-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0507-BI	In Cap	2,4´-DDE	0.254
14-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0507-BI	In Cap	2,4´-DDT	<0.043
14-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0507-BI	In Cap	4,4´-DDD	3.329
14-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0507-BI	In Cap	4,4´-DDE	0.296
14-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0507-BI	In Cap	4,4´-DDT	0.168
14-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-2-0507-BI	In Cap	Total DDX	4.691
14-Month	3	3	0-2	Sample	In Cap	QT12-3-0002	In Cap	2,4´-DDD	0.813
14-Month	3	3	0-2	Sample	In Cap	QT12-3-0002	In Cap	2,4´-DDE	0.148
14-Month	3	3	0-2	Sample	In Cap	QT12-3-0002	In Cap	2,4´-DDT	<0.045
14-Month	3	3	0-2	Sample	In Cap	QT12-3-0002	In Cap	4,4´-DDD	2.965
14-Month	3	3	0-2	Sample	In Cap	QT12-3-0002	In Cap	4,4´-DDE	0.214

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
14-Month	3	3	0-2	Sample	In Cap	QT12-3-0002	In Cap	4,4´-DDT	0.159
14-Month	3	3	0-2	Sample	In Cap	QT12-3-0002	In Cap	Total DDX	4.300
14-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-3-0002-AI	In Cap	2,4´-DDD	1.195
14-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-3-0002-AI	In Cap	2,4´-DDE	<0.046
14-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-3-0002-AI	In Cap	2,4´-DDT	<0.042
14-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-3-0002-AI	In Cap	4,4´-DDD	5.793
14-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-3-0002-AI	In Cap	4,4´-DDE	0.668
14-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-3-0002-AI	In Cap	4,4´-DDT	0.148
14-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-3-0002-AI	In Cap	Total DDX	7.804
14-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0002-BI	In Cap	2,4´-DDD	1.547
14-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0002-BI	In Cap	2,4´-DDE	0.264
14-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0002-BI	In Cap	2,4´-DDT	<0.043
14-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0002-BI	In Cap	4,4´-DDD	6.078
14-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0002-BI	In Cap	4,4´-DDE	0.296
14-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0002-BI	In Cap	4,4´-DDT	0.472
14-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0002-BI	In Cap	Total DDX	8.656
14-Month	3	3	2-5	Sample	In Cap	QT12-3-0205	In Cap	2,4´-DDD	1.179
14-Month	3	3	2-5	Sample	In Cap	QT12-3-0205	In Cap	2,4´-DDE	0.144
14-Month	3	3	2-5	Sample	In Cap	QT12-3-0205	In Cap	2,4´-DDT	<0.043
14-Month	3	3	2-5	Sample	In Cap	QT12-3-0205	In Cap	4,4´-DDD	4.707
14-Month	3	3	2-5	Sample	In Cap	QT12-3-0205	In Cap	4,4´-DDE	0.160
14-Month	3	3	2-5	Sample	In Cap	QT12-3-0205	In Cap	4,4´-DDT	<0.086
14-Month	3	3	2-5	Sample	In Cap	QT12-3-0205	In Cap	Total DDX	6.189
14-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0205-BI	In Cap	2,4´-DDD	1.390
14-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0205-BI	In Cap	2,4´-DDE	0.244
14-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0205-BI	In Cap	2,4´-DDT	<0.046
14-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0205-BI	In Cap	4,4´-DDD	28.166
14-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0205-BI	In Cap	4,4´-DDE	0.737
14-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0205-BI	In Cap	4,4´-DDT	0.745
14-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0205-BI	In Cap	Total DDX	31.281
14-Month	3	3	5-7	Sample	In Cap	QT12-3-0507	In Cap	2,4´-DDD	1.033
14-Month	3	3	5-7	Sample	In Cap	QT12-3-0507	In Cap	2,4´-DDE	0.141
14-Month	3	3	5-7	Sample	In Cap	QT12-3-0507	In Cap	2,4´-DDT	<0.046
14-Month	3	3	5-7	Sample	In Cap	QT12-3-0507	In Cap	4,4´-DDD	4.177
14-Month	3	3	5-7	Sample	In Cap	QT12-3-0507	In Cap	4,4´-DDE	0.148
14-Month	3	3	5-7	Sample	In Cap	QT12-3-0507	In Cap	4,4´-DDT	<0.09
14-Month	3	3	5-7	Sample	In Cap	QT12-3-0507	In Cap	Total DDX	5.499
14-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0507-BI	In Cap	2,4´-DDD	1.015
14-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0507-BI	In Cap	2,4´-DDE	<0.046
14-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0507-BI	In Cap	2,4´-DDT	<0.042
14-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0507-BI	In Cap	4,4´-DDD	12.889
14-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0507-BI	In Cap	4,4´-DDE	1.155
14-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0507-BI	In Cap	4,4´-DDT	0.298
14-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-3-0507-BI	In Cap	Total DDX	15.357
14-Month	4	4	0-2	Sample	In Cap	QT12-4-0002	In Cap	2,4´-DDD	<0.35
14-Month	4	4	0-2	Sample	In Cap	QT12-4-0002	In Cap	2,4´-DDE	<0.051
14-Month	4	4	0-2	Sample	In Cap	QT12-4-0002	In Cap	2,4´-DDT	<0.046
14-Month	4	4	0-2	Sample	In Cap	QT12-4-0002	In Cap	4,4´-DDD	1.023

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
14-Month	4	4	0-2	Sample	In Cap	QT12-4-0002	In Cap	4,4´-DDE	0.372
14-Month	4	4	0-2	Sample	In Cap	QT12-4-0002	In Cap	4,4´-DDT	0.183
14-Month	4	4	0-2	Sample	In Cap	QT12-4-0002	In Cap	Total DDX	1.578
14-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-4-0002-AI	In Cap	2,4´-DDD	<0.315
14-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-4-0002-AI	In Cap	2,4´-DDE	<0.046
14-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-4-0002-AI	In Cap	2,4´-DDT	<0.042
14-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-4-0002-AI	In Cap	4,4´-DDD	1.272
14-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-4-0002-AI	In Cap	4,4´-DDE	0.171
14-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-4-0002-AI	In Cap	4,4´-DDT	<0.082
14-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-4-0002-AI	In Cap	Total DDX	1.443
14-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0002-BI	In Cap	2,4´-DDD	<0.347
14-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0002-BI	In Cap	2,4´-DDE	0.112
14-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0002-BI	In Cap	2,4´-DDT	<0.046
14-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0002-BI	In Cap	4,4´-DDD	1.092
14-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0002-BI	In Cap	4,4´-DDE	0.299
14-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0002-BI	In Cap	4,4´-DDT	<0.091
14-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0002-BI	In Cap	Total DDX	1.503
14-Month	4	4	2-5	Sample	In Cap	QT12-4-0205	In Cap	2,4´-DDD	<0.349
14-Month	4	4	2-5	Sample	In Cap	QT12-4-0205	In Cap	2,4´-DDE	0.082
14-Month	4	4	2-5	Sample	In Cap	QT12-4-0205	In Cap	2,4´-DDT	<0.046
14-Month	4	4	2-5	Sample	In Cap	QT12-4-0205	In Cap	4,4´-DDD	1.019
14-Month	4	4	2-5	Sample	In Cap	QT12-4-0205	In Cap	4,4´-DDE	0.450
14-Month	4	4	2-5	Sample	In Cap	QT12-4-0205	In Cap	4,4´-DDT	<0.091
14-Month	4	4	2-5	Sample	In Cap	QT12-4-0205	In Cap	Total DDX	1.551
14-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0205-BI	In Cap	2,4´-DDD	<0.339
14-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0205-BI	In Cap	2,4´-DDE	<0.049
14-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0205-BI	In Cap	2,4´-DDT	<0.045
14-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0205-BI	In Cap	4,4´-DDD	<0.38
14-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0205-BI	In Cap	4,4´-DDE	0.097
14-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0205-BI	In Cap	4,4´-DDT	<0.088
14-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0205-BI	In Cap	Total DDX	0.097
14-Month	4	4	5-7	Sample	In Cap	QT12-4-0507	In Cap	2,4´-DDD	<0.372
14-Month	4	4	5-7	Sample	In Cap	QT12-4-0507	In Cap	2,4´-DDE	<0.054
14-Month	4	4	5-7	Sample	In Cap	QT12-4-0507	In Cap	2,4´-DDT	<0.049
14-Month	4	4	5-7	Sample	In Cap	QT12-4-0507	In Cap	4,4´-DDD	1.252
14-Month	4	4	5-7	Sample	In Cap	QT12-4-0507	In Cap	4,4´-DDE	0.394
14-Month	4	4	5-7	Sample	In Cap	QT12-4-0507	In Cap	4,4´-DDT	0.350
14-Month	4	4	5-7	Sample	In Cap	QT12-4-0507	In Cap	Total DDX	1.996
14-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0507-BI	In Cap	2,4´-DDD	<0.36
14-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0507-BI	In Cap	2,4´-DDE	0.126
14-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0507-BI	In Cap	2,4´-DDT	<0.048
14-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0507-BI	In Cap	4,4´-DDD	1.859
14-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0507-BI	In Cap	4,4´-DDE	0.196
14-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0507-BI	In Cap	4,4´-DDT	<0.094
14-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-4-0507-BI	In Cap	Total DDX	2.182
14-Month	5	5	0-2	Primary	In Cap	QT12-5-0002	In Cap	2,4´-DDD	<0.341
14-Month	5	5	0-2	Primary	In Cap	QT12-5-0002	In Cap	2,4´-DDE	0.090
14-Month	5	5	0-2	Primary	In Cap	QT12-5-0002	In Cap	2,4´-DDT	<0.045
14-Month	5	5	0-2	Primary	In Cap	QT12-5-0002	In Cap	4,4´-DDD	0.997

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
14-Month	5	5	0-2	Primary	In Cap	QT12-5-0002	In Cap	4,4´-DDE	0.372
14-Month	5	5	0-2	Primary	In Cap	QT12-5-0002	In Cap	4,4´-DDT	0.125
14-Month	5	5	0-2	Primary	In Cap	QT12-5-0002	In Cap	Total DDX	1.584
14-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT12-5-0002-AI	In Cap	2,4´-DDD	<0.315
14-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT12-5-0002-AI	In Cap	2,4´-DDE	0.166
14-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT12-5-0002-AI	In Cap	2,4´-DDT	<0.042
14-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT12-5-0002-AI	In Cap	4,4´-DDD	1.908
14-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT12-5-0002-AI	In Cap	4,4´-DDE	0.568
14-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT12-5-0002-AI	In Cap	4,4´-DDT	0.115
14-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT12-5-0002-AI	In Cap	Total DDX	2.757
14-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-5-0002-AI-Avg	In Cap	2,4´-DDD	<0.34
14-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-5-0002-AI-Avg	In Cap	2,4´-DDE	0.10
14-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-5-0002-AI-Avg	In Cap	2,4´-DDT	<0.045
14-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-5-0002-AI-Avg	In Cap	4,4´-DDD	1.91
14-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-5-0002-AI-Avg	In Cap	4,4´-DDE	0.48
14-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-5-0002-AI-Avg	In Cap	4,4´-DDT	0.08
14-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT12-5-0002-AI-Avg	In Cap	Total DDX	2.56
14-Month	5	5	0-2	Sample	In Cap	QT12-5-0002-Avg	In Cap	2,4´-DDD	<0.341
14-Month	5	5	0-2	Sample	In Cap	QT12-5-0002-Avg	In Cap	2,4´-DDE	0.06
14-Month	5	5	0-2	Sample	In Cap	QT12-5-0002-Avg	In Cap	2,4´-DDT	<0.045
14-Month	5	5	0-2	Sample	In Cap	QT12-5-0002-Avg	In Cap	4,4´-DDD	0.86
14-Month	5	5	0-2	Sample	In Cap	QT12-5-0002-Avg	In Cap	4,4´-DDE	0.34
14-Month	5	5	0-2	Sample	In Cap	QT12-5-0002-Avg	In Cap	4,4´-DDT	0.08
14-Month	5	5	0-2	Sample	In Cap	QT12-5-0002-Avg	In Cap	Total DDX	1.34
14-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0002-BI	In Cap	2,4´-DDD	0.739
14-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0002-BI	In Cap	2,4´-DDE	0.128
14-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0002-BI	In Cap	2,4´-DDT	<0.045
14-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0002-BI	In Cap	4,4´-DDD	3.091
14-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0002-BI	In Cap	4,4´-DDE	0.693
14-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0002-BI	In Cap	4,4´-DDT	<0.088
14-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0002-BI	In Cap	Total DDX	4.651
14-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0002-BI-Avg	In Cap	2,4´-DDD	0.62
14-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0002-BI-Avg	In Cap	2,4´-DDE	0.10
14-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0002-BI-Avg	In Cap	2,4´-DDT	<0.045
14-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0002-BI-Avg	In Cap	4,4´-DDD	2.52
14-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0002-BI-Avg	In Cap	4,4´-DDE	0.50
14-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0002-BI-Avg	In Cap	4,4´-DDT	<0.088
14-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0002-BI-Avg	In Cap	Total DDX	3.73
14-Month	5	5	2-5	Primary	In Cap	QT12-5-0205	In Cap	2,4´-DDD	<0.363
14-Month	5	5	2-5	Primary	In Cap	QT12-5-0205	In Cap	2,4´-DDE	0.127
14-Month	5	5	2-5	Primary	In Cap	QT12-5-0205	In Cap	2,4´-DDT	<0.048
14-Month	5	5	2-5	Primary	In Cap	QT12-5-0205	In Cap	4,4´-DDD	1.468
14-Month	5	5	2-5	Primary	In Cap	QT12-5-0205	In Cap	4,4´-DDE	0.479
14-Month	5	5	2-5	Primary	In Cap	QT12-5-0205	In Cap	4,4´-DDT	<0.095
14-Month	5	5	2-5	Primary	In Cap	QT12-5-0205	In Cap	Total DDX	2.075
14-Month	5	5	2-5	Sample	In Cap	QT12-5-0205-Avg	In Cap	2,4´-DDD	<0.363
14-Month	5	5	2-5	Sample	In Cap	QT12-5-0205-Avg	In Cap	2,4´-DDE	0.08
14-Month	5	5	2-5	Sample	In Cap	QT12-5-0205-Avg	In Cap	2,4´-DDT	<0.048

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
14-Month	5	5	2-5	Sample	In Cap	QT12-5-0205-Avg	In Cap	4,4′-DDD	1.46
14-Month	5	5	2-5	Sample	In Cap	QT12-5-0205-Avg	In Cap	4,4′-DDE	0.50
14-Month	5	5	2-5	Sample	In Cap	QT12-5-0205-Avg	In Cap	4,4′-DDT	0.07
14-Month	5	5	2-5	Sample	In Cap	QT12-5-0205-Avg	In Cap	Total DDX	2.11
14-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0205-BI	In Cap	2,4′-DDD	0.442
14-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0205-BI	In Cap	2,4′-DDE	0.074
14-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0205-BI	In Cap	2,4′-DDT	<0.042
14-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0205-BI	In Cap	4,4′-DDD	1.986
14-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0205-BI	In Cap	4,4′-DDE	0.226
14-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0205-BI	In Cap	4,4′-DDT	<0.083
14-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0205-BI	In Cap	Total DDX	2.729
14-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0205-BI-Avg	In Cap	2,4′-DDD	0.46
14-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0205-BI-Avg	In Cap	2,4′-DDE	0.10
14-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0205-BI-Avg	In Cap	2,4′-DDT	<0.045
14-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0205-BI-Avg	In Cap	4,4′-DDD	2.17
14-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0205-BI-Avg	In Cap	4,4′-DDE	0.22
14-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0205-BI-Avg	In Cap	4,4′-DDT	<0.088
14-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0205-BI-Avg	In Cap	Total DDX	2.95
14-Month	5	5	5-7	Primary	In Cap	QT12-5-0507	In Cap	2,4′-DDD	<0.318
14-Month	5	5	5-7	Primary	In Cap	QT12-5-0507	In Cap	2,4′-DDE	0.084
14-Month	5	5	5-7	Primary	In Cap	QT12-5-0507	In Cap	2,4′-DDT	<0.042
14-Month	5	5	5-7	Primary	In Cap	QT12-5-0507	In Cap	4,4′-DDD	1.144
14-Month	5	5	5-7	Primary	In Cap	QT12-5-0507	In Cap	4,4′-DDE	0.192
14-Month	5	5	5-7	Primary	In Cap	QT12-5-0507	In Cap	4,4′-DDT	<0.083
14-Month	5	5	5-7	Primary	In Cap	QT12-5-0507	In Cap	Total DDX	1.419
14-Month	5	5	5-7	Sample	In Cap	QT12-5-0507-Avg	In Cap	2,4′-DDD	<0.325
14-Month	5	5	5-7	Sample	In Cap	QT12-5-0507-Avg	In Cap	2,4′-DDE	0.15
14-Month	5	5	5-7	Sample	In Cap	QT12-5-0507-Avg	In Cap	2,4′-DDT	<0.043
14-Month	5	5	5-7	Sample	In Cap	QT12-5-0507-Avg	In Cap	4,4′-DDD	1.99
14-Month	5	5	5-7	Sample	In Cap	QT12-5-0507-Avg	In Cap	4,4′-DDE	0.21
14-Month	5	5	5-7	Sample	In Cap	QT12-5-0507-Avg	In Cap	4,4′-DDT	<0.085
14-Month	5	5	5-7	Sample	In Cap	QT12-5-0507-Avg	In Cap	Total DDX	2.36
14-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0507-BI	In Cap	2,4′-DDD	0.511
14-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0507-BI	In Cap	2,4′-DDE	0.192
14-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0507-BI	In Cap	2,4′-DDT	<0.048
14-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0507-BI	In Cap	4,4′-DDD	7.129
14-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0507-BI	In Cap	4,4′-DDE	0.419
14-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0507-BI	In Cap	4,4′-DDT	<0.095
14-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT12-5-0507-BI	In Cap	Total DDX	8.250
14-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0507-BI-Avg	In Cap	2,4′-DDD	0.34
14-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0507-BI-Avg	In Cap	2,4′-DDE	0.15
14-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0507-BI-Avg	In Cap	2,4′-DDT	<0.048
14-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0507-BI-Avg	In Cap	4,4′-DDD	4.35
14-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0507-BI-Avg	In Cap	4,4′-DDE	0.42
14-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0507-BI-Avg	In Cap	4,4′-DDT	<0.095
14-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT12-5-0507-BI-Avg	In Cap	Total DDX	5.25
14-Month	5	5	0-2	Duplicate	In Cap	QT12-5DUP-0002	In Cap	2,4′-DDD	<0.319

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
14-Month	5	5	0-2	Duplicate	In Cap	QT12-5DUP-0002	In Cap	2,4´-DDE	<0.047
14-Month	5	5	0-2	Duplicate	In Cap	QT12-5DUP-0002	In Cap	2,4´-DDT	<0.042
14-Month	5	5	0-2	Duplicate	In Cap	QT12-5DUP-0002	In Cap	4,4´-DDD	0.717
14-Month	5	5	0-2	Duplicate	In Cap	QT12-5DUP-0002	In Cap	4,4´-DDE	0.311
14-Month	5	5	0-2	Duplicate	In Cap	QT12-5DUP-0002	In Cap	4,4´-DDT	<0.083
14-Month	5	5	0-2	Duplicate	In Cap	QT12-5DUP-0002	In Cap	Total DDX	1.029
14-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT12-5DUP-0002-AI	In Cap	2,4´-DDD	<0.34
14-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT12-5DUP-0002-AI	In Cap	2,4´-DDE	<0.05
14-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT12-5DUP-0002-AI	In Cap	2,4´-DDT	<0.045
14-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT12-5DUP-0002-AI	In Cap	4,4´-DDD	1.909
14-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT12-5DUP-0002-AI	In Cap	4,4´-DDE	0.390
14-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT12-5DUP-0002-AI	In Cap	4,4´-DDT	<0.089
14-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT12-5DUP-0002-AI	In Cap	Total DDX	2.299
14-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0002-BI	In Cap	2,4´-DDD	0.496
14-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0002-BI	In Cap	2,4´-DDE	0.072
14-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0002-BI	In Cap	2,4´-DDT	<0.041
14-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0002-BI	In Cap	4,4´-DDD	1.948
14-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0002-BI	In Cap	4,4´-DDE	0.302
14-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0002-BI	In Cap	4,4´-DDT	<0.081
14-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0002-BI	In Cap	Total DDX	2.818
14-Month	5	5	2-5	Duplicate	In Cap	QT12-5DUP-0205	In Cap	2,4´-DDD	<0.325
14-Month	5	5	2-5	Duplicate	In Cap	QT12-5DUP-0205	In Cap	2,4´-DDE	<0.047
14-Month	5	5	2-5	Duplicate	In Cap	QT12-5DUP-0205	In Cap	2,4´-DDT	<0.043
14-Month	5	5	2-5	Duplicate	In Cap	QT12-5DUP-0205	In Cap	4,4´-DDD	1.459
14-Month	5	5	2-5	Duplicate	In Cap	QT12-5DUP-0205	In Cap	4,4´-DDE	0.522
14-Month	5	5	2-5	Duplicate	In Cap	QT12-5DUP-0205	In Cap	4,4´-DDT	0.102
14-Month	5	5	2-5	Duplicate	In Cap	QT12-5DUP-0205	In Cap	Total DDX	2.083
14-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0205-BI	In Cap	2,4´-DDD	0.474
14-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0205-BI	In Cap	2,4´-DDE	0.129
14-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0205-BI	In Cap	2,4´-DDT	<0.045
14-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0205-BI	In Cap	4,4´-DDD	2.357
14-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0205-BI	In Cap	4,4´-DDE	0.214
14-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0205-BI	In Cap	4,4´-DDT	<0.088
14-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0205-BI	In Cap	Total DDX	3.174
14-Month	5	5	5-7	Duplicate	In Cap	QT12-5DUP-0507	In Cap	2,4´-DDD	<0.325
14-Month	5	5	5-7	Duplicate	In Cap	QT12-5DUP-0507	In Cap	2,4´-DDE	0.218
14-Month	5	5	5-7	Duplicate	In Cap	QT12-5DUP-0507	In Cap	2,4´-DDT	<0.043
14-Month	5	5	5-7	Duplicate	In Cap	QT12-5DUP-0507	In Cap	4,4´-DDD	2.845
14-Month	5	5	5-7	Duplicate	In Cap	QT12-5DUP-0507	In Cap	4,4´-DDE	0.233
14-Month	5	5	5-7	Duplicate	In Cap	QT12-5DUP-0507	In Cap	4,4´-DDT	<0.085
14-Month	5	5	5-7	Duplicate	In Cap	QT12-5DUP-0507	In Cap	Total DDX	3.296
14-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0507-BI	In Cap	2,4´-DDD	<0.32
14-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0507-BI	In Cap	2,4´-DDE	0.103
14-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0507-BI	In Cap	2,4´-DDT	<0.042
14-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0507-BI	In Cap	4,4´-DDD	1.579
14-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0507-BI	In Cap	4,4´-DDE	0.413
14-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0507-BI	In Cap	4,4´-DDT	<0.084
14-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT12-5DUP-0507-BI	In Cap	Total DDX	2.094

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
14-Month	6	6	0-10	Sample	Off Cap	QT12-6-GRAB	Off Cap	2,4´-DDD	<0.36
14-Month	6	6	0-10	Sample	Off Cap	QT12-6-GRAB	Off Cap	2,4´-DDE	<0.053
14-Month	6	6	0-10	Sample	Off Cap	QT12-6-GRAB	Off Cap	2,4´-DDT	<0.048
14-Month	6	6	0-10	Sample	Off Cap	QT12-6-GRAB	Off Cap	4,4´-DDD	<0.404
14-Month	6	6	0-10	Sample	Off Cap	QT12-6-GRAB	Off Cap	4,4´-DDE	0.072
14-Month	6	6	0-10	Sample	Off Cap	QT12-6-GRAB	Off Cap	4,4´-DDT	<0.094
14-Month	6	6	0-10	Sample	Off Cap	QT12-6-GRAB	Off Cap	Total DDX	0.072
14-Month	7	7	0-10	Sample	Off Cap	QT12-7-GRAB	Off Cap	2,4´-DDD	<0.344
14-Month	7	7	0-10	Sample	Off Cap	QT12-7-GRAB	Off Cap	2,4´-DDE	0.081
14-Month	7	7	0-10	Sample	Off Cap	QT12-7-GRAB	Off Cap	2,4´-DDT	<0.046
14-Month	7	7	0-10	Sample	Off Cap	QT12-7-GRAB	Off Cap	4,4´-DDD	<0.387
14-Month	7	7	0-10	Sample	Off Cap	QT12-7-GRAB	Off Cap	4,4´-DDE	0.079
14-Month	7	7	0-10	Sample	Off Cap	QT12-7-GRAB	Off Cap	4,4´-DDT	<0.09
14-Month	7	7	0-10	Sample	Off Cap	QT12-7-GRAB	Off Cap	Total DDX	0.160
25-Month	1	1	0-2	Sample	In Cap	QT25-1-0002	In Cap	2,4´-DDD	0.549
25-Month	1	1	0-2	Sample	In Cap	QT25-1-0002	In Cap	2,4´-DDE	0.140
25-Month	1	1	0-2	Sample	In Cap	QT25-1-0002	In Cap	2,4´-DDT	<0.045
25-Month	1	1	0-2	Sample	In Cap	QT25-1-0002	In Cap	4,4´-DDD	2.233
25-Month	1	1	0-2	Sample	In Cap	QT25-1-0002	In Cap	4,4´-DDE	0.325
25-Month	1	1	0-2	Sample	In Cap	QT25-1-0002	In Cap	4,4´-DDT	<0.09
25-Month	1	1	0-2	Sample	In Cap	QT25-1-0002	In Cap	Total DDX	3.247
25-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-1-0002-AI	In Cap	2,4´-DDD	0.661
25-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-1-0002-AI	In Cap	2,4´-DDE	0.158
25-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-1-0002-AI	In Cap	2,4´-DDT	<0.04
25-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-1-0002-AI	In Cap	4,4´-DDD	2.833
25-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-1-0002-AI	In Cap	4,4´-DDE	0.474
25-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-1-0002-AI	In Cap	4,4´-DDT	0.110
25-Month	1	1	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-1-0002-AI	In Cap	Total DDX	4.236
25-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0002-BI	In Cap	2,4´-DDD	0.499
25-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0002-BI	In Cap	2,4´-DDE	0.119
25-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0002-BI	In Cap	2,4´-DDT	<0.041
25-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0002-BI	In Cap	4,4´-DDD	9.393
25-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0002-BI	In Cap	4,4´-DDE	0.331
25-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0002-BI	In Cap	4,4´-DDT	0.343
25-Month	1	1	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0002-BI	In Cap	Total DDX	10.685
25-Month	1	1	2-5	Sample	In Cap	QT25-1-0205	In Cap	2,4´-DDD	0.494
25-Month	1	1	2-5	Sample	In Cap	QT25-1-0205	In Cap	2,4´-DDE	0.108
25-Month	1	1	2-5	Sample	In Cap	QT25-1-0205	In Cap	2,4´-DDT	<0.041
25-Month	1	1	2-5	Sample	In Cap	QT25-1-0205	In Cap	4,4´-DDD	1.801
25-Month	1	1	2-5	Sample	In Cap	QT25-1-0205	In Cap	4,4´-DDE	0.549
25-Month	1	1	2-5	Sample	In Cap	QT25-1-0205	In Cap	4,4´-DDT	0.306
25-Month	1	1	2-5	Sample	In Cap	QT25-1-0205	In Cap	Total DDX	3.258
25-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0205-BI	In Cap	2,4´-DDD	1.740
25-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0205-BI	In Cap	2,4´-DDE	0.207
25-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0205-BI	In Cap	2,4´-DDT	0.103
25-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0205-BI	In Cap	4,4´-DDD	117.221

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
25-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0205-BI	In Cap	4,4´-DDE	0.397
25-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0205-BI	In Cap	4,4´-DDT	1.314
25-Month	1	1	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0205-BI	In Cap	Total DDX	120.982
25-Month	1	1	5-7	Sample	In Cap	QT25-1-0507	In Cap	2,4´-DDD	0.444
25-Month	1	1	5-7	Sample	In Cap	QT25-1-0507	In Cap	2,4´-DDE	0.121
25-Month	1	1	5-7	Sample	In Cap	QT25-1-0507	In Cap	2,4´-DDT	<0.042
25-Month	1	1	5-7	Sample	In Cap	QT25-1-0507	In Cap	4,4´-DDD	3.062
25-Month	1	1	5-7	Sample	In Cap	QT25-1-0507	In Cap	4,4´-DDE	0.373
25-Month	1	1	5-7	Sample	In Cap	QT25-1-0507	In Cap	4,4´-DDT	0.116
25-Month	1	1	5-7	Sample	In Cap	QT25-1-0507	In Cap	Total DDX	4.115
25-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0507-BI	In Cap	2,4´-DDD	0.309
25-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0507-BI	In Cap	2,4´-DDE	0.117
25-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0507-BI	In Cap	2,4´-DDT	<0.041
25-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0507-BI	In Cap	4,4´-DDD	1.178
25-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0507-BI	In Cap	4,4´-DDE	0.195
25-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0507-BI	In Cap	4,4´-DDT	0.226
25-Month	1	1	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-1-0507-BI	In Cap	Total DDX	2.024
25-Month	2	2	0-2	Sample	In Cap	QT25-2-0002	In Cap	2,4´-DDD	<0.339
25-Month	2	2	0-2	Sample	In Cap	QT25-2-0002	In Cap	2,4´-DDE	<0.049
25-Month	2	2	0-2	Sample	In Cap	QT25-2-0002	In Cap	2,4´-DDT	<0.045
25-Month	2	2	0-2	Sample	In Cap	QT25-2-0002	In Cap	4,4´-DDD	1.217
25-Month	2	2	0-2	Sample	In Cap	QT25-2-0002	In Cap	4,4´-DDE	0.184
25-Month	2	2	0-2	Sample	In Cap	QT25-2-0002	In Cap	4,4´-DDT	0.088
25-Month	2	2	0-2	Sample	In Cap	QT25-2-0002	In Cap	Total DDX	1.490
25-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-2-0002-AI	In Cap	2,4´-DDD	0.490
25-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-2-0002-AI	In Cap	2,4´-DDE	0.188
25-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-2-0002-AI	In Cap	2,4´-DDT	<0.041
25-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-2-0002-AI	In Cap	4,4´-DDD	59.885
25-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-2-0002-AI	In Cap	4,4´-DDE	0.184
25-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-2-0002-AI	In Cap	4,4´-DDT	0.544
25-Month	2	2	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-2-0002-AI	In Cap	Total DDX	61.292
25-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0002-BI	In Cap	2,4´-DDD	<0.303
25-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0002-BI	In Cap	2,4´-DDE	0.310
25-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0002-BI	In Cap	2,4´-DDT	<0.04
25-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0002-BI	In Cap	4,4´-DDD	9.516
25-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0002-BI	In Cap	4,4´-DDE	0.286
25-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0002-BI	In Cap	4,4´-DDT	3.307
25-Month	2	2	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0002-BI	In Cap	Total DDX	13.419
25-Month	2	2	2-5	Sample	In Cap	QT25-2-0205	In Cap	2,4´-DDD	<0.315
25-Month	2	2	2-5	Sample	In Cap	QT25-2-0205	In Cap	2,4´-DDE	<0.046
25-Month	2	2	2-5	Sample	In Cap	QT25-2-0205	In Cap	2,4´-DDT	<0.042
25-Month	2	2	2-5	Sample	In Cap	QT25-2-0205	In Cap	4,4´-DDD	1.272
25-Month	2	2	2-5	Sample	In Cap	QT25-2-0205	In Cap	4,4´-DDE	0.298
25-Month	2	2	2-5	Sample	In Cap	QT25-2-0205	In Cap	4,4´-DDT	0.099
25-Month	2	2	2-5	Sample	In Cap	QT25-2-0205	In Cap	Total DDX	1.668
25-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0205-BI	In Cap	2,4´-DDD	<0.309
25-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0205-BI	In Cap	2,4´-DDE	0.271

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
25-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0205-BI	In Cap	2,4´-DDT	<0.041
25-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0205-BI	In Cap	4,4´-DDD	11.779
25-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0205-BI	In Cap	4,4´-DDE	0.655
25-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0205-BI	In Cap	4,4´-DDT	2.081
25-Month	2	2	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0205-BI	In Cap	Total DDX	14.784
25-Month	2	2	5-7	Sample	In Cap	QT25-2-0507	In Cap	2,4´-DDD	<0.34
25-Month	2	2	5-7	Sample	In Cap	QT25-2-0507	In Cap	2,4´-DDE	0.408
25-Month	2	2	5-7	Sample	In Cap	QT25-2-0507	In Cap	2,4´-DDT	<0.045
25-Month	2	2	5-7	Sample	In Cap	QT25-2-0507	In Cap	4,4´-DDD	<0.382
25-Month	2	2	5-7	Sample	In Cap	QT25-2-0507	In Cap	4,4´-DDE	0.332
25-Month	2	2	5-7	Sample	In Cap	QT25-2-0507	In Cap	4,4´-DDT	4.888
25-Month	2	2	5-7	Sample	In Cap	QT25-2-0507	In Cap	Total DDX	5.627
25-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0507-BI	In Cap	2,4´-DDD	<0.326
25-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0507-BI	In Cap	2,4´-DDE	0.200
25-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0507-BI	In Cap	2,4´-DDT	<0.043
25-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0507-BI	In Cap	4,4´-DDD	4.761
25-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0507-BI	In Cap	4,4´-DDE	0.514
25-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0507-BI	In Cap	4,4´-DDT	0.511
25-Month	2	2	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-2-0507-BI	In Cap	Total DDX	5.987
25-Month	3	3	0-2	Sample	In Cap	QT25-3-0002	In Cap	2,4´-DDD	0.624
25-Month	3	3	0-2	Sample	In Cap	QT25-3-0002	In Cap	2,4´-DDE	0.137
25-Month	3	3	0-2	Sample	In Cap	QT25-3-0002	In Cap	2,4´-DDT	<0.041
25-Month	3	3	0-2	Sample	In Cap	QT25-3-0002	In Cap	4,4´-DDD	2.033
25-Month	3	3	0-2	Sample	In Cap	QT25-3-0002	In Cap	4,4´-DDE	0.662
25-Month	3	3	0-2	Sample	In Cap	QT25-3-0002	In Cap	4,4´-DDT	0.082
25-Month	3	3	0-2	Sample	In Cap	QT25-3-0002	In Cap	Total DDX	3.538
25-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-3-0002-AI	In Cap	2,4´-DDD	2.677
25-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-3-0002-AI	In Cap	2,4´-DDE	0.230
25-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-3-0002-AI	In Cap	2,4´-DDT	<0.052
25-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-3-0002-AI	In Cap	4,4´-DDD	4.155
25-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-3-0002-AI	In Cap	4,4´-DDE	0.948
25-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-3-0002-AI	In Cap	4,4´-DDT	0.535
25-Month	3	3	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-3-0002-AI	In Cap	Total DDX	8.545
25-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0002-BI	In Cap	2,4´-DDD	<0.312
25-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0002-BI	In Cap	2,4´-DDE	0.265
25-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0002-BI	In Cap	2,4´-DDT	<0.041
25-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0002-BI	In Cap	4,4´-DDD	105.847
25-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0002-BI	In Cap	4,4´-DDE	0.358
25-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0002-BI	In Cap	4,4´-DDT	1.322
25-Month	3	3	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0002-BI	In Cap	Total DDX	107.792
25-Month	3	3	2-5	Sample	In Cap	QT25-3-0205	In Cap	2,4´-DDD	<0.336
25-Month	3	3	2-5	Sample	In Cap	QT25-3-0205	In Cap	2,4´-DDE	0.304
25-Month	3	3	2-5	Sample	In Cap	QT25-3-0205	In Cap	2,4´-DDT	<0.045
25-Month	3	3	2-5	Sample	In Cap	QT25-3-0205	In Cap	4,4´-DDD	1.885

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
25-Month	3	3	2-5	Sample	In Cap	QT25-3-0205	In Cap	4,4′-DDE	0.655
25-Month	3	3	2-5	Sample	In Cap	QT25-3-0205	In Cap	4,4′-DDT	1.615
25-Month	3	3	2-5	Sample	In Cap	QT25-3-0205	In Cap	Total DDX	4.459
25-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0205-BI	In Cap	2,4′-DDD	<0.305
25-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0205-BI	In Cap	2,4′-DDE	0.392
25-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0205-BI	In Cap	2,4′-DDT	<0.04
25-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0205-BI	In Cap	4,4′-DDD	3.425
25-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0205-BI	In Cap	4,4′-DDE	0.280
25-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0205-BI	In Cap	4,4′-DDT	1.738
25-Month	3	3	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0205-BI	In Cap	Total DDX	5.835
25-Month	3	3	5-7	Sample	In Cap	QT25-3-0507	In Cap	2,4′-DDD	1.057
25-Month	3	3	5-7	Sample	In Cap	QT25-3-0507	In Cap	2,4′-DDE	0.182
25-Month	3	3	5-7	Sample	In Cap	QT25-3-0507	In Cap	2,4′-DDT	0.041
25-Month	3	3	5-7	Sample	In Cap	QT25-3-0507	In Cap	4,4′-DDD	2.933
25-Month	3	3	5-7	Sample	In Cap	QT25-3-0507	In Cap	4,4′-DDE	0.633
25-Month	3	3	5-7	Sample	In Cap	QT25-3-0507	In Cap	4,4′-DDT	<0.081
25-Month	3	3	5-7	Sample	In Cap	QT25-3-0507	In Cap	Total DDX	4.846
25-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0507-BI	In Cap	2,4′-DDD	<0.33
25-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0507-BI	In Cap	2,4′-DDE	0.396
25-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0507-BI	In Cap	2,4′-DDT	<0.044
25-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0507-BI	In Cap	4,4′-DDD	2.521
25-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0507-BI	In Cap	4,4′-DDE	0.360
25-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0507-BI	In Cap	4,4′-DDT	0.932
25-Month	3	3	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-3-0507-BI	In Cap	Total DDX	4.209
25-Month	4	4	0-2	Sample	In Cap	QT25-4-0002	In Cap	2,4′-DDD	0.313
25-Month	4	4	0-2	Sample	In Cap	QT25-4-0002	In Cap	2,4′-DDE	0.064
25-Month	4	4	0-2	Sample	In Cap	QT25-4-0002	In Cap	2,4′-DDT	<0.042
25-Month	4	4	0-2	Sample	In Cap	QT25-4-0002	In Cap	4,4′-DDD	0.844
25-Month	4	4	0-2	Sample	In Cap	QT25-4-0002	In Cap	4,4′-DDE	0.171
25-Month	4	4	0-2	Sample	In Cap	QT25-4-0002	In Cap	4,4′-DDT	<0.082
25-Month	4	4	0-2	Sample	In Cap	QT25-4-0002	In Cap	Total DDX	1.393
25-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-4-0002-AI	In Cap	2,4′-DDD	<0.3
25-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-4-0002-AI	In Cap	2,4′-DDE	<0.044
25-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-4-0002-AI	In Cap	2,4′-DDT	<0.04
25-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-4-0002-AI	In Cap	4,4′-DDD	1.079
25-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-4-0002-AI	In Cap	4,4′-DDE	0.233
25-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-4-0002-AI	In Cap	4,4′-DDT	<0.079
25-Month	4	4	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-4-0002-AI	In Cap	Total DDX	1.312
25-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0002-BI	In Cap	2,4′-DDD	0.306
25-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0002-BI	In Cap	2,4′-DDE	0.054
25-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0002-BI	In Cap	2,4′-DDT	<0.041
25-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0002-BI	In Cap	4,4′-DDD	1.650
25-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0002-BI	In Cap	4,4′-DDE	0.193
25-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0002-BI	In Cap	4,4′-DDT	<0.08

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
25-Month	4	4	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0002-BI	In Cap	Total DDX	2.203
25-Month	4	4	2-5	Sample	In Cap	QT25-4-0205	In Cap	2,4´-DDD	0.313
25-Month	4	4	2-5	Sample	In Cap	QT25-4-0205	In Cap	2,4´-DDE	0.092
25-Month	4	4	2-5	Sample	In Cap	QT25-4-0205	In Cap	2,4´-DDT	<0.042
25-Month	4	4	2-5	Sample	In Cap	QT25-4-0205	In Cap	4,4´-DDD	0.844
25-Month	4	4	2-5	Sample	In Cap	QT25-4-0205	In Cap	4,4´-DDE	0.324
25-Month	4	4	2-5	Sample	In Cap	QT25-4-0205	In Cap	4,4´-DDT	0.197
25-Month	4	4	2-5	Sample	In Cap	QT25-4-0205	In Cap	Total DDX	1.770
25-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0205-BI	In Cap	2,4´-DDD	<0.35
25-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0205-BI	In Cap	2,4´-DDE	0.082
25-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0205-BI	In Cap	2,4´-DDT	<0.046
25-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0205-BI	In Cap	4,4´-DDD	0.708
25-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0205-BI	In Cap	4,4´-DDE	0.201
25-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0205-BI	In Cap	4,4´-DDT	0.128
25-Month	4	4	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0205-BI	In Cap	Total DDX	1.120
25-Month	4	4	5-7	Sample	In Cap	QT25-4-0507	In Cap	2,4´-DDD	<0.358
25-Month	4	4	5-7	Sample	In Cap	QT25-4-0507	In Cap	2,4´-DDE	<0.052
25-Month	4	4	5-7	Sample	In Cap	QT25-4-0507	In Cap	2,4´-DDT	<0.048
25-Month	4	4	5-7	Sample	In Cap	QT25-4-0507	In Cap	4,4´-DDD	2.173
25-Month	4	4	5-7	Sample	In Cap	QT25-4-0507	In Cap	4,4´-DDE	0.617
25-Month	4	4	5-7	Sample	In Cap	QT25-4-0507	In Cap	4,4´-DDT	0.244
25-Month	4	4	5-7	Sample	In Cap	QT25-4-0507	In Cap	Total DDX	3.033
25-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0507-BI	In Cap	2,4´-DDD	<0.305
25-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0507-BI	In Cap	2,4´-DDE	0.116
25-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0507-BI	In Cap	2,4´-DDT	<0.04
25-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0507-BI	In Cap	4,4´-DDD	1.370
25-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0507-BI	In Cap	4,4´-DDE	0.892
25-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0507-BI	In Cap	4,4´-DDT	0.080
25-Month	4	4	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-4-0507-BI	In Cap	Total DDX	2.458
25-Month	5	5	0-2	Primary	In Cap	QT25-5-0002	In Cap	2,4´-DDD	<0.299
25-Month	5	5	0-2	Primary	In Cap	QT25-5-0002	In Cap	2,4´-DDE	<0.044
25-Month	5	5	0-2	Primary	In Cap	QT25-5-0002	In Cap	2,4´-DDT	<0.04
25-Month	5	5	0-2	Primary	In Cap	QT25-5-0002	In Cap	4,4´-DDD	0.672
25-Month	5	5	0-2	Primary	In Cap	QT25-5-0002	In Cap	4,4´-DDE	0.352
25-Month	5	5	0-2	Primary	In Cap	QT25-5-0002	In Cap	4,4´-DDT	0.501
25-Month	5	5	0-2	Primary	In Cap	QT25-5-0002	In Cap	Total DDX	1.525
25-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT25-5-0002-AI	In Cap	2,4´-DDD	<0.313
25-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT25-5-0002-AI	In Cap	2,4´-DDE	<0.046
25-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT25-5-0002-AI	In Cap	2,4´-DDT	<0.042
25-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT25-5-0002-AI	In Cap	4,4´-DDD	0.704
25-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT25-5-0002-AI	In Cap	4,4´-DDE	0.368
25-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT25-5-0002-AI	In Cap	4,4´-DDT	0.115
25-Month	5	5	0-2 AI	Primary	Above Cap-Native Sediment Interface	QT25-5-0002-AI	In Cap	Total DDX	1.187
25-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-5-0002-AI-Avg	In Cap	2,4´-DDD	<0.313

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
25-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-5-0002-AI-Avg	In Cap	2,4´-DDE	<0.046
25-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-5-0002-AI-Avg	In Cap	2,4´-DDT	<0.042
25-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-5-0002-AI-Avg	In Cap	4,4´-DDD	0.44
25-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-5-0002-AI-Avg	In Cap	4,4´-DDE	0.26
25-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-5-0002-AI-Avg	In Cap	4,4´-DDT	0.08
25-Month	5	5	0-2 AI	Sample	Above Cap-Native Sediment Interface	QT25-5-0002-AI-Avg	In Cap	Total DDX	0.77
25-Month	5	5	0-2	Sample	In Cap	QT25-5-0002-Avg	In Cap	2,4´-DDD	<0.319
25-Month	5	5	0-2	Sample	In Cap	QT25-5-0002-Avg	In Cap	2,4´-DDE	<0.047
25-Month	5	5	0-2	Sample	In Cap	QT25-5-0002-Avg	In Cap	2,4´-DDT	<0.042
25-Month	5	5	0-2	Sample	In Cap	QT25-5-0002-Avg	In Cap	4,4´-DDD	0.43
25-Month	5	5	0-2	Sample	In Cap	QT25-5-0002-Avg	In Cap	4,4´-DDE	0.26
25-Month	5	5	0-2	Sample	In Cap	QT25-5-0002-Avg	In Cap	4,4´-DDT	0.27
25-Month	5	5	0-2	Sample	In Cap	QT25-5-0002-Avg	In Cap	Total DDX	0.96
25-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0002-BI	In Cap	2,4´-DDD	<0.321
25-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0002-BI	In Cap	2,4´-DDE	0.122
25-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0002-BI	In Cap	2,4´-DDT	<0.043
25-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0002-BI	In Cap	4,4´-DDD	1.802
25-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0002-BI	In Cap	4,4´-DDE	0.359
25-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0002-BI	In Cap	4,4´-DDT	0.134
25-Month	5	5	0-2 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0002-BI	In Cap	Total DDX	2.417
25-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0002-BI-Avg	In Cap	2,4´-DDD	0.23
25-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0002-BI-Avg	In Cap	2,4´-DDE	0.13
25-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0002-BI-Avg	In Cap	2,4´-DDT	<0.043
25-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0002-BI-Avg	In Cap	4,4´-DDD	0.99
25-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0002-BI-Avg	In Cap	4,4´-DDE	0.36
25-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0002-BI-Avg	In Cap	4,4´-DDT	0.15
25-Month	5	5	0-2 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0002-BI-Avg	In Cap	Total DDX	1.86
25-Month	5	5	2-5	Primary	In Cap	QT25-5-0205	In Cap	2,4´-DDD	<0.299
25-Month	5	5	2-5	Primary	In Cap	QT25-5-0205	In Cap	2,4´-DDE	<0.044
25-Month	5	5	2-5	Primary	In Cap	QT25-5-0205	In Cap	2,4´-DDT	<0.04
25-Month	5	5	2-5	Primary	In Cap	QT25-5-0205	In Cap	4,4´-DDD	0.807
25-Month	5	5	2-5	Primary	In Cap	QT25-5-0205	In Cap	4,4´-DDE	0.369
25-Month	5	5	2-5	Primary	In Cap	QT25-5-0205	In Cap	4,4´-DDT	0.094
25-Month	5	5	2-5	Primary	In Cap	QT25-5-0205	In Cap	Total DDX	1.269
25-Month	5	5	2-5	Sample	In Cap	QT25-5-0205-Avg	In Cap	2,4´-DDD	<0.299
25-Month	5	5	2-5	Sample	In Cap	QT25-5-0205-Avg	In Cap	2,4´-DDE	<0.044
25-Month	5	5	2-5	Sample	In Cap	QT25-5-0205-Avg	In Cap	2,4´-DDT	<0.04
25-Month	5	5	2-5	Sample	In Cap	QT25-5-0205-Avg	In Cap	4,4´-DDD	0.77
25-Month	5	5	2-5	Sample	In Cap	QT25-5-0205-Avg	In Cap	4,4´-DDE	0.36
25-Month	5	5	2-5	Sample	In Cap	QT25-5-0205-Avg	In Cap	4,4´-DDT	0.10
25-Month	5	5	2-5	Sample	In Cap	QT25-5-0205-Avg	In Cap	Total DDX	1.23
25-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0205-BI	In Cap	2,4´-DDD	<0.31
25-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0205-BI	In Cap	2,4´-DDE	0.181
25-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0205-BI	In Cap	2,4´-DDT	<0.041

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
25-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0205-BI	In Cap	4,4′-DDD	3.547
25-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0205-BI	In Cap	4,4′-DDE	0.391
25-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0205-BI	In Cap	4,4′-DDT	0.162
25-Month	5	5	2-5 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0205-BI	In Cap	Total DDX	4.281
25-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0205-BI-Avg	In Cap	2,4′-DDD	<0.341
25-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0205-BI-Avg	In Cap	2,4′-DDE	0.16
25-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0205-BI-Avg	In Cap	2,4′-DDT	<0.045
25-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0205-BI-Avg	In Cap	4,4′-DDD	3.46
25-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0205-BI-Avg	In Cap	4,4′-DDE	0.30
25-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0205-BI-Avg	In Cap	4,4′-DDT	0.16
25-Month	5	5	2-5 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0205-BI-Avg	In Cap	Total DDX	4.09
25-Month	5	5	5-7	Primary	In Cap	QT25-5-0507	In Cap	2,4′-DDD	<0.321
25-Month	5	5	5-7	Primary	In Cap	QT25-5-0507	In Cap	2,4′-DDE	<0.047
25-Month	5	5	5-7	Primary	In Cap	QT25-5-0507	In Cap	2,4′-DDT	1.463
25-Month	5	5	5-7	Primary	In Cap	QT25-5-0507	In Cap	4,4′-DDD	0.937
25-Month	5	5	5-7	Primary	In Cap	QT25-5-0507	In Cap	4,4′-DDE	0.267
25-Month	5	5	5-7	Primary	In Cap	QT25-5-0507	In Cap	4,4′-DDT	2.734
25-Month	5	5	5-7	Primary	In Cap	QT25-5-0507	In Cap	Total DDX	5.402
25-Month	5	5	5-7	Sample	In Cap	QT25-5-0507-Avg	In Cap	2,4′-DDD	<0.321
25-Month	5	5	5-7	Sample	In Cap	QT25-5-0507-Avg	In Cap	2,4′-DDE	<0.047
25-Month	5	5	5-7	Sample	In Cap	QT25-5-0507-Avg	In Cap	2,4′-DDT	0.74
25-Month	5	5	5-7	Sample	In Cap	QT25-5-0507-Avg	In Cap	4,4′-DDD	1.03
25-Month	5	5	5-7	Sample	In Cap	QT25-5-0507-Avg	In Cap	4,4′-DDE	0.30
25-Month	5	5	5-7	Sample	In Cap	QT25-5-0507-Avg	In Cap	4,4′-DDT	1.57
25-Month	5	5	5-7	Sample	In Cap	QT25-5-0507-Avg	In Cap	Total DDX	3.65
25-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0507-BI	In Cap	2,4′-DDD	<0.321
25-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0507-BI	In Cap	2,4′-DDE	0.188
25-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0507-BI	In Cap	2,4′-DDT	<0.043
25-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0507-BI	In Cap	4,4′-DDD	4.684
25-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0507-BI	In Cap	4,4′-DDE	0.193
25-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0507-BI	In Cap	4,4′-DDT	0.134
25-Month	5	5	5-7 BI	Primary	Below Cap-Native Sediment Interface	QT25-5-0507-BI	In Cap	Total DDX	5.200
25-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0507-BI-Avg	In Cap	2,4′-DDD	<0.321
25-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0507-BI-Avg	In Cap	2,4′-DDE	0.19
25-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0507-BI-Avg	In Cap	2,4′-DDT	<0.043
25-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0507-BI-Avg	In Cap	4,4′-DDD	4.88
25-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0507-BI-Avg	In Cap	4,4′-DDE	0.20
25-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0507-BI-Avg	In Cap	4,4′-DDT	0.17
25-Month	5	5	5-7 BI	Sample	Below Cap-Native Sediment Interface	QT25-5-0507-BI-Avg	In Cap	Total DDX	5.43
25-Month	5	5	0-2	Duplicate	In Cap	QT25-5DUP-0002	In Cap	2,4′-DDD	<0.319
25-Month	5	5	0-2	Duplicate	In Cap	QT25-5DUP-0002	In Cap	2,4′-DDE	<0.047
25-Month	5	5	0-2	Duplicate	In Cap	QT25-5DUP-0002	In Cap	2,4′-DDT	<0.042
25-Month	5	5	0-2	Duplicate	In Cap	QT25-5DUP-0002	In Cap	4,4′-DDD	<0.359
25-Month	5	5	0-2	Duplicate	In Cap	QT25-5DUP-0002	In Cap	4,4′-DDE	0.174

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
25-Month	5	5	0-2	Duplicate	In Cap	QT25-5DUP-0002	In Cap	4,4′-DDT	<0.083
25-Month	5	5	0-2	Duplicate	In Cap	QT25-5DUP-0002	In Cap	Total DDX	0.174
25-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT25-5DUP-0002-AI	In Cap	2,4′-DDD	<0.302
25-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT25-5DUP-0002-AI	In Cap	2,4′-DDE	<0.044
25-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT25-5DUP-0002-AI	In Cap	2,4′-DDT	<0.04
25-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT25-5DUP-0002-AI	In Cap	4,4′-DDD	<0.339
25-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT25-5DUP-0002-AI	In Cap	4,4′-DDE	0.147
25-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT25-5DUP-0002-AI	In Cap	4,4′-DDT	<0.079
25-Month	5	5	0-2 AI	Duplicate	Above Cap-Native Sediment Interface	QT25-5DUP-0002-AI	In Cap	Total DDX	0.147
25-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0002-BI	In Cap	2,4′-DDD	0.304
25-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0002-BI	In Cap	2,4′-DDE	0.133
25-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0002-BI	In Cap	2,4′-DDT	<0.04
25-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0002-BI	In Cap	4,4′-DDD	<0.341
25-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0002-BI	In Cap	4,4′-DDE	0.366
25-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0002-BI	In Cap	4,4′-DDT	0.175
25-Month	5	5	0-2 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0002-BI	In Cap	Total DDX	0.978
25-Month	5	5	2-5	Duplicate	In Cap	QT25-5DUP-0205	In Cap	2,4′-DDD	<0.299
25-Month	5	5	2-5	Duplicate	In Cap	QT25-5DUP-0205	In Cap	2,4′-DDE	<0.044
25-Month	5	5	2-5	Duplicate	In Cap	QT25-5DUP-0205	In Cap	2,4′-DDT	<0.04
25-Month	5	5	2-5	Duplicate	In Cap	QT25-5DUP-0205	In Cap	4,4′-DDD	0.739
25-Month	5	5	2-5	Duplicate	In Cap	QT25-5DUP-0205	In Cap	4,4′-DDE	0.343
25-Month	5	5	2-5	Duplicate	In Cap	QT25-5DUP-0205	In Cap	4,4′-DDT	0.110
25-Month	5	5	2-5	Duplicate	In Cap	QT25-5DUP-0205	In Cap	Total DDX	1.192
25-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0205-BI	In Cap	2,4′-DDD	<0.341
25-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0205-BI	In Cap	2,4′-DDE	0.140
25-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0205-BI	In Cap	2,4′-DDT	<0.045
25-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0205-BI	In Cap	4,4′-DDD	3.374
25-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0205-BI	In Cap	4,4′-DDE	0.215
25-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0205-BI	In Cap	4,4′-DDT	0.161
25-Month	5	5	2-5 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0205-BI	In Cap	Total DDX	3.890
25-Month	5	5	5-7	Duplicate	In Cap	QT25-5DUP-0507	In Cap	2,4′-DDD	<0.313
25-Month	5	5	5-7	Duplicate	In Cap	QT25-5DUP-0507	In Cap	2,4′-DDE	<0.046
25-Month	5	5	5-7	Duplicate	In Cap	QT25-5DUP-0507	In Cap	2,4′-DDT	<0.042
25-Month	5	5	5-7	Duplicate	In Cap	QT25-5DUP-0507	In Cap	4,4′-DDD	1.126
25-Month	5	5	5-7	Duplicate	In Cap	QT25-5DUP-0507	In Cap	4,4′-DDE	0.342
25-Month	5	5	5-7	Duplicate	In Cap	QT25-5DUP-0507	In Cap	4,4′-DDT	0.410
25-Month	5	5	5-7	Duplicate	In Cap	QT25-5DUP-0507	In Cap	Total DDX	1.877
25-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0507-BI	In Cap	2,4′-DDD	<0.297
25-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0507-BI	In Cap	2,4′-DDE	0.182
25-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0507-BI	In Cap	2,4′-DDT	<0.039
25-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0507-BI	In Cap	4,4′-DDD	5.070
25-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0507-BI	In Cap	4,4′-DDE	0.213
25-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0507-BI	In Cap	4,4′-DDT	0.202
25-Month	5	5	5-7 BI	Duplicate	Below Cap-Native Sediment Interface	QT25-5DUP-0507-BI	In Cap	Total DDX	5.667

Table 1. Compilation of *ex situ* Porewater DDX Results for all Monitoring Events

SSC Pacific

Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	Sample Interval[3]	Sample Type	Sample Interface	Sample ID[4]	Within Cap Footprint?	Analyte[5]	Result (ng/L; ND=<DL)
25-Month	6	6	0-10	Sample	Off Cap	QT25-6-GRAB	Off Cap	2,4´-DDD	<0.302
25-Month	6	6	0-10	Sample	Off Cap	QT25-6-GRAB	Off Cap	2,4´-DDE	<0.044
25-Month	6	6	0-10	Sample	Off Cap	QT25-6-GRAB	Off Cap	2,4´-DDT	<0.04
25-Month	6	6	0-10	Sample	Off Cap	QT25-6-GRAB	Off Cap	4,4´-DDD	<0.339
25-Month	6	6	0-10	Sample	Off Cap	QT25-6-GRAB	Off Cap	4,4´-DDE	0.069
25-Month	6	6	0-10	Sample	Off Cap	QT25-6-GRAB	Off Cap	4,4´-DDT	0.079
25-Month	6	6	0-10	Sample	Off Cap	QT25-6-GRAB	Off Cap	Total DDX	0.148
25-Month	7	7	0-10	Sample	Off Cap	QT25-7-GRAB	Off Cap	2,4´-DDD	<0.327
25-Month	7	7	0-10	Sample	Off Cap	QT25-7-GRAB	Off Cap	2,4´-DDE	<0.048
25-Month	7	7	0-10	Sample	Off Cap	QT25-7-GRAB	Off Cap	2,4´-DDT	<0.043
25-Month	7	7	0-10	Sample	Off Cap	QT25-7-GRAB	Off Cap	4,4´-DDD	<0.368
25-Month	7	7	0-10	Sample	Off Cap	QT25-7-GRAB	Off Cap	4,4´-DDE	<0.047
25-Month	7	7	0-10	Sample	Off Cap	QT25-7-GRAB	Off Cap	4,4´-DDT	<0.086
25-Month	7	7	0-10	Sample	Off Cap	QT25-7-GRAB	Off Cap	Total DDX	<0.368

Notes:

1. Sample collections dates: Baseline 2 (May, 2009), 2-Month (September, 2014), 14-Month (September, 2015) and 25-Month (August, 2016)
2. Comparison Station IDs align Baseline 2 IDs with subsequent events for analysis purposes.
3. Sample Interval measured relative to sediment water interface or cap-native sediment interface, Above Interface (AI) and Below Interface (BI), as stated in Sample Interface Column.
4. Sample ID's with -Avg suffix represented an average of primary and duplicate samples.
5. Total DDX represents the sum of detected congeners. If all congeners are ND, total DDX is represented as < max DL.

AI: above cap-native sediment interface
BI: below cap-native sediment interface
cm: centimeter(s)
DL: detection limit
ND: not detected
ng/L: nanogram(s) per liter

Table 2: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during Baseline 2 Event

SSC Pacific

Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Fiber Length (cm)	Analyte	Reported Mass on SPME (ng)	Analytical Qualifier	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber (µL)[2]	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx] (ng/L)[3]
F14	B2-CAP01-0002	14	30.0	2,4´-DDE	0.08	U	516,595	2.073	< 38,591	< 0.07
F14	B2-CAP01-0002	14	30.0	4,4´-DDE	1.19		526,667	2.073	574,047	1.09
F14	B2-CAP01-0002	14	30.0	2,4´-DDD	0.18	U	75,521	2.073	< 86,831	< 1.15
F14	B2-CAP01-0002	14	30.0	4,4´-DDD	0.47		67,258	2.073	226,725	3.37
F14	B2-CAP01-0002	14	30.0	2,4´-DDT	0.23	U	569,687	2.073	< 110,950	< 0.19
F14	B2-CAP01-0002	14	30.0	4,4´-DDT	0.14	U	288,937	2.073	< 67,535	< 0.23
F15	B2-CAP01-0205	14	27.9	2,4´-DDE	0.08	U	516,595	1.928	< 41,496	< 0.08
F15	B2-CAP01-0205	14	27.9	4,4´-DDE	0.33		526,667	1.928	171,172	0.33
F15	B2-CAP01-0205	14	27.9	2,4´-DDD	0.18	U	75,521	1.928	< 93,366	< 1.24
F15	B2-CAP01-0205	14	27.9	4,4´-DDD	0.24		67,258	1.928	124,488	1.85
F15	B2-CAP01-0205	14	27.9	2,4´-DDT	0.23	U	569,687	1.928	< 119,301	< 0.21
F15	B2-CAP01-0205	14	27.9	4,4´-DDT	0.14	U	288,937	1.928	< 72,618	< 0.25
F16	B2-CAP01-0507	14	30.0	2,4´-DDE	0.08	U	516,595	2.073	< 38,591	< 0.07
F16	B2-CAP01-0507	14	30.0	4,4´-DDE	1.06		526,667	2.073	511,336	0.97
F16	B2-CAP01-0507	14	30.0	2,4´-DDD	0.02	J	75,521	2.073	9,648	0.13
F16	B2-CAP01-0507	14	30.0	4,4´-DDD	0.17	J	67,258	2.073	82,007	1.22
F16	B2-CAP01-0507	14	30.0	2,4´-DDT	0.23	U	569,687	2.073	< 110,950	< 0.19
F16	B2-CAP01-0507	14	30.0	4,4´-DDT	0.14	U	288,937	2.073	< 67,535	< 0.23
F17	B2-CAP02-0002	14	30.0	2,4´-DDE	0.08	U	516,595	2.073	< 38,591	< 0.07
F17	B2-CAP02-0002	14	30.0	4,4´-DDE	0.74		526,667	2.073	356,971	0.68
F17	B2-CAP02-0002	14	30.0	2,4´-DDD	0.11	J	75,521	2.073	53,063	0.70
F17	B2-CAP02-0002	14	30.0	4,4´-DDD	0.84		67,258	2.073	405,210	6.02
F17	B2-CAP02-0002	14	30.0	2,4´-DDT	0.23	U	569,687	2.073	< 110,950	< 0.19
F17	B2-CAP02-0002	14	30.0	4,4´-DDT	0.14	U	288,937	2.073	< 67,535	< 0.23
F18	B2-CAP02-0205	14	30.0	2,4´-DDE	0.08	U	516,595	2.073	< 38,591	< 0.07
F18	B2-CAP02-0205	14	30.0	4,4´-DDE	0.31		526,667	2.073	149,542	0.28
F18	B2-CAP02-0205	14	30.0	2,4´-DDD	0.20	J	75,521	2.073	96,479	1.28
F18	B2-CAP02-0205	14	30.0	4,4´-DDD	0.88		67,258	2.073	424,506	6.31
F18	B2-CAP02-0205	14	30.0	2,4´-DDT	0.23	U	569,687	2.073	< 110,950	< 0.19
F18	B2-CAP02-0205	14	30.0	4,4´-DDT	0.14	U	288,937	2.073	< 67,535	< 0.23
F19	B2-CAP02-0507	14	27	2,4´-DDE	0.08	U	516,595	1.866	< 42,879	< 0.08

Table 2: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during Baseline 2 Event

SSC Pacific

Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Fiber Length (cm)	Analyte	Reported Mass on SPME (ng)	Analytical Qualifier	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber (µL)[2]	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx] (ng/L)[3]
F19	B2-CAP02-0507	14	27	4,4´-DDE	0.56		526,667	1.866	300,155	0.57
F19	B2-CAP02-0507	14	27	2,4´-DDD	0.33		75,521	1.866	176,877	2.34
F19	B2-CAP02-0507	14	27	4,4´-DDD	0.48		67,258	1.866	257,276	3.83
F19	B2-CAP02-0507	14	27	2,4´-DDT	0.23	U	569,687	1.866	< 123,278	< 0.22
F19	B2-CAP02-0507	14	27	4,4´-DDT	0.14	U	288,937	1.866	< 75,039	< 0.26
F20	B2-CAP03-0002	14	30.0	2,4´-DDE	0.08	U	516,595	2.073	< 38,591	< 0.07
F20	B2-CAP03-0002	14	30.0	4,4´-DDE	1.09		526,667	2.073	525,808	1.00
F20	B2-CAP03-0002	14	30.0	2,4´-DDD	0.17	J	75,521	2.073	82,007	1.09
F20	B2-CAP03-0002	14	30.0	4,4´-DDD	0.48		67,258	2.073	231,548	3.44
F20	B2-CAP03-0002	14	30.0	2,4´-DDT	0.23	U	569,687	2.073	< 110,950	< 0.19
F20	B2-CAP03-0002	14	30.0	4,4´-DDT	0.14	U	288,937	2.073	< 67,535	< 0.23
F21	B2-CAP03-0205	14	30.0	2,4´-DDE	0.08	U	516,595	2.073	< 38,591	< 0.07
F21	B2-CAP03-0205	14	30.0	4,4´-DDE	1.31		526,667	2.073	631,934	1.20
F21	B2-CAP03-0205	14	30.0	2,4´-DDD	0.31		75,521	2.073	149,542	1.98
F21	B2-CAP03-0205	14	30.0	4,4´-DDD	1.87		67,258	2.073	902,074	13.41
F21	B2-CAP03-0205	14	30.0	2,4´-DDT	0.23	U	569,687	2.073	< 110,950	< 0.19
F21	B2-CAP03-0205	14	30.0	4,4´-DDT	0.14	U	288,937	2.073	< 67,535	< 0.23
F22	B2-CAP03-0507	14	30.0	2,4´-DDE	0.08	U	516,595	2.073	< 38,591	< 0.07
F22	B2-CAP03-0507	14	30.0	4,4´-DDE	1.02		526,667	2.073	492,041	0.93
F22	B2-CAP03-0507	14	30.0	2,4´-DDD	0.15	J	75,521	2.073	72,359	0.96
F22	B2-CAP03-0507	14	30.0	4,4´-DDD	1.24		67,258	2.073	598,167	8.89
F22	B2-CAP03-0507	14	30.0	2,4´-DDT	0.23	U	569,687	2.073	< 110,950	< 0.19
F22	B2-CAP03-0507	14	30.0	4,4´-DDT	0.14	U	288,937	2.073	< 67,535	< 0.23
F23	B2-CAPX-0002	14	30.0	2,4´-DDE	0.08	U	516,595	2.073	< 38,591	< 0.07
F23	B2-CAPX-0002	14	30.0	4,4´-DDE	0.69		526,667	2.073	332,851	0.63
F23	B2-CAPX-0002	14	30.0	2,4´-DDD	0.18	U	75,521	2.073	< 86,831	< 1.15
F23	B2-CAPX-0002	14	30.0	4,4´-DDD	0.13	J	67,258	2.073	62,711	0.93
F23	B2-CAPX-0002	14	30.0	2,4´-DDT	0.23	U	569,687	2.073	< 110,950	< 0.19
F23	B2-CAPX-0002	14	30.0	4,4´-DDT	0.14	U	288,937	2.073	< 67,535	< 0.23
F24	B2-CAPX-0205	14	30.0	2,4´-DDE	0.08	U	516,595	2.073	< 38,591	< 0.07
F24	B2-CAPX-0205	14	30.0	4,4´-DDE	1.48		526,667	2.073	713,941	1.36

Table 2: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during Baseline 2 Event

SSC Pacific

Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Fiber Length (cm)	Analyte	Reported Mass on SPME (ng)	Analytical Qualifier	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber (µL)[2]	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx] (ng/L)[3]
F24	B2-CAPX-0205	14	30.0	2,4´-DDD	0.04	J	75,521	2.073	19,296	0.26
F24	B2-CAPX-0205	14	30.0	4,4´-DDD	0.12	J	67,258	2.073	57,887	0.86
F24	B2-CAPX-0205	14	30.0	2,4´-DDT	0.23	U	569,687	2.073	< 110,950	< 0.19
F24	B2-CAPX-0205	14	30.0	4,4´-DDT	0.14	U	288,937	2.073	< 67,535	< 0.23
F25	B2-CAPX-0507	14	30.0	2,4´-DDE	0.08	U	516,595	2.073	< 38,591	< 0.07
F25	B2-CAPX-0507	14	30.0	4,4´-DDE	0.47		526,667	2.073	226,725	0.43
F25	B2-CAPX-0507	14	30.0	2,4´-DDD	0.18	U	75,521	2.073	< 86,831	< 1.15
F25	B2-CAPX-0507	14	30.0	4,4´-DDD	0.38		67,258	2.073	183,309	2.73
F25	B2-CAPX-0507	14	30.0	2,4´-DDT	0.23	U	569,687	2.073	< 110,950	< 0.19
F25	B2-CAPX-0507	14	30.0	4,4´-DDT	0.14	U	288,937	2.073	< 67,535	< 0.23
F26	B2-CAP1-GRAB	14	30.0	2,4´-DDE	0.08	U	516,595	2.073	< 38,591	< 0.07
F26	B2-CAP1-GRAB	14	30.0	4,4´-DDE	0.11	J	526,667	2.073	53,063	0.10
F26	B2-CAP1-GRAB	14	30.0	2,4´-DDD	0.18	U	75,521	2.073	< 86,831	< 1.15
F26	B2-CAP1-GRAB	14	30.0	4,4´-DDD	0.71		67,258	2.073	342,499	5.09
F26	B2-CAP1-GRAB	14	30.0	2,4´-DDT	0.23	U	569,687	2.073	< 110,950	< 0.19
F26	B2-CAP1-GRAB	14	30.0	4,4´-DDT	1.27		288,937	2.073	612,639	2.12
F27	B2-CAP2-GRAB	14	29.5	2,4´-DDE	0.08	U	516,595	2.038	< 39,246	< 0.08
F27	B2-CAP2-GRAB	14	29.5	4,4´-DDE	1.26		526,667	2.038	618,117	1.17
F27	B2-CAP2-GRAB	14	29.5	2,4´-DDD	0.14	J	75,521	2.038	68,680	0.91
F27	B2-CAP2-GRAB	14	29.5	4,4´-DDD	0.20	J	67,258	2.038	98,114	1.46
F27	B2-CAP2-GRAB	14	29.5	2,4´-DDT	0.23	U	569,687	2.038	< 112,831	< 0.20
F27	B2-CAP2-GRAB	14	29.5	4,4´-DDT	0.14	U	288,937	2.038	< 68,680	< 0.24
F28	B2-CAP3-GRAB	14	30.0	2,4´-DDE	0.08	U	516,595	2.073	< 38,591	< 0.07
F28	B2-CAP3-GRAB	14	30.0	4,4´-DDE	0.10	J	526,667	2.073	48,239	0.09
F28	B2-CAP3-GRAB	14	30.0	2,4´-DDD	0.06	J	75,521	2.073	28,944	0.38
F28	B2-CAP3-GRAB	14	30.0	4,4´-DDD	0.42		67,258	2.073	202,605	3.01
F28	B2-CAP3-GRAB	14	30.0	2,4´-DDT	0.23	U	569,687	2.073	< 110,950	< 0.19
F28	B2-CAP3-GRAB	14	30.0	4,4´-DDT	0.14	U	288,937	2.073	< 67,535	< 0.23
F29	B2-OFF1-GRAB	14	29	2,4´-DDE	0.08	U	516,595	2.004	< 39,922	< 0.08
F29	B2-OFF1-GRAB	14	29	4,4´-DDE	0.09	U	526,667	2.004	< 44,912	< 0.09
F29	B2-OFF1-GRAB	14	29	2,4´-DDD	0.18	U	75,521	2.004	< 89,825	< 1.19

Table 2: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during Baseline 2 Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Fiber Length (cm)	Analyte	Reported Mass on SPME (ng)	Analytical Qualifier	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber (µL)[2]	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx] (ng/L)[3]
F29	B2-OFF1-GRAB	14	29	4,4´-DDD	0.20	U	67,258	2.004	< 99,805	< 1.48
F29	B2-OFF1-GRAB	14	29	2,4´-DDT	0.23	U	569,687	2.004	< 114,776	< 0.20
F29	B2-OFF1-GRAB	14	29	4,4´-DDT	0.14	U	288,937	2.004	< 69,864	< 0.24
F30	B2-OFF2-GRAB	14	30.0	2,4´-DDE	0.08	U	516,595	2.073	< 38,591	< 0.07
F30	B2-OFF2-GRAB	14	30.0	4,4´-DDE	0.09	U	526,667	2.073	< 43,415	< 0.08
F30	B2-OFF2-GRAB	14	30.0	2,4´-DDD	0.18	U	75,521	2.073	< 86,831	< 1.15
F30	B2-OFF2-GRAB	14	30.0	4,4´-DDD	0.20	U	67,258	2.073	< 96,479	< 1.43
F30	B2-OFF2-GRAB	14	30.0	2,4´-DDT	0.23	U	569,687	2.073	< 110,950	< 0.19
F30	B2-OFF2-GRAB	14	30.0	4,4´-DDT	0.14	U	288,937	2.073	< 67,535	< 0.23

Footnotes:
1. Fiber:Water Partition Coefficient calculated as Log Kfs = LogKow - 0.91 (Mayer et al. 2000). Log Kow referenced from ATDSR (2002) Toxicological Profile for DDT, DDE and DDD.
2. 0.069 µL polydimethylsiloxane (PDMS) per cm of this type of SPME fiber.
3. Concentration of exposure solution = Concentration in fiber ÷ Kfs. If not detected, reported as < detection limit.

Abbreviations:
cm: centimenter(s)
d: day(s)
J: Analyte detected but below the Reporting Limit; therefore, result is an estimated concentration.
Kfs: Fiber:Water Partition Coefficient
L: liter(s)
PDMS: polydimethylsiloxane
ng: nanogram(s)
SPME: solid phase microextraction
U: Analyte not detected

Table 3: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length (cm)[1]	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber[3] (µL)	[PDMS DDx] (ng/L)		[Freely Dissolved Pore Water DDx] (ng/L)[4]	
F31	QT2-1-0002	14	4,4'-DDE [2C]	ND	0.06	0.023	27.94	526,667	1.930	<	31,080	<	0.06
F31	QT2-1-0002	14	4,4´-DDT	ND	0.06	0.023	27.94	288,937	1.930	<	31,080	<	0.11
F31	QT2-1-0002	14	2,4´-DDD	ND	0.06	0.023	27.94	75,521	1.930	<	31,080	<	0.41
F31	QT2-1-0002	14	2,4´-DDE	ND	0.06	0.023	27.94	516,595	1.930	<	31,080	<	0.06
F31	QT2-1-0002	14	2,4´-DDT	ND	0.06	0.023	27.94	569,687	1.930	<	31,080	<	0.05
F31	QT2-1-0002	14	4,4´-DDD	2	0.06	0.023	27.94	67,258	1.930		1,036,006		15.40
F32	QT2-1-0205	14	4,4'-DDE [2C]	0.25	0.06	0.024	29.26	526,667	2.022		123,663		0.23
F32	QT2-1-0205	14	4,4´-DDT	0.07	0.06	0.024	29.26	288,937	2.022		34,626		0.12
F32	QT2-1-0205	14	2,4´-DDD	ND	0.06	0.024	29.26	75,521	2.022	<	29,679	<	0.39
F32	QT2-1-0205	14	2,4´-DDE	0.09	0.06	0.024	29.26	516,595	2.022		44,519		0.09
F32	QT2-1-0205	14	2,4´-DDT	ND	0.06	0.024	29.26	569,687	2.022	<	29,679	<	0.05
F32	QT2-1-0205	14	4,4´-DDD	0.22	0.06	0.024	29.26	67,258	2.022		108,823		1.62
F33	QT2-1-0507	14	4,4'-DDE [2C]	ND	0.06	0.025	30.34	526,667	2.096	<	28,623	<	0.05
F33	QT2-1-0507	14	4,4´-DDT	ND	0.06	0.025	30.34	288,937	2.096	<	28,623	<	0.10
F33	QT2-1-0507	14	2,4´-DDD	ND	0.06	0.025	30.34	75,521	2.096	<	28,623	<	0.38
F33	QT2-1-0507	14	2,4´-DDE	ND	0.06	0.025	30.34	516,595	2.096	<	28,623	<	0.06
F33	QT2-1-0507	14	2,4´-DDT	ND	0.06	0.025	30.34	569,687	2.096	<	28,623	<	0.05
F33	QT2-1-0507	14	4,4´-DDD	0.1	0.06	0.025	30.34	67,258	2.096		47,705		0.71
F34	QT2-1-0002-AI	14	4,4'-DDE [2C]	0.21	0.06	0.125	149.28	526,667	10.315		20,358		0.04
F34	QT2-1-0002-AI	14	4,4´-DDT	1.59	0.06	0.125	149.28	288,937	10.315		154,140		0.53
F34	QT2-1-0002-AI	14	2,4´-DDD	ND	0.06	0.125	149.28	75,521	10.315	<	5,817	<	0.08
F34	QT2-1-0002-AI	14	2,4´-DDE	ND	0.06	0.125	149.28	516,595	10.315	<	5,817	<	0.01
F34	QT2-1-0002-AI	14	2,4´-DDT	ND	0.06	0.125	149.28	569,687	10.315	<	5,817	<	0.01
F34	QT2-1-0002-AI	14	4,4´-DDD	0.45	0.06	0.125	149.28	67,258	10.315		43,625		0.65
F35	QT2-1-0002-BI	14	4,4'-DDE [2C]	ND	0.06	0.024	29.26	526,667	2.022	<	29,679	<	0.06
F35	QT2-1-0002-BI	14	4,4´-DDT	ND	0.06	0.024	29.26	288,937	2.022	<	29,679	<	0.10
F35	QT2-1-0002-BI	14	2,4´-DDD	ND	0.06	0.024	29.26	75,521	2.022	<	29,679	<	0.39
F35	QT2-1-0002-BI	14	2,4´-DDE	ND	0.06	0.024	29.26	516,595	2.022	<	29,679	<	0.06
F35	QT2-1-0002-BI	14	2,4´-DDT	ND	0.06	0.024	29.26	569,687	2.022	<	29,679	<	0.05
F35	QT2-1-0002-BI	14	4,4´-DDD	0.08	0.06	0.024	29.26	67,258	2.022		39,572		0.59
F36	QT2-1-0205-BI	14	4,4'-DDE [2C]	ND	0.06	0.024	29.14	526,667	2.013	<	29,801	<	0.06
F36	QT2-1-0205-BI	14	4,4´-DDT	ND	0.06	0.024	29.14	288,937	2.013	<	29,801	<	0.10
F36	QT2-1-0205-BI	14	2,4´-DDD	ND	0.06	0.024	29.14	75,521	2.013	<	29,801	<	0.39
F36	QT2-1-0205-BI	14	2,4´-DDE	ND	0.06	0.024	29.14	516,595	2.013	<	29,801	<	0.06
F36	QT2-1-0205-BI	14	2,4´-DDT	ND	0.06	0.024	29.14	569,687	2.013	<	29,801	<	0.05
F36	QT2-1-0205-BI	14	4,4´-DDD	0.11	0.06	0.024	29.14	67,258	2.013		54,635		0.81
F37	QT2-1-0507-BI	14	4,4'-DDE [2C]	ND	0.06	0.025	30.46	526,667	2.104	<	28,511	<	0.05
F37	QT2-1-0507-BI	14	4,4´-DDT	ND	0.06	0.025	30.46	288,937	2.104	<	28,511	<	0.10

Table 3: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length (cm)[1]	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber[3] (µL)	[PDMS DDx] (ng/L)		[Freely Dissolved Pore Water DDx] (ng/L)[4]	
F37	QT2-1-0507-BI	14	2,4´-DDD	ND	0.06	0.025	30.46	75,521	2.104	<	28,511	<	0.38
F37	QT2-1-0507-BI	14	2,4´-DDE	ND	0.06	0.025	30.46	516,595	2.104	<	28,511	<	0.06
F37	QT2-1-0507-BI	14	2,4´-DDT	ND	0.06	0.025	30.46	569,687	2.104	<	28,511	<	0.05
F37	QT2-1-0507-BI	14	4,4´-DDD	0.17	0.06	0.025	30.46	67,258	2.104		80,780		1.20
F38	QT2-2-0002	14	4,4'-DDE [2C]	ND	0.06	0.025	29.62	526,667	2.046	<	29,319	<	0.06
F38	QT2-2-0002	14	4,4´-DDT	ND	0.06	0.025	29.62	288,937	2.046	<	29,319	<	0.10
F38	QT2-2-0002	14	2,4´-DDD	ND	0.06	0.025	29.62	75,521	2.046	<	29,319	<	0.39
F38	QT2-2-0002	14	2,4´-DDE	ND	0.06	0.025	29.62	516,595	2.046	<	29,319	<	0.06
F38	QT2-2-0002	14	2,4´-DDT	ND	0.06	0.025	29.62	569,687	2.046	<	29,319	<	0.05
F38	QT2-2-0002	14	4,4´-DDD	0.49	0.06	0.025	29.62	67,258	2.046		239,435		3.56
F40	QT2-2-0507	14	4,4´-DDE	ND	0.4	0.026	30.82	526,667	2.129	<	187,852	<	0.36
F40	QT2-2-0507	14	4,4'-DDT [2C]	ND	0.4	0.026	30.82	288,937	2.129	<	187,852	<	0.65
F40	QT2-2-0507	14	2,4´-DDD	ND	0.4	0.026	30.82	75,521	2.129	<	187,852	<	2.49
F40	QT2-2-0507	14	2,4´-DDE	ND	0.4	0.026	30.82	516,595	2.129	<	187,852	<	0.36
F40	QT2-2-0507	14	2,4´-DDT	ND	0.4	0.026	30.82	569,687	2.129	<	187,852	<	0.33
F40	QT2-2-0507	14	4,4´-DDD	ND	0.4	0.026	30.82	67,258	2.129	<	187,852	<	2.79
F41	QT2-2-0002-AI	14	4,4'-DDE [2C]	0.1	0.06	0.025	30.46	526,667	2.104		47,518		0.09
F41	QT2-2-0002-AI	14	4,4´-DDT	0.38	0.06	0.025	30.46	288,937	2.104		180,567		0.62
F41	QT2-2-0002-AI	14	2,4´-DDD	0.1	0.06	0.025	30.46	75,521	2.104		47,518		0.63
F41	QT2-2-0002-AI	14	2,4´-DDE	0.1	0.06	0.025	30.46	516,595	2.104		47,518		0.09
F41	QT2-2-0002-AI	14	2,4´-DDT	ND	0.06	0.025	30.46	569,687	2.104	<	28,511	<	0.05
F41	QT2-2-0002-AI	14	4,4´-DDD	0.72	0.06	0.025	30.46	67,258	2.104		342,127		5.09
F42	QT2-2-0002-BI	14	4,4'-DDE [2C]	0.13	0.06	0.024	29.26	526,667	2.022		64,305		0.12
F42	QT2-2-0002-BI	14	4,4´-DDT	ND	0.06	0.024	29.26	288,937	2.022	<	29,679	<	0.10
F42	QT2-2-0002-BI	14	2,4´-DDD	ND	0.06	0.024	29.26	75,521	2.022	<	29,679	<	0.39
F42	QT2-2-0002-BI	14	2,4´-DDE	0.07	0.06	0.024	29.26	516,595	2.022		34,626		0.07
F42	QT2-2-0002-BI	14	2,4´-DDT	ND	0.06	0.024	29.26	569,687	2.022	<	29,679	<	0.05
F42	QT2-2-0002-BI	14	4,4´-DDD	0.13	0.06	0.024	29.26	67,258	2.022		64,305		0.96
F43	QT2-2-0205-BI	14	4,4'-DDE [2C]	ND	0.06	0.025	30.10	526,667	2.080	<	28,851	<	0.05
F43	QT2-2-0205-BI	14	4,4´-DDT	ND	0.06	0.025	30.10	288,937	2.080	<	28,851	<	0.10
F43	QT2-2-0205-BI	14	2,4´-DDD	ND	0.06	0.025	30.10	75,521	2.080	<	28,851	<	0.38
F43	QT2-2-0205-BI	14	2,4´-DDE	0.08	0.06	0.025	30.10	516,595	2.080		38,468		0.07
F43	QT2-2-0205-BI	14	2,4´-DDT	ND	0.06	0.025	30.10	569,687	2.080	<	28,851	<	0.05
F43	QT2-2-0205-BI	14	4,4´-DDD	0.11	0.06	0.025	30.10	67,258	2.080		52,894		0.79
F44	QT2-2-0507-BI	14	4,4'-DDE [2C]	0.18	0.06	0.025	29.62	526,667	2.046		87,956		0.17
F44	QT2-2-0507-BI	14	4,4´-DDT	0.09	0.06	0.025	29.62	288,937	2.046		43,978		0.15
F44	QT2-2-0507-BI	14	2,4´-DDD	ND	0.06	0.025	29.62	75,521	2.046	<	29,319	<	0.39
F44	QT2-2-0507-BI	14	2,4´-DDE	0.13	0.06	0.025	29.62	516,595	2.046		63,523		0.12

Table 3: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length (cm)[1]	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber[3] (µL)	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx] (ng/L)[4]
F44	QT2-2-0507-BI	14	2,4´-DDT	ND	0.06	0.025	29.62	569,687	2.046	< 29,319	< 0.05
F44	QT2-2-0507-BI	14	4,4´-DDD	0.29	0.06	0.025	29.62	67,258	2.046	141,706	2.11
F45	QT2-3-0002	14	4,4'-DDE [2C]	0.73	0.06	0.026	31.41	526,667	2.171	336,287	0.64
F45	QT2-3-0002	14	4,4´-DDT	0.23	0.06	0.026	31.41	288,937	2.171	105,953	0.37
F45	QT2-3-0002	14	2,4´-DDD	0.09	0.06	0.026	31.41	75,521	2.171	41,460	0.55
F45	QT2-3-0002	14	2,4´-DDE	0.18	0.06	0.026	31.41	516,595	2.171	82,920	0.16
F45	QT2-3-0002	14	2,4´-DDT	ND	0.06	0.026	31.41	569,687	2.171	< 27,640	< 0.05
F45	QT2-3-0002	14	4,4´-DDD	0.42	0.06	0.026	31.41	67,258	2.171	193,480	2.88
F46	QT2-3-0205	14	4,4'-DDE [2C]	0.65	0.06	0.025	30.34	526,667	2.096	310,085	0.59
F46	QT2-3-0205	14	4,4´-DDT	0.21	0.06	0.025	30.34	288,937	2.096	100,181	0.35
F46	QT2-3-0205	14	2,4´-DDD	0.16	0.06	0.025	30.34	75,521	2.096	76,329	1.01
F46	QT2-3-0205	14	2,4´-DDE	0.15	0.06	0.025	30.34	516,595	2.096	71,558	0.14
F46	QT2-3-0205	14	2,4´-DDT	ND	0.06	0.025	30.34	569,687	2.096	< 28,623	< 0.05
F46	QT2-3-0205	14	4,4´-DDD	0.43	0.06	0.025	30.34	67,258	2.096	205,133	3.05
F47	QT2-3-0507	14	4,4'-DDE [2C]	0.09	0.06	0.026	30.70	526,667	2.121	42,432	0.08
F47	QT2-3-0507	14	4,4´-DDT	ND	0.06	0.026	30.70	288,937	2.121	< 28,288	< 0.10
F47	QT2-3-0507	14	2,4´-DDD	ND	0.06	0.026	30.70	75,521	2.121	< 28,288	< 0.37
F47	QT2-3-0507	14	2,4´-DDE	ND	0.06	0.026	30.70	516,595	2.121	< 28,288	< 0.05
F47	QT2-3-0507	14	2,4´-DDT	ND	0.06	0.026	30.70	569,687	2.121	< 28,288	< 0.05
F47	QT2-3-0507	14	4,4´-DDD	0.08	0.06	0.026	30.70	67,258	2.121	37,717	0.56
F127	QT2-3-0002-AI	14	4,4´-DDE	0.07	0.05	0.023	27.58	526,667	1.906	36,733	0.07
F127	QT2-3-0002-AI	14	4,4´-DDT	0.09	0.05	0.023	27.58	288,937	1.906	47,228	0.16
F127	QT2-3-0002-AI	14	2,4´-DDD	ND	0.05	0.023	27.58	75,521	1.906	< 26,238	< 0.35
F127	QT2-3-0002-AI	14	2,4´-DDE	ND	0.05	0.023	27.58	516,595	1.906	< 26,238	< 0.05
F127	QT2-3-0002-AI	14	2,4´-DDT	ND	0.05	0.023	27.58	569,687	1.906	< 26,238	< 0.05
F127	QT2-3-0002-AI	14	4,4´-DDD	0.12	0.05	0.023	27.58	67,258	1.906	62,971	0.94
F49	QT2-3-0002-BI	14	4,4'-DDE [2C]	0.79	0.06	0.024	28.90	526,667	1.997	395,638	0.75
F49	QT2-3-0002-BI	14	4,4´-DDT	0.55	0.06	0.024	28.90	288,937	1.997	275,444	0.95
F49	QT2-3-0002-BI	14	2,4´-DDD	0.19	0.06	0.024	28.90	75,521	1.997	95,153	1.26
F49	QT2-3-0002-BI	14	2,4´-DDE	0.3	0.06	0.024	28.90	516,595	1.997	150,242	0.29
F49	QT2-3-0002-BI	14	2,4´-DDT	ND	0.06	0.024	28.90	569,687	1.997	< 30,048	< 0.05
F49	QT2-3-0002-BI	14	4,4´-DDD	1.06	0.06	0.024	28.90	67,258	1.997	530,856	7.89
F50	QT2-3-0205-BI	14	4,4'-DDE [2C]	ND	0.06	0.025	30.46	526,667	2.104	< 28,511	< 0.05
F50	QT2-3-0205-BI	14	4,4´-DDT	ND	0.06	0.025	30.46	288,937	2.104	< 28,511	< 0.10
F50	QT2-3-0205-BI	14	2,4´-DDD	ND	0.06	0.025	30.46	75,521	2.104	< 28,511	< 0.38
F50	QT2-3-0205-BI	14	2,4´-DDE	ND	0.06	0.025	30.46	516,595	2.104	< 28,511	< 0.06
F50	QT2-3-0205-BI	14	2,4´-DDT	ND	0.06	0.025	30.46	569,687	2.104	< 28,511	< 0.05
F50	QT2-3-0205-BI	14	4,4´-DDD	ND	0.06	0.025	30.46	67,258	2.104	< 28,511	< 0.42

Table 3: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length (cm)[1]	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber[3] (µL)	[PDMS DDx] (ng/L)		[Freely Dissolved Pore Water DDx] (ng/L)[4]	
F51	QT2-3-0507-BI	14	4,4'-DDE [2C]	ND	0.06	0.026	30.82	526,667	2.129	<	28,178	<	0.05
F51	QT2-3-0507-BI	14	4,4´-DDT	ND	0.06	0.026	30.82	288,937	2.129	<	28,178	<	0.10
F51	QT2-3-0507-BI	14	2,4´-DDD	ND	0.06	0.026	30.82	75,521	2.129	<	28,178	<	0.37
F51	QT2-3-0507-BI	14	2,4´-DDE	ND	0.06	0.026	30.82	516,595	2.129	<	28,178	<	0.05
F51	QT2-3-0507-BI	14	2,4´-DDT	ND	0.06	0.026	30.82	569,687	2.129	<	28,178	<	0.05
F51	QT2-3-0507-BI	14	4,4´-DDD	0.31	0.06	0.026	30.82	67,258	2.129		145,585		2.16
F52	QT2-4-0002	14	4,4'-DDE [2C]	0.14	0.06	0.025	30.34	526,667	2.096		66,788		0.13
F52	QT2-4-0002	14	4,4´-DDT	ND	0.06	0.025	30.34	288,937	2.096	<	28,623	<	0.10
F52	QT2-4-0002	14	2,4´-DDD	ND	0.06	0.025	30.34	75,521	2.096	<	28,623	<	0.38
F52	QT2-4-0002	14	2,4´-DDE	ND	0.06	0.025	30.34	516,595	2.096	<	28,623	<	0.06
F52	QT2-4-0002	14	2,4´-DDT	ND	0.06	0.025	30.34	569,687	2.096	<	28,623	<	0.05
F52	QT2-4-0002	14	4,4´-DDD	ND	0.06	0.025	30.34	67,258	2.096	<	28,623	<	0.43
F53	QT2-4-0507	14	4,4'-DDE [2C]	0.25	0.06	0.025	29.62	526,667	2.046		122,161		0.23
F53	QT2-4-0507	14	4,4´-DDT	ND	0.06	0.025	29.62	288,937	2.046	<	29,319	<	0.10
F53	QT2-4-0507	14	2,4´-DDD	ND	0.06	0.025	29.62	75,521	2.046	<	29,319	<	0.39
F53	QT2-4-0507	14	2,4´-DDE	0.08	0.06	0.025	29.62	516,595	2.046		39,091		0.08
F53	QT2-4-0507	14	2,4´-DDT	ND	0.06	0.025	29.62	569,687	2.046	<	29,319	<	0.05
F53	QT2-4-0507	14	4,4´-DDD	0.13	0.06	0.025	29.62	67,258	2.046		63,523		0.94
F54	QT2-4-0002-AI	14	4,4´-DDE	ND	0.4	0.002	2.76	526,667	0.191	<	2,099,037	<	3.99
F54	QT2-4-0002-AI	14	4,4'-DDT [2C]	ND	0.4	0.002	2.76	288,937	0.191	<	2,099,037	<	7.26
F54	QT2-4-0002-AI	14	2,4´-DDD	ND	0.4	0.002	2.76	75,521	0.191	<	2,099,037	<	27.79
F54	QT2-4-0002-AI	14	2,4´-DDE	ND	0.4	0.002	2.76	516,595	0.191	<	2,099,037	<	4.06
F54	QT2-4-0002-AI	14	2,4´-DDT	ND	0.4	0.002	2.76	569,687	0.191	<	2,099,037	<	3.68
F54	QT2-4-0002-AI	14	4,4´-DDD	ND	0.4	0.002	2.76	67,258	0.191	<	2,099,037	<	31.21
F55	QT2-4-0002-BI	14	4,4'-DDE [2C]	ND	0.06	0.023	28.06	526,667	1.939	<	30,947	<	0.06
F55	QT2-4-0002-BI	14	4,4´-DDT	ND	0.06	0.023	28.06	288,937	1.939	<	30,947	<	0.11
F55	QT2-4-0002-BI	14	2,4´-DDD	ND	0.06	0.023	28.06	75,521	1.939	<	30,947	<	0.41
F55	QT2-4-0002-BI	14	2,4´-DDE	ND	0.06	0.023	28.06	516,595	1.939	<	30,947	<	0.06
F55	QT2-4-0002-BI	14	2,4´-DDT	ND	0.06	0.023	28.06	569,687	1.939	<	30,947	<	0.05
F55	QT2-4-0002-BI	14	4,4´-DDD	ND	0.06	0.023	28.06	67,258	1.939	<	30,947	<	0.46
F56	QT2-4-0205-BI	14	4,4'-DDE [2C]	ND	0.06	0.020	24.10	526,667	1.665	<	36,028	<	0.07
F56	QT2-4-0205-BI	14	4,4´-DDT	ND	0.06	0.020	24.10	288,937	1.665	<	36,028	<	0.12
F56	QT2-4-0205-BI	14	2,4´-DDD	ND	0.06	0.020	24.10	75,521	1.665	<	36,028	<	0.48
F56	QT2-4-0205-BI	14	2,4´-DDE	ND	0.06	0.020	24.10	516,595	1.665	<	36,028	<	0.07
F56	QT2-4-0205-BI	14	2,4´-DDT	ND	0.06	0.020	24.10	569,687	1.665	<	36,028	<	0.06
F56	QT2-4-0205-BI	14	4,4´-DDD	0.09	0.06	0.020	24.10	67,258	1.665		54,042		0.80
F57	QT2-4-0507-BI	14	4,4'-DDE [2C]	0.35	0.06	0.024	28.30	526,667	1.955		178,996		0.34
F57	QT2-4-0507-BI	14	4,4´-DDT	ND	0.06	0.024	28.30	288,937	1.955	<	30,685	<	0.11

Table 3: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length (cm)[1]	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber[3] (µL)	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx] (ng/L)[4]
F57	QT2-4-0507-BI	14	2,4´-DDD	ND	0.06	0.024	28.30	75,521	1.955	< 30,685	< 0.41
F57	QT2-4-0507-BI	14	2,4´-DDE	0.1	0.06	0.024	28.30	516,595	1.955	51,142	0.10
F57	QT2-4-0507-BI	14	2,4´-DDT	ND	0.06	0.024	28.30	569,687	1.955	< 30,685	< 0.05
F57	QT2-4-0507-BI	14	4,4´-DDD	0.2	0.06	0.024	28.30	67,258	1.955	102,284	1.52
F59	QT2-5-0205	14	4,4'-DDE [2C]	0.13	0.06	0.025	29.98	526,667	2.071	62,761	0.12
F59	QT2-5-0205	14	4,4´-DDT	ND	0.06	0.025	29.98	288,937	2.071	< 28,967	< 0.10
F59	QT2-5-0205	14	2,4´-DDD	ND	0.06	0.025	29.98	75,521	2.071	< 28,967	< 0.38
F59	QT2-5-0205	14	2,4´-DDE	ND	0.06	0.025	29.98	516,595	2.071	< 28,967	< 0.06
F59	QT2-5-0205	14	2,4´-DDT	ND	0.06	0.025	29.98	569,687	2.071	< 28,967	< 0.05
F59	QT2-5-0205	14	4,4´-DDD	ND	0.06	0.025	29.98	67,258	2.071	< 28,967	< 0.43
F60	QT2-5-0002-AI	14	4,4'-DDE [2C]	0.79	0.06	0.025	29.74	526,667	2.055	384,471	0.73
F60	QT2-5-0002-AI	14	4,4´-DDT	0.13	0.06	0.025	29.74	288,937	2.055	63,267	0.22
F60	QT2-5-0002-AI	14	2,4´-DDD	ND	0.06	0.025	29.74	75,521	2.055	< 29,200	< 0.39
F60	QT2-5-0002-AI	14	2,4´-DDE	0.25	0.06	0.025	29.74	516,595	2.055	121,668	0.24
F60	QT2-5-0002-AI	14	2,4´-DDT	ND	0.06	0.025	29.74	569,687	2.055	< 29,200	< 0.05
F60	QT2-5-0002-AI	14	4,4´-DDD	0.3	0.06	0.025	29.74	67,258	2.055	146,002	2.17
F61	QT2-5-0002-BI	14	4,4'-DDE [2C]	0.08	0.06	0.026	30.58	526,667	2.113	37,865	0.07
F61	QT2-5-0002-BI	14	4,4´-DDT	ND	0.06	0.026	30.58	288,937	2.113	< 28,399	< 0.10
F61	QT2-5-0002-BI	14	2,4´-DDD	ND	0.06	0.026	30.58	75,521	2.113	< 28,399	< 0.38
F61	QT2-5-0002-BI	14	2,4´-DDE	0.07	0.06	0.026	30.58	516,595	2.113	33,132	0.06
F61	QT2-5-0002-BI	14	2,4´-DDT	ND	0.06	0.026	30.58	569,687	2.113	< 28,399	< 0.05
F61	QT2-5-0002-BI	14	4,4´-DDD	0.26	0.06	0.026	30.58	67,258	2.113	123,061	1.83
F62	QT2-5-0205-BI	14	4,4'-DDE [2C]	0.2	0.06	0.024	28.90	526,667	1.997	100,162	0.19
F62	QT2-5-0205-BI	14	4,4´-DDT	ND	0.06	0.024	28.90	288,937	1.997	< 30,048	< 0.10
F62	QT2-5-0205-BI	14	2,4´-DDD	ND	0.06	0.024	28.90	75,521	1.997	< 30,048	< 0.40
F62	QT2-5-0205-BI	14	2,4´-DDE	0.14	0.06	0.024	28.90	516,595	1.997	70,113	0.14
F62	QT2-5-0205-BI	14	2,4´-DDT	ND	0.06	0.024	28.90	569,687	1.997	< 30,048	< 0.05
F62	QT2-5-0205-BI	14	4,4´-DDD	0.72	0.06	0.024	28.90	67,258	1.997	360,582	5.36
F63	QT2-5-0507-BI	14	4,4'-DDE [2C]	0.12	0.06	0.024	29.38	526,667	2.030	59,116	0.11
F63	QT2-5-0507-BI	14	4,4´-DDT	ND	0.06	0.024	29.38	288,937	2.030	< 29,558	< 0.10
F63	QT2-5-0507-BI	14	2,4´-DDD	ND	0.06	0.024	29.38	75,521	2.030	< 29,558	< 0.39
F63	QT2-5-0507-BI	14	2,4´-DDE	0.08	0.06	0.024	29.38	516,595	2.030	39,410	0.08
F63	QT2-5-0507-BI	14	2,4´-DDT	ND	0.06	0.024	29.38	569,687	2.030	< 29,558	< 0.05
F63	QT2-5-0507-BI	14	4,4´-DDD	0.24	0.06	0.024	29.38	67,258	2.030	118,231	1.76
F64	QT2-5DUP-0002	14	4,4'-DDE [2C]	0.15	0.06	0.026	31.29	526,667	2.162	69,365	0.13
F64	QT2-5DUP-0002	14	4,4´-DDT	ND	0.06	0.026	31.29	288,937	2.162	< 27,746	< 0.10
F64	QT2-5DUP-0002	14	2,4´-DDD	ND	0.06	0.026	31.29	75,521	2.162	< 27,746	< 0.37
F64	QT2-5DUP-0002	14	2,4´-DDE	ND	0.06	0.026	31.29	516,595	2.162	< 27,746	< 0.05

Table 3: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length (cm)[1]	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber[3] (µL)	[PDMS DDx] (ng/L)		[Freely Dissolved Pore Water DDx] (ng/L)[4]	
F64	QT2-5DUP-0002	14	2,4´-DDT	ND	0.06	0.026	31.29	569,687	2.162	<	27,746	<	0.05
F64	QT2-5DUP-0002	14	4,4´-DDD	0.08	0.06	0.026	31.29	67,258	2.162		36,995		0.55
F65	QT2-5DUP-0205	14	4,4'-DDE [2C]	0.26	0.06	0.027	32.85	526,667	2.270		114,528		0.22
F65	QT2-5DUP-0205	14	4,4´-DDT	ND	0.06	0.027	32.85	288,937	2.270	<	26,429	<	0.09
F65	QT2-5DUP-0205	14	2,4´-DDD	ND	0.06	0.027	32.85	75,521	2.270	<	26,429	<	0.35
F65	QT2-5DUP-0205	14	2,4´-DDE	0.08	0.06	0.027	32.85	516,595	2.270		35,239		0.07
F65	QT2-5DUP-0205	14	2,4´-DDT	ND	0.06	0.027	32.85	569,687	2.270	<	26,429	<	0.05
F65	QT2-5DUP-0205	14	4,4´-DDD	0.13	0.06	0.027	32.85	67,258	2.270		57,264		0.85
F128	QT2-6-GRAB	14	4,4´-DDE	0.06	0.05	0.024	29.26	526,667	2.022		29,679		0.06
F128	QT2-6-GRAB	14	4,4´-DDT	ND	0.05	0.024	29.26	288,937	2.022	<	24,733	<	0.09
F128	QT2-6-GRAB	14	2,4´-DDD	ND	0.05	0.024	29.26	75,521	2.022	<	24,733	<	0.33
F128	QT2-6-GRAB	14	2,4´-DDE	ND	0.05	0.024	29.26	516,595	2.022	<	24,733	<	0.05
F128	QT2-6-GRAB	14	2,4´-DDT	ND	0.05	0.024	29.26	569,687	2.022	<	24,733	<	0.04
F128	QT2-6-GRAB	14	4,4´-DDD	0.1	0.05	0.024	29.26	67,258	2.022		49,465		0.74
F72	QT2-7-GRAB	14	4,4'-DDE [2C]	ND	0.06	0.025	30.10	526,667	2.080	<	28,851	<	0.05
F72	QT2-7-GRAB	14	4,4´-DDT	ND	0.06	0.025	30.10	288,937	2.080	<	28,851	<	0.10
F72	QT2-7-GRAB	14	2,4´-DDD	ND	0.06	0.025	30.10	75,521	2.080	<	28,851	<	0.38
F72	QT2-7-GRAB	14	2,4´-DDE	ND	0.06	0.025	30.10	516,595	2.080	<	28,851	<	0.06
F72	QT2-7-GRAB	14	2,4´-DDT	ND	0.06	0.025	30.10	569,687	2.080	<	28,851	<	0.05
F72	QT2-7-GRAB	14	4,4´-DDD	ND	0.06	0.025	30.10	67,258	2.080	<	28,851	<	0.43
F73	QT2-5DUP-0507	14	4,4´-DDE	ND	0.4	0.023	27.10	526,667	1.872	<	213,619	<	0.41
F73	QT2-5DUP-0507	14	4,4'-DDT [2C]	ND	0.4	0.023	27.10	288,937	1.872	<	213,619	<	0.74
F73	QT2-5DUP-0507	14	2,4´-DDD	ND	0.4	0.023	27.10	75,521	1.872	<	213,619	<	2.83
F73	QT2-5DUP-0507	14	2,4´-DDE	ND	0.4	0.023	27.10	516,595	1.872	<	213,619	<	0.41
F73	QT2-5DUP-0507	14	2,4´-DDT	ND	0.4	0.023	27.10	569,687	1.872	<	213,619	<	0.37
F73	QT2-5DUP-0507	14	4,4´-DDD	ND	0.4	0.023	27.10	67,258	1.872	<	213,619	<	3.18
F74	QT2-5DUP-0002-AI	14	4,4´-DDE	0.83	0.4	0.023	28.06	526,667	1.939		428,105		0.81
F74	QT2-5DUP-0002-AI	14	4,4'-DDT [2C]	0.52	0.4	0.023	28.06	288,937	1.939		268,210		0.93
F74	QT2-5DUP-0002-AI	14	2,4´-DDD	ND	0.4	0.023	28.06	75,521	1.939	<	206,316	<	2.73
F74	QT2-5DUP-0002-AI	14	2,4´-DDE	0.47	0.4	0.023	28.06	516,595	1.939		242,421		0.47
F74	QT2-5DUP-0002-AI	14	2,4´-DDT	ND	0.4	0.023	28.06	569,687	1.939	<	206,316	<	0.36
F74	QT2-5DUP-0002-AI	14	4,4´-DDD	0.57	0.4	0.023	28.06	67,258	1.939		294,000		4.37
F75	QT2-5DUP-0002-BI	14	4,4´-DDE	ND	0.4	0.021	25.42	526,667	1.756	<	227,726	<	0.43
F75	QT2-5DUP-0002-BI	14	4,4'-DDT [2C]	ND	0.4	0.021	25.42	288,937	1.756	<	227,726	<	0.79
F75	QT2-5DUP-0002-BI	14	2,4´-DDD	ND	0.4	0.021	25.42	75,521	1.756	<	227,726	<	3.02
F75	QT2-5DUP-0002-BI	14	2,4´-DDE	ND	0.4	0.021	25.42	516,595	1.756	<	227,726	<	0.44

Table 3: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length (cm)[1]	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber[3] (µL)	[PDMS DDx] (ng/L)		[Freely Dissolved Pore Water DDx] (ng/L)[4]	
F75	QT2-5DUP-0002-BI	14	2,4´-DDT	ND	0.4	0.021	25.42	569,687	1.756	<	227,726	<	0.40
F75	QT2-5DUP-0002-BI	14	4,4´-DDD	ND	0.4	0.021	25.42	67,258	1.756	<	227,726	<	3.39
F76	QT2-5DUP-0205-BI	14	4,4´-DDE	ND	0.4	0.024	29.14	526,667	2.013	<	198,674	<	0.38
F76	QT2-5DUP-0205-BI	14	4,4'-DDT [2C]	ND	0.4	0.024	29.14	288,937	2.013	<	198,674	<	0.69
F76	QT2-5DUP-0205-BI	14	2,4´-DDD	ND	0.4	0.024	29.14	75,521	2.013	<	198,674	<	2.63
F76	QT2-5DUP-0205-BI	14	2,4´-DDE	ND	0.4	0.024	29.14	516,595	2.013	<	198,674	<	0.38
F76	QT2-5DUP-0205-BI	14	2,4´-DDT	ND	0.4	0.024	29.14	569,687	2.013	<	198,674	<	0.35
F76	QT2-5DUP-0205-BI	14	4,4´-DDD	2.11	0.4	0.024	29.14	67,258	2.013		1,048,007		15.58
F77	QT2-5DUP-0507-BI	14	4,4´-DDE	0.44	0.4	0.022	25.90	526,667	1.790		245,859		0.47
F77	QT2-5DUP-0507-BI	14	4,4'-DDT [2C]	ND	0.4	0.022	25.90	288,937	1.790	<	223,509	<	0.77
F77	QT2-5DUP-0507-BI	14	2,4´-DDD	ND	0.4	0.022	25.90	75,521	1.790	<	223,509	<	2.96
F77	QT2-5DUP-0507-BI	14	2,4´-DDE	ND	0.4	0.022	25.90	516,595	1.790	<	223,509	<	0.43
F77	QT2-5DUP-0507-BI	14	2,4´-DDT	ND	0.4	0.022	25.90	569,687	1.790	<	223,509	<	0.39
F77	QT2-5DUP-0507-BI	14	4,4´-DDD	ND	0.4	0.022	25.90	67,258	1.790	<	223,509	<	3.32
F58	QT2-5-0002	14	4,4'-DDE [2C]	ND	0.06	0.026	30.82	526,667	2.129	<	28,178	<	0.05
F58	QT2-5-0002	14	4,4´-DDT	ND	0.06	0.026	30.82	288,937	2.129	<	28,178	<	0.10
F58	QT2-5-0002	14	2,4´-DDD	ND	0.06	0.026	30.82	75,521	2.129	<	28,178	<	0.37
F58	QT2-5-0002	14	2,4´-DDE	ND	0.06	0.026	30.82	516,595	2.129	<	28,178	<	0.05
F58	QT2-5-0002	14	2,4´-DDT	ND	0.06	0.026	30.82	569,687	2.129	<	28,178	<	0.05
F58	QT2-5-0002	14	4,4´-DDD	ND	0.06	0.026	30.82	67,258	2.129	<	28,178	<	0.42

Footnotes:

1.) Fiber mass per length value: 0.000834 g/cm

2.) Fiber:Water Partition Coefficient calculated as Log Kfs = LogKow - 0.91 (Mayer et al. 2000). Log Kow referenced from ATDSR (2002) Toxicological Profile for DDT, DDE and DDD.

3.) 0.0691 µL polydimethylsiloxane (PDMS) per cm of this type of SPME fiber.

4.) Concentration of exposure solution = Concentration in fiber ÷ Kfs. If not detected, reported as < detection limit.

Abbreviations:

cm: centimeter(s)
d: day(s)
g: gram(s)
Kfs: Fiber:Water Partition Coefficient
L: Liter(s)
µ: micro
ND: Not detected
ng: nanogram(s)
PDMS: Polydimethylsiloxane
SPME: solid phase microextraction

Table 4: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 14-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length[1] (cm)	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber[3] (µL)	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx][4] (ng/L)
F78	QT12-1-0002	14	4,4´-DDE	0.24	0.05	0.024	28.78	526,667	1.988	120695	0.23
F78	QT12-1-0002	14	4,4´-DDT	ND	0.05	0.024	28.78	288,937	1.988	< 25145	< 0.09
F78	QT12-1-0002	14	2,4´-DDD	ND	0.05	0.024	28.78	75,521	1.988	< 25145	< 0.33
F78	QT12-1-0002	14	2,4´-DDE	ND	0.05	0.024	28.78	516,595	1.988	< 25145	< 0.05
F78	QT12-1-0002	14	2,4´-DDT	ND	0.05	0.024	28.78	569,687	1.988	< 25145	< 0.04
F78	QT12-1-0002	14	4,4´-DDD	0.13	0.05	0.024	28.78	67,258	1.988	65376	0.97
F79	QT12-1-0205	14	4,4´-DDE	0.55	0.05	0.025	29.50	526,667	2.038	269846	0.51
F79	QT12-1-0205	14	4,4´-DDT	0.27	0.05	0.025	29.50	288,937	2.038	132470	0.46
F79	QT12-1-0205	14	2,4´-DDD	0.08	0.05	0.025	29.50	75,521	2.038	39250	0.52
F79	QT12-1-0205	14	2,4´-DDE	ND	0.05	0.025	29.50	516,595	2.038	< 24531	< 0.05
F79	QT12-1-0205	14	2,4´-DDT	ND	0.05	0.025	29.50	569,687	2.038	< 24531	< 0.04
F79	QT12-1-0205	14	4,4´-DDD	0.65	0.05	0.025	29.50	67,258	2.038	318909	4.74
F80	QT12-1-0507	14	4,4´-DDE	0.43	0.05	0.023	27.70	526,667	1.914	224670	0.43
F80	QT12-1-0507	14	4,4´-DDT	ND	0.05	0.023	27.70	288,937	1.914	< 26124	< 0.09
F80	QT12-1-0507	14	2,4´-DDD	ND	0.05	0.023	27.70	75,521	1.914	< 26124	< 0.35
F80	QT12-1-0507	14	2,4´-DDE	ND	0.05	0.023	27.70	516,595	1.914	< 26124	< 0.05
F80	QT12-1-0507	14	2,4´-DDT	ND	0.05	0.023	27.70	569,687	1.914	< 26124	< 0.05
F80	QT12-1-0507	14	4,4´-DDD	0.23	0.05	0.023	27.70	67,258	1.914	120172	1.79
F81	QT12-1-0002-AI	14	4,4´-DDE	0.18	0.05	0.023	28.06	526,667	1.939	92842	0.18
F81	QT12-1-0002-AI	14	4,4´-DDT	ND	0.05	0.023	28.06	288,937	1.939	< 25789	< 0.09
F81	QT12-1-0002-AI	14	2,4´-DDD	ND	0.05	0.023	28.06	75,521	1.939	< 25789	< 0.34
F81	QT12-1-0002-AI	14	2,4´-DDE	ND	0.05	0.023	28.06	516,595	1.939	< 25789	< 0.05
F81	QT12-1-0002-AI	14	2,4´-DDT	ND	0.05	0.023	28.06	569,687	1.939	< 25789	< 0.05
F81	QT12-1-0002-AI	14	4,4´-DDD	1.03	0.05	0.023	28.06	67,258	1.939	531263	7.90
F82	QT12-1-0002-BI	14	4,4´-DDE	0.33	0.05	0.021	25.06	526,667	1.732	190570	0.36
F82	QT12-1-0002-BI	14	4,4´-DDT	2.73	0.05	0.021	25.06	288,937	1.732	1576538	5.46
F82	QT12-1-0002-BI	14	2,4´-DDD	0.09	0.05	0.021	25.06	75,521	1.732	51974	0.69
F82	QT12-1-0002-BI	14	2,4´-DDE	0.18	0.05	0.021	25.06	516,595	1.732	103948	0.20
F82	QT12-1-0002-BI	14	2,4´-DDT	ND	0.05	0.021	25.06	569,687	1.732	< 28874	< 0.05
F82	QT12-1-0002-BI	14	4,4´-DDD	1.53	0.05	0.021	25.06	67,258	1.732	883554	13.14
F83	QT12-1-0205-BI	14	4,4´-DDE	0.42	0.05	0.021	25.54	526,667	1.765	237989	0.45
F83	QT12-1-0205-BI	14	4,4´-DDT	0.47	0.05	0.021	25.54	288,937	1.765	266322	0.92
F83	QT12-1-0205-BI	14	2,4´-DDD	0.15	0.05	0.021	25.54	75,521	1.765	84996	1.13
F83	QT12-1-0205-BI	14	2,4´-DDE	0.21	0.05	0.021	25.54	516,595	1.765	118995	0.23
F83	QT12-1-0205-BI	14	2,4´-DDT	ND	0.05	0.021	25.54	569,687	1.765	< 28332	< 0.05

Table 4: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 14-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length[1] (cm)	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber[3] (µL)	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx][4] (ng/L)
F83	QT12-1-0205-BI	14	4,4´-DDD	0.27	0.05	0.021	25.54	67,258	1.765	152993	2.27
F84	QT12-1-0507-BI	14	4,4´-DDE	0.21	0.05	0.018	21.70	526,667	1.500	140032	0.27
F84	QT12-1-0507-BI	14	4,4´-DDT	0.38	0.05	0.018	21.70	288,937	1.500	253392	0.88
F84	QT12-1-0507-BI	14	2,4´-DDD	ND	0.05	0.018	21.70	75,521	1.500	< 33341	< 0.44
F84	QT12-1-0507-BI	14	2,4´-DDE	ND	0.05	0.018	21.70	516,595	1.500	< 33341	< 0.06
F84	QT12-1-0507-BI	14	2,4´-DDT	ND	0.05	0.018	21.70	569,687	1.500	< 33341	< 0.06
F84	QT12-1-0507-BI	14	4,4´-DDD	1.29	0.05	0.018	21.70	67,258	1.500	860199	12.79
F85	QT12-2-0002	14	4,4´-DDE	0.27	0.05	0.025	30.34	526,667	2.096	128805	0.24
F85	QT12-2-0002	14	4,4´-DDT	ND	0.05	0.025	30.34	288,937	2.096	< 23853	< 0.08
F85	QT12-2-0002	14	2,4´-DDD	0.08	0.05	0.025	30.34	75,521	2.096	38164	0.51
F85	QT12-2-0002	14	2,4´-DDE	ND	0.05	0.025	30.34	516,595	2.096	< 23853	< 0.05
F85	QT12-2-0002	14	2,4´-DDT	ND	0.05	0.025	30.34	569,687	2.096	< 23853	< 0.04
F85	QT12-2-0002	14	4,4´-DDD	0.77	0.05	0.025	30.34	67,258	2.096	367332	5.46
F86	QT12-2-0205	14	4,4´-DDE	0.55	0.05	0.025	29.62	526,667	2.046	268753	0.51
F86	QT12-2-0205	14	4,4´-DDT	0.06	0.05	0.025	29.62	288,937	2.046	29319	0.10
F86	QT12-2-0205	14	2,4´-DDD	0.12	0.05	0.025	29.62	75,521	2.046	58637	0.78
F86	QT12-2-0205	14	2,4´-DDE	0.22	0.05	0.025	29.62	516,595	2.046	107501	0.21
F86	QT12-2-0205	14	2,4´-DDT	ND	0.05	0.025	29.62	569,687	2.046	< 24432	< 0.04
F86	QT12-2-0205	14	4,4´-DDD	0.61	0.05	0.025	29.62	67,258	2.046	298072	4.43
F87	QT12-2-0507	14	4,4´-DDE	0.58	0.05	0.025	29.38	526,667	2.030	285726	0.54
F87	QT12-2-0507	14	4,4´-DDT	0.09	0.05	0.025	29.38	288,937	2.030	44337	0.15
F87	QT12-2-0507	14	2,4´-DDD	0.17	0.05	0.025	29.38	75,521	2.030	83747	1.11
F87	QT12-2-0507	14	2,4´-DDE	0.31	0.05	0.025	29.38	516,595	2.030	152716	0.30
F87	QT12-2-0507	14	2,4´-DDT	ND	0.05	0.025	29.38	569,687	2.030	< 24632	< 0.04
F87	QT12-2-0507	14	4,4´-DDD	0.65	0.05	0.025	29.38	67,258	2.030	320210	4.76
F88	QT12-2-0002-AI	14	4,4´-DDE	0.17	0.05	0.022	26.86	526,667	1.856	91599	0.17
F88	QT12-2-0002-AI	14	4,4´-DDT	ND	0.05	0.022	26.86	288,937	1.856	< 26941	< 0.09
F88	QT12-2-0002-AI	14	2,4´-DDD	ND	0.05	0.022	26.86	75,521	1.856	< 26941	< 0.36
F88	QT12-2-0002-AI	14	2,4´-DDE	0.09	0.05	0.022	26.86	516,595	1.856	48493	0.09
F88	QT12-2-0002-AI	14	2,4´-DDT	ND	0.05	0.022	26.86	569,687	1.856	< 26941	< 0.05
F88	QT12-2-0002-AI	14	4,4´-DDD	0.3	0.05	0.022	26.86	67,258	1.856	161645	2.40
F89	QT12-2-0002-BI	14	4,4´-DDE	ND	0.05	0.017	20.38	526,667	1.409	< 35498	< 0.07
F89	QT12-2-0002-BI	14	4,4´-DDT	ND	0.05	0.017	20.38	288,937	1.409	< 35498	< 0.12
F89	QT12-2-0002-BI	14	2,4´-DDD	ND	0.05	0.017	20.38	75,521	1.409	< 35498	< 0.47
F89	QT12-2-0002-BI	14	2,4´-DDE	0.06	0.05	0.017	20.38	516,595	1.409	42598	0.08

Table 4: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 14-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length[1] (cm)	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber[3] (µL)	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx][4] (ng/L)
F89	QT12-2-0002-BI	14	2,4´-DDT	ND	0.05	0.017	20.38	569,687	1.409	< 35498	< 0.06
F89	QT12-2-0002-BI	14	4,4´-DDD	0.38	0.05	0.017	20.38	67,258	1.409	269788	4.01
F90	QT12-2-0205-BI	14	4,4´-DDE	0.26	0.05	0.021	25.66	526,667	1.773	146638	0.28
F90	QT12-2-0205-BI	14	4,4´-DDT	0.09	0.05	0.021	25.66	288,937	1.773	50759	0.18
F90	QT12-2-0205-BI	14	2,4´-DDD	ND	0.05	0.021	25.66	75,521	1.773	< 28200	< 0.37
F90	QT12-2-0205-BI	14	2,4´-DDE	0.14	0.05	0.021	25.66	516,595	1.773	78959	0.15
F90	QT12-2-0205-BI	14	2,4´-DDT	ND	0.05	0.021	25.66	569,687	1.773	< 28200	< 0.05
F90	QT12-2-0205-BI	14	4,4´-DDD	0.29	0.05	0.021	25.66	67,258	1.773	163558	2.43
F91	QT12-2-0507-BI	14	4,4´-DDE	0.32	0.05	0.025	29.74	526,667	2.055	155735	0.30
F91	QT12-2-0507-BI	14	4,4´-DDT	0.1	0.05	0.025	29.74	288,937	2.055	48667	0.17
F91	QT12-2-0507-BI	14	2,4´-DDD	0.1	0.05	0.025	29.74	75,521	2.055	48667	0.64
F91	QT12-2-0507-BI	14	2,4´-DDE	0.27	0.05	0.025	29.74	516,595	2.055	131401	0.25
F91	QT12-2-0507-BI	14	2,4´-DDT	ND	0.05	0.025	29.74	569,687	2.055	< 24334	< 0.04
F91	QT12-2-0507-BI	14	4,4´-DDD	0.46	0.05	0.025	29.74	67,258	2.055	223869	3.33
F92	QT12-3-0002	14	4,4´-DDE	0.22	0.05	0.024	28.30	526,667	1.955	112512	0.21
F92	QT12-3-0002	14	4,4´-DDT	0.09	0.05	0.024	28.30	288,937	1.955	46028	0.16
F92	QT12-3-0002	14	2,4´-DDD	0.12	0.05	0.024	28.30	75,521	1.955	61370	0.81
F92	QT12-3-0002	14	2,4´-DDE	0.15	0.05	0.024	28.30	516,595	1.955	76713	0.15
F92	QT12-3-0002	14	2,4´-DDT	ND	0.05	0.024	28.30	569,687	1.955	< 25571	< 0.04
F92	QT12-3-0002	14	4,4´-DDD	0.39	0.05	0.024	28.30	67,258	1.955	199453	2.97
F93	QT12-3-0205	14	4,4´-DDE	0.17	0.05	0.024	29.26	526,667	2.022	84091	0.16
F93	QT12-3-0205	14	4,4´-DDT	ND	0.05	0.024	29.26	288,937	2.022	< 24733	< 0.09
F93	QT12-3-0205	14	2,4´-DDD	0.18	0.05	0.024	29.26	75,521	2.022	89037	1.18
F93	QT12-3-0205	14	2,4´-DDE	0.15	0.05	0.024	29.26	516,595	2.022	74198	0.14
F93	QT12-3-0205	14	2,4´-DDT	ND	0.05	0.024	29.26	569,687	2.022	< 24733	< 0.04
F93	QT12-3-0205	14	4,4´-DDD	0.64	0.05	0.024	29.26	67,258	2.022	316576	4.71
F94	QT12-3-0507	14	4,4´-DDE	0.15	0.05	0.023	27.82	526,667	1.922	78035	0.15
F94	QT12-3-0507	14	4,4´-DDT	ND	0.05	0.023	27.82	288,937	1.922	< 26012	< 0.09
F94	QT12-3-0507	14	2,4´-DDD	0.15	0.05	0.023	27.82	75,521	1.922	78035	1.03
F94	QT12-3-0507	14	2,4´-DDE	0.14	0.05	0.023	27.82	516,595	1.922	72833	0.14
F94	QT12-3-0507	14	2,4´-DDT	ND	0.05	0.023	27.82	569,687	1.922	< 26012	< 0.05
F94	QT12-3-0507	14	4,4´-DDD	0.54	0.05	0.023	27.82	67,258	1.922	280927	4.18
F95	QT12-3-0002-AI	14	4,4´-DDE	0.74	0.05	0.025	30.46	526,667	2.104	351630	0.67
F95	QT12-3-0002-AI	14	4,4´-DDT	0.09	0.05	0.025	30.46	288,937	2.104	42766	0.15
F95	QT12-3-0002-AI	14	2,4´-DDD	0.19	0.05	0.025	30.46	75,521	2.104	90283	1.20

Table 4: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 14-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length[1] (cm)	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber[3] (µL)	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx][4] (ng/L)
F95	QT12-3-0002-AI	14	2,4´-DDE	ND	0.05	0.025	30.46	516,595	2.104	< 23759	< 0.05
F95	QT12-3-0002-AI	14	2,4´-DDT	ND	0.05	0.025	30.46	569,687	2.104	< 23759	< 0.04
F95	QT12-3-0002-AI	14	4,4´-DDD	0.82	0.05	0.025	30.46	67,258	2.104	389644	5.79
F96	QT12-3-0002-BI	14	4,4´-DDE	0.32	0.05	0.025	29.74	526,667	2.055	155735	0.30
F96	QT12-3-0002-BI	14	4,4´-DDT	0.28	0.05	0.025	29.74	288,937	2.055	136268	0.47
F96	QT12-3-0002-BI	14	2,4´-DDD	0.24	0.05	0.025	29.74	75,521	2.055	116801	1.55
F96	QT12-3-0002-BI	14	2,4´-DDE	0.28	0.05	0.025	29.74	516,595	2.055	136268	0.26
F96	QT12-3-0002-BI	14	2,4´-DDT	ND	0.05	0.025	29.74	569,687	2.055	< 24334	< 0.04
F96	QT12-3-0002-BI	14	4,4´-DDD	0.84	0.05	0.025	29.74	67,258	2.055	408804	6.08
F97	QT12-3-0205-BI	14	4,4´-DDE	0.74	0.05	0.023	27.58	526,667	1.906	388322	0.74
F97	QT12-3-0205-BI	14	4,4´-DDT	0.41	0.05	0.023	27.58	288,937	1.906	215151	0.74
F97	QT12-3-0205-BI	14	2,4´-DDD	0.2	0.05	0.023	27.58	75,521	1.906	104952	1.39
F97	QT12-3-0205-BI	14	2,4´-DDE	0.24	0.05	0.023	27.58	516,595	1.906	125942	0.24
F97	QT12-3-0205-BI	14	2,4´-DDT	ND	0.05	0.023	27.58	569,687	1.906	< 26238	< 0.05
F97	QT12-3-0205-BI	14	4,4´-DDD	3.61	0.05	0.023	27.58	67,258	1.906	1894381	28.17
F98	QT12-3-0507-BI	14	4,4´-DDE	1.27	0.05	0.025	30.22	526,667	2.088	608263	1.15
F98	QT12-3-0507-BI	14	4,4´-DDT	0.18	0.05	0.025	30.22	288,937	2.088	86210	0.30
F98	QT12-3-0507-BI	14	2,4´-DDD	0.16	0.05	0.025	30.22	75,521	2.088	76632	1.01
F98	QT12-3-0507-BI	14	2,4´-DDE	ND	0.05	0.025	30.22	516,595	2.088	< 23947	< 0.05
F98	QT12-3-0507-BI	14	2,4´-DDT	ND	0.05	0.025	30.22	569,687	2.088	< 23947	< 0.04
F98	QT12-3-0507-BI	14	4,4´-DDD	1.81	0.05	0.025	30.22	67,258	2.088	866894	12.89
F99	QT12-4-0002	14	4,4´-DDE	0.37	0.05	0.023	27.34	526,667	1.889	195864	0.37
F99	QT12-4-0002	14	4,4´-DDT	0.1	0.05	0.023	27.34	288,937	1.889	52936	0.18
F99	QT12-4-0002	14	2,4´-DDD	ND	0.05	0.023	27.34	75,521	1.889	< 26468	< 0.35
F99	QT12-4-0002	14	2,4´-DDE	ND	0.05	0.023	27.34	516,595	1.889	< 26468	< 0.05
F99	QT12-4-0002	14	2,4´-DDT	ND	0.05	0.023	27.34	569,687	1.889	< 26468	< 0.05
F99	QT12-4-0002	14	4,4´-DDD	0.13	0.05	0.023	27.34	67,258	1.889	68817	1.02
F100	QT12-4-0205	14	4,4´-DDE	0.45	0.05	0.023	27.46	526,667	1.897	237173	0.45
F100	QT12-4-0205	14	4,4´-DDT	ND	0.05	0.023	27.46	288,937	1.897	< 26353	< 0.09
F100	QT12-4-0205	14	2,4´-DDD	ND	0.05	0.023	27.46	75,521	1.897	< 26353	< 0.35
F100	QT12-4-0205	14	2,4´-DDE	0.08	0.05	0.023	27.46	516,595	1.897	42164	0.08
F100	QT12-4-0205	14	2,4´-DDT	ND	0.05	0.023	27.46	569,687	1.897	< 26353	< 0.05
F100	QT12-4-0205	14	4,4´-DDD	0.13	0.05	0.023	27.46	67,258	1.897	68517	1.02
F101	QT12-4-0507	14	4,4´-DDE	0.37	0.05	0.022	25.78	526,667	1.781	207707	0.39
F101	QT12-4-0507	14	4,4´-DDT	0.18	0.05	0.022	25.78	288,937	1.781	101047	0.35

Table 4: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 14-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length[1] (cm)	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber[3] (µL)	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx][4] (ng/L)
F101	QT12-4-0507	14	2,4´-DDD	ND	0.05	0.022	25.78	75,521	1.781	< 28069	< 0.37
F101	QT12-4-0507	14	2,4´-DDE	ND	0.05	0.022	25.78	516,595	1.781	< 28069	< 0.05
F101	QT12-4-0507	14	2,4´-DDT	ND	0.05	0.022	25.78	569,687	1.781	< 28069	< 0.05
F101	QT12-4-0507	14	4,4´-DDD	0.15	0.05	0.022	25.78	67,258	1.781	84206	1.25
F102	QT12-4-0002-AI	14	4,4´-DDE	0.19	0.05	0.025	30.46	526,667	2.104	90283	0.17
F102	QT12-4-0002-AI	14	4,4´-DDT	ND	0.05	0.025	30.46	288,937	2.104	< 23759	< 0.08
F102	QT12-4-0002-AI	14	2,4´-DDD	ND	0.05	0.025	30.46	75,521	2.104	< 23759	< 0.31
F102	QT12-4-0002-AI	14	2,4´-DDE	ND	0.05	0.025	30.46	516,595	2.104	< 23759	< 0.05
F102	QT12-4-0002-AI	14	2,4´-DDT	ND	0.05	0.025	30.46	569,687	2.104	< 23759	< 0.04
F102	QT12-4-0002-AI	14	4,4´-DDD	0.18	0.05	0.025	30.46	67,258	2.104	85532	1.27
F103	QT12-4-0002-BI	14	4,4´-DDE	0.3	0.05	0.023	27.58	526,667	1.906	157428	0.30
F103	QT12-4-0002-BI	14	4,4´-DDT	ND	0.05	0.023	27.58	288,937	1.906	< 26238	< 0.09
F103	QT12-4-0002-BI	14	2,4´-DDD	ND	0.05	0.023	27.58	75,521	1.906	< 26238	< 0.35
F103	QT12-4-0002-BI	14	2,4´-DDE	0.11	0.05	0.023	27.58	516,595	1.906	57724	0.11
F103	QT12-4-0002-BI	14	2,4´-DDT	ND	0.05	0.023	27.58	569,687	1.906	< 26238	< 0.05
F103	QT12-4-0002-BI	14	4,4´-DDD	0.14	0.05	0.023	27.58	67,258	1.906	73466	1.09
F104	QT12-4-0205-BI	14	4,4´-DDE	0.1	0.05	0.024	28.30	526,667	1.955	51142	0.10
F104	QT12-4-0205-BI	14	4,4´-DDT	ND	0.05	0.024	28.30	288,937	1.955	< 25571	< 0.09
F104	QT12-4-0205-BI	14	2,4´-DDD	ND	0.05	0.024	28.30	75,521	1.955	< 25571	< 0.34
F104	QT12-4-0205-BI	14	2,4´-DDE	ND	0.05	0.024	28.30	516,595	1.955	< 25571	< 0.05
F104	QT12-4-0205-BI	14	2,4´-DDT	ND	0.05	0.024	28.30	569,687	1.955	< 25571	< 0.04
F104	QT12-4-0205-BI	14	4,4´-DDD	ND	0.05	0.024	28.30	67,258	1.955	< 25571	< 0.38
F105	QT12-4-0507-BI	14	4,4´-DDE	0.19	0.05	0.022	26.62	526,667	1.839	103297	0.20
F105	QT12-4-0507-BI	14	4,4´-DDT	ND	0.05	0.022	26.62	288,937	1.839	< 27183	< 0.09
F105	QT12-4-0507-BI	14	2,4´-DDD	ND	0.05	0.022	26.62	75,521	1.839	< 27183	< 0.36
F105	QT12-4-0507-BI	14	2,4´-DDE	0.12	0.05	0.022	26.62	516,595	1.839	65240	0.13
F105	QT12-4-0507-BI	14	2,4´-DDT	ND	0.05	0.022	26.62	569,687	1.839	< 27183	< 0.05
F105	QT12-4-0507-BI	14	4,4´-DDD	0.23	0.05	0.022	26.62	67,258	1.839	125044	1.86
F106	QT12-5-0002	14	4,4´-DDE	0.38	0.05	0.023	28.06	526,667	1.939	196000	0.37
F106	QT12-5-0002	14	4,4´-DDT	0.07	0.05	0.023	28.06	288,937	1.939	36105	0.12
F106	QT12-5-0002	14	2,4´-DDD	ND	0.05	0.023	28.06	75,521	1.939	< 25789	< 0.34
F106	QT12-5-0002	14	2,4´-DDE	0.09	0.05	0.023	28.06	516,595	1.939	46421	0.09
F106	QT12-5-0002	14	2,4´-DDT	ND	0.05	0.023	28.06	569,687	1.939	< 25789	< 0.05
F106	QT12-5-0002	14	4,4´-DDD	0.13	0.05	0.023	28.06	67,258	1.939	67053	1.00
F107	QT12-5-0205	14	4,4´-DDE	0.46	0.05	0.022	26.38	526,667	1.823	252362	0.48

Table 4: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 14-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length[1] (cm)	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber[3] (µL)	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx][4] (ng/L)
F107	QT12-5-0205	14	4,4´-DDT	ND	0.05	0.022	26.38	288,937	1.823	< 27431	< 0.09
F107	QT12-5-0205	14	2,4´-DDD	ND	0.05	0.022	26.38	75,521	1.823	< 27431	< 0.36
F107	QT12-5-0205	14	2,4´-DDE	0.12	0.05	0.022	26.38	516,595	1.823	65833	0.13
F107	QT12-5-0205	14	2,4´-DDT	ND	0.05	0.022	26.38	569,687	1.823	< 27431	< 0.05
F107	QT12-5-0205	14	4,4´-DDD	0.18	0.05	0.022	26.38	67,258	1.823	98750	1.47
F108	QT12-5-0507	14	4,4´-DDE	0.21	0.05	0.025	30.10	526,667	2.080	100980	0.19
F108	QT12-5-0507	14	4,4´-DDT	ND	0.05	0.025	30.10	288,937	2.080	< 24043	< 0.08
F108	QT12-5-0507	14	2,4´-DDD	ND	0.05	0.025	30.10	75,521	2.080	< 24043	< 0.32
F108	QT12-5-0507	14	2,4´-DDE	0.09	0.05	0.025	30.10	516,595	2.080	43277	0.08
F108	QT12-5-0507	14	2,4´-DDT	ND	0.05	0.025	30.10	569,687	2.080	< 24043	< 0.04
F108	QT12-5-0507	14	4,4´-DDD	0.16	0.05	0.025	30.10	67,258	2.080	76937	1.14
F109	QT12-5-0002-AI	14	4,4´-DDE	0.63	0.05	0.025	30.46	526,667	2.104	299361	0.57
F109	QT12-5-0002-AI	14	4,4´-DDT	0.07	0.05	0.025	30.46	288,937	2.104	33262	0.12
F109	QT12-5-0002-AI	14	2,4´-DDD	ND	0.05	0.025	30.46	75,521	2.104	< 23759	< 0.31
F109	QT12-5-0002-AI	14	2,4´-DDE	0.18	0.05	0.025	30.46	516,595	2.104	85532	0.17
F109	QT12-5-0002-AI	14	2,4´-DDT	ND	0.05	0.025	30.46	569,687	2.104	< 23759	< 0.04
F109	QT12-5-0002-AI	14	4,4´-DDD	0.27	0.05	0.025	30.46	67,258	2.104	128297	1.91
F110	QT12-5-0002-BI	14	4,4´-DDE	0.72	0.05	0.024	28.54	526,667	1.972	365127	0.69
F110	QT12-5-0002-BI	14	4,4´-DDT	ND	0.05	0.024	28.54	288,937	1.972	< 25356	< 0.09
F110	QT12-5-0002-BI	14	2,4´-DDD	0.11	0.05	0.024	28.54	75,521	1.972	55783	0.74
F110	QT12-5-0002-BI	14	2,4´-DDE	0.13	0.05	0.024	28.54	516,595	1.972	65926	0.13
F110	QT12-5-0002-BI	14	2,4´-DDT	ND	0.05	0.024	28.54	569,687	1.972	< 25356	< 0.04
F110	QT12-5-0002-BI	14	4,4´-DDD	0.41	0.05	0.024	28.54	67,258	1.972	207919	3.09
F111	QT12-5-0205-BI	14	4,4´-DDE	0.25	0.05	0.025	30.34	526,667	2.096	119263	0.23
F111	QT12-5-0205-BI	14	4,4´-DDT	ND	0.05	0.025	30.34	288,937	2.096	< 23853	< 0.08
F111	QT12-5-0205-BI	14	2,4´-DDD	0.07	0.05	0.025	30.34	75,521	2.096	33394	0.44
F111	QT12-5-0205-BI	14	2,4´-DDE	0.08	0.05	0.025	30.34	516,595	2.096	38164	0.07
F111	QT12-5-0205-BI	14	2,4´-DDT	ND	0.05	0.025	30.34	569,687	2.096	< 23853	< 0.04
F111	QT12-5-0205-BI	14	4,4´-DDD	0.28	0.05	0.025	30.34	67,258	2.096	133575	1.99
F112	QT12-5-0507-BI	14	4,4´-DDE	0.4	0.05	0.022	26.26	526,667	1.814	220447	0.42
F112	QT12-5-0507-BI	14	4,4´-DDT	ND	0.05	0.022	26.26	288,937	1.814	< 27556	< 0.10
F112	QT12-5-0507-BI	14	2,4´-DDD	0.07	0.05	0.022	26.26	75,521	1.814	38578	0.51
F112	QT12-5-0507-BI	14	2,4´-DDE	0.18	0.05	0.022	26.26	516,595	1.814	99201	0.19
F112	QT12-5-0507-BI	14	2,4´-DDT	ND	0.05	0.022	26.26	569,687	1.814	< 27556	< 0.05
F112	QT12-5-0507-BI	14	4,4´-DDD	0.87	0.05	0.022	26.26	67,258	1.814	479472	7.13

Table 4: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 14-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length[1] (cm)	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber[3] (µL)	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx][4] (ng/L)
F113	QT12-5DUP-0002	14	4,4´-DDE	0.34	0.05	NA [5]	30.00	526,667	2.073	164014	0.31
F113	QT12-5DUP-0002	14	4,4´-DDT	ND	0.05		30.00	288,937	2.073	< 24120	< 0.08
F113	QT12-5DUP-0002	14	2,4´-DDD	ND	0.05		30.00	75,521	2.073	< 24120	< 0.32
F113	QT12-5DUP-0002	14	2,4´-DDE	ND	0.05		30.00	516,595	2.073	< 24120	< 0.05
F113	QT12-5DUP-0002	14	2,4´-DDT	ND	0.05		30.00	569,687	2.073	< 24120	< 0.04
F113	QT12-5DUP-0002	14	4,4´-DDD	0.1	0.05		30.00	67,258	2.073	48239	0.72
F114	QT12-5DUP-0205	14	4,4´-DDE	0.56	0.05	0.025	29.50	526,667	2.038	274752	0.52
F114	QT12-5DUP-0205	14	4,4´-DDT	0.06	0.05	0.025	29.50	288,937	2.038	29438	0.10
F114	QT12-5DUP-0205	14	2,4´-DDD	ND	0.05	0.025	29.50	75,521	2.038	< 24531	< 0.32
F114	QT12-5DUP-0205	14	2,4´-DDE	ND	0.05	0.025	29.50	516,595	2.038	< 24531	< 0.05
F114	QT12-5DUP-0205	14	2,4´-DDT	ND	0.05	0.025	29.50	569,687	2.038	< 24531	< 0.04
F114	QT12-5DUP-0205	14	4,4´-DDD	0.2	0.05	0.025	29.50	67,258	2.038	98126	1.46
F115	QT12-5DUP-0507	14	4,4´-DDE	0.25	0.05	0.025	29.50	526,667	2.038	122657	0.23
F115	QT12-5DUP-0507	14	4,4´-DDT	ND	0.05	0.025	29.50	288,937	2.038	< 24531	< 0.08
F115	QT12-5DUP-0507	14	2,4´-DDD	ND	0.05	0.025	29.50	75,521	2.038	< 24531	< 0.32
F115	QT12-5DUP-0507	14	2,4´-DDE	0.23	0.05	0.025	29.50	516,595	2.038	112845	0.22
F115	QT12-5DUP-0507	14	2,4´-DDT	ND	0.05	0.025	29.50	569,687	2.038	< 24531	< 0.04
F115	QT12-5DUP-0507	14	4,4´-DDD	0.39	0.05	0.025	29.50	67,258	2.038	191345	2.84
F116	QT12-5DUP-0002-AI	14	4,4´-DDE	0.4	0.05	0.023	28.18	526,667	1.947	205438	0.39
F116	QT12-5DUP-0002-AI	14	4,4´-DDT	ND	0.05	0.023	28.18	288,937	1.947	< 25680	< 0.09
F116	QT12-5DUP-0002-AI	14	2,4´-DDD	ND	0.05	0.023	28.18	75,521	1.947	< 25680	< 0.34
F116	QT12-5DUP-0002-AI	14	2,4´-DDE	ND	0.05	0.023	28.18	516,595	1.947	< 25680	< 0.05
F116	QT12-5DUP-0002-AI	14	2,4´-DDT	ND	0.05	0.023	28.18	569,687	1.947	< 25680	< 0.05
F116	QT12-5DUP-0002-AI	14	4,4´-DDD	0.25	0.05	0.023	28.18	67,258	1.947	128399	1.91
F117	QT12-5DUP-0002-BI	14	4,4´-DDE	0.34	0.05	0.026	30.94	526,667	2.138	159055	0.30
F117	QT12-5DUP-0002-BI	14	4,4´-DDT	ND	0.05	0.026	30.94	288,937	2.138	< 23390	< 0.08
F117	QT12-5DUP-0002-BI	14	2,4´-DDD	0.08	0.05	0.026	30.94	75,521	2.138	37425	0.50
F117	QT12-5DUP-0002-BI	14	2,4´-DDE	0.08	0.05	0.026	30.94	516,595	2.138	37425	0.07
F117	QT12-5DUP-0002-BI	14	2,4´-DDT	ND	0.05	0.026	30.94	569,687	2.138	< 23390	< 0.04
F117	QT12-5DUP-0002-BI	14	4,4´-DDD	0.28	0.05	0.026	30.94	67,258	2.138	130986	1.95
F118	QT12-5DUP-0205-BI	14	4,4´-DDE	0.22	0.05	0.024	28.30	526,667	1.955	112512	0.21
F118	QT12-5DUP-0205-BI	14	4,4´-DDT	ND	0.05	0.024	28.30	288,937	1.955	< 25571	< 0.09
F118	QT12-5DUP-0205-BI	14	2,4´-DDD	0.07	0.05	0.024	28.30	75,521	1.955	35799	0.47
F118	QT12-5DUP-0205-BI	14	2,4´-DDE	0.13	0.05	0.024	28.30	516,595	1.955	66484	0.13
F118	QT12-5DUP-0205-BI	14	2,4´-DDT	ND	0.05	0.024	28.30	569,687	1.955	< 25571	< 0.04

Table 4: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 14-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length[1] (cm)	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber[3] (µL)	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx][4] (ng/L)
F118	QT12-5DUP-0205-BI	14	4,4´-DDD	0.31	0.05	0.024	28.30	67,258	1.955	158540	2.36
F119	QT12-5DUP-0507-BI	14	4,4´-DDE	0.45	0.05	0.025	29.98	526,667	2.071	217250	0.41
F119	QT12-5DUP-0507-BI	14	4,4´-DDT	ND	0.05	0.025	29.98	288,937	2.071	< 24139	< 0.08
F119	QT12-5DUP-0507-BI	14	2,4´-DDD	ND	0.05	0.025	29.98	75,521	2.071	< 24139	< 0.32
F119	QT12-5DUP-0507-BI	14	2,4´-DDE	0.11	0.05	0.025	29.98	516,595	2.071	53106	0.10
F119	QT12-5DUP-0507-BI	14	2,4´-DDT	ND	0.05	0.025	29.98	569,687	2.071	< 24139	< 0.04
F119	QT12-5DUP-0507-BI	14	4,4´-DDD	0.22	0.05	0.025	29.98	67,258	2.071	106211	1.58
F120	QT12-6-GRAB	14	4,4´-DDE	0.07	0.05	0.022	26.62	526,667	1.839	38057	0.07
F120	QT12-6-GRAB	14	4,4´-DDT	ND	0.05	0.022	26.62	288,937	1.839	< 27183	< 0.09
F120	QT12-6-GRAB	14	2,4´-DDD	ND	0.05	0.022	26.62	75,521	1.839	< 27183	< 0.36
F120	QT12-6-GRAB	14	2,4´-DDE	ND	0.05	0.022	26.62	516,595	1.839	< 27183	< 0.05
F120	QT12-6-GRAB	14	2,4´-DDT	ND	0.05	0.022	26.62	569,687	1.839	< 27183	< 0.05
F120	QT12-6-GRAB	14	4,4´-DDD	ND	0.05	0.022	26.62	67,258	1.839	< 27183	< 0.40
F121	QT12-7-GRAB	14	4,4´-DDE	0.08	0.05	0.023	27.82	526,667	1.922	41619	0.08
F121	QT12-7-GRAB	14	4,4´-DDT	ND	0.05	0.023	27.82	288,937	1.922	< 26012	< 0.09
F121	QT12-7-GRAB	14	2,4´-DDD	ND	0.05	0.023	27.82	75,521	1.922	< 26012	< 0.34
F121	QT12-7-GRAB	14	2,4´-DDE	0.08	0.05	0.023	27.82	516,595	1.922	41619	0.08
F121	QT12-7-GRAB	14	2,4´-DDT	ND	0.05	0.023	27.82	569,687	1.922	< 26012	< 0.05
F121	QT12-7-GRAB	14	4,4´-DDD	ND	0.05	0.023	27.82	67,258	1.922	< 26012	< 0.39

Footnotes:

1.) Fiber mass per length value 0.000834 g/cm

2.) Fiber:Water Partition Coefficient calculated as Log Kfs = LogKow - 0.91 (Mayer et al. 2000). Log Kow referenced from ATDSR (2002) Toxicological Profile for DDT, DDE

3.) 0.0691 µL polydimethylsiloxane (PDMS) per cm of this type of SPME fiber.

4.) Concentration of exposure solution = Concentration in fiber ÷ Kfs. If not detected, reported as < detection limit.

5.) Hexane was added to vial prior to weighing with fibers. For calculation of porewater concentrations, full recovery of 30cm SPME fiber is assumed.

Abbreviations:

cm: centimeter(s)
d: day(s)
g: gram(s)
Kfs: Fiber:Water Partition Coefficient
L: Liter(s)
µ: micro
NA: Not available
ND: Not detected
ng: nanogram(s)
PDMS: Polydimethylsiloxane
SPME: solid phase microextraction

Table 5: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 25-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length (cm)[1]	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber (µL)[3]	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx] (ng/L)[4]
F129	QT25-1-0002	14	2,4´-DDD	0.08	0.05	0.023	27.94	75,521	1.930	41,440	0.55
F129	QT25-1-0002	14	2,4´-DDE	0.14	0.05	0.023	27.94	516,595	1.930	72,520	0.14
F129	QT25-1-0002	14	2,4´-DDT	ND	0.05	0.023	27.94	569,687	1.930	< 25,900	< 0.05
F129	QT25-1-0002	14	4,4´-DDD	0.29	0.05	0.023	27.94	67,258	1.930	150,221	2.23
F129	QT25-1-0002	14	4,4´-DDE	0.33	0.05	0.023	27.94	526,667	1.930	170,941	0.32
F129	QT25-1-0002	14	4,4´-DDT	ND	0.05	0.023	27.94	288,937	1.930	< 25,900	< 0.09
F130	QT25-1-0205	14	2,4´-DDD	0.08	0.05	0.026	31.06	75,521	2.146	37,280	0.49
F130	QT25-1-0205	14	2,4´-DDE	0.12	0.05	0.026	31.06	516,595	2.146	55,920	0.11
F130	QT25-1-0205	14	2,4´-DDT	ND	0.05	0.026	31.06	569,687	2.146	< 23,300	< 0.04
F130	QT25-1-0205	14	4,4´-DDD	0.26	0.05	0.026	31.06	67,258	2.146	121,161	1.80
F130	QT25-1-0205	14	4,4´-DDE	0.62	0.05	0.026	31.06	526,667	2.146	288,922	0.55
F130	QT25-1-0205	14	4,4´-DDT	0.19	0.05	0.026	31.06	288,937	2.146	88,540	0.31
F131	QT25-1-0507	14	2,4´-DDD	0.07	0.05	0.025	30.22	75,521	2.088	33,526	0.44
F131	QT25-1-0507	14	2,4´-DDE	0.13	0.05	0.025	30.22	516,595	2.088	62,263	0.12
F131	QT25-1-0507	14	2,4´-DDT	ND	0.05	0.025	30.22	569,687	2.088	< 23,947	< 0.04
F131	QT25-1-0507	14	4,4´-DDD	0.43	0.05	0.025	30.22	67,258	2.088	205,947	3.06
F131	QT25-1-0507	14	4,4´-DDE	0.41	0.05	0.025	30.22	526,667	2.088	196,368	0.37
F131	QT25-1-0507	14	4,4´-DDT	0.07	0.05	0.025	30.22	288,937	2.088	33,526	0.12
F132	QT25-1-0002-AI	14	2,4´-DDD	0.11	0.05	0.027	31.89	75,521	2.204	49,911	0.66
F132	QT25-1-0002-AI	14	2,4´-DDE	0.18	0.05	0.027	31.89	516,595	2.204	81,673	0.16
F132	QT25-1-0002-AI	14	2,4´-DDT	ND	0.05	0.027	31.89	569,687	2.204	< 22,687	< 0.04
F132	QT25-1-0002-AI	14	4,4´-DDD	0.42	0.05	0.027	31.89	67,258	2.204	190,570	2.83
F132	QT25-1-0002-AI	14	4,4´-DDE	0.55	0.05	0.027	31.89	526,667	2.204	249,557	0.47
F132	QT25-1-0002-AI	14	4,4´-DDT	0.07	0.05	0.027	31.89	288,937	2.204	31,762	0.11
F133	QT25-1-0002-BI	14	2,4´-DDD	0.08	0.05	0.026	30.70	75,521	2.121	37,717	0.50
F133	QT25-1-0002-BI	14	2,4´-DDE	0.13	0.05	0.026	30.70	516,595	2.121	61,290	0.12
F133	QT25-1-0002-BI	14	2,4´-DDT	ND	0.05	0.026	30.70	569,687	2.121	< 23,573	< 0.04
F133	QT25-1-0002-BI	14	4,4´-DDD	1.34	0.05	0.026	30.70	67,258	2.121	631,761	9.39
F133	QT25-1-0002-BI	14	4,4´-DDE	0.37	0.05	0.026	30.70	526,667	2.121	174,441	0.33
F133	QT25-1-0002-BI	14	4,4´-DDT	0.21	0.05	0.026	30.70	288,937	2.121	99,007	0.34
F134	QT25-1-0205-BI	14	2,4´-DDD	0.27	0.05	0.025	29.74	75,521	2.055	131,401	1.74
F134	QT25-1-0205-BI	14	2,4´-DDE	0.22	0.05	0.025	29.74	516,595	2.055	107,068	0.21
F134	QT25-1-0205-BI	14	2,4´-DDT	0.12	0.05	0.025	29.74	569,687	2.055	58,401	0.10
F134	QT25-1-0205-BI	14	4,4´-DDD	16.2	0.05	0.025	29.74	67,258	2.055	7,884,086	117.22
F134	QT25-1-0205-BI	14	4,4´-DDE	0.43	0.05	0.025	29.74	526,667	2.055	209,269	0.40

Table 5: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 25-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length (cm)[1]	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber (µL)[3]	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx] (ng/L)[4]
F134	QT25-1-0205-BI	14	4,4´-DDT	0.78	0.05	0.025	29.74	288,937	2.055	379,604	1.31
F135	QT25-1-0507-BI	14	2,4´-DDD	0.05	0.05	0.026	31.06	75,521	2.146	23,300	0.31
F135	QT25-1-0507-BI	14	2,4´-DDE	0.13	0.05	0.026	31.06	516,595	2.146	60,580	0.12
F135	QT25-1-0507-BI	14	2,4´-DDT	ND	0.05	0.026	31.06	569,687	2.146	< 23,300	< 0.04
F135	QT25-1-0507-BI	14	4,4´-DDD	0.17	0.05	0.026	31.06	67,258	2.146	79,220	1.18
F135	QT25-1-0507-BI	14	4,4´-DDE	0.22	0.05	0.026	31.06	526,667	2.146	102,521	0.19
F135	QT25-1-0507-BI	14	4,4´-DDT	0.14	0.05	0.026	31.06	288,937	2.146	65,240	0.23
F136	QT25-2-0002	14	2,4´-DDD	ND	0.05	0.024	28.30	75,521	1.955	< 25,571	< 0.34
F136	QT25-2-0002	14	2,4´-DDE	ND	0.05	0.024	28.30	516,595	1.955	< 25,571	< 0.05
F136	QT25-2-0002	14	2,4´-DDT	ND	0.05	0.024	28.30	569,687	1.955	< 25,571	< 0.04
F136	QT25-2-0002	14	4,4´-DDD	0.16	0.05	0.024	28.30	67,258	1.955	81,827	1.22
F136	QT25-2-0002	14	4,4´-DDE	0.19	0.05	0.024	28.30	526,667	1.955	97,169	0.18
F136	QT25-2-0002	14	4,4´-DDT	0.05	0.05	0.024	28.30	288,937	1.955	25,571	0.09
F137	QT25-2-0205	14	2,4´-DDD	ND	0.05	0.025	30.46	75,521	2.104	< 23,759	< 0.31
F137	QT25-2-0205	14	2,4´-DDE	ND	0.05	0.025	30.46	516,595	2.104	< 23,759	< 0.05
F137	QT25-2-0205	14	2,4´-DDT	ND	0.05	0.025	30.46	569,687	2.104	< 23,759	< 0.04
F137	QT25-2-0205	14	4,4´-DDD	0.18	0.05	0.025	30.46	67,258	2.104	85,532	1.27
F137	QT25-2-0205	14	4,4´-DDE	0.33	0.05	0.025	30.46	526,667	2.104	156,808	0.30
F137	QT25-2-0205	14	4,4´-DDT	0.06	0.05	0.025	30.46	288,937	2.104	28,511	0.10
F138	QT25-2-0507	14	2,4´-DDD	ND	0.05	0.023	28.18	75,521	1.947	< 25,680	< 0.34
F138	QT25-2-0507	14	2,4´-DDE	0.41	0.05	0.023	28.18	516,595	1.947	210,574	0.41
F138	QT25-2-0507	14	2,4´-DDT	ND	0.05	0.023	28.18	569,687	1.947	< 25,680	< 0.05
F138	QT25-2-0507	14	4,4´-DDD	ND	0.05	0.023	28.18	67,258	1.947	< 25,680	< 0.38
F138	QT25-2-0507	14	4,4´-DDE	0.34	0.05	0.023	28.18	526,667	1.947	174,622	0.33
F138	QT25-2-0507	14	4,4´-DDT	2.75	0.05	0.023	28.18	288,937	1.947	1,412,384	4.89
F139	QT25-2-0002-AI	14	2,4´-DDD	0.08	0.05	0.026	31.29	75,521	2.162	36,995	0.49
F139	QT25-2-0002-AI	14	2,4´-DDE	0.21	0.05	0.026	31.29	516,595	2.162	97,111	0.19
F139	QT25-2-0002-AI	14	2,4´-DDT	ND	0.05	0.026	31.29	569,687	2.162	< 23,122	< 0.04
F139	QT25-2-0002-AI	14	4,4´-DDD	8.71	0.05	0.026	31.29	67,258	2.162	4,027,779	59.89
F139	QT25-2-0002-AI	14	4,4´-DDE	0.21	0.05	0.026	31.29	526,667	2.162	97,111	0.18
F139	QT25-2-0002-AI	14	4,4´-DDT	0.34	0.05	0.026	31.29	288,937	2.162	157,227	0.54
F140	QT25-2-0002-BI	14	2,4´-DDD	ND	0.05	0.026	31.65	75,521	2.187	< 22,859	< 0.30
F140	QT25-2-0002-BI	14	2,4´-DDE	0.35	0.05	0.026	31.65	516,595	2.187	160,012	0.31
F140	QT25-2-0002-BI	14	2,4´-DDT	ND	0.05	0.026	31.65	569,687	2.187	< 22,859	< 0.04
F140	QT25-2-0002-BI	14	4,4´-DDD	1.4	0.05	0.026	31.65	67,258	2.187	640,047	9.52

Table 5: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 25-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length (cm)[1]	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber (µL)[3]	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx] (ng/L)[4]
F140	QT25-2-0002-BI	14	4,4´-DDE	0.33	0.05	0.026	31.65	526,667	2.187	150,868	0.29
F140	QT25-2-0002-BI	14	4,4´-DDT	2.09	0.05	0.026	31.65	288,937	2.187	955,499	3.31
F141	QT25-2-0205-BI	14	2,4´-DDD	ND	0.05	0.026	31.06	75,521	2.146	< 23,300	< 0.31
F141	QT25-2-0205-BI	14	2,4´-DDE	0.3	0.05	0.026	31.06	516,595	2.146	139,801	0.27
F141	QT25-2-0205-BI	14	2,4´-DDT	ND	0.05	0.026	31.06	569,687	2.146	< 23,300	< 0.04
F141	QT25-2-0205-BI	14	4,4´-DDD	1.7	0.05	0.026	31.06	67,258	2.146	792,204	11.78
F141	QT25-2-0205-BI	14	4,4´-DDE	0.74	0.05	0.026	31.06	526,667	2.146	344,842	0.65
F141	QT25-2-0205-BI	14	4,4´-DDT	1.29	0.05	0.026	31.06	288,937	2.146	601,143	2.08
F142	QT25-2-0507-BI	14	2,4´-DDD	ND	0.05	0.025	29.38	75,521	2.030	< 24,632	< 0.33
F142	QT25-2-0507-BI	14	2,4´-DDE	0.21	0.05	0.025	29.38	516,595	2.030	103,453	0.20
F142	QT25-2-0507-BI	14	2,4´-DDT	ND	0.05	0.025	29.38	569,687	2.030	< 24,632	< 0.04
F142	QT25-2-0507-BI	14	4,4´-DDD	0.65	0.05	0.025	29.38	67,258	2.030	320,210	4.76
F142	QT25-2-0507-BI	14	4,4´-DDE	0.55	0.05	0.025	29.38	526,667	2.030	270,947	0.51
F142	QT25-2-0507-BI	14	4,4´-DDT	0.3	0.05	0.025	29.38	288,937	2.030	147,789	0.51
F143	QT25-3-0002	14	2,4´-DDD	0.1	0.05	0.026	30.70	75,521	2.121	47,146	0.62
F143	QT25-3-0002	14	2,4´-DDE	0.15	0.05	0.026	30.70	516,595	2.121	70,720	0.14
F143	QT25-3-0002	14	2,4´-DDT	ND	0.05	0.026	30.70	569,687	2.121	< 23,573	< 0.04
F143	QT25-3-0002	14	4,4´-DDD	0.29	0.05	0.026	30.70	67,258	2.121	136,724	2.03
F143	QT25-3-0002	14	4,4´-DDE	0.74	0.05	0.026	30.70	526,667	2.121	348,883	0.66
F143	QT25-3-0002	14	4,4´-DDT	0.05	0.05	0.026	30.70	288,937	2.121	23,573	0.08
F144	QT25-3-0205	14	2,4´-DDD	ND	0.05	0.024	28.54	75,521	1.972	< 25,356	< 0.34
F144	QT25-3-0205	14	2,4´-DDE	0.31	0.05	0.024	28.54	516,595	1.972	157,207	0.30
F144	QT25-3-0205	14	2,4´-DDT	ND	0.05	0.024	28.54	569,687	1.972	< 25,356	< 0.04
F144	QT25-3-0205	14	4,4´-DDD	0.25	0.05	0.024	28.54	67,258	1.972	126,780	1.88
F144	QT25-3-0205	14	4,4´-DDE	0.68	0.05	0.024	28.54	526,667	1.972	344,842	0.65
F144	QT25-3-0205	14	4,4´-DDT	0.92	0.05	0.024	28.54	288,937	1.972	466,551	1.61
F145	QT25-3-0507	14	2,4´-DDD	0.17	0.05	0.026	30.82	75,521	2.129	79,837	1.06
F145	QT25-3-0507	14	2,4´-DDE	0.2	0.05	0.026	30.82	516,595	2.129	93,926	0.18
F145	QT25-3-0507	14	2,4´-DDT	0.05	0.05	0.026	30.82	569,687	2.129	23,481	0.04
F145	QT25-3-0507	14	4,4´-DDD	0.42	0.05	0.026	30.82	67,258	2.129	197,244	2.93
F145	QT25-3-0507	14	4,4´-DDE	0.71	0.05	0.026	30.82	526,667	2.129	333,437	0.63
F145	QT25-3-0507	14	4,4´-DDT	ND	0.05	0.026	30.82	288,937	2.129	< 23,481	< 0.08
F146	QT25-3-0002-AI	14	2,4´-DDD	0.34	0.05	0.020	24.34	75,521	1.682	202,149	2.68
F146	QT25-3-0002-AI	14	2,4´-DDE	0.2	0.05	0.020	24.34	516,595	1.682	118,911	0.23
F146	QT25-3-0002-AI	14	2,4´-DDT	ND	0.05	0.020	24.34	569,687	1.682	< 29,728	< 0.05

Table 5: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 25-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length (cm)[1]	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber (µL)[3]	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx] (ng/L)[4]
F146	QT25-3-0002-AI	14	4,4´-DDD	0.47	0.05	0.020	24.34	67,258	1.682	279,441	4.15
F146	QT25-3-0002-AI	14	4,4´-DDE	0.84	0.05	0.020	24.34	526,667	1.682	499,426	0.95
F146	QT25-3-0002-AI	14	4,4´-DDT	0.26	0.05	0.020	24.34	288,937	1.682	154,584	0.54
F147	QT25-3-0002-BI	14	2,4´-DDD	ND	0.05	0.026	30.70	75,521	2.121	< 23,573	< 0.31
F147	QT25-3-0002-BI	14	2,4´-DDE	0.29	0.05	0.026	30.70	516,595	2.121	136,724	0.26
F147	QT25-3-0002-BI	14	2,4´-DDT	ND	0.05	0.026	30.70	569,687	2.121	< 23,573	< 0.04
F147	QT25-3-0002-BI	14	4,4´-DDD	15.1	0.05	0.026	30.70	67,258	2.121	7,119,098	105.85
F147	QT25-3-0002-BI	14	4,4´-DDE	0.4	0.05	0.026	30.70	526,667	2.121	188,585	0.36
F147	QT25-3-0002-BI	14	4,4´-DDT	0.81	0.05	0.026	30.70	288,937	2.121	381,885	1.32
F148	QT25-3-0205-BI	14	2,4´-DDD	ND	0.05	0.026	31.41	75,521	2.171	< 23,033	< 0.30
F148	QT25-3-0205-BI	14	2,4´-DDE	0.44	0.05	0.026	31.41	516,595	2.171	202,693	0.39
F148	QT25-3-0205-BI	14	2,4´-DDT	ND	0.05	0.026	31.41	569,687	2.171	< 23,033	< 0.04
F148	QT25-3-0205-BI	14	4,4´-DDD	0.5	0.05	0.026	31.41	67,258	2.171	230,333	3.42
F148	QT25-3-0205-BI	14	4,4´-DDE	0.32	0.05	0.026	31.41	526,667	2.171	147,413	0.28
F148	QT25-3-0205-BI	14	4,4´-DDT	1.09	0.05	0.026	31.41	288,937	2.171	502,127	1.74
F149	QT25-3-0507-BI	14	2,4´-DDD	ND	0.05	0.024	29.02	75,521	2.005	< 24,937	< 0.33
F149	QT25-3-0507-BI	14	2,4´-DDE	0.41	0.05	0.024	29.02	516,595	2.005	204,483	0.40
F149	QT25-3-0507-BI	14	2,4´-DDT	ND	0.05	0.024	29.02	569,687	2.005	< 24,937	< 0.04
F149	QT25-3-0507-BI	14	4,4´-DDD	0.34	0.05	0.024	29.02	67,258	2.005	169,571	2.52
F149	QT25-3-0507-BI	14	4,4´-DDE	0.38	0.05	0.024	29.02	526,667	2.005	189,521	0.36
F149	QT25-3-0507-BI	14	4,4´-DDT	0.54	0.05	0.024	29.02	288,937	2.005	269,319	0.93
F150	QT25-4-0002	14	2,4´-DDD	0.05	0.05	0.025	30.58	75,521	2.113	23,666	0.31
F150	QT25-4-0002	14	2,4´-DDE	0.07	0.05	0.025	30.58	516,595	2.113	33,132	0.06
F150	QT25-4-0002	14	2,4´-DDT	ND	0.05	0.025	30.58	569,687	2.113	< 23,666	< 0.04
F150	QT25-4-0002	14	4,4´-DDD	0.12	0.05	0.025	30.58	67,258	2.113	56,797	0.84
F150	QT25-4-0002	14	4,4´-DDE	0.19	0.05	0.025	30.58	526,667	2.113	89,929	0.17
F150	QT25-4-0002	14	4,4´-DDT	ND	0.05	0.025	30.58	288,937	2.113	< 23,666	< 0.08
F151	QT25-4-0205	14	2,4´-DDD	0.05	0.05	0.026	30.58	75,521	2.113	23,666	0.31
F151	QT25-4-0205	14	2,4´-DDE	0.1	0.05	0.026	30.58	516,595	2.113	47,331	0.09
F151	QT25-4-0205	14	2,4´-DDT	ND	0.05	0.026	30.58	569,687	2.113	< 23,666	< 0.04
F151	QT25-4-0205	14	4,4´-DDD	0.12	0.05	0.026	30.58	67,258	2.113	56,797	0.84
F151	QT25-4-0205	14	4,4´-DDE	0.36	0.05	0.026	30.58	526,667	2.113	170,392	0.32
F151	QT25-4-0205	14	4,4´-DDT	0.12	0.05	0.026	30.58	288,937	2.113	56,797	0.20
F152	QT25-4-0507	14	2,4´-DDD	ND	0.05	0.022	26.74	75,521	1.848	< 27,062	< 0.36
F152	QT25-4-0507	14	2,4´-DDE	ND	0.05	0.022	26.74	516,595	1.848	< 27,062	< 0.05

Table 5: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 25-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length (cm)[1]	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber (µL)[3]	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx] (ng/L)[4]
F152	QT25-4-0507	14	2,4´-DDT	ND	0.05	0.022	26.74	569,687	1.848	< 27,062	< 0.05
F152	QT25-4-0507	14	4,4´-DDD	0.27	0.05	0.022	26.74	67,258	1.848	146,133	2.17
F152	QT25-4-0507	14	4,4´-DDE	0.6	0.05	0.022	26.74	526,667	1.848	324,739	0.62
F152	QT25-4-0507	14	4,4´-DDT	0.13	0.05	0.022	26.74	288,937	1.848	70,360	0.24
F153	QT25-4-0002-AI	14	2,4´-DDD	ND	0.05	0.027	31.89	75,521	2.204	< 22,687	< 0.30
F153	QT25-4-0002-AI	14	2,4´-DDE	ND	0.05	0.027	31.89	516,595	2.204	< 22,687	< 0.04
F153	QT25-4-0002-AI	14	2,4´-DDT	ND	0.05	0.027	31.89	569,687	2.204	< 22,687	< 0.04
F153	QT25-4-0002-AI	14	4,4´-DDD	0.16	0.05	0.027	31.89	67,258	2.204	72,598	1.08
F153	QT25-4-0002-AI	14	4,4´-DDE	0.27	0.05	0.027	31.89	526,667	2.204	122,510	0.23
F153	QT25-4-0002-AI	14	4,4´-DDT	ND	0.05	0.027	31.89	288,937	2.204	< 22,687	< 0.08
F154	QT25-4-0002-BI	14	2,4´-DDD	0.05	0.05	0.026	31.29	75,521	2.162	23,122	0.31
F154	QT25-4-0002-BI	14	2,4´-DDE	0.06	0.05	0.026	31.29	516,595	2.162	27,746	0.05
F154	QT25-4-0002-BI	14	2,4´-DDT	ND	0.05	0.026	31.29	569,687	2.162	< 23,122	< 0.04
F154	QT25-4-0002-BI	14	4,4´-DDD	0.24	0.05	0.026	31.29	67,258	2.162	110,984	1.65
F154	QT25-4-0002-BI	14	4,4´-DDE	0.22	0.05	0.026	31.29	526,667	2.162	101,735	0.19
F154	QT25-4-0002-BI	14	4,4´-DDT	ND	0.05	0.026	31.29	288,937	2.162	< 23,122	< 0.08
F155	QT25-4-0205-BI	14	2,4´-DDD	ND	0.05	0.023	27.34	75,521	1.889	< 26,468	< 0.35
F155	QT25-4-0205-BI	14	2,4´-DDE	0.08	0.05	0.023	27.34	516,595	1.889	42,349	0.08
F155	QT25-4-0205-BI	14	2,4´-DDT	ND	0.05	0.023	27.34	569,687	1.889	< 26,468	< 0.05
F155	QT25-4-0205-BI	14	4,4´-DDD	0.09	0.05	0.023	27.34	67,258	1.889	47,643	0.71
F155	QT25-4-0205-BI	14	4,4´-DDE	0.2	0.05	0.023	27.34	526,667	1.889	105,872	0.20
F155	QT25-4-0205-BI	14	4,4´-DDT	0.07	0.05	0.023	27.34	288,937	1.889	37,055	0.13
F156	QT25-4-0507-BI	14	2,4´-DDD	ND	0.05	0.026	31.41	75,521	2.171	< 23,033	< 0.30
F156	QT25-4-0507-BI	14	2,4´-DDE	0.13	0.05	0.026	31.41	516,595	2.171	59,887	0.12
F156	QT25-4-0507-BI	14	2,4´-DDT	ND	0.05	0.026	31.41	569,687	2.171	< 23,033	< 0.04
F156	QT25-4-0507-BI	14	4,4´-DDD	0.2	0.05	0.026	31.41	67,258	2.171	92,133	1.37
F156	QT25-4-0507-BI	14	4,4´-DDE	1.02	0.05	0.026	31.41	526,667	2.171	469,880	0.89
F156	QT25-4-0507-BI	14	4,4´-DDT	0.05	0.05	0.026	31.41	288,937	2.171	23,033	0.08
F157	QT25-5-0002	14	2,4´-DDD	ND	0.05	0.027	32.01	75,521	2.212	< 22,602	< 0.30
F157	QT25-5-0002	14	2,4´-DDE	ND	0.05	0.027	32.01	516,595	2.212	< 22,602	< 0.04
F157	QT25-5-0002	14	2,4´-DDT	ND	0.05	0.027	32.01	569,687	2.212	< 22,602	< 0.04
F157	QT25-5-0002	14	4,4´-DDD	0.1	0.05	0.027	32.01	67,258	2.212	45,204	0.67
F157	QT25-5-0002	14	4,4´-DDE	0.41	0.05	0.027	32.01	526,667	2.212	185,336	0.35
F157	QT25-5-0002	14	4,4´-DDT	0.32	0.05	0.027	32.01	288,937	2.212	144,653	0.50
F158	QT25-5-0205	14	2,4´-DDD	ND	0.05	0.027	32.01	75,521	2.212	< 22,602	< 0.30

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SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length (cm)[1]	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber (µL)[3]	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx] (ng/L)[4]
F158	QT25-5-0205	14	2,4´-DDE	ND	0.05	0.027	32.01	516,595	2.212	< 22,602	< 0.04
F158	QT25-5-0205	14	2,4´-DDT	ND	0.05	0.027	32.01	569,687	2.212	< 22,602	< 0.04
F158	QT25-5-0205	14	4,4´-DDD	0.12	0.05	0.027	32.01	67,258	2.212	54,245	0.81
F158	QT25-5-0205	14	4,4´-DDE	0.43	0.05	0.027	32.01	526,667	2.212	194,377	0.37
F158	QT25-5-0205	14	4,4´-DDT	0.06	0.05	0.027	32.01	288,937	2.212	27,122	0.09
F159	QT25-5-0507	14	2,4´-DDD	ND	0.05	0.025	29.86	75,521	2.063	< 24,236	< 0.32
F159	QT25-5-0507	14	2,4´-DDE	ND	0.05	0.025	29.86	516,595	2.063	< 24,236	< 0.05
F159	QT25-5-0507	14	2,4´-DDT	1.72	0.05	0.025	29.86	569,687	2.063	833,714	1.46
F159	QT25-5-0507	14	4,4´-DDD	0.13	0.05	0.025	29.86	67,258	2.063	63,013	0.94
F159	QT25-5-0507	14	4,4´-DDE	0.29	0.05	0.025	29.86	526,667	2.063	140,568	0.27
F159	QT25-5-0507	14	4,4´-DDT	1.63	0.05	0.025	29.86	288,937	2.063	790,089	2.73
F160	QT25-5-0002-AI	14	2,4´-DDD	ND	0.05	0.026	30.58	75,521	2.113	< 23,666	< 0.31
F160	QT25-5-0002-AI	14	2,4´-DDE	ND	0.05	0.026	30.58	516,595	2.113	< 23,666	< 0.05
F160	QT25-5-0002-AI	14	2,4´-DDT	ND	0.05	0.026	30.58	569,687	2.113	< 23,666	< 0.04
F160	QT25-5-0002-AI	14	4,4´-DDD	0.1	0.05	0.026	30.58	67,258	2.113	47,331	0.70
F160	QT25-5-0002-AI	14	4,4´-DDE	0.41	0.05	0.026	30.58	526,667	2.113	194,058	0.37
F160	QT25-5-0002-AI	14	4,4´-DDT	0.07	0.05	0.026	30.58	288,937	2.113	33,132	0.11
F161	QT25-5-0002-BI	14	2,4´-DDD	ND	0.05	0.025	29.86	75,521	2.063	< 24,236	< 0.32
F161	QT25-5-0002-BI	14	2,4´-DDE	0.13	0.05	0.025	29.86	516,595	2.063	63,013	0.12
F161	QT25-5-0002-BI	14	2,4´-DDT	ND	0.05	0.025	29.86	569,687	2.063	< 24,236	< 0.04
F161	QT25-5-0002-BI	14	4,4´-DDD	0.25	0.05	0.025	29.86	67,258	2.063	121,179	1.80
F161	QT25-5-0002-BI	14	4,4´-DDE	0.39	0.05	0.025	29.86	526,667	2.063	189,040	0.36
F161	QT25-5-0002-BI	14	4,4´-DDT	0.08	0.05	0.025	29.86	288,937	2.063	38,777	0.13
F162	QT25-5-0205-BI	14	2,4´-DDD	ND	0.05	0.026	30.94	75,521	2.138	< 23,390	< 0.31
F162	QT25-5-0205-BI	14	2,4´-DDE	0.2	0.05	0.026	30.94	516,595	2.138	93,562	0.18
F162	QT25-5-0205-BI	14	2,4´-DDT	ND	0.05	0.026	30.94	569,687	2.138	< 23,390	< 0.04
F162	QT25-5-0205-BI	14	4,4´-DDD	0.51	0.05	0.026	30.94	67,258	2.138	238,582	3.55
F162	QT25-5-0205-BI	14	4,4´-DDE	0.44	0.05	0.026	30.94	526,667	2.138	205,836	0.39
F162	QT25-5-0205-BI	14	4,4´-DDT	0.1	0.05	0.026	30.94	288,937	2.138	46,781	0.16
F163	QT25-5-0507-BI	14	2,4´-DDD	ND	0.05	0.025	29.86	75,521	2.063	< 24,236	< 0.32
F163	QT25-5-0507-BI	14	2,4´-DDE	0.2	0.05	0.025	29.86	516,595	2.063	96,943	0.19
F163	QT25-5-0507-BI	14	2,4´-DDT	ND	0.05	0.025	29.86	569,687	2.063	< 24,236	< 0.04
F163	QT25-5-0507-BI	14	4,4´-DDD	0.65	0.05	0.025	29.86	67,258	2.063	315,066	4.68
F163	QT25-5-0507-BI	14	4,4´-DDE	0.21	0.05	0.025	29.86	526,667	2.063	101,791	0.19
F163	QT25-5-0507-BI	14	4,4´-DDT	0.08	0.05	0.025	29.86	288,937	2.063	38,777	0.13

Table 5: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 25-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length (cm)[1]	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber (µL)[3]	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx] (ng/L)[4]
F164	QT25-5DUP-0002	14	2,4´-DDD	ND	0.05	0.025	30.00	75,521	2.073	< 24,120	< 0.32
F164	QT25-5DUP-0002	14	2,4´-DDE	ND	0.05	0.025	30.00	516,595	2.073	< 24,120	< 0.05
F164	QT25-5DUP-0002	14	2,4´-DDT	ND	0.05	0.025	30.00	569,687	2.073	< 24,120	< 0.04
F164	QT25-5DUP-0002	14	4,4´-DDD	ND	0.05	0.025	30.00	67,258	2.073	< 24,120	< 0.36
F164	QT25-5DUP-0002	14	4,4´-DDE	0.19	0.05	0.025	30.00	526,667	2.073	91,655	0.17
F164	QT25-5DUP-0002	14	4,4´-DDT	ND	0.05	0.025	30.00	288,937	2.073	< 24,120	< 0.08
F165	QT25-5DUP-0205	14	2,4´-DDD	ND	0.05	0.027	32.01	75,521	2.212	< 22,602	< 0.30
F165	QT25-5DUP-0205	14	2,4´-DDE	ND	0.05	0.027	32.01	516,595	2.212	< 22,602	< 0.04
F165	QT25-5DUP-0205	14	2,4´-DDT	ND	0.05	0.027	32.01	569,687	2.212	< 22,602	< 0.04
F165	QT25-5DUP-0205	14	4,4´-DDD	0.11	0.05	0.027	32.01	67,258	2.212	49,724	0.74
F165	QT25-5DUP-0205	14	4,4´-DDE	0.4	0.05	0.027	32.01	526,667	2.212	180,816	0.34
F165	QT25-5DUP-0205	14	4,4´-DDT	0.07	0.05	0.027	32.01	288,937	2.212	31,643	0.11
F166	QT25-5DUP-0507	14	2,4´-DDD	ND	0.05	0.026	30.58	75,521	2.113	< 23,666	< 0.31
F166	QT25-5DUP-0507	14	2,4´-DDE	ND	0.05	0.026	30.58	516,595	2.113	< 23,666	< 0.05
F166	QT25-5DUP-0507	14	2,4´-DDT	ND	0.05	0.026	30.58	569,687	2.113	< 23,666	< 0.04
F166	QT25-5DUP-0507	14	4,4´-DDD	0.16	0.05	0.026	30.58	67,258	2.113	75,730	1.13
F166	QT25-5DUP-0507	14	4,4´-DDE	0.38	0.05	0.026	30.58	526,667	2.113	179,859	0.34
F166	QT25-5DUP-0507	14	4,4´-DDT	0.25	0.05	0.026	30.58	288,937	2.113	118,328	0.41
F167	QT25-5DUP-0002-AI	14	2,4´-DDD	ND	0.05	0.027	31.77	75,521	2.196	< 22,773	< 0.30
F167	QT25-5DUP-0002-AI	14	2,4´-DDE	ND	0.05	0.027	31.77	516,595	2.196	< 22,773	< 0.04
F167	QT25-5DUP-0002-AI	14	2,4´-DDT	ND	0.05	0.027	31.77	569,687	2.196	< 22,773	< 0.04
F167	QT25-5DUP-0002-AI	14	4,4´-DDD	ND	0.05	0.027	31.77	67,258	2.196	< 22,773	< 0.34
F167	QT25-5DUP-0002-AI	14	4,4´-DDE	0.17	0.05	0.027	31.77	526,667	2.196	77,427	0.15
F167	QT25-5DUP-0002-AI	14	4,4´-DDT	ND	0.05	0.027	31.77	288,937	2.196	< 22,773	< 0.08
F168	QT25-5DUP-0002-BI	14	2,4´-DDD	0.05	0.05	0.026	31.53	75,521	2.179	22,946	0.30
F168	QT25-5DUP-0002-BI	14	2,4´-DDE	0.15	0.05	0.026	31.53	516,595	2.179	68,837	0.13
F168	QT25-5DUP-0002-BI	14	2,4´-DDT	ND	0.05	0.026	31.53	569,687	2.179	< 22,946	< 0.04
F168	QT25-5DUP-0002-BI	14	4,4´-DDD	ND	0.05	0.026	31.53	67,258	2.179	< 22,946	< 0.34
F168	QT25-5DUP-0002-BI	14	4,4´-DDE	0.42	0.05	0.026	31.53	526,667	2.179	192,744	0.37
F168	QT25-5DUP-0002-BI	14	4,4´-DDT	0.11	0.05	0.026	31.53	288,937	2.179	50,481	0.17
F169	QT25-5DUP-0205-BI	14	2,4´-DDD	ND	0.05	0.023	28.06	75,521	1.939	< 25,789	< 0.34
F169	QT25-5DUP-0205-BI	14	2,4´-DDE	0.14	0.05	0.023	28.06	516,595	1.939	72,210	0.14
F169	QT25-5DUP-0205-BI	14	2,4´-DDT	ND	0.05	0.023	28.06	569,687	1.939	< 25,789	< 0.05
F169	QT25-5DUP-0205-BI	14	4,4´-DDD	0.44	0.05	0.023	28.06	67,258	1.939	226,947	3.37
F169	QT25-5DUP-0205-BI	14	4,4´-DDE	0.22	0.05	0.023	28.06	526,667	1.939	113,474	0.22

Table 5: Field, Laboratory Data and Calculations for SPME Ex-Situ Study during 25-Month Event
SSC Pacific
Quantico, Virginia

Extract Vial ID	Sample ID	Exposure Time (d)	Analyte	Reported Mass on SPME (ng)	Detection Limit (ng)	Fiber Weight (g)	Fiber Length (cm)[1]	Fiber:Water Partition Coefficient[2] (Kfs, L/L PDMS)	Volume of PDMS on fiber (µL)[3]	[PDMS DDx] (ng/L)	[Freely Dissolved Pore Water DDx] (ng/L)[4]
F169	QT25-5DUP-0205-BI	14	4,4´-DDT	0.09	0.05	0.023	28.06	288,937	1.939	46,421	0.16
F170	QT25-5DUP-0507-BI	14	2,4´-DDD	ND	0.05	0.027	32.25	75,521	2.229	< 22,434	< 0.30
F170	QT25-5DUP-0507-BI	14	2,4´-DDE	0.21	0.05	0.027	32.25	516,595	2.229	94,223	0.18
F170	QT25-5DUP-0507-BI	14	2,4´-DDT	ND	0.05	0.027	32.25	569,687	2.229	< 22,434	< 0.04
F170	QT25-5DUP-0507-BI	14	4,4´-DDD	0.76	0.05	0.027	32.25	67,258	2.229	340,996	5.07
F170	QT25-5DUP-0507-BI	14	4,4´-DDE	0.25	0.05	0.027	32.25	526,667	2.229	112,170	0.21
F170	QT25-5DUP-0507-BI	14	4,4´-DDT	0.13	0.05	0.027	32.25	288,937	2.229	58,328	0.20
F171	QT25-6-GRAB	14	2,4´-DDD	ND	0.05	0.027	31.77	75,521	2.196	< 22,773	< 0.30
F171	QT25-6-GRAB	14	2,4´-DDE	ND	0.05	0.027	31.77	516,595	2.196	< 22,773	< 0.04
F171	QT25-6-GRAB	14	2,4´-DDT	ND	0.05	0.027	31.77	569,687	2.196	< 22,773	< 0.04
F171	QT25-6-GRAB	14	4,4´-DDD	ND	0.05	0.027	31.77	67,258	2.196	< 22,773	< 0.34
F171	QT25-6-GRAB	14	4,4´-DDE	0.08	0.05	0.027	31.77	526,667	2.196	36,436	0.07
F171	QT25-6-GRAB	14	4,4´-DDT	0.05	0.05	0.027	31.77	288,937	2.196	22,773	0.08
F172	QT25-7-GRAB	14	2,4´-DDD	ND	0.05	0.024	29.26	75,521	2.022	< 24,733	< 0.33
F172	QT25-7-GRAB	14	2,4´-DDE	ND	0.05	0.024	29.26	516,595	2.022	< 24,733	< 0.05
F172	QT25-7-GRAB	14	2,4´-DDT	ND	0.05	0.024	29.26	569,687	2.022	< 24,733	< 0.04
F172	QT25-7-GRAB	14	4,4´-DDD	ND	0.05	0.024	29.26	67,258	2.022	< 24,733	< 0.37
F172	QT25-7-GRAB	14	4,4´-DDE	ND	0.05	0.024	29.26	526,667	2.022	< 24,733	< 0.05
F172	QT25-7-GRAB	14	4,4´-DDT	ND	0.05	0.024	29.26	288,937	2.022	< 24,733	< 0.09

Footnotes:

1.) Fiber mass per length value 0.000834 g/cm

2.) Fiber:Water Partition Coefficient calculated as Log Kfs = LogKow - 0.91 (Mayer et al. 2000). Log Kow referenced from ATDSR (2002)

3.) 0.0691 µL polydimethylsiloxane (PDMS) per cm of this type of SPME fiber.

4.) Concentration of exposure solution = Concentration in fiber ÷ Kfs. If not detected, reported as < detection limit.

Abbreviations:

cm: centimeter(s)
d: day(s)
g: gram(s)
Kfs: Fiber:Water Partition Coefficient
L: Liter(s)
µ: micro
NA: Not available
ND: Not detected
ng: nanogram(s)
PDMS: Polydimethylsiloxane
SPME: solid phase microextraction

Baseline 2 Sample ID Lookup Table

Extract Vial ID	Sample ID
F11	QE-Sed 1
F12	QE-Sed 1
F13	QE-Sed 1
F14	B2-CAP01-0002
F15	B2-CAP01-0205
F16	B2-CAP01-0507
F17	B2-CAP02-0002
F18	B2-CAP02-0205
F19	B2-CAP02-0507
F20	B2-CAP03-0002
F21	B2-CAP03-0205
F22	B2-CAP03-0507
F23	B2-CAPX-0002
F24	B2-CAPX-0205
F25	B2-CAPX-0507
F26	B2-CAP1-GRAB
F27	B2-CAP2-GRAB
F28	B2-CAP3-GRAB
F29	B2-OFF1-GRAB
F30	B2-OFF2-GRAB

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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - SPME Extracts
Project Number: CG898574-0001

Client ID	Procedural Blank	Procedural Blank
Battelle ID	BN429PB-P	BN431PB-P
Sample Type	PB	PB
Collection Date	11/11/2009	11/11/2009
Extraction Date	11/11/2009	11/11/2009
Analysis Date	11/12/2009	11/12/2009
Analytical Instrument	MS	MS
% Moisture	NA	NA
% Lipid	NA	NA
Matrix	SEDIMENT	SEDIMENT
Sample Size	NA	NA
Size Unit-Basis	G_DRY	G_DRY
Units	NG_DRY	NG_DRY
2,4'-DDE	0.08 U	0.08 U
4,4'-DDE	0.09 U	0.09 U
2,4'-DDD	0.18 U	0.18 U
4,4'-DDD	0.20 U	0.20 U
2,4'-DDT	0.23 U	0.23 U
4,4'-DDT	0.14 U	0.14 U
Surrogate Recoveries (%)		
CI3(34)	110	111
CI6(152)	110	111

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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - SPME Extracts
Project Number: CG898574-0001

Client ID	Laboratory Control Sample				Laboratory Control Sample			
Battelle ID	BN430LCS-P				BN432LCS-P			
Sample Type	LCS				LCS			
Collection Date	11/11/2009				11/11/2009			
Extraction Date	11/11/2009				11/11/2009			
Analysis Date	11/12/2009				11/12/2009			
Analytical Instrument	MS				MS			
% Moisture	NA				NA			
% Lipid	NA				NA			
Matrix	SEDIMENT				SEDIMENT			
Sample Size	NA				NA			
Size Unit-Basis	G_DRY				G_DRY			
Units	NG_DRY	**Target**	**% REC**	**Qual**	NG_DRY	**Target**	**% REC**	**Qual**
2,4'-DDE	7.48	7.54	99		7.35	7.54	97	
4,4'-DDE	7.32	7.50	98		7.41	7.50	99	
2,4'-DDD	7.22	7.51	96		7.09	7.51	94	
4,4'-DDD	7.50	7.51	100		7.28	7.51	97	
2,4'-DDT	7.93	7.53	105		8.05	7.53	107	
4,4'-DDT	8.03	7.50	107		8.41	7.50	112	
Surrogate Recoveries (%)								
CI3(34)	107				104			
CI6(152)	107				102			

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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - SPME Extracts
Project Number: CG898574-0001

Client ID	F11-SPME	F12-SPME	F13-SPME	F14-SPME
Battelle ID	Q8511-P	Q8512-P	Q8513-P	Q8514-P
Sample Type	SA	SA	SA	SA
Collection Date	11/09/2009	11/09/2009	11/09/2009	11/09/2009
Extraction Date	11/11/2009	11/11/2009	11/11/2009	11/11/2009
Analysis Date	11/12/2009	11/12/2009	11/12/2009	11/12/2009
Analytical Instrument	MS	MS	MS	MS
% Moisture	NA	NA	NA	NA
% Lipid	NA	NA	NA	NA
Matrix	SPME	SPME	SPME	SPME
Sample Size	NA	NA	NA	NA
Size Unit-Basis	G_DRY	G_DRY	G_DRY	G_DRY
Units	NG_DRY	NG_DRY	NG_DRY	NG_DRY
2,4'-DDE	0.08 U	0.08 U	0.08 U	0.08 U
4,4'-DDE	0.34	0.35	0.40	1.19
2,4'-DDD	0.29	0.27	0.25	0.18 U
4,4'-DDD	0.77	0.74	0.62	0.47
2,4'-DDT	0.23 U	0.23 U	0.23 U	0.23 U
4,4'-DDT	0.14 U	0.14 U	0.14 U	0.14 U
Surrogate Recoveries (%)				
PCB3(34)	111	108	108	111
PCB6(152)	112	102	101	101

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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - SPME Extracts
Project Number: CG898574-0001

Client ID	F15-SPME	F16-SPME	F17-SPME	F18-SPME
Battelle ID	Q8515-P	Q8516-P	Q8517-P	Q8518-P
Sample Type	SA	SA	SA	SA
Collection Date	11/09/2009	11/09/2009	11/09/2009	11/09/2009
Extraction Date	11/11/2009	11/11/2009	11/11/2009	11/11/2009
Analysis Date	11/12/2009	11/13/2009	11/13/2009	11/13/2009
Analytical Instrument	MS	MS	MS	MS
% Moisture	NA	NA	NA	NA
% Lipid	NA	NA	NA	NA
Matrix	SPME	SPME	SPME	SPME
Sample Size	NA	NA	NA	NA
Size Unit-Basis	G_DRY	G_DRY	G_DRY	G_DRY
Units	NG_DRY	NG_DRY	NG_DRY	NG_DRY
2,4'-DDE	0.08 U	0.08 U	0.08 U	0.08 U
4,4'-DDE	0.33	1.06	0.74	0.31
2,4'-DDD	0.18 U	0.02 J	0.11 J	0.20 J
4,4'-DDD	0.24	0.17 J	0.84	0.88
2,4'-DDT	0.23 U	0.23 U	0.23 U	0.23 U
4,4'-DDT	0.14 U	0.14 U	0.14 U	0.14 U
Surrogate Recoveries (%)				
Cl3(34)	108	110	110	109
Cl6(152)	101	104	103	106

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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - SPME Extracts
Project Number: CG898574-0001

Client ID	F19-SPME	F20-SPME	F21-SPME	F22-SPME
Battelle ID	Q8519-P	Q8520-P	Q8521-P	Q8522-P
Sample Type	SA	SA	SA	SA
Collection Date	11/09/2009	11/09/2009	11/09/2009	11/09/2009
Extraction Date	11/11/2009	11/11/2009	11/11/2009	11/11/2009
Analysis Date	11/13/2009	11/13/2009	11/13/2009	11/13/2009
Analytical Instrument	MS	MS	MS	MS
% Moisture	NA	NA	NA	NA
% Lipid	NA	NA	NA	NA
Matrix	SPME	SPME	SPME	SPME
Sample Size	NA	NA	NA	NA
Size Unit-Basis	G_DRY	G_DRY	G_DRY	G_DRY
Units	NG_DRY	NG_DRY	NG_DRY	NG_DRY
2,4'-DDE	0.08 U	0.08 U	0.08 U	0.08 U
4,4'-DDE	0.56	1.09	1.31	1.02
2,4'-DDD	0.33	0.17 J	0.31	0.15 J
4,4'-DDD	0.48	0.48	1.87	1.24
2,4'-DDT	0.23 U	0.23 U	0.23 U	0.23 U
4,4'-DDT	0.14 U	0.14 U	0.14 U	0.14 U
Surrogate Recoveries (%)				
PCB3(34)	109	108	113	105
PCB6(152)	105	104	110	102

Not Surrogate Corrected

Analyzed By Thorn, Jonathan
11/16/2009

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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - SPME Extracts
Project Number: CG898574-0001

Client ID	F23-SPME	F24-SPME	F25-SPME	F26-SPME
Battelle ID	Q8523-P	Q8524-P	Q8525-P	Q8526-P
Sample Type	SA	SA	SA	SA
Collection Date	11/09/2009	11/09/2009	11/09/2009	11/09/2009
Extraction Date	11/11/2009	11/11/2009	11/11/2009	11/11/2009
Analysis Date	11/13/2009	11/13/2009	11/13/2009	11/13/2009
Analytical Instrument	MS	MS	MS	MS
% Moisture	NA	NA	NA	NA
% Lipid	NA	NA	NA	NA
Matrix	SPME	SPME	SPME	SPME
Sample Size	NA	NA	NA	NA
Size Unit-Basis	G_DRY	G_DRY	G_DRY	G_DRY
Units	NG_DRY	NG_DRY	NG_DRY	NG_DRY
2,4'-DDE	0.08 U	0.08 U	0.08 U	0.08 U
4,4'-DDE	0.69	1.48	0.47	0.11 J
2,4'-DDD	0.18 U	0.04 J	0.18 U	0.18 U
4,4'-DDD	0.13 J	0.12 J	0.38	0.71
2,4'-DDT	0.23 U	0.23 U	0.23 U	0.23 U
4,4'-DDT	0.14 U	0.14 U	0.14 U	1.27
Surrogate Recoveries (%)				
CI3(34)	109	109	107	110
CI6(152)	105	111	103	105

Analyzed By Thorn, Jonathan
11/16/2009

Not Surrogate Corrected

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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - SPME Extracts
Project Number: CG898574-0001

Client ID	F27-SPME	F28-SPME	F29-SPME	F30-SPME
Battelle ID	Q8527-P	Q8528-P	Q8529-P	Q8530-P
Sample Type	SA	SA	SA	SA
Collection Date	11/09/2009	11/09/2009	11/09/2009	11/09/2009
Extraction Date	11/11/2009	11/11/2009	11/11/2009	11/11/2009
Analysis Date	11/13/2009	11/13/2009	11/13/2009	11/13/2009
Analytical Instrument	MS	MS	MS	MS
% Moisture	NA	NA	NA	NA
% Lipid	NA	NA	NA	NA
Matrix	SPME	SPME	SPME	SPME
Sample Size	NA	NA	NA	NA
Size Unit-Basis	G_DRY	G_DRY	G_DRY	G_DRY
Units	NG_DRY	NG_DRY	NG_DRY	NG_DRY
2,4'-DDE	0.08 U	0.08 U	0.08 U	0.08 U
4,4'-DDE	1.26	0.10 J	0.09 U	0.09 U
2,4'-DDD	0.14 J	0.06 J	0.18 U	0.18 U
4,4'-DDD	0.20 J	0.42	0.20 U	0.20 U
2,4'-DDT	0.23 U	0.23 U	0.23 U	0.23 U
4,4'-DDT	0.14 U	0.14 U	0.14 U	0.14 U
Surrogate Recoveries (%)				
PCB3(34)	109	109	109	109
PCB166(152)	106	103	101	107

Analyzed By Thorn, Jonathan
11/16/2009

Not Surrogate Corrected

Battelle
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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
roject Name: SPAWAR Quantico Embayment EMNR - SPME Extracts
Project Number: CG898574-0001

Client ID	F31-SPME (spike)	F32-SPME (spike)	F33-SPME (spike)
Battelle ID	Q8531-P	Q8532-P	Q8533-P
Sample Type	SA	SA	SA
Collection Date	11/09/2009	11/09/2009	11/09/2009
Extraction Date	11/11/2009	11/11/2009	11/11/2009
Analysis Date	11/13/2009	11/13/2009	11/13/2009
Analytical Instrument	MS	MS	MS
% Moisture	NA	NA	NA
% Lipid	NA	NA	NA
Matrix	SPME	SPME	SPME
Sample Size	NA	NA	NA
Size Unit-Basis	G_DRY	G_DRY	G_DRY
Units	NG_DRY	NG_DRY	NG_DRY
2,4'-DDE	1.45	1.24	0.08 U
4,4'-DDE	1.56	1.26	0.09 U
2,4'-DDD	0.16 J	0.17 J	0.18 U
4,4'-DDD	0.02 J	0.20 U	0.20 U
2,4'-DDT	1.54	1.27	0.23 U
4,4'-DDT	0.71	0.65	0.14 U
Surrogate Recoveries (%)			
I3(34)	112	105	108
CI6(152)	109	100	106

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ssary of Data Qualifiers

Flag:	Application:
B	Analyte concentration found in the sample at a concentration <5x the level found in the procedural blank.
D	Dilution Run. Initial run outside linear range of instrument.
E	Estimate, result is greater than the highest concentration level in the calibration.
H	Surrogate diluted out. Used when surrogate recovery is affected by excessive dilution of the sample extract.
J	Analyte detected below the sample-specific Reporting Limit (RL).
m	Confirmation column manually over-ridden by analyst, dual column quantitative analysis only.
ME	Significant Matrix Interference - Estimated value.
MI	Significant Matrix Interference - value could not be determined or estimated.
n	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO), but meets the contingency criteria.
N	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not applicable
p	Dual column value exceeds RPD criteria, dual column quantitative analysis only.
T	Holding Time (HT) exceeded.
U	Analyte not detected at 3:1 signal:noise ratio.

2-Month ex situ Porewater Sample ID Lookup Table

Sample Name	Extract Sample Number
QT2-1-0002	F31
QT2-1-0205	F32
QT2-1-0507	F33
QT2-1-0002-AI	F34
QT2-1-0002-BI	F35
QT2-1-0205-BI	F36
QT2-1-0507-BI	F37
QT2-2-0002	F38
QT2-2-0205	F39
QT2-2-0507	F40
QT2-2-0002-AI	F41
QT2-2-0002-BI	F42
QT2-2-0205-BI	F43
QT2-2-0507-BI	F44
QT2-3-0002	F45
QT2-3-0205	F46
QT2-3-0507	F47
QT2-3-0002-AI	F48
QT2-3-0002-BI	F49
QT2-3-0205-BI	F50
QT2-3-0507-BI	F51
QT2-4-0002	F52
QT2-4-0205	NA
QT2-4-0507	F53
QT2-4-0002-AI	F54
QT2-4-0002-BI	F55
QT2-4-0205-BI	F56
QT2-4-0507-BI	F57
QT2-5-0002	F58
QT2-5-0205	F59
QT2-5-0507	NA
QT2-5-0002-AI	F60
QT2-5-0002-BI	F61
QT2-5-0205-BI	F62
QT2-5-0507-BI	F63
QT2-5DUP-0002	F64
QT2-5DUP-0205	F65
QT2-5DUP-0507	F66
QT2-5DUP-0002-AI	F67
QT2-5DUP-0002-BI	F68
QT2-5DUP-0205-BI	F69
QT2-5DUP-0507-BI	F70
QT2-6-GRAB	F71
QT2-7-GRAB	F72
QT2-5DUP-0507	F73
QT2-5DUP-0002-AI	F74
QT2-5DUP-0002-BI	F75
QT2-5DUP-0205-BI	F76
QT2-5DUP-0507-BI	F77

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

05 May 2015

Gunther Rosen
Navy -- SPAWAR
Environmental Science and Applied System Branch, 536(
San Diego, CA 92152

RE: Quantico

Enclosed are the results of analyses for samples received by the laboratory on 05-Dec-2014. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Dale Rosado, Ph. D. For Allyson Holman
Biologist

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
05-May-2015

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
F31	4120501-01	Passive Sampler	04-Dec-2014	05-Dec-2014
F32	4120501-02	Passive Sampler	04-Dec-2014	05-Dec-2014
F33	4120501-03	Passive Sampler	04-Dec-2014	05-Dec-2014
F34	4120501-04	Passive Sampler	04-Dec-2014	05-Dec-2014
F35	4120501-05	Passive Sampler	04-Dec-2014	05-Dec-2014
F36	4120501-06	Passive Sampler	04-Dec-2014	05-Dec-2014
F37	4120501-07	Passive Sampler	04-Dec-2014	05-Dec-2014
F41	4120501-09	Passive Sampler	04-Dec-2014	05-Dec-2014
F42	4120501-10	Passive Sampler	04-Dec-2014	05-Dec-2014
F43	4120501-11	Passive Sampler	04-Dec-2014	05-Dec-2014
F44	4120501-12	Passive Sampler	04-Dec-2014	05-Dec-2014
F45	4120501-13	Passive Sampler	04-Dec-2014	05-Dec-2014
F46	4120501-14	Passive Sampler	04-Dec-2014	05-Dec-2014
F47	4120501-15	Passive Sampler	04-Dec-2014	05-Dec-2014
F49	4120501-16	Passive Sampler	04-Dec-2014	05-Dec-2014
F50	4120501-17	Passive Sampler	04-Dec-2014	05-Dec-2014
F51	4120501-18	Passive Sampler	04-Dec-2014	05-Dec-2014
F52	4120501-19	Passive Sampler	04-Dec-2014	05-Dec-2014
F53	4120501-20	Passive Sampler	04-Dec-2014	05-Dec-2014
F55	4120501-21	Passive Sampler	04-Dec-2014	05-Dec-2014
F56	4120501-22	Passive Sampler	04-Dec-2014	05-Dec-2014
F57	4120501-23	Passive Sampler	04-Dec-2014	05-Dec-2014
F59	4120501-24	Passive Sampler	04-Dec-2014	05-Dec-2014
F60	4120501-25	Passive Sampler	04-Dec-2014	05-Dec-2014
F61	4120501-26	Passive Sampler	04-Dec-2014	05-Dec-2014
F62	4120501-27	Passive Sampler	04-Dec-2014	05-Dec-2014
F63	4120501-28	Passive Sampler	04-Dec-2014	05-Dec-2014
F64	4120501-29	Passive Sampler	04-Dec-2014	05-Dec-2014
F65	4120501-30	Passive Sampler	04-Dec-2014	05-Dec-2014
F70	4120501-35	Passive Sampler	04-Dec-2014	05-Dec-2014
F72	4120501-37	Passive Sampler	04-Dec-2014	05-Dec-2014

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
F58	4120501-38	Passive Sampler	04-Dec-2014	05-Dec-2014

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

Case Narrative

Samples F66-F69 and F71 were missing from the sample set. Sample F58 was present, but not listed on the chain-of-custody. The replacement for sample F38 was ran in work order 5031001.

Low surrogates recoveries were observed with this set. It appears that the SPME does adsorb the recovery surrogates (see the case narrative for 5031001), but not to such an extent that explains the low recoveries for this set. The lower recovereis could be related to the amount of SPME used and the amount of organic compounds that were present in the sample.

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

Notes and Definitions

Z-03	See case narrative.
U	Analyte included in the analysis, but not detected
Q	Value is outside of acceptance limits.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

F31

4120501-01 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C									
Organochlorine Pesticides by EPA Method 8081A									
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**2.00**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**ND**		*%*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03, U*
Surrogate: Decachlorobiphenyl	**0.110**		*3.66 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*

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San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

F32

4120501-02 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	**0.09**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.22**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4´-DDT	**0.07**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
4,4'-DDE [2C]	**0.25**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.08**		*36.1 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.62**		*53.9 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

F33

4120501-03 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.10**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.402**		*13.4 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*
Surrogate: Decachlorobiphenyl	**0.671**		*22.4 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

F34

4120501-04 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.45**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4´-DDT	**1.59**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4'-DDE [2C]	**0.21**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.719**		*24.0 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*
Surrogate: Decachlorobiphenyl	**0.478**		*15.9 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

F35

4120501-05 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C									
Organochlorine Pesticides by EPA Method 8081A									
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.08**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.569**		*19.0 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*
Surrogate: Decachlorobiphenyl	**0.563**		*18.8 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

F36

4120501-06 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.11**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.609**		*20.3 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*
Surrogate: Decachlorobiphenyl	**0.673**		*22.4 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*

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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

F37

4120501-07 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.17**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.381**		*12.7 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*
Surrogate: Decachlorobiphenyl	**0.542**		*18.1 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

F41

4120501-09 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.10**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
2,4´-DDE	**0.10**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.72**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4´-DDT	**0.38**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4'-DDE [2C]	**0.10**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.57**		*52.2 %*		*25-140*	*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.61**		*53.6 %*		*30-135*	*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

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4120501-10 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C									
Organochlorine Pesticides by EPA Method 8081A									
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	**0.07**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.13**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	**0.13**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.982**		*32.7 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.51**		*50.5 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

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4120501-11 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C									
Organochlorine Pesticides by EPA Method 8081A									
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	**0.08**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.11**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.747**		*24.9 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*
Surrogate: Decachlorobiphenyl	**0.788**		*26.3 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*

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Navy -- SPAWAR	Project: Quantico	
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4120501-12 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	**0.13**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.29**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4´-DDT	**0.09**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
4,4'-DDE [2C]	**0.18**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.800**		*26.7 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.37**		*45.6 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	

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4120501-13 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.09**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
2,4´-DDE	**0.18**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.42**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4´-DDT	**0.23**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4'-DDE [2C]	**0.73**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.13**		*37.7 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.60**		*53.2 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	

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4120501-14 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.16**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
2,4´-DDE	**0.15**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.43**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4´-DDT	**0.21**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4'-DDE [2C]	**0.65**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.30**		*43.3 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.48**		*49.4 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	

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4120501-15 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.08**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	**0.09**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.207**		*6.90 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*
Surrogate: Decachlorobiphenyl	**0.322**		*10.8 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*

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4120501-16 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.19**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
2,4´-DDE	**0.30**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**1.06**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4´-DDT	**0.55**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4'-DDE [2C]	**0.79**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.27**		*42.3 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.07**		*69.1 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
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4120501-17 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.104**		*3.48 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*
Surrogate: Decachlorobiphenyl	**0.320**		*10.7 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*

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Navy -- SPAWAR	Project: Quantico	
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4120501-18 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.31**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.528**		*17.6 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*
Surrogate: Decachlorobiphenyl	**1.03**		*34.3 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	

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4120501-19 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	**0.14**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.629**		*21.0 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*
Surrogate: Decachlorobiphenyl	**0.988**		*33.0 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	

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4120501-20 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	**0.08**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.13**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	**0.25**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.972**		*32.4 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.14**		*38.0 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	

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4120501-21 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C									
Organochlorine Pesticides by EPA Method 8081A									
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.170**		*5.67 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*
Surrogate: Decachlorobiphenyl	**0.238**		*7.95 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*

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4120501-22 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.09**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.833**		*27.8 %*		*25-140*	*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.10**		*36.8 %*		*30-135*	*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	

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4120501-23 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	**0.10**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.20**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	**0.35**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.52**		*50.6 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.59**		*52.9 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

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4120501-24 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C									
Organochlorine Pesticides by EPA Method 8081A									
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	**0.13**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.549**		*18.3 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*
Surrogate: Decachlorobiphenyl	**0.689**		*23.0 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*

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Navy -- SPAWAR	Project: Quantico	
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San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

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4120501-25 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	**0.25**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.30**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4´-DDT	**0.13**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
4,4'-DDE [2C]	**0.79**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.11**		*36.9 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.54**		*51.3 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	

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4120501-26 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	**0.07**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.26**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	**0.08**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.747**		*24.9 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.32**		*44.0 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	

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4120501-27 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	**0.14**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.72**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	**0.20**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.61**		*53.6 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.89**		*63.0 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	

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4120501-28 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	**0.08**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.24**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	**0.12**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.05**		*35.0 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.44**		*48.0 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	

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4120501-29 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.08**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	**0.15**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.358**		*11.9 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*
Surrogate: Decachlorobiphenyl	**0.710**		*23.6 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*

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4120501-30 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	**0.08**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.13**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	**0.26**	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.02**		*34.0 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.28**		*42.6 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	

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4120501-35 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.178**		*5.95 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*
Surrogate: Decachlorobiphenyl	**0.233**		*7.78 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*

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4120501-37 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.12**		*37.2 %*		*25-140*	*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.58**		*52.6 %*		*30-135*	*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	

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4120501-38 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C									
Organochlorine Pesticides by EPA Method 8081A									
2,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		15-Jan-2015	21-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.138**		*4.60 %*	*25-140*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*
Surrogate: Decachlorobiphenyl	**0.390**		*13.0 %*	*30-135*		*15-Jan-2015*	*21-Jan-2015*	*EPA 8081A*	*Q, Z-03*

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Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B501104 - * DEFAULT PREP *** **											
Blank (B501104-BLK1)					Prepared: 15-Jan-2015 Analyzed: 21-Jan-2015						
2,4´-DDD	ND	0.06	0.19	ng							U
2,4´-DDE	ND	0.06	0.19	ng							U
2,4´-DDT	ND	0.06	0.19	ng							U
4,4´-DDD	ND	0.06	0.19	ng							U
4,4´-DDT	ND	0.06	0.19	ng							U
4,4'-DDE [2C]	ND	0.06	0.19	ng							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.88*			*ng*	*3.000*		*62.6*	*25-140*			
Surrogate: Decachlorobiphenyl	*2.48*			*ng*	*3.000*		*82.6*	*30-135*			
Blank (B501104-BLK2)					Prepared: 15-Jan-2015 Analyzed: 21-Jan-2015						
2,4´-DDD	ND	0.06	0.19	ng							U
2,4´-DDE	ND	0.06	0.19	ng							U
2,4´-DDT	ND	0.06	0.19	ng							U
4,4´-DDD	ND	0.06	0.19	ng							U
4,4´-DDT	ND	0.06	0.19	ng							U
4,4'-DDE [2C]	ND	0.06	0.19	ng							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.05*			*ng*	*3.000*		*68.3*	*25-140*			
Surrogate: Decachlorobiphenyl	*2.62*			*ng*	*3.000*		*87.3*	*30-135*			
LCS (B501104-BS1)					Prepared: 15-Jan-2015 Analyzed: 21-Jan-2015						
2,4´-DDD	3.1	0.06	0.19	ng	3.750		81.6	50-125			
2,4´-DDE	3.1	0.06	0.19	ng	3.750		83.6	50-125			
2,4´-DDT	3.1	0.06	0.19	ng	3.750		82.7	50-125			
4,4´-DDD	2.3	0.06	0.19	ng	3.000		75.4	25-150			
4,4´-DDT	2.3	0.06	0.19	ng	3.000		77.7	45-140			
4,4'-DDE [2C]	2.3	0.06	0.19	ng	3.000		75.6	35-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.41*			*ng*	*3.000*		*47.1*	*25-140*			
Surrogate: Decachlorobiphenyl	*1.79*			*ng*	*3.000*		*59.5*	*30-135*			

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San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B501104 - * DEFAULT PREP *** **											
LCS (B501104-BS2)					Prepared: 15-Jan-2015 Analyzed: 21-Jan-2015						
2,4´-DDD	2.9	0.06	0.19	ng	3.750		78.4	50-125			
2,4´-DDE	2.9	0.06	0.19	ng	3.750		76.1	50-125			
2,4´-DDT	2.9	0.06	0.19	ng	3.750		78.2	50-125			
4,4´-DDD	2.5	0.06	0.19	ng	3.000		82.4	25-150			
4,4´-DDT	2.5	0.06	0.19	ng	3.000		84.8	45-140			
4,4'-DDE [2C]	2.5	0.06	0.19	ng	3.000		81.7	35-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.90*			*ng*	*3.000*		*63.5*	*25-140*			
Surrogate: Decachlorobiphenyl	*2.41*			*ng*	*3.000*		*80.5*	*30-135*			
LCS Dup (B501104-BSD1)					Prepared: 15-Jan-2015 Analyzed: 21-Jan-2015						
2,4´-DDD	3.2	0.06	0.19	ng	3.750		84.5	50-125	3.52	30	
2,4´-DDE	3.2	0.06	0.19	ng	3.750		85.3	50-125	2.04	30	
2,4´-DDT	3.2	0.06	0.19	ng	3.750		85.4	50-125	3.28	30	
4,4´-DDD	2.5	0.06	0.19	ng	3.000		81.9	25-150	8.29	30	
4,4´-DDT	2.5	0.06	0.19	ng	3.000		84.8	45-140	8.72	30	
4,4'-DDE [2C]	2.4	0.06	0.19	ng	3.000		80.7	35-140	6.49	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.73*			*ng*	*3.000*		*57.7*	*25-140*			
Surrogate: Decachlorobiphenyl	*2.42*			*ng*	*3.000*		*80.8*	*30-135*			
LCS Dup (B501104-BSD2)					Prepared: 15-Jan-2015 Analyzed: 21-Jan-2015						
2,4´-DDD	3.2	0.06	0.19	ng	3.750		85.4	50-125	8.55	30	
2,4´-DDE	3.2	0.06	0.19	ng	3.750		86.1	50-125	12.3	30	
2,4´-DDT	3.2	0.06	0.19	ng	3.750		86.3	50-125	9.77	30	
4,4´-DDD	2.4	0.06	0.19	ng	3.000		79.6	25-150	3.47	30	
4,4´-DDT	2.5	0.06	0.19	ng	3.000		82.7	45-140	2.56	30	
4,4'-DDE [2C]	2.4	0.06	0.19	ng	3.000		79.2	35-140	3.11	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.75*			*ng*	*3.000*		*58.5*	*25-140*			
Surrogate: Decachlorobiphenyl	*2.39*			*ng*	*3.000*		*79.5*	*30-135*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

05 May 2015

Gunther Rosen
Navy -- SPAWAR
Environmental Science and Applied System Branch, 536(
San Diego, CA 92152

RE: Quantico

Enclosed are the results of analyses for samples received by the laboratory on 10-Mar-2015. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Dale Rosado, Ph. D. For Allyson Holman
Biologist

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
05-May-2015

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
F38	5031001-01	Passive Sampler	03-Mar-2015	10-Mar-2015
F40	5031001-02	Passive Sampler	03-Mar-2015	10-Mar-2015
F54	5031001-03	Passive Sampler	03-Mar-2015	10-Mar-2015
F73	5031001-04	Passive Sampler	03-Mar-2015	10-Mar-2015
F74	5031001-05	Passive Sampler	03-Mar-2015	10-Mar-2015
F75	5031001-06	Passive Sampler	03-Mar-2015	10-Mar-2015
F76	5031001-07	Passive Sampler	03-Mar-2015	10-Mar-2015
F77	5031001-08	Passive Sampler	03-Mar-2015	10-Mar-2015

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

Case Narrative

The spikes for 4,4-DDD, 4,4-DDE, and 4,4-DDT were inadvertently left out of the laboratory control sample (BS). The batch was accepted based on the recovery of the 2,4-DDD, 2,4-DDE, and 2,4-DDT analytes.

Surrogate Adsorption by SPME: 1 mL of Hexane was placed in vials with 16 cm of blank SPME fibers that were cut into 2 cm pieces. A SPME blank (BLK2), blank spike (BS2), and blank spike duplicate (BSD2) was created by adding spike and surrogate solutions to the solutions containing the blank SPME. A blank (BLK1), blank spike (BS1), and blank spike duplicate (BSD1) was also made using 1 mL of hexane with no SPME present. It was noted that 31% of the 2,4,5,6-tetrachloro-m-xylene surrogate was recovered from the SPME blank (BLK2), while 59% was recovered from the non-SPME blank (BLK1). We also saw adsorption of the analytes from the spikes. The recoveries for the SPME blank spike (BS2) were 60-65% for the 2,4-DDX analytes, versus 98-102% for the same analytes in the none SPME blank spike (BS1). This indicated that the fibers are absorbing the surrogates and the spike material during concentration.
It may be possible to obtain better recoveries by removing the solution from the SPME before concentration.

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

Notes and Definitions

U	Analyte included in the analysis, but not detected
QM-08	Spike or surrogate was inadvertently left out of this sample.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

F38

5031001-01 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C									
Organochlorine Pesticides by EPA Method 8081A									
2,4´-DDD	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
2,4´-DDE	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
2,4´-DDT	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4´-DDD	**0.49**	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	J
4,4´-DDE	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4'-DDT [2C]	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.45**		*81.8 %*	*25-140*		*01-Apr-2015*	*16-Apr-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.48**		*82.8 %*	*30-135*		*01-Apr-2015*	*16-Apr-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

F40

5031001-02 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
2,4´-DDE	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
2,4´-DDT	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4´-DDD	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4´-DDE	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4'-DDT [2C]	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.09**		*36.4 %*		*25-140*	*01-Apr-2015*	*16-Apr-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.01**		*33.6 %*		*30-135*	*01-Apr-2015*	*16-Apr-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

F54

5031001-03 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
2,4´-DDE	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
2,4´-DDT	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4´-DDD	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4´-DDE	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4'-DDT [2C]	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.16**		*72.0 %*		*25-140*	*01-Apr-2015*	*16-Apr-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.81**		*93.7 %*		*30-135*	*01-Apr-2015*	*16-Apr-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

F73

5031001-04 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
2,4´-DDE	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
2,4´-DDT	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4´-DDD	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4´-DDE	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4'-DDT [2C]	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.92**		*97.5 %*	*25-140*		*01-Apr-2015*	*16-Apr-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.08**		*102 %*	*30-135*		*01-Apr-2015*	*16-Apr-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
05-May-2015

F74

5031001-05 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
2,4´-DDE	**0.47**	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	J
2,4´-DDT	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4´-DDD	**0.57**	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	J
4,4´-DDE	**0.83**	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	J
4,4'-DDT [2C]	**0.52**	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.11**		*70.4 %*	*25-140*		*01-Apr-2015*	*16-Apr-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.15**		*71.8 %*	*30-135*		*01-Apr-2015*	*16-Apr-2015*	*EPA 8081A*	

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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

F75

5031001-06 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
2,4´-DDE	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
2,4´-DDT	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4´-DDD	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4´-DDE	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4'-DDT [2C]	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.82**		*60.8 %*		*25-140*	*01-Apr-2015*	*16-Apr-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.19**		*73.0 %*		*30-135*	*01-Apr-2015*	*16-Apr-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

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5031001-07 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C									
Organochlorine Pesticides by EPA Method 8081A									
2,4´-DDD	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
2,4´-DDE	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
2,4´-DDT	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4´-DDD	**2.11**	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	
4,4´-DDE	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4'-DDT [2C]	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.29**		*76.4 %*	*25-140*		*01-Apr-2015*	*16-Apr-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.43**		*80.9 %*	*30-135*		*01-Apr-2015*	*16-Apr-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

F77

5031001-08 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
2,4´-DDE	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
2,4´-DDT	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4´-DDD	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
4,4´-DDE	**0.44**	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	J
4,4'-DDT [2C]	ND	0.40	1.25	ng		01-Apr-2015	16-Apr-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.23**		*74.2 %*		*25-140*	*01-Apr-2015*	*16-Apr-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.53**		*84.4 %*		*30-135*	*01-Apr-2015*	*16-Apr-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B505014 - * DEFAULT PREP *** **											
Blank (B505014-BLK1)					Prepared: 01-Apr-2015 Analyzed: 16-Apr-2015						
2,4´-DDD	ND	0.40	1.25	ng							U
2,4´-DDE	ND	0.40	1.25	ng							U
2,4´-DDT	ND	0.40	1.25	ng							U
4,4´-DDD	ND	0.40	1.25	ng							U
4,4´-DDT	ND	0.40	1.25	ng							U
4,4'-DDE [2C]	ND	0.40	1.25	ng							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.77*			*ng*	*3.000*		*59.0*	*25-140*			
Surrogate: Decachlorobiphenyl	*1.98*			*ng*	*3.000*		*66.0*	*30-135*			
Blank (B505014-BLK2)					Prepared: 01-Apr-2015 Analyzed: 16-Apr-2015						
2,4´-DDD	ND	0.40	1.25	ng							U
2,4´-DDE	ND	0.40	1.25	ng							U
2,4´-DDT	ND	0.40	1.25	ng							U
4,4´-DDD	ND	0.40	1.25	ng							U
4,4´-DDT	ND	0.40	1.25	ng							U
4,4'-DDE [2C]	ND	0.40	1.25	ng							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*0.938*			*ng*	*3.000*		*31.2*	*25-140*			
Surrogate: Decachlorobiphenyl	*1.40*			*ng*	*3.000*		*46.7*	*30-135*			
LCS (B505014-BS1)					Prepared: 01-Apr-2015 Analyzed: 16-Apr-2015						
2,4´-DDD	3.7	0.40	1.25	ng	3.750		98.8	50-125			
2,4´-DDE	3.6	0.40	1.25	ng	3.750		95.2	50-125			
2,4´-DDT	3.8	0.40	1.25	ng	3.750		102	50-125			
4,4´-DDD	ND	0.40	1.25	ng				25-150			QM-08, U
4,4´-DDT	ND	0.40	1.25	ng				45-140			QM-08, U
4,4'-DDE [2C]	ND	0.40	1.25	ng				35-140			QM-08, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.87*			*ng*	*3.000*		*62.4*	*25-140*			
Surrogate: Decachlorobiphenyl	*2.45*			*ng*	*3.000*		*81.6*	*30-135*			

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	05-May-2015

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B505014 - * DEFAULT PREP *** **											
LCS (B505014-BS2)					Prepared: 01-Apr-2015 Analyzed: 16-Apr-2015						
2,4´-DDD	2.3	0.40	1.25	ng	3.750		61.3	50-125			
2,4´-DDE	2.2	0.40	1.25	ng	3.750		59.4	50-125			
2,4´-DDT	2.5	0.40	1.25	ng	3.750		65.8	50-125			
4,4´-DDD	ND	0.40	1.25	ng				25-150			QM-08, U
4,4´-DDT	ND	0.40	1.25	ng				45-140			QM-08, U
4,4'-DDE [2C]	ND	0.40	1.25	ng				35-140			QM-08, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.22*			*ng*	*3.000*		*40.6*	*25-140*			
Surrogate: Decachlorobiphenyl	*1.36*			*ng*	*3.000*		*45.4*	*30-135*			
LCS Dup (B505014-BSD1)					Prepared: 01-Apr-2015 Analyzed: 16-Apr-2015						
2,4´-DDD	3.1	0.40	1.25	ng	3.750		83.2	50-125	17.1	30	
2,4´-DDE	3.1	0.40	1.25	ng	3.750		81.4	50-125	15.6	30	
2,4´-DDT	3.3	0.40	1.25	ng	3.750		87.2	50-125	15.3	30	
4,4´-DDD	ND	0.40	1.25	ng				25-150		30	QM-08, U
4,4´-DDT	ND	0.40	1.25	ng				45-140		30	QM-08, U
4,4'-DDE [2C]	ND	0.40	1.25	ng				35-140		30	QM-08, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.66*			*ng*	*3.000*		*55.2*	*25-140*			
Surrogate: Decachlorobiphenyl	*1.90*			*ng*	*3.000*		*63.5*	*30-135*			
LCS Dup (B505014-BSD2)					Prepared: 01-Apr-2015 Analyzed: 16-Apr-2015						
2,4´-DDD	2.6	0.40	1.25	ng	3.750		70.4	50-125	13.9	30	
2,4´-DDE	2.5	0.40	1.25	ng	3.750		67.6	50-125	12.8	30	
2,4´-DDT	2.8	0.40	1.25	ng	3.750		75.6	50-125	13.9	30	
4,4´-DDD	ND	0.40	1.25	ng				25-150		30	QM-08, U
4,4´-DDT	ND	0.40	1.25	ng				45-140		30	QM-08, U
4,4'-DDE [2C]	ND	0.40	1.25	ng				35-140		30	QM-08, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.37*			*ng*	*3.000*		*45.6*	*25-140*			
Surrogate: Decachlorobiphenyl	*1.77*			*ng*	*3.000*		*59.1*	*30-135*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Project Name: MCB Quantico EMNR Project

Sample ID	# of containers	container type	Date (dd-mm-yy)	Time (local)	LAB	Sample Type	Matrix	Location	Analysis/Comments	Pres.	COC #
F38	1	2ml vial	3-Mar-15	09:00	ERDC	SPME	Hexane	Lab Sample	DDx	none	1
F40	1	2ml vial	3-Mar-15	09:00	ERDC	SPME	Hexane	Lab Sample	DDx	none	1
F54	1	2ml vial	3-Mar-15	09:00	ERDC	SPME	Hexane	Lab Sample	DDx	none	1
F73	1	2ml vial	3-Mar-15	09:00	ERDC	SPME	Hexane	Lab Sample	DDx	none	1
F74	1	2ml vial	3-Mar-15	09:00	ERDC	SPME	Hexane	Lab Sample	DDx	none	1
F75	1	2ml vial	3-Mar-15	09:00	ERDC	SPME	Hexane	Lab Sample	DDx	none	1
F76	1	2ml vial	3-Mar-15	09:00	ERDC	SPME	Hexane	Lab Sample	DDx	none	1
F77	1	2ml vial	3-Mar-15	09:00	ERDC	SPME	Hexane	Lab Sample	DDx	none	1
Total = 8 samples											
NOTE: contact Melissa Grover (Environ; 619 400 4936) for questions regarding sample prep/analysis.											
DDx: 4,4'-DDD, 4,4'-DDE, 4,4'DDT, 2,4'-DDD, 2,4'-DDE, 2,4'-DDT											

Relinquished by	Vikki Kirtay	Date/Time	3/3/2015	Relinquished by	VJK
Received by	Allyson Holman	Date/Time	3/10/15	Received by	MwC
Fedex Tracking number		Shipper:	V. Kirtay - SPAWARSYSCEN Pacific	Tele:	619.553.1395
Please check appropriate ship to box:		Drop-off:		Tele:	
	X	Ship to: ERDC		Tele:	601.634.4896

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception

14-Month *ex situ* Porewater Sample ID Lookup Table

Sample ID	Extract Sample Number
QT12-1-0002	F78
QT12-1-0205	F79
QT12-1-0507	F80
QT12-1-0002-AI	F81
QT12-1-0002-BI	F82
QT12-1-0205-BI	F83
QT12-1-0507-BI	F84
QT12-2-0002	F85
QT12-2-0205	F86
QT12-2-0507	F87
QT12-2-0002-AI	F88
QT12-2-0002-BI	F89
QT12-2-0205-BI	F90
QT12-2-0507-BI	F91
QT12-3-0002	F92
QT12-3-0205	F93
QT12-3-0507	F94
QT12-3-0002-AI	F95
QT12-3-0002-BI	F96
QT12-3-0205-BI	F97
QT12-3-0507-BI	F98
QT12-4-0002	F99
QT12-4-0205	F100
QT12-4-0507	F101
QT12-4-0002-AI	F102
QT12-4-0002-BI	F103
QT12-4-0205-BI	F104
QT12-4-0507-BI	F105
QT12-5-0002	F106
QT12-5-0205	F107
QT12-5-0507	F108
QT12-5-0002-AI	F109
QT12-5-0002-BI	F110
QT12-5-0205-BI	F111
QT12-5-0507-BI	F112
QT12-5DUP-0002	F113
QT12-5DUP-0205	F114
QT12-5DUP-0507	F115
QT12-5DUP-0002-AI	F116
QT12-5DUP-0002-BI	F117
QT12-5DUP-0205-BI	F118
QT12-5DUP-0507-BI	F119
QT12-6-GRAB	F120
QT12-7-GRAB	F121
QT12-1-0002-SPME-BI-DUP	F122
QT12-1-0205-SPME-BI-DUP	F123
QT12-1-0507-SPME-BI-DUP	F124
Hexane/Fiber blank	F125
QT-2-2-0205	F126
QT2-3-0002-AI	F127
QT2-6-GRAB	F128

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

26 January 2016

Gunther Rosen
Navy -- SPAWAR
Environmental Science and Applied System Branch, 536(
San Diego, CA 92152

RE: Quantico

Enclosed are the results of analyses for samples received by the laboratory on 07-Oct-2015. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Dale Rosado, Ph. D.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
26-Jan-2016

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
F78	5100701-01	Passive Sampler	07-Oct-2015	07-Oct-2015
F79	5100701-02	Passive Sampler	07-Oct-2015	07-Oct-2015
F80	5100701-03	Passive Sampler	07-Oct-2015	07-Oct-2015
F81	5100701-04	Passive Sampler	07-Oct-2015	07-Oct-2015
F82	5100701-05	Passive Sampler	07-Oct-2015	07-Oct-2015
F83	5100701-06	Passive Sampler	07-Oct-2015	07-Oct-2015
F84	5100701-07	Passive Sampler	07-Oct-2015	07-Oct-2015
F85	5100701-08	Passive Sampler	07-Oct-2015	07-Oct-2015
F86	5100701-09	Passive Sampler	07-Oct-2015	07-Oct-2015
F87	5100701-10	Passive Sampler	07-Oct-2015	07-Oct-2015
F88	5100701-11	Passive Sampler	07-Oct-2015	07-Oct-2015
F89	5100701-12	Passive Sampler	07-Oct-2015	07-Oct-2015
F90	5100701-13	Passive Sampler	07-Oct-2015	07-Oct-2015
F91	5100701-14	Passive Sampler	07-Oct-2015	07-Oct-2015
F92	5100701-15	Passive Sampler	07-Oct-2015	07-Oct-2015
F93	5100701-16	Passive Sampler	07-Oct-2015	07-Oct-2015
F94	5100701-17	Passive Sampler	07-Oct-2015	07-Oct-2015
F95	5100701-18	Passive Sampler	07-Oct-2015	07-Oct-2015
F96	5100701-19	Passive Sampler	07-Oct-2015	07-Oct-2015
F97	5100701-20	Passive Sampler	07-Oct-2015	07-Oct-2015
F98	5100701-21	Passive Sampler	07-Oct-2015	07-Oct-2015
F99	5100701-22	Passive Sampler	07-Oct-2015	07-Oct-2015
F100	5100701-23	Passive Sampler	07-Oct-2015	07-Oct-2015
F101	5100701-24	Passive Sampler	07-Oct-2015	07-Oct-2015
F102	5100701-25	Passive Sampler	07-Oct-2015	07-Oct-2015
F103	5100701-26	Passive Sampler	07-Oct-2015	07-Oct-2015
F104	5100701-27	Passive Sampler	07-Oct-2015	07-Oct-2015
F105	5100701-28	Passive Sampler	07-Oct-2015	07-Oct-2015
F106	5100701-29	Passive Sampler	07-Oct-2015	07-Oct-2015
F107	5100701-30	Passive Sampler	07-Oct-2015	07-Oct-2015
F108	5100701-31	Passive Sampler	07-Oct-2015	07-Oct-2015

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
26-Jan-2016

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
F109	5100701-32	Passive Sampler	07-Oct-2015	07-Oct-2015
F110	5100701-33	Passive Sampler	07-Oct-2015	07-Oct-2015
F111	5100701-34	Passive Sampler	07-Oct-2015	07-Oct-2015
F112	5100701-35	Passive Sampler	07-Oct-2015	07-Oct-2015
F113	5100701-36	Passive Sampler	07-Oct-2015	07-Oct-2015
F114	5100701-37	Passive Sampler	07-Oct-2015	07-Oct-2015
F115	5100701-38	Passive Sampler	07-Oct-2015	07-Oct-2015
F116	5100701-39	Passive Sampler	07-Oct-2015	07-Oct-2015
F117	5100701-40	Passive Sampler	07-Oct-2015	07-Oct-2015
F118	5100701-41	Passive Sampler	07-Oct-2015	07-Oct-2015
F119	5100701-42	Passive Sampler	07-Oct-2015	07-Oct-2015
F120	5100701-43	Passive Sampler	07-Oct-2015	07-Oct-2015
F121	5100701-44	Passive Sampler	07-Oct-2015	07-Oct-2015
F122	5100701-45	Passive Sampler	07-Oct-2015	07-Oct-2015
F123	5100701-46	Passive Sampler	07-Oct-2015	07-Oct-2015
F124	5100701-47	Passive Sampler	07-Oct-2015	07-Oct-2015
F125	5100701-48	Passive Sampler	07-Oct-2015	07-Oct-2015
F127	5100701-49	Passive Sampler	07-Oct-2015	07-Oct-2015
F128	5100701-50	Passive Sampler	07-Oct-2015	07-Oct-2015

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

Case Narrative

For some samples, the primary and confirmation columns did not always agree within 40%. This primarily occured for 4,4'DDT. For these samples, the higher concentration was likely caused by an interference. Therefore, the lower value was reported per SW 846 guidelines.

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

Notes and Definitions

U	Analyte included in the analysis, but not detected
RPD-04	RPD between primary and confirmation column values >40%. Per SW846 8000C, the lower result has been reported.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

F78

5100701-01 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.13**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
4,4´-DDE	**0.24**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**17.6**		*67.7 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**20.3**		*78.1 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

F79

5100701-02 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.08**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.65**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.55**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.27**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**16.1**		*61.9 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**18.1**		*69.6 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

F80

5100701-03 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.23**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.43**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**17.0**		*65.4 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**19.5**		*75.0 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

F81

5100701-04 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**1.03**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.18**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**19.9**		*76.5 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**21.5**		*82.7 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

F82

5100701-05 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.09**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDE	**0.18**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**1.53**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.33**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**2.73**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**16.6**		*63.8 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**19.1**		*73.5 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

F83

5100701-06 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.15**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDE	**0.21**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.27**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	RPD-04
4,4´-DDE	**0.42**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.47**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**18.2**		*70.0 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**19.5**		*75.0 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

F84

5100701-07 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**1.29**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.21**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.38**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**17.1**		*65.8 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**18.9**		*72.7 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

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5100701-08 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.08**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.77**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.27**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**20.4**		*78.5 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**19.9**		*76.5 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-09 (Passive Sampler)

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Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.12**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDE	**0.22**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.61**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.55**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.06**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	RPD-04, J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**18.3**		*70.4 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**19.9**		*76.5 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-10 (Passive Sampler)

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Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.17**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
2,4´-DDE	**0.31**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.65**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.58**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.09**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	RPD-04, J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**18.3**		*70.4 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**20.9**		*80.4 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-11 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	**0.09**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.30**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.17**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**17.3**		*66.5 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**19.3**		*74.2 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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Project Manager: Gunther Rosen

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5100701-12 (Passive Sampler)

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Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	**0.06**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.38**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**15.3**		*58.8 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**18.5**		*71.2 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-13 (Passive Sampler)

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Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	**0.14**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.29**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.26**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.09**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	RPD-04, J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**14.1**		*54.2 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**19.4**		*74.6 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-14 (Passive Sampler)

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Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.10**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDE	**0.27**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	RPD-04
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.46**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.32**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.10**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	RPD-04, J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**16.3**		*62.7 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**20.1**		*77.3 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-15 (Passive Sampler)

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Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.12**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDE	**0.15**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.39**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.22**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.09**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	RPD-04, J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**18.2**		*70.0 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**19.1**		*73.5 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-16 (Passive Sampler)

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Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.18**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
2,4´-DDE	**0.15**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.64**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.17**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**17.3**		*66.5 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**17.1**		*65.8 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-17 (Passive Sampler)

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Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.15**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDE	**0.14**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.54**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.15**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**18.0**		*69.2 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**19.6**		*75.4 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-18 (Passive Sampler)

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Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.19**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.82**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.74**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.09**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**17.1**		*65.8 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**18.7**		*71.9 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-19 (Passive Sampler)

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Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.24**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
2,4´-DDE	**0.28**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.84**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.32**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.28**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**18.8**		*72.3 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**19.9**		*76.5 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-20 (Passive Sampler)

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Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.20**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
2,4´-DDE	**0.24**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**3.61**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.74**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.41**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**14.5**		*55.8 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**16.5**		*63.5 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-21 (Passive Sampler)

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Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.16**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**1.81**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**1.27**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.18**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**14.8**		*56.9 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**18.1**		*69.6 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

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5100701-22 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.13**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
4,4´-DDE	**0.37**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.10**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**16.2**		*62.3 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**19.1**		*73.5 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

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5100701-23 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	**0.08**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.13**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
4,4´-DDE	**0.45**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**17.0**		*65.4 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**19.4**		*74.6 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
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5100701-24 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.15**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
4,4´-DDE	**0.37**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.18**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**17.5**		*67.3 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**18.8**		*72.3 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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F102

5100701-25 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.18**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.19**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**17.3**		*66.5 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**19.8**		*76.2 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-26 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	**0.11**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.14**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
4,4´-DDE	**0.30**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**16.7**		*64.2 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**17.8**		*68.5 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-27 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDE	**0.10**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**8.72**		*33.5 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**10.1**		*38.8 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-28 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	**0.12**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.23**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.19**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**16.1**		*61.9 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**18.4**		*70.8 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-29 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	**0.09**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.13**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
4,4´-DDE	**0.38**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.07**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**19.1**		*73.5 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**22.9**		*88.1 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-30 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	**0.12**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.18**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.46**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**16.9**		*65.0 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**20.5**		*78.8 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-31 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	**0.09**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.16**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.21**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**12.7**		*48.8 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**15.4**		*59.2 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-32 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	**0.18**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.27**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.63**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.07**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**17.4**		*66.9 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**20.4**		*78.5 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-33 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.11**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDE	**0.13**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.41**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.72**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**17.3**		*66.5 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**20.8**		*80.0 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-34 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.07**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDE	**0.08**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.28**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.25**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**17.0**		*65.4 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**20.0**		*76.9 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-35 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.07**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDE	**0.18**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.87**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.40**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**17.9**		*68.8 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**19.9**		*76.5 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

F113

5100701-36 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.10**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
4,4´-DDE	**0.34**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**15.4**		*59.2 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**17.8**		*68.5 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

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5100701-37 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.20**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.56**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.06**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**14.1**		*54.2 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**16.4**		*63.1 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
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5100701-38 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	**0.23**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.39**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.25**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**15.7**		*60.4 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**18.0**		*69.2 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
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5100701-39 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.25**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.40**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**15.7**		*60.4 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**18.6**		*71.5 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-40 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.08**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDE	**0.08**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.28**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.34**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**17.8**		*68.5 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**19.4**		*74.6 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-41 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.07**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDE	**0.13**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.31**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.22**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**20.3**		*78.1 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**21.9**		*84.2 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-42 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	**0.11**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.22**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.45**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**17.8**		*68.5 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**19.9**		*76.5 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-43 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDE	**0.07**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**18.8**		*72.3 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**20.4**		*78.5 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-44 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	**0.08**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDE	**0.08**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**16.3**		*62.7 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**18.7**		*71.9 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-45 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.09**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDE	**0.15**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	RPD-04, J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.35**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.33**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.16**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**15.3**		*58.8 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**14.6**		*56.2 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-46 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	**0.15**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.51**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDE	**0.60**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.09**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**16.6**		*63.8 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**17.5**		*67.3 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-47 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.51**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	RPD-04
4,4´-DDE	**0.73**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
4,4´-DDT	**0.83**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**13.9**		*53.5 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**17.4**		*66.9 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-48 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**18.5**		*71.2 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**21.2**		*81.5 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-49 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.12**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
4,4´-DDE	**0.07**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
4,4´-DDT	**0.09**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**24.1**		*92.7 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**21.2**		*81.5 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

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5100701-50 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.10**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
4,4´-DDE	**0.06**	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	J
4,4´-DDT	ND	0.05	0.15	ng	22-Jan-2016	22-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**26.8**		*103 %*	*25-140*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**24.9**		*95.8 %*	*30-135*	*22-Jan-2016*	*22-Jan-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	26-Jan-2016

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B601061 - * DEFAULT PREP *** **											
Blank (B601061-BLK3)					Prepared & Analyzed: 22-Jan-2016						
2,4´-DDD	ND	0.05	0.15	ng							U
2,4´-DDE	ND	0.05	0.15	ng							U
2,4´-DDT	ND	0.05	0.15	ng							U
4,4´-DDD	ND	0.05	0.15	ng							U
4,4´-DDE	ND	0.05	0.15	ng							U
4,4´-DDT	ND	0.05	0.15	ng							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*24.5*			*ng*	*26.00*		*94.2*	*25-140*			
Surrogate: Decachlorobiphenyl	*31.5*			*ng*	*26.00*		*121*	*30-135*			
LCS (B601061-BS1)					Prepared & Analyzed: 22-Jan-2016						
2,4´-DDD	35.8	0.05	0.15	ng	48.75		73.4	50-125			
2,4´-DDE	33.1	0.05	0.15	ng	48.75		67.9	50-125			
2,4´-DDT	33.2	0.05	0.15	ng	48.75		68.1	50-125			
4,4´-DDD	33.1	0.05	0.15	ng	39.00		84.9	25-150			
4,4´-DDE	34.4	0.05	0.15	ng	39.00		88.2	35-140			
4,4´-DDT	34.1	0.05	0.15	ng	39.00		87.4	45-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*24.6*			*ng*	*26.00*		*94.6*	*25-140*			
Surrogate: Decachlorobiphenyl	*24.7*			*ng*	*26.00*		*95.0*	*30-135*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

RAMBOLL ENVIRON

CHAIN-OF-CUSTODY FORM № 11713

UST PROJECT OR IS EDF REQUIRED? Y (N) IF YES, GLOBAL ID #: _____ MSA# _____ WO# _____

PROJECT NAME/FACILITY ID: Quantico 12-Month

PROJECT LOCATION: Quantico, VA DATE: 10/5/15

PROJECT NUMBER: _____

FIELD PERSON: Melissa Grover

PROJECT MANAGER: Victoria Kirtay, SPAWAR

LABORATORY: ERDC

SAMPLER: M. Grover

SIGNATURE: [signature]

YEAR: 2015

SAMPLE I.D. NUMBER	SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (FT)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: DDX EPA 8081A	COMMENTS
F78	10/1	9:00	NA	NA	~~OTHER~~	1	U	NO	X	
F79										
F80										
F81										
F82										
F83										
F84		↓								
F85		9:36								
F86										
F87										
F88										
F89										
F90	↓	↓	↓	↓	↓	↓	↓	↓	↓	
TOTAL				—		13	—		13	

RELINQUISHED BY	TIME/DATE	RECEIVED BY COMPANY	TIME/DATE
RELINQUISHED BY	TIME/DATE	RECEIVED BY COMPANY	TIME/DATE
RELINQUISHED BY	TIME/DATE	RECEIVED BY COMPANY	TIME/DATE

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, NORMAL

SAMPLE INTEGRITY: INTACT Y N TEMP _____

IF SEALED, SEAL INTEGRITY: INTACT Y N

H = HCL; N = HNO_3; S = H_2SO_4; U = UNKNOWN; NO = NONE; O = OTHER; V = VARIOUS

SWBU Office Locations:

- ☐ 18100 Von Karman Avenue, Suite 600, Irvine, CA 92612 (949) 261-5151 | (949) 261-6202 Fax
- ☐ 707 Wilshire Boulevard, Suite 4950, Los Angeles, CA 90017 (213) 943-6300 | (213) 943-6301 Fax
- ☐ 2111 East Highland Avenue, Suite 402, Phoenix, AZ 85016 (602) 734-7700 | (602) 734-7701 Fax
- ☐ 501 West Broadway, Suite 800, San Diego, CA 92101 (619) 400-4934

RAMBOLL ENVIRON

CHAIN-OF-CUSTODY FORM № 11714

UST PROJECT OR IS EDF REQUIRED? Y N IF YES, GLOBAL ID #: _____ MSA# _____ WO# _____

PROJECT NAME/FACILITY ID Quantico 12-Month FIELD PERSON _____

PROJECT LOCATION _____ DATE _____ PROJECT MANAGER _____

PROJECT NUMBER _____ LABORATORY _____

SAMPLER / SIGNATURE / SAMPLE I.D. NUMBER	YEAR: SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (FT)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: DDX EPA 8081A	COMMENTS
F91	10/1	9:30	NA	NA	Other	1	U	NO	X	
F92		10:14								
F93										
F94										
F95										
F96										
F97										
F98		↓								
F99		10:48								
F100										
F101										
F102										
F103	↓	↓	↓	↓	↓	↓	↓	↓	↓	
TOTAL										

H = HCL: N = HNO3: S = H2SO: U = UNKNOWN: NO = NONE: O = OTHER: V = VARIOUS

RELINQUISHED BY	TIME/DATE	RECEIVED BY COMPANY	TIME/DATE
RELINQUISHED BY	TIME/DATE	RECEIVED BY COMPANY	TIME/DATE
RELINQUISHED BY	TIME/DATE	RECEIVED BY COMPANY	TIME/DATE

TURNAROUND TIME (CIRCLE ONE): SAME DAY, 24 HOURS, 48 HOURS, 72 HOURS, 5 DAYS, NORMAL

SAMPLE INTEGRITY INTACT Y N TEMP _____

IF SEALED, SEAL INTEGRITY INTACT Y N

SWBU Office Locations:

- ☐ 18100 Von Karman Avenue, Suite 600, Irvine, CA 92612 (949) 261-5151 | (949) 261-6202 Fax
- ☐ 707 Wilshire Boulevard, Suite 4950, Los Angeles, CA 90017 (213) 943-6300 | (213) 943-6301 Fax
- ☐ 2111 East Highland Avenue, Suite 402, Phoenix, AZ 85016 (602) 734-7700 | (602) 734-7701 Fax
- ☐ 501 West Broadway, Suite 800, San Diego, CA 92101 (619) 400-4934

RAMBOLL ENVIRON

CHAIN-OF-CUSTODY FORM № 11715

UST PROJECT OR IS EDF REQUIRED? Y N IF YES, GLOBAL ID #: _____ MSA# _____ WO# _____

PROJECT NAME/FACILITY ID Quantico 12-Month FIELD PERSON _____

PROJECT LOCATION _____ DATE _____ PROJECT MANAGER _____

PROJECT NUMBER _____ LABORATORY _____

SAMPLER	YEAR:								ANALYSIS REQUIRED												
SIGNATURE																					
SAMPLE I.D. NUMBER	SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (FT)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	DDX EPA 8081A												COMMENTS
F104	10/1	10:48	NA	NA	other	1	U	NO	X												
F105		↓																			
F106		11:22																			
F107																					
F108																					
F109																					
F110																					
F111																					
F112		↓																			
F113		12:58																			
F114																					
F115																					
F116	↓	↓	↓	↓	↓	↓	↓	↓	↓												
TOTAL																					

H = HCL; N = HNO_3; S = H_2SO_4; U = UNKNOWN; NO = NONE; O = OTHER; V = VARIOUS

RELINQUISHED BY	TIME/DATE	RECEIVED BY COMPANY	TIME/DATE	TURNAROUND TIME (CIRCLE ONE)	SAME DAY	72 HOURS
					24 HOURS	5 DAYS
RELINQUISHED BY	TIME/DATE	RECEIVED BY COMPANY	TIME/DATE		48 HOURS	NORMAL
RELINQUISHED BY	TIME/DATE	RECEIVED BY COMPANY	TIME/DATE	SAMPLE INTEGRITY INTACT Y N TEMP_____		IF SEALED, SEAL INTEGRITY INTACT Y N

SWBU Office Locations:

☐ 18100 Von Karman Avenue, Suite 600, Irvine, CA 92612 (949) 261-5151 | (949) 261-6202 Fax
☐ 707 Wilshire Boulevard, Suite 4950, Los Angeles, CA 90017 (213) 943-6300 | (213) 943-6301 Fax
☐ 2111 East Highland Avenue, Suite 402, Phoenix, AZ 85016 (602) 734-7700 | (602) 734-7701 Fax
☐ 501 West Broadway, Suite 800, San Diego, CA 92101 (619) 400-4934

RAMBOLL ENVIRON

CHAIN-OF-CUSTODY FORM № 11716

UST PROJECT OR IS EDF REQUIRED? Y N IF YES, GLOBAL ID #: _____ MSA# _____ WO# _____

PROJECT NAME/FACILITY ID Quantico 12 Month FIELD PERSON _____

PROJECT LOCATION _____ DATE _____ PROJECT MANAGER _____

PROJECT NUMBER _____ LABORATORY _____

SAMPLER / SIGNATURE / SAMPLE I.D. NUMBER	YEAR: SAMPLE DATE	SAMPLE TIME	SAMPLE DEPTH (FT)	AIR SAMPLE VOLUME (L)	MATRIX (A) AIR (S) SOIL (G) GAS (W) WATER	NUMBER OF CONTAINERS	FILTERED/UNFILTERED (F/U)	PRESERVATION (SEE KEY)	ANALYSIS REQUIRED: DDX 8081A EDD	COMMENTS
F117	10/1	12:58	NA	NA	other	1	U	NO	X	*See email from Victoria Kirtay, SPAWAR prior to analysis.
F118										
F119										
F120		13:29								
F121										
F122										SPIKE Surrogate * DUPLICATE
F123										*
F124										*
F125		14:00								
F127										
F128			*							
TOTAL										

H = HCL: N = HNO3: S = H2SO: U = UNKNOWN: NO = NONE: O = OTHER: V = VARIOUS

RELINQUISHED BY	TIME/DATE	RECEIVED BY COMPANY	TIME/DATE	TURNAROUND TIME (CIRCLE ONE)	SAME DAY	72 HOURS
RELINQUISHED BY	TIME/DATE	RECEIVED BY COMPANY	TIME/DATE		24 HOURS	5 DAYS
RELINQUISHED BY	TIME/DATE	RECEIVED BY COMPANY	TIME/DATE		48 HOURS	NORMAL
				SAMPLE INTEGRITY INTACT Y N TEMP_____		IF SEALED, SEAL INTEGRITY INTACT Y N

SWBU Office Locations:

- ☐ 18100 Von Karman Avenue, Suite 600, Irvine, CA 92612 (949) 261-5151 | (949) 261-6202 Fax
- ☐ 707 Wilshire Boulevard, Suite 4950, Los Angeles, CA 90017 (213) 943-6300 | (213) 943-6301 Fax
- ☐ 2111 East Highland Avenue, Suite 402, Phoenix, AZ 85016 (602) 734-7700 | (602) 734-7701 Fax
- ☐ 501 West Broadway, Suite 800, San Diego, CA 92101 (619) 400-4934

SHIPPING CONTAINER TALLY ——— 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

REQUISITION AND INVOICE/SHIPPING DOCUMENT

OMB No. 0704-0246
OMB approval expires Apr 30, 2009

The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Department of Defense, Executive Services Directorate (0704-0246). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ORGANIZATION. RETURN COMPLETED FORM TO THE ADDRESS IN ITEM 2.

1. FROM: *(Include ZIP Code)*
N66001 SPAWARSYSCEN PACIFIC
4297 PACIFIC HWY. BLDG 7
SAN DIEGO, CA, 92001

POC: Victoria Kirtay
TEL: (619) 553-1395

SHEET NO.	NO. OF SHEETS	5. REQUISITION DATE	6. REQUISITION NUMBER
1	1		N66001 5278 B009

7. DATE MATERIAL REQUIRED *(YYYYMMDD)*	8. PRIORITY
20151007	03

2. TO: *(Include ZIP Code)*
ERDC-EPC
3909 Halls Ferry Rd,
Building 3299
Vicksburg, MS 39180

9. AUTHORITY OR PURPOSE
Environmental Samples ESTCP - MCB Quantico EMNR Project (SPME)

10. SIGNATURE
GEORGE.ROBERT.D.1232187413
Digitally signed by GEORGE.ROBERT.D.1232187413
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USN, cn=GEORGE.ROBERT.D.1232187413
Date: 2015.10.05 10:42:54 -07'00'

11a. VOUCHER NUMBER & DATE *(YYYYMMDD)*

3. SHIP TO - MARK FOR
ATTN: DALE ROSADO
TEL: (601) 534-3084

12. DATE SHIPPED *(YYYYMMDD)*
20151006

b.

13. MODE OF SHIPMENT
FEDEX PRIORITY OVERNIGH

14. BILL OF LADING NUMBER

15. AIR MOVEMENT DESIGNATOR OR PORT REFERENCE NO.
Delivery on 10-06-15: Mission essential to avoid work stoppage

4. APPROPRIATIONS DATA
NWA/WBS: 100001075252 0020
COST CENTER: 71750

AMOUNT

ITEM NO. (a)	FEDERAL STOCK NUMBER, DESCRIPTION, AND CODING OF MATERIEL AND/OR SERVICES (b)	UNIT OF ISSUE (c)	QUANTITY REQUESTED (d)	SUPPLY ACTION (e)	TYPE CONTAINER (f)	CONTAINER NOS. (g)	UNIT PRICE (h)	TOTAL COST (i)
1	EMR PROJECT PROJECT - ENVIRONMENTAL SAMPLES (SPME) ICE CHEST IN CARDBOARD BOX (CONTAINING ENVIRONMENTAL SAMPLES) 14" x 12" x 13" (LxWxH): APPROX WT. 5 lbs	EA	1				500.00	500.00
							0.00	0.00
							0.00	0.00
							0.00	0.00
							0.00	0.00

16. TRANSPORTATION VIA AMC OR MSC CHARGEABLE TO

17. SPECIAL HANDLING

18. RECAPITULATION OF SHIPMENT

ISSUED BY	TOTAL CONTAINERS	TYPE CONTAINER	DESCRIPTION	TOTAL WEIGHT	TOTAL CUBE
Leo Mendoza					
CHECKED BY					
PACKED BY					
			← TOTAL →		

19. RECEIPT

CONTAINERS RECEIVED EXCEPT AS NOTED	DATE *(YYYYMMDD)*	BY	SHEET TOTAL 500.00
QUANTITIES RECEIVED EXCEPT AS NOTED	DATE *(YYYYMMDD)*	BY	GRAND TOTAL
POSTED	DATE *(YYYYMMDD)*	BY	20. RECEIVER'S VOUCHER NO.

DD FORM 1149, JUL 2006

51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

PREVIOUS EDITION IS OBSOLETE.

Adobe Designer 8.0

SHIPPING CONTAINER TALLY ——— 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

REQUISITION AND INVOICE/SHIPPING DOCUMENT

OMB No. 0704-0246
OMB approval expires Apr 30, 2009

The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Department of Defense, Executive Services Directorate (0704-0246). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ORGANIZATION. RETURN COMPLETED FORM TO THE ADDRESS IN ITEM 2.

1. FROM: *(Include ZIP Code)*
N66001 SPAWARSYSCEN PACIFIC
4297 PACIFIC HWY. BLDG 7
SAN DIEGO, CA, 92001

POC: Victoria Kirtay
TEL: (619) 553-1395

SHEET NO.	NO. OF SHEETS	5. REQUISITION DATE	6. REQUISITION NUMBER
1	1		N66001 5278 B009

7. DATE MATERIAL REQUIRED *(YYYYMMDD)*: 20151007

8. PRIORITY: 03

2. TO: *(Include ZIP Code)*
ERDC-EPC
3909 Halls Ferry Rd,
Building 3299
Vicksburg, MS 39180

9. AUTHORITY OR PURPOSE
Environmental Samples ESTCP - MCB Quantico EMNR Project (SPME)

10. SIGNATURE
GEORGE.ROBERT.D.1232187413
Digitally signed by GEORGE.ROBERT.D.1232187413 Dn: c=US, o=US. Government, ou=DoD, ou=PKI, ou=USN, cn=GEORGE.ROBERT.D.1232187413 Date: 2015.10.05 10:42:54 -07'00'

11a. VOUCHER NUMBER & DATE *(YYYYMMDD)*

3. SHIP TO - MARK FOR
ATTN: DALE ROSADO
TEL: (601) 534-3084

12. DATE SHIPPED *(YYYYMMDD)*: 20151006

b.

13. MODE OF SHIPMENT: FEDEX PRIORITY OVERNIGH

14. BILL OF LADING NUMBER

15. AIR MOVEMENT DESIGNATOR OR PORT REFERENCE NO.
Delivery on 10-06-15: Mission essential to avoid work stoppage

4. APPROPRIATIONS DATA
NWA/WBS: 100001075252 0020
COST CENTER: 71750

AMOUNT

ITEM NO. (a)	FEDERAL STOCK NUMBER, DESCRIPTION, AND CODING OF MATERIEL AND/OR SERVICES (b)	UNIT OF ISSUE (c)	QUANTITY REQUESTED (d)	SUPPLY ACTION (e)	TYPE CONTAINER (f)	CONTAINER NOS. (g)	UNIT PRICE (h)	TOTAL COST (i)
1	EMR PROJECT PROJECT - ENVIRONMENTAL SAMPLES (SPME) ICE CHEST IN CARDBOARD BOX (CONTAINING ENVIRONMENTAL SAMPLES) 14" x 12" x 13" (LxWxH): APPROX WT. 5 lbs	EA	1				500.00	500.00
							0.00	0.00
							0.00	0.00
							0.00	0.00
							0.00	0.00

16. TRANSPORTATION VIA AMC OR MSC CHARGEABLE TO

17. SPECIAL HANDLING

18. RECAPITULATION OF SHIPMENT

ISSUED BY	TOTAL CONTAINERS	TYPE CONTAINER	DESCRIPTION	TOTAL WEIGHT	TOTAL CUBE
Leo Mendoza					
CHECKED BY					
PACKED BY					
			← TOTAL →		

19. RECEIPT

CONTAINERS RECEIVED EXCEPT AS NOTED	DATE *(YYYYMMDD)*	BY	SHEET TOTAL: 500.00
QUANTITIES RECEIVED EXCEPT AS NOTED	DATE *(YYYYMMDD)*	BY	GRAND TOTAL
POSTED	DATE *(YYYYMMDD)*	BY	20. RECEIVER'S VOUCHER NO.

DD FORM 1149, JUL 2006

51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

PREVIOUS EDITION IS OBSOLETE.

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Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception

25-Month *ex situ* Porewater Sample ID Lookup Table

Sample Name	Extract Sample Number
QT25-1-0002	F129
QT25-1-0205	F130
QT25-1-0507	F131
QT25-1-0002-AI	F132
QT25-1-0002-BI	F133
QT25-1-0205-BI	F134
QT25-1-0507-BI	F135
QT25-2-0002	F136
QT25-2-0205	F137
QT25-2-0507	F138
QT25-2-0002-AI	F139
QT25-2-0002-BI	F140
QT25-2-0205-BI	F141
QT25-2-0507-BI	F142
QT25-3-0002	F143
QT25-3-0205	F144
QT25-3-0507	F145
QT25-3-0002-AI	F146
QT25-3-0002-BI	F147
QT25-3-0205-BI	F148
QT25-3-0507-BI	F149
QT25-4-0002	F150
QT25-4-0205	F151
QT25-4-0507	F152
QT25-4-0002-AI	F153
QT25-4-0002-BI	F154
QT25-4-0205-BI	F155
QT25-4-0507-BI	F156
QT25-5-0002	F157
QT25-5-0205	F158
QT25-5-0507	F159
QT25-5-0002-AI	F160
QT25-5-0002-BI	F161
QT25-5-0205-BI	F162
QT25-5-0507-BI	F163
QT25-5DUP-0002	F164
QT25-5DUP-0205	F165
QT25-5DUP-0507	F166
QT25-5DUP-0002-AI	F167
QT25-5DUP-0002-BI	F168
QT25-5DUP-0205-BI	F169
QT25-5DUP-0507-BI	F170
QT25-6-GRAB	F171
QT25-7-GRAB	F172

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

07 December 2016

SPARWAR
SPARWAR

,

RE: Quantico

Enclosed are the results of analyses for samples received by the laboratory on 30-Sep-2016. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Madeline Tarasar For Allyson Wooley
Biologist

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
F129	6093001-01	Passive Sampler	27-Sep-2016	30-Sep-2016
F130	6093001-02	Passive Sampler	27-Sep-2016	30-Sep-2016
F131	6093001-03	Passive Sampler	27-Sep-2016	30-Sep-2016
F132	6093001-04	Passive Sampler	27-Sep-2016	30-Sep-2016
F133	6093001-05	Passive Sampler	27-Sep-2016	30-Sep-2016
F134	6093001-06	Passive Sampler	27-Sep-2016	30-Sep-2016
F135	6093001-07	Passive Sampler	27-Sep-2016	30-Sep-2016
F136	6093001-08	Passive Sampler	27-Sep-2016	30-Sep-2016
F137	6093001-09	Passive Sampler	27-Sep-2016	30-Sep-2016
F138	6093001-10	Passive Sampler	27-Sep-2016	30-Sep-2016
F139	6093001-11	Passive Sampler	27-Sep-2016	30-Sep-2016
F140	6093001-12	Passive Sampler	27-Sep-2016	30-Sep-2016
F141	6093001-13	Passive Sampler	27-Sep-2016	30-Sep-2016
F142	6093001-14	Passive Sampler	27-Sep-2016	30-Sep-2016
F143	6093001-15	Passive Sampler	27-Sep-2016	30-Sep-2016
F144	6093001-16	Passive Sampler	27-Sep-2016	30-Sep-2016
F145	6093001-17	Passive Sampler	27-Sep-2016	30-Sep-2016
F146	6093001-18	Passive Sampler	27-Sep-2016	30-Sep-2016
F147	6093001-19	Passive Sampler	27-Sep-2016	30-Sep-2016
F148	6093001-20	Passive Sampler	27-Sep-2016	30-Sep-2016
F149	6093001-21	Passive Sampler	27-Sep-2016	30-Sep-2016
F150	6093001-22	Passive Sampler	27-Sep-2016	30-Sep-2016
F151	6093001-23	Passive Sampler	27-Sep-2016	30-Sep-2016
F152	6093001-24	Passive Sampler	27-Sep-2016	30-Sep-2016
F153	6093001-25	Passive Sampler	27-Sep-2016	30-Sep-2016
F154	6093001-26	Passive Sampler	27-Sep-2016	30-Sep-2016
F155	6093001-27	Passive Sampler	27-Sep-2016	30-Sep-2016
F156	6093001-28	Passive Sampler	27-Sep-2016	30-Sep-2016
F157	6093001-29	Passive Sampler	27-Sep-2016	30-Sep-2016
F158	6093001-30	Passive Sampler	27-Sep-2016	30-Sep-2016
F159	6093001-31	Passive Sampler	27-Sep-2016	30-Sep-2016

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
F160	6093001-32	Passive Sampler	27-Sep-2016	30-Sep-2016
F161	6093001-33	Passive Sampler	27-Sep-2016	30-Sep-2016
F162	6093001-34	Passive Sampler	27-Sep-2016	30-Sep-2016
F163	6093001-35	Passive Sampler	27-Sep-2016	30-Sep-2016
F164	6093001-36	Passive Sampler	27-Sep-2016	30-Sep-2016
F165	6093001-37	Passive Sampler	27-Sep-2016	30-Sep-2016
F166	6093001-38	Passive Sampler	27-Sep-2016	30-Sep-2016
F167	6093001-39	Passive Sampler	27-Sep-2016	30-Sep-2016
F168	6093001-40	Passive Sampler	27-Sep-2016	30-Sep-2016
F169	6093001-41	Passive Sampler	27-Sep-2016	30-Sep-2016
F170	6093001-42	Passive Sampler	27-Sep-2016	30-Sep-2016
F171	6093001-43	Passive Sampler	27-Sep-2016	30-Sep-2016
F172	6093001-44	Passive Sampler	27-Sep-2016	30-Sep-2016

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

Case Narrative

Samples F138, F140, F141, F142, F144, F148, F149 contain PCBs which caused interferences with some of the DDX compounds. As a result, the RPDs between the two analytical columns were >40% for some of the compounds. The lower concentration was reported and the analytes were flagged. For some of the other samples, there were also some RPDs >40% between the analytical columns, these also have the lower value reported and are flagged.

Sample PCB1 was labeled on the COC as hexane. After an extended time trying to concentrate the sample, the lab was told that it was actually methanol/water. This sample is still being processed and the data is not included in this report.

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

Notes and Definitions

U	Analyte included in the analysis, but not detected
RPD-04	RPD between primary and confirmation column values >40%. Per SW846 8000C, the lower result has been reported.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

F129

6093001-01 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.08**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDE	**0.14**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.29**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.33**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.83**		*60.9 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.97**		*65.7 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

F130

6093001-02 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.08**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDE	**0.12**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.26**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.62**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.19**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.77**		*58.9 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.96**		*65.2 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

F131

6093001-03 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.07**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDE	**0.13**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.43**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.41**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.07**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04, J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.74**		*57.9 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.80**		*60.2 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

F132

6093001-04 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.11**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDE	**0.18**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.42**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.55**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.07**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04, J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.72**		*57.2 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.97**		*65.6 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

F133

6093001-05 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.08**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDE	**0.13**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04, J
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**1.34**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.37**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.21**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.67**		*55.5 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.83**		*61.1 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

F134

6093001-06 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.27**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
2,4´-DDE	**0.22**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
2,4´-DDT	**0.12**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
4,4´-DDD	**16.2**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.43**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.78**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.87**		*62.4 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.10**		*69.8 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

F135

6093001-07 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.05**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDE	**0.13**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04, J
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.17**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
4,4´-DDE	**0.22**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.14**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.780**		*26.0 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.99**		*66.4 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

F136

6093001-08 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.16**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.19**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.05**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.964**		*32.2 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.94**		*64.8 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

F137

6093001-09 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.18**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.33**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.06**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04, J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.03**		*34.4 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.03**		*67.5 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

F138

6093001-10 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.41**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDE	**0.34**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**2.75**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.01**		*33.5 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.05**		*68.4 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

F139

6093001-11 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.08**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDE	**0.21**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**8.71**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.21**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.34**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.88**		*62.7 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.28**		*76.1 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

F140

6093001-12 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.35**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**1.40**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
4,4´-DDE	**0.33**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
4,4´-DDT	**2.09**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.92**		*64.1 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.13**		*71.0 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

F141

6093001-13 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.30**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**1.70**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
4,4´-DDE	**0.74**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**1.29**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.00**		*66.6 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.26**		*75.2 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-14 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.21**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.65**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.55**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.30**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.97**		*65.6 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.35**		*78.4 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-15 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.10**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDE	**0.15**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.29**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.74**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.05**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.99**		*66.3 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.25**		*75.0 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-16 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.31**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.25**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
4,4´-DDE	**0.68**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.92**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.05**		*68.2 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.34**		*77.9 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-17 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.17**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
2,4´-DDE	**0.20**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
2,4´-DDT	**0.05**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
4,4´-DDD	**0.42**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.71**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.83**		*61.2 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.36**		*78.6 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-18 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.34**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
2,4´-DDE	**0.20**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.47**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
4,4´-DDE	**0.84**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.26**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.73**		*57.7 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.17**		*72.4 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-19 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.29**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**15.1**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.40**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.81**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.77**		*59.1 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.32**		*77.3 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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SPARWAR	Project: Quantico	
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6093001-20 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.44**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.50**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
4,4´-DDE	**0.32**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
4,4´-DDT	**1.09**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.68**		*56.0 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.17**		*72.4 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-21 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.41**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.34**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
4,4´-DDE	**0.38**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.54**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.81**		*60.4 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.17**		*72.4 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-22 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.05**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDE	**0.07**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.12**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.19**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.98**		*66.0 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.26**		*75.5 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-23 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.05**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDE	**0.10**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.12**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.36**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.12**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.90**		*63.5 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.14**		*71.2 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-24 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.27**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.60**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.13**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.92**		*63.9 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.40**		*80.0 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-25 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.16**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.27**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.79**		*59.6 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.13**		*71.0 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-26 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.05**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDE	**0.06**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.24**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.22**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.02**		*67.2 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.37**		*79.0 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-27 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.08**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.09**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04, J
4,4´-DDE	**0.20**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.07**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04, J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.59**		*52.9 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.46**		*82.0 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-28 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.13**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.20**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**1.02**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.05**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.75**		*58.4 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.06**		*68.6 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-29 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.10**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.41**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.32**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.29**		*43.1 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.42**		*80.6 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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3909 Halls Ferry Road
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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-30 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.12**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.43**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.06**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.64**		*54.6 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.28**		*75.9 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-31 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDT	**1.72**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDD	**0.13**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.29**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**1.63**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**5.38**		*89.7 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**6.29**		*105 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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3909 Halls Ferry Road
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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-32 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.10**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.41**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.07**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**5.25**		*87.6 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**6.60**		*110 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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3909 Halls Ferry Road
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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-33 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.13**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.25**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.39**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.08**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**5.19**		*86.5 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**6.16**		*103 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-34 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.20**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.51**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.44**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.10**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**5.30**		*88.3 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**6.14**		*102 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-35 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.20**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.65**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.21**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
4,4´-DDT	**0.08**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04, J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**5.39**		*89.8 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**6.39**		*106 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-36 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDE	**0.19**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**5.06**		*84.4 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**6.28**		*105 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-37 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.11**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.40**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.07**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**4.56**		*76.1 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**5.68**		*94.7 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-38 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.16**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.38**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.25**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**4.92**		*82.0 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**5.94**		*98.9 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-39 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDE	**0.17**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**5.21**		*86.9 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**6.29**		*105 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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3909 Halls Ferry Road
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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-40 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.05**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDE	**0.15**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDE	**0.42**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDT	**0.11**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**4.99**		*83.1 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**6.04**		*101 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-41 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.14**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.44**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.22**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
4,4´-DDT	**0.09**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.89**		*63.2 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.19**		*73.1 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

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6093001-42 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.21**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.76**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	
4,4´-DDE	**0.25**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04
4,4´-DDT	**0.13**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.59**		*53.2 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.88**		*62.6 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

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Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

F171

6093001-43 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDE	**0.08**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	RPD-04, J
4,4´-DDT	**0.05**	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.70**		*56.6 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.94**		*64.8 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

F172

6093001-44 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDE	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	24-Oct-2016	30-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.53**		*51.1 %*	*25-140*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.73**		*57.7 %*	*30-135*	*24-Oct-2016*	*30-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B610274 - * DEFAULT PREP *** **											
Blank (B610274-BLK2)					Prepared: 24-Oct-2016 Analyzed: 30-Nov-2016						
2,4´-DDD	ND	0.05	0.15	ng							U
2,4´-DDE	ND	0.05	0.15	ng							U
2,4´-DDT	ND	0.05	0.15	ng							U
4,4´-DDD	ND	0.05	0.15	ng							U
4,4´-DDE	ND	0.05	0.15	ng							U
4,4´-DDT	ND	0.05	0.15	ng							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.03*			*ng*	*3.000*		*67.8*	*25-140*			
Surrogate: Decachlorobiphenyl	*2.39*			*ng*	*3.000*		*79.7*	*30-135*			
LCS (B610274-BS1)					Prepared: 24-Oct-2016 Analyzed: 30-Nov-2016						
2,4´-DDD	3.6	0.05	0.15	ng	4.000		89.9	50-125			
2,4´-DDE	3.8	0.05	0.15	ng	4.000		94.1	50-125			
2,4´-DDT	4.0	0.05	0.15	ng	4.000		100	50-125			
4,4´-DDD	3.8	0.05	0.15	ng	4.000		94.2	25-150			
4,4´-DDE	3.8	0.05	0.15	ng	4.000		93.8	35-140			
4,4´-DDT	4.0	0.05	0.15	ng	4.000		101	45-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.40*			*ng*	*3.000*		*79.9*	*25-140*			
Surrogate: Decachlorobiphenyl	*2.74*			*ng*	*3.000*		*91.2*	*30-135*			
LCS (B610274-BS2)					Prepared: 24-Oct-2016 Analyzed: 30-Nov-2016						
2,4´-DDD	3.4	0.05	0.15	ng	4.000		85.3	50-125			
2,4´-DDE	3.9	0.05	0.15	ng	4.000		97.4	50-125			
2,4´-DDT	3.9	0.05	0.15	ng	4.000		97.6	50-125			
4,4´-DDD	3.6	0.05	0.15	ng	4.000		90.4	25-150			
4,4´-DDE	3.7	0.05	0.15	ng	4.000		92.0	35-140			
4,4´-DDT	3.9	0.05	0.15	ng	4.000		98.7	45-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.21*			*ng*	*3.000*		*73.7*	*25-140*			
Surrogate: Decachlorobiphenyl	*2.81*			*ng*	*3.000*		*93.6*	*30-135*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

SPARWAR	Project: Quantico	
,	Project Manager: SPARWAR	**Reported:** 07-Dec-2016

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B610274 - * DEFAULT PREP *** **											
LCS (B610274-BS3)					Prepared: 24-Oct-2016 Analyzed: 30-Nov-2016						
2,4´-DDD	3.3	0.05	0.15	ng	4.000		81.7	50-125			
2,4´-DDE	3.4	0.05	0.15	ng	4.000		83.8	50-125			
2,4´-DDT	3.7	0.05	0.15	ng	4.000		93.2	50-125			
4,4´-DDD	3.4	0.05	0.15	ng	4.000		84.2	25-150			
4,4´-DDE	3.4	0.05	0.15	ng	4.000		85.0	35-140			
4,4´-DDT	3.8	0.05	0.15	ng	4.000		94.1	45-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.10*			*ng*	*3.000*		*70.2*	*25-140*			
Surrogate: Decachlorobiphenyl	*2.47*			*ng*	*3.000*		*82.4*	*30-135*			
LCS (B610274-BS4)					Prepared: 24-Oct-2016 Analyzed: 30-Nov-2016						
2,4´-DDD	3.1	0.05	0.15	ng	4.000		76.4	50-125			
2,4´-DDE	3.2	0.05	0.15	ng	4.000		80.7	50-125			
2,4´-DDT	3.3	0.05	0.15	ng	4.000		82.8	50-125			
4,4´-DDD	3.0	0.05	0.15	ng	4.000		76.0	25-150			
4,4´-DDE	3.1	0.05	0.15	ng	4.000		76.9	35-140			
4,4´-DDT	3.3	0.05	0.15	ng	4.000		83.0	45-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.09*			*ng*	*3.000*		*69.7*	*25-140*			
Surrogate: Decachlorobiphenyl	*2.49*			*ng*	*3.000*		*82.9*	*30-135*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ERDC SAMPLE RECEIPT CHECKLIST

Client: SPAWAR	Work Order: 609300 1
Project:	Date/Time Received 9/30/16 1212
Shipping Company:	

Suspected Hazard Information	Yes	No	NA	Comments:
Shipped as DOT Hazardous?		✓		
Samples identified as Foreign Material?		✓		

Sample Receipt Criteria	Yes	No	NA	Comments:
1. Shipping containers received intact and sealed?	✓			
2. Chain of Custody documents included with shipment?	✓			
3. COC form is properly signed in relinquished/received sections?	✓			
4. Samples requiring chemical preservation at proper pH?	✓			
5. Samples requiring cold preservation within 0-5°C?		✓		19.5 °C
6. Samples IDs on COC match IDs on containers?	✓			
7. Date and time of COC match date and time on containers?			✓	
8. Number of containers received match number indicated on COC?	✓			
9. Samples received within holding time?	✓			
10. Aqueous samples found to have visible solids?			✓	

Additional Comments:

Checklist preformed by: [signature]

Time/Date: 9/30/16 12:16

CHAIN OF CUSTODY RECORD

Sampling Company:	Ramboll-Environ	**Client:**	SPAWAR Systems Center Pacific	**Laboratory:**	USACE ERDC-EP-C
POC:	Melissa Grover	**POC:**	Dr. Bart Chadwick	**POC:**	Madeline Tarasar
Address:	16644 West Bernardo Drive, Suite 301	**Address:**	53475 Strothe Road	**Address:**	3909 Halls Ferry RD Bldg 3299
	San Diego, California 92127		San Diego, CA 92152		Vicksburg, MS 39180
Email:	mgrover@geosyntec.com;	**Email:**	bart.chadwick@navy.mil	**Email:**	madeline..k.tarasar@usace.army.mil
Phone:	858-716-2928	**Phone:**	619-553-5333	**Phone:**	601-634-3966
Project:	Quantico 25-Month; Quantico, VA.				

# of Sampling Sites	Sample ID	Date	Time	Depth	Matrix	# of Containers	Requested Analyses: DDX Congeners USEPA Method 8081A															
1	F129	9/27/2016	9:05	NA	Hexane	1	1															
2	F130	9/27/2016	9:05	NA	Hexane	1	1															
3	F131	9/27/2016	9:05	NA	Hexane	1	1															
4	F132	9/27/2016	9:05	NA	Hexane	1	1															
5	F133	9/27/2016	9:05	NA	Hexane	1	1															
6	F134	9/27/2016	9:05	NA	Hexane	1	1															
7	F135	9/27/2016	9:05	NA	Hexane	1	1															
8	F136	9/27/2016	10:44	NA	Hexane	1	1															
9	F137	9/27/2016	10:44	NA	Hexane	1	1															
10	F138	9/27/2016	10:44	NA	Hexane	1	1															
11	F139	9/27/2016	10:44	NA	Hexane	1	1															
12	F140	9/27/2016	10:44	NA	Hexane	1	1															
Total							12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Please return coolers to :

1. I hereby transfer the sample containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.

Total # of Containers	Name	Date	Time
12	J.Guerrero (SPAWAR/USN)	9-29-16	1030

2. I accept these samples for transfer to ERDC:

Total # of Containers	Name	Date	Time
	MEP	9/30/16	1213

3. Condition of samples upon arrival at ERDC:

4 Cooler temperature upon arrival at ERDC:

5. Additional Information:
NP
N.P. = no preserved, HNO3 = preserved with nitric acid, H2SO4 = preserved with sulfuric acid

6. Send Copy of COC	USACE-ERDC-EP-C
POC:	Amber Russell, Madeline Tarasar and Jenifer Milam
Email:	amber.l.russell@usace.army.mil madeline.k.tarasar@usace.army.mil jenifer.milam@usace.army.mil
Phone:	601-634-4302 & 601-634-7431

CHAIN OF CUSTODY RECORD

Sampling Company:	Ramboll-Environ	**Client:**	SPAWAR Systems Center Pacific	**Laboratory:**	USACE ERDC-EP-C
POC:	Melissa Grover	**POC:**	Dr. Bart Chadwick	**POC:**	Madeline Tarasar
Address:	16644 West Bernardo Drive, Suite 301	**Address:**	53475 Strothe Road	**Address:**	3909 Halls Ferry RD Bldg 3299
	San Diego, California 92127		San Diego, CA 92152		Vicksburg, MS 39180
Email:	mgrover@geosyntec.com;	**Email:**	bart.chadwick@navy.mil	**Email:**	madeline..k.tarasar@usace.army.mil
Phone:	858-716-2928	**Phone:**	619-553-5333	**Phone:**	601-634-3966
Project:	Quantico 25-Month; Quantico, VA.				

# of Sampling Sites	Sample ID	Date	Time	Depth	Matrix	# of Containers	Requested Analyses: DDX Congeners USEPA Method 8081A															
1	F141	9/27/2016	10:44	NA	Hexane	1	1															
2	F142	9/27/2016	10:44	NA	Hexane	1	1															
3	F143	9/27/2016	11:26	NA	Hexane	1	1															
4	F144	9/27/2016	11:26	NA	Hexane	1	1															
5	F145	9/27/2016	11:26	NA	Hexane	1	1															
6	F146	9/27/2016	11:26	NA	Hexane	1	1															
7	F147	9/27/2016	11:26	NA	Hexane	1	1															
8	F148	9/27/2016	11:26	NA	Hexane	1	1															
9	F149	9/27/2016	11:26	NA	Hexane	1	1															
10	F150	9/27/2016	13:37	NA	Hexane	1	1															
11	F151	9/27/2016	13:37	NA	Hexane	1	1															
12	F152	9/27/2016	13:37	NA	Hexane	1	1															
Total							12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Please return coolers to :

1. I hereby transfer the sample containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.

Total # of Containers	Name	Date	Time
12	J.Guerrero (SPAWAR/USN)	9-29-16	1030

2. I accept these samples for transfer to ERDC:

Total # of Containers	Name	Date	Time
		9/30/16	1213

3. Condition of samples upon arrival at ERDC:

4. Cooler temperature upon arrival at ERDC:

5. Additional Information:
NP
N.P. = no preserved, HNO3 = preserved with nitric acid, H2SO4 = preserved with sulfuric acid

6. Send Copy of COC	USACE-ERDC-EP-C
POC:	Amber Russell, Madeline Tarasar and Jenifer Milam
Email:	amber.l.russell@usace.army.mil madeline.k.tarasar@usace.army.mil jenifer.milam@usace.army.mil
Phone:	601-634-4302 & 601-634-7431

CHAIN OF CUSTODY RECORD

Sampling Company:	Ramboll-Environ	**Client:**	SPAWAR Systems Center Pacific	**Laboratory:**	USACE ERDC-EP-C
POC:	Melissa Grover	**POC:**	Dr. Bart Chadwick	**POC:**	Madeline Tarasar
Address:	16644 West Bernardo Drive, Suite 301	**Address:**	53475 Strothe Road	**Address:**	3909 Halls Ferry RD Bldg 3299
	San Diego, California 92127		San Diego, CA 92152		Vicksburg, MS 39180
Email:	mgrover@geosyntec.com;	**Email:**	bart.chadwick@navy.mil	**Email:**	madeline..k.tarasar@usace.army.mil
Phone:	858-716-2928	**Phone:**	619-553-5333	**Phone:**	601-634-3966
Project:	Quantico 25-Month; Quantico, VA.				

# of Sampling Sites	Sample ID	Date	Time	Depth	Matrix	# of Containers	Requested Analyses: DDX Congeners USEPA Method 8081A																
1	F153	9/27/2016	13:37	NA	Hexane	1	1																
2	F154	9/27/2016	13:37	NA	Hexane	1	1																
3	F155	9/27/2016	13:37	NA	Hexane	1	1																
4	F156	9/27/2016	13:37	NA	Hexane	1	1																
5	F157	9/27/2016	14:25	NA	Hexane	1	1																
6	F158	9/27/2016	14:25	NA	Hexane	1	1																
7	F159	9/27/2016	14:25	NA	Hexane	1	1																
8	F160	9/27/2016	14:25	NA	Hexane	1	1																
9	F161	9/27/2016	14:25	NA	Hexane	1	1																
10	F162	9/27/2016	14:25	NA	Hexane	1	1																
11	F163	9/27/2016	14:25	NA	Hexane	1	1																
12	F164	9/27/2016	15:08	NA	Hexane	1	1																
Total							12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Please return coolers to :

1. I hereby transfer the sample containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.

Total # of Containers	Name	Date	Time
12	J.Guerrero (SPAWAR/USN)	9-29-16	1038

2. I accept these samples for transfer to ERDC:

Total # of Containers	Name	Date	Time
		9/30/16	12:13

3. Condition of samples upon arrival at ERDC:

4 Cooler temperature upon arrival at ERDC:

5. Additional Information:
NP
N.P. = no preserved, HNO3 = preserved with nitric acid, H2SO4 = preserved with sulfuric acid

6. Send Copy of COC	USACE-ERDC-EP-C
POC:	Amber Russell, Madeline Tarasar and Jenifer Milam
Email:	amber.l.russell@usace.army.mil madeline.k.tarasar@usace.army.mil jenifer.milam@usace.army.mil
Phone:	601-634-4302 & 601-634-7431

CHAIN OF CUSTODY RECORD

Sampling Company:	Ramboll-Environ	**Client:**	SPAWAR Systems Center Pacific	**Laboratory:**	USACE ERDC-EP-C
POC:	Melissa Grover	**POC:**	Dr. Bart Chadwick	**POC:**	Madeline Tarasar
Address:	16644 West Bernardo Drive, Suite 301	**Address:**	53475 Strothe Road	**Address:**	3909 Halls Ferry RD Bldg 3299
	San Diego, California 92127		San Diego, CA 92152		Vicksburg, MS 39180
Email:	mgrover@geosyntec.com;	**Email:**	bart.chadwick@navy.mil	**Email:**	madeline..k.tarasar@usace.army.mil
Phone:	858-716-2928	**Phone:**	619-553-5333	**Phone:**	601-634-3966
Project:	Quantico 25-Month; Quantico, VA.				

# of Sampling Sites	Sample ID	Date	Time	Depth	Matrix	# of Containers	Requested Analyses: DDX Congeners USEPA Method 8081A	PCB Congeners USEPA Method 8082													
1	F165	9/27/2016	15:08	NA	Hexane	1	1														
2	F166	9/27/2016	15:08	NA	Hexane	1	1														
3	F167	9/27/2016	15:08	NA	Hexane	1	1														
4	F168	9/27/2016	15:08	NA	Hexane	1	1														
5	F169	9/27/2016	15:08	NA	Hexane	1	1														
6	F170	9/27/2016	15:08	NA	Hexane	1	1														
7	F171	9/27/2016	15:48	NA	Hexane	1	1														
8	F172	9/27/2016	15:58	NA	Hexane	1	1														
9	PCB1	9/27/2016	16:00	NA	Hexane	1		1													
10																					
11																					
12																					
Total							8	1	0	0	0	0	0	0	0	0	0	0	0	0	0

Please return coolers to :

1. I hereby transfer the sample containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.

12 — **Total # of Containers**

J.Guerrero (SPAWAR/USN) — **Name** | 9-29-16 — **Date** | 1038 — **Time**

2. I accept these samples for transfer to ERDC:

Total # of Containers

Name | 9/30/16 — **Date** | 12:13 — **Time**

3. Condition of samples upon arrival at ERDC:

4 Cooler temperature upon arrival at ERDC:

5. Additional Information:
NP
N.P. = no preserved, HNO3 = preserved with nitric acid, H2SO4 = preserved with sulfuric acid

6. Send Copy of COC	USACE-ERDC-EP-C
POC:	Amber Russell, Madeline Tarasar and Jenifer Milam
Email:	amber.l.russell@usace.army.mil madeline.k.tarasar@usace.army.mil jenifer.milam@usace.army.mil
Phone:	601-634-4302 & 601-634-7431

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception

Appendix E-6

In Situ Porewater Chemistry

Data Compilation, Calculations and Laboratory Reports

Table 1. Compilation of *in situ* Porewater DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
Baseline 3	1	4-6	Sample	Native Sediment	Station-1-(4-6)	On Cap	4,4´-DDD	0.98
Baseline 3	1	4-6	Sample	Native Sediment	Station-1-(4-6)	On Cap	4,4´-DDE	<0.07
Baseline 3	1	4-6	Sample	Native Sediment	Station-1-(4-6)	On Cap	4,4´-DDT	<0.14
Baseline 3	1	4-6	Sample	Native Sediment	Station-1-(4-6)	On Cap	Total DDX	0.98
Baseline 3	2	4-6	Sample	Native Sediment	Station-2-(4-6)	On Cap	4,4´-DDD	0.58
Baseline 3	2	4-6	Sample	Native Sediment	Station-2-(4-6)	On Cap	4,4´-DDE	<0.08
Baseline 3	2	4-6	Sample	Native Sediment	Station-2-(4-6)	On Cap	4,4´-DDT	<0.15
Baseline 3	2	4-6	Sample	Native Sediment	Station-2-(4-6)	On Cap	Total DDX	0.58
Baseline 3	3	4-6	Sample	Native Sediment	Station-3-(4-6)	On Cap	4,4´-DDD	0.77
Baseline 3	3	4-6	Sample	Native Sediment	Station-3-(4-6)	On Cap	4,4´-DDE	<0.08
Baseline 3	3	4-6	Sample	Native Sediment	Station-3-(4-6)	On Cap	4,4´-DDT	<0.14
Baseline 3	3	4-6	Sample	Native Sediment	Station-3-(4-6)	On Cap	Total DDX	0.77
Baseline 3	4	4-6	Sample	Native Sediment	Station-4-(4-6)	On Cap	4,4´-DDD	0.46
Baseline 3	4	4-6	Sample	Native Sediment	Station-4-(4-6)	On Cap	4,4´-DDE	0.07
Baseline 3	4	4-6	Sample	Native Sediment	Station-4-(4-6)	On Cap	4,4´-DDT	<0.11
Baseline 3	4	4-6	Sample	Native Sediment	Station-4-(4-6)	On Cap	Total DDX	0.53
Baseline 3	5	4-6	Sample	Native Sediment	Station-5-(4-6)	On Cap	4,4´-DDD	0.47
Baseline 3	5	4-6	Sample	Native Sediment	Station-5-(4-6)	On Cap	4,4´-DDE	<0.06
Baseline 3	5	4-6	Sample	Native Sediment	Station-5-(4-6)	On Cap	4,4´-DDT	<0.13
Baseline 3	5	4-6	Sample	Native Sediment	Station-5-(4-6)	On Cap	Total DDX	0.47
Baseline 3	6	4-6	Sample	Native Sediment-Off Cap	Station-6-(4-6)	Off Cap	4,4´-DDD	<0.6
Baseline 3	6	4-6	Sample	Native Sediment-Off Cap	Station-6-(4-6)	Off Cap	4,4´-DDE	<0.14
Baseline 3	6	4-6	Sample	Native Sediment-Off Cap	Station-6-(4-6)	Off Cap	4,4´-DDT	<0.2
Baseline 3	6	4-6	Sample	Native Sediment-Off Cap	Station-6-(4-6)	Off Cap	Total DDX	<0.6
2-MONTH	1	0-5	Sample	Cap Material	Station-1-(0-5)	On Cap	2,4´-DDD	<0.56
2-MONTH	1	0-5	Sample	Cap Material	Station-1-(0-5)	On Cap	2,4´-DDE	0.11
2-MONTH	1	0-5	Sample	Cap Material	Station-1-(0-5)	On Cap	2,4´-DDT	<0.09
2-MONTH	1	0-5	Sample	Cap Material	Station-1-(0-5)	On Cap	4,4´-DDD	0.96
2-MONTH	1	0-5	Sample	Cap Material	Station-1-(0-5)	On Cap	4,4´-DDT	<0.16
2-MONTH	1	0-5	Sample	Cap Material	Station-1-(0-5)	On Cap	4,4´-DDE	0.47
2-MONTH	1	0-5	Sample	Cap Material	Station-1-(0-5)	On Cap	Total DDX	1.54
2-MONTH	1	10-15	Sample	Cap Material	Station-1-(10-15)	On Cap	2,4´-DDD	<0.56
2-MONTH	1	10-15	Sample	Cap Material	Station-1-(10-15)	On Cap	2,4´-DDE	<0.09
2-MONTH	1	10-15	Sample	Cap Material	Station-1-(10-15)	On Cap	2,4´-DDT	<0.09
2-MONTH	1	10-15	Sample	Cap Material	Station-1-(10-15)	On Cap	4,4´-DDD	1.32
2-MONTH	1	10-15	Sample	Cap Material	Station-1-(10-15)	On Cap	4,4´-DDT	<0.16
2-MONTH	1	10-15	Sample	Cap Material	Station-1-(10-15)	On Cap	4,4´-DDE	0.45
2-MONTH	1	10-15	Sample	Cap Material	Station-1-(10-15)	On Cap	Total DDX	1.77
2-MONTH	1	15-20	Sample	Native Sediment	Station-1-(15-20)	On Cap	2,4´-DDD	0.45

Table 1. Compilation of *in situ* Porewater DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
2-MONTH	1	15-20	Sample	Native Sediment	Station-1-(15-20)	On Cap	2,4´-DDE	<0.11
2-MONTH	1	15-20	Sample	Native Sediment	Station-1-(15-20)	On Cap	2,4´-DDT	<0.1
2-MONTH	1	15-20	Sample	Native Sediment	Station-1-(15-20)	On Cap	4,4´-DDD	0.88
2-MONTH	1	15-20	Sample	Native Sediment	Station-1-(15-20)	On Cap	4,4´-DDT	<0.18
2-MONTH	1	15-20	Sample	Native Sediment	Station-1-(15-20)	On Cap	4,4´-DDE	0.23
2-MONTH	1	15-20	Sample	Transition Depth	Station-1-(15-20)	On Cap	Total DDX	1.57
2-MONTH	1	20-25	Sample	Native Sediment	Station-1-(20-25)	On Cap	2,4´-DDD	<0.6
2-MONTH	1	20-25	Sample	Native Sediment	Station-1-(20-25)	On Cap	2,4´-DDE	0.09
2-MONTH	1	20-25	Sample	Native Sediment	Station-1-(20-25)	On Cap	2,4´-DDT	<0.1
2-MONTH	1	20-25	Sample	Native Sediment	Station-1-(20-25)	On Cap	4,4´-DDD	1.05
2-MONTH	1	20-25	Sample	Native Sediment	Station-1-(20-25)	On Cap	4,4´-DDT	<0.18
2-MONTH	1	20-25	Sample	Native Sediment	Station-1-(20-25)	On Cap	4,4´-DDE	<0.11
2-MONTH	1	20-25	Sample	Native Sediment	Station-1-(20-25)	On Cap	Total DDX	1.14
2-MONTH	1	25-30	Sample	Native Sediment	Station-1-(25-30)	On Cap	2,4´-DDD	<0.6
2-MONTH	1	25-30	Sample	Native Sediment	Station-1-(25-30)	On Cap	2,4´-DDE	<0.11
2-MONTH	1	25-30	Sample	Native Sediment	Station-1-(25-30)	On Cap	2,4´-DDT	<0.1
2-MONTH	1	25-30	Sample	Native Sediment	Station-1-(25-30)	On Cap	4,4´-DDD	1.27
2-MONTH	1	25-30	Sample	Native Sediment	Station-1-(25-30)	On Cap	4,4´-DDT	<0.18
2-MONTH	1	25-30	Sample	Native Sediment	Station-1-(25-30)	On Cap	4,4´-DDE	<0.11
2-MONTH	1	25-30	Sample	Native Sediment	Station-1-(25-30)	On Cap	Total DDX	1.27
2-MONTH	1	30-35	Sample	Native Sediment	Station-1-(30-35)	On Cap	2,4´-DDD	<0.6
2-MONTH	1	30-35	Sample	Native Sediment	Station-1-(30-35)	On Cap	2,4´-DDE	0.25
2-MONTH	1	30-35	Sample	Native Sediment	Station-1-(30-35)	On Cap	2,4´-DDT	<0.1
2-MONTH	1	30-35	Sample	Native Sediment	Station-1-(30-35)	On Cap	4,4´-DDD	0.69
2-MONTH	1	30-35	Sample	Native Sediment	Station-1-(30-35)	On Cap	4,4´-DDT	<0.18
2-MONTH	1	30-35	Sample	Native Sediment	Station-1-(30-35)	On Cap	4,4´-DDE	<0.11
2-MONTH	1	30-35	Sample	Native Sediment	Station-1-(30-35)	On Cap	Total DDX	0.94
2-MONTH	1	35-40	Sample	Native Sediment	Station-1-(35-40)	On Cap	2,4´-DDD	<0.71
2-MONTH	1	35-40	Sample	Native Sediment	Station-1-(35-40)	On Cap	2,4´-DDE	0.20
2-MONTH	1	35-40	Sample	Native Sediment	Station-1-(35-40)	On Cap	2,4´-DDT	<0.1
2-MONTH	1	35-40	Sample	Native Sediment	Station-1-(35-40)	On Cap	4,4´-DDD	1.14
2-MONTH	1	35-40	Sample	Native Sediment	Station-1-(35-40)	On Cap	4,4´-DDT	<0.19
2-MONTH	1	35-40	Sample	Native Sediment	Station-1-(35-40)	On Cap	4,4´-DDE	0.31
2-MONTH	1	35-40	Sample	Native Sediment	Station-1-(35-40)	On Cap	Total DDX	1.65
2-MONTH	1	40-45	Sample	Native Sediment	Station-1-(40-45)	On Cap	2,4´-DDD	<0.71
2-MONTH	1	40-45	Sample	Native Sediment	Station-1-(40-45)	On Cap	2,4´-DDE	<0.11
2-MONTH	1	40-45	Sample	Native Sediment	Station-1-(40-45)	On Cap	2,4´-DDT	<0.1
2-MONTH	1	40-45	Sample	Native Sediment	Station-1-(40-45)	On Cap	4,4´-DDD	0.91
2-MONTH	1	40-45	Sample	Native Sediment	Station-1-(40-45)	On Cap	4,4´-DDT	<0.19

Table 1. Compilation of *in situ* Porewater DDX Results for all Monitoring Events
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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
2-MONTH	1	40-45	Sample	Native Sediment	Station-1-(40-45)	On Cap	4,4´-DDE	<0.11
2-MONTH	1	40-45	Sample	Native Sediment	Station-1-(40-45)	On Cap	Total DDX	0.91
2-MONTH	1	45-50	Sample	Native Sediment	Station-1-(45-50)	On Cap	2,4´-DDD	<0.71
2-MONTH	1	45-50	Sample	Native Sediment	Station-1-(45-50)	On Cap	2,4´-DDE	<0.11
2-MONTH	1	45-50	Sample	Native Sediment	Station-1-(45-50)	On Cap	2,4´-DDT	<0.1
2-MONTH	1	45-50	Sample	Native Sediment	Station-1-(45-50)	On Cap	4,4´-DDD	<0.8
2-MONTH	1	45-50	Sample	Native Sediment	Station-1-(45-50)	On Cap	4,4´-DDT	<0.19
2-MONTH	1	45-50	Sample	Native Sediment	Station-1-(45-50)	On Cap	4,4´-DDE	<0.11
2-MONTH	1	45-50	Sample	Native Sediment	Station-1-(45-50)	On Cap	Total DDX	<0.8
2-MONTH	1	50-55	Sample	Native Sediment	Station-1-(50-55)	On Cap	2,4´-DDD	<0.71
2-MONTH	1	50-55	Sample	Native Sediment	Station-1-(50-55)	On Cap	2,4´-DDE	<0.11
2-MONTH	1	50-55	Sample	Native Sediment	Station-1-(50-55)	On Cap	2,4´-DDT	<0.1
2-MONTH	1	50-55	Sample	Native Sediment	Station-1-(50-55)	On Cap	4,4´-DDD	0.98
2-MONTH	1	50-55	Sample	Native Sediment	Station-1-(50-55)	On Cap	4,4´-DDT	<0.19
2-MONTH	1	50-55	Sample	Native Sediment	Station-1-(50-55)	On Cap	4,4´-DDE	<0.11
2-MONTH	1	50-55	Sample	Native Sediment	Station-1-(50-55)	On Cap	Total DDX	0.98
2-MONTH	1	5-10	Sample	Cap Material	Station-1-(5-10)	On Cap	2,4´-DDD	<0.56
2-MONTH	1	5-10	Sample	Cap Material	Station-1-(5-10)	On Cap	2,4´-DDE	<0.09
2-MONTH	1	5-10	Sample	Cap Material	Station-1-(5-10)	On Cap	2,4´-DDT	<0.09
2-MONTH	1	5-10	Sample	Cap Material	Station-1-(5-10)	On Cap	4,4´-DDD	<0.62
2-MONTH	1	5-10	Sample	Cap Material	Station-1-(5-10)	On Cap	4,4´-DDT	<0.16
2-MONTH	1	5-10	Sample	Cap Material	Station-1-(5-10)	On Cap	4,4´-DDE	<0.09
2-MONTH	1	5-10	Sample	Cap Material	Station-1-(5-10)	On Cap	Total DDX	<0.62
2-MONTH	1	55-60	Sample	Native Sediment	Station-1-(55-60)	On Cap	2,4´-DDD	<0.73
2-MONTH	1	55-60	Sample	Native Sediment	Station-1-(55-60)	On Cap	2,4´-DDE	0.22
2-MONTH	1	55-60	Sample	Native Sediment	Station-1-(55-60)	On Cap	2,4´-DDT	<0.1
2-MONTH	1	55-60	Sample	Native Sediment	Station-1-(55-60)	On Cap	4,4´-DDD	0.65
2-MONTH	1	55-60	Sample	Native Sediment	Station-1-(55-60)	On Cap	4,4´-DDT	<0.2
2-MONTH	1	55-60	Sample	Native Sediment	Station-1-(55-60)	On Cap	4,4´-DDE	<0.11
2-MONTH	1	55-60	Sample	Native Sediment	Station-1-(55-60)	On Cap	Total DDX	0.87
2-MONTH	2	0-5	Sample	Cap Material	Station-2-(0-5)	On Cap	2,4´-DDD	<0.66
2-MONTH	2	0-5	Sample	Cap Material	Station-2-(0-5)	On Cap	2,4´-DDE	<0.12
2-MONTH	2	0-5	Sample	Cap Material	Station-2-(0-5)	On Cap	2,4´-DDT	<0.11
2-MONTH	2	0-5	Sample	Cap Material	Station-2-(0-5)	On Cap	4,4´-DDD	<0.73
2-MONTH	2	0-5	Sample	Cap Material	Station-2-(0-5)	On Cap	4,4´-DDT	<0.2
2-MONTH	2	0-5	Sample	Cap Material	Station-2-(0-5)	On Cap	4,4´-DDE	<0.12
2-MONTH	2	0-5	Sample	Cap Material	Station-2-(0-5)	On Cap	Total DDX	<0.73
2-MONTH	2	10-15	Sample	Cap Material	Station-2-(10-15)	On Cap	2,4´-DDD	<0.66
2-MONTH	2	10-15	Sample	Cap Material	Station-2-(10-15)	On Cap	2,4´-DDE	<0.12

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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
2-MONTH	2	10-15	Sample	Cap Material	Station-2-(10-15)	On Cap	2,4´-DDT	<0.11
2-MONTH	2	10-15	Sample	Cap Material	Station-2-(10-15)	On Cap	4,4´-DDD	<0.73
2-MONTH	2	10-15	Sample	Cap Material	Station-2-(10-15)	On Cap	4,4´-DDT	<0.2
2-MONTH	2	10-15	Sample	Cap Material	Station-2-(10-15)	On Cap	4,4´-DDE	<0.12
2-MONTH	2	10-15	Sample	Cap Material	Station-2-(10-15)	On Cap	Total DDX	<0.73
2-MONTH	2	15-20	Sample	Cap Material	Station-2-(15-20)	On Cap	2,4´-DDD	<0.67
2-MONTH	2	15-20	Sample	Cap Material	Station-2-(15-20)	On Cap	2,4´-DDE	<0.13
2-MONTH	2	15-20	Sample	Cap Material	Station-2-(15-20)	On Cap	2,4´-DDT	<0.12
2-MONTH	2	15-20	Sample	Cap Material	Station-2-(15-20)	On Cap	4,4´-DDD	0.97
2-MONTH	2	15-20	Sample	Cap Material	Station-2-(15-20)	On Cap	4,4´-DDT	<0.21
2-MONTH	2	15-20	Sample	Cap Material	Station-2-(15-20)	On Cap	4,4´-DDE	<0.13
2-MONTH	2	15-20	Sample	Cap Material	Station-2-(15-20)	On Cap	Total DDX	0.97
2-MONTH	2	20-25	Sample	Cap Material	Station-2-(20-25)	On Cap	2,4´-DDD	<0.67
2-MONTH	2	20-25	Sample	Cap Material	Station-2-(20-25)	On Cap	2,4´-DDE	<0.13
2-MONTH	2	20-25	Sample	Cap Material	Station-2-(20-25)	On Cap	2,4´-DDT	<0.12
2-MONTH	2	20-25	Sample	Cap Material	Station-2-(20-25)	On Cap	4,4´-DDD	1.27
2-MONTH	2	20-25	Sample	Cap Material	Station-2-(20-25)	On Cap	4,4´-DDT	<0.21
2-MONTH	2	20-25	Sample	Cap Material	Station-2-(20-25)	On Cap	4,4´-DDE	<0.13
2-MONTH	2	20-25	Sample	Cap Material	Station-2-(20-25)	On Cap	Total DDX	1.27
2-MONTH	2	25-30	Sample	Cap Material	Station-2-(25-30)	On Cap	2,4´-DDD	<0.67
2-MONTH	2	25-30	Sample	Cap Material	Station-2-(25-30)	On Cap	2,4´-DDE	<0.13
2-MONTH	2	25-30	Sample	Cap Material	Station-2-(25-30)	On Cap	2,4´-DDT	<0.12
2-MONTH	2	25-30	Sample	Cap Material	Station-2-(25-30)	On Cap	4,4´-DDD	1.71
2-MONTH	2	25-30	Sample	Cap Material	Station-2-(25-30)	On Cap	4,4´-DDT	<0.21
2-MONTH	2	25-30	Sample	Cap Material	Station-2-(25-30)	On Cap	4,4´-DDE	<0.13
2-MONTH	2	25-30	Sample	Cap Material	Station-2-(25-30)	On Cap	Total DDX	1.71
2-MONTH	2	30-35	Sample	Cap Material	Station-2-(30-35)	On Cap	2,4´-DDD	<0.67
2-MONTH	2	30-35	Sample	Cap Material	Station-2-(30-35)	On Cap	2,4´-DDE	0.28
2-MONTH	2	30-35	Sample	Cap Material	Station-2-(30-35)	On Cap	2,4´-DDT	<0.12
2-MONTH	2	30-35	Sample	Cap Material	Station-2-(30-35)	On Cap	4,4´-DDD	1.15
2-MONTH	2	30-35	Sample	Cap Material	Station-2-(30-35)	On Cap	4,4´-DDT	<0.21
2-MONTH	2	30-35	Sample	Cap Material	Station-2-(30-35)	On Cap	4,4´-DDE	<0.13
2-MONTH	2	30-35	Sample	Cap Material	Station-2-(30-35)	On Cap	Total DDX	1.44
2-MONTH	2	35-40	Sample	Cap Material	Station-2-(35-40)	On Cap	2,4´-DDD	<0.76
2-MONTH	2	35-40	Sample	Cap Material	Station-2-(35-40)	On Cap	2,4´-DDE	<0.15
2-MONTH	2	35-40	Sample	Cap Material	Station-2-(35-40)	On Cap	2,4´-DDT	<0.14
2-MONTH	2	35-40	Sample	Cap Material	Station-2-(35-40)	On Cap	4,4´-DDD	0.70
2-MONTH	2	35-40	Sample	Cap Material	Station-2-(35-40)	On Cap	4,4´-DDT	<0.24
2-MONTH	2	35-40	Sample	Cap Material	Station-2-(35-40)	On Cap	4,4´-DDE	<0.15

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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
2-MONTH	2	35-40	Sample	Cap Material	Station-2-(35-40)	On Cap	Total DDX	0.70
2-MONTH	2	40-45	Sample	Native Sediment	Station-2-(40-45)	On Cap	2,4´-DDD	<0.76
2-MONTH	2	40-45	Sample	Native Sediment	Station-2-(40-45)	On Cap	2,4´-DDE	<0.15
2-MONTH	2	40-45	Sample	Native Sediment	Station-2-(40-45)	On Cap	2,4´-DDT	<0.14
2-MONTH	2	40-45	Sample	Native Sediment	Station-2-(40-45)	On Cap	4,4´-DDD	1.33
2-MONTH	2	40-45	Sample	Native Sediment	Station-2-(40-45)	On Cap	4,4´-DDT	<0.24
2-MONTH	2	40-45	Sample	Native Sediment	Station-2-(40-45)	On Cap	4,4´-DDE	<0.15
2-MONTH	2	40-45	Sample	Native Sediment	Station-2-(40-45)	On Cap	Total DDX	1.33
2-MONTH	2	45-50	Sample	Native Sediment	Station-2-(45-50)	On Cap	2,4´-DDD	<0.76
2-MONTH	2	45-50	Sample	Native Sediment	Station-2-(45-50)	On Cap	2,4´-DDE	0.15
2-MONTH	2	45-50	Sample	Native Sediment	Station-2-(45-50)	On Cap	2,4´-DDT	<0.14
2-MONTH	2	45-50	Sample	Native Sediment	Station-2-(45-50)	On Cap	4,4´-DDD	<0.84
2-MONTH	2	45-50	Sample	Native Sediment	Station-2-(45-50)	On Cap	4,4´-DDT	<0.24
2-MONTH	2	45-50	Sample	Native Sediment	Station-2-(45-50)	On Cap	4,4´-DDE	<0.15
2-MONTH	2	45-50	Sample	Native Sediment	Station-2-(45-50)	On Cap	Total DDX	0.15
2-MONTH	2	50-55	Sample	Native Sediment	Station-2-(50-55)	On Cap	2,4´-DDD	<0.76
2-MONTH	2	50-55	Sample	Native Sediment	Station-2-(50-55)	On Cap	2,4´-DDE	<0.15
2-MONTH	2	50-55	Sample	Native Sediment	Station-2-(50-55)	On Cap	2,4´-DDT	<0.14
2-MONTH	2	50-55	Sample	Native Sediment	Station-2-(50-55)	On Cap	4,4´-DDD	<0.84
2-MONTH	2	50-55	Sample	Native Sediment	Station-2-(50-55)	On Cap	4,4´-DDT	<0.24
2-MONTH	2	50-55	Sample	Native Sediment	Station-2-(50-55)	On Cap	4,4´-DDE	<0.15
2-MONTH	2	50-55	Sample	Native Sediment	Station-2-(50-55)	On Cap	Total DDX	<0.84
2-MONTH	2	5-10	Sample	Cap Material	Station-2-(5-10)	On Cap	2,4´-DDD	<0.66
2-MONTH	2	5-10	Sample	Cap Material	Station-2-(5-10)	On Cap	2,4´-DDE	<0.12
2-MONTH	2	5-10	Sample	Cap Material	Station-2-(5-10)	On Cap	2,4´-DDT	<0.11
2-MONTH	2	5-10	Sample	Cap Material	Station-2-(5-10)	On Cap	4,4´-DDD	<0.73
2-MONTH	2	5-10	Sample	Cap Material	Station-2-(5-10)	On Cap	4,4´-DDT	<0.2
2-MONTH	2	5-10	Sample	Cap Material	Station-2-(5-10)	On Cap	4,4´-DDE	<0.12
2-MONTH	2	5-10	Sample	Cap Material	Station-2-(5-10)	On Cap	Total DDX	<0.73
2-MONTH	2	55-60	Sample	Native Sediment	Station-2-(55-60)	On Cap	2,4´-DDD	<0.86
2-MONTH	2	55-60	Sample	Native Sediment	Station-2-(55-60)	On Cap	2,4´-DDE	0.19
2-MONTH	2	55-60	Sample	Native Sediment	Station-2-(55-60)	On Cap	2,4´-DDT	<0.16
2-MONTH	2	55-60	Sample	Native Sediment	Station-2-(55-60)	On Cap	4,4´-DDD	0.92
2-MONTH	2	55-60	Sample	Native Sediment	Station-2-(55-60)	On Cap	4,4´-DDT	<0.28
2-MONTH	2	55-60	Sample	Native Sediment	Station-2-(55-60)	On Cap	4,4´-DDE	<0.17
2-MONTH	2	55-60	Sample	Native Sediment	Station-2-(55-60)	On Cap	Total DDX	1.11
2-MONTH	3	0-5	Sample	Cap Material	Station-3-(0-5)	On Cap	2,4´-DDD	1.30
2-MONTH	3	0-5	Sample	Cap Material	Station-3-(0-5)	On Cap	2,4´-DDE	0.14
2-MONTH	3	0-5	Sample	Cap Material	Station-3-(0-5)	On Cap	2,4´-DDT	<0.12

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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
2-MONTH	3	0-5	Sample	Cap Material	Station-3-(0-5)	On Cap	4,4´-DDD	<0.74
2-MONTH	3	0-5	Sample	Cap Material	Station-3-(0-5)	On Cap	4,4´-DDT	<0.21
2-MONTH	3	0-5	Sample	Cap Material	Station-3-(0-5)	On Cap	4,4´-DDE	<0.13
2-MONTH	3	0-5	Sample	Cap Material	Station-3-(0-5)	On Cap	Total DDX	1.43
2-MONTH	3	10-15	Sample	Cap Material	Station-3-(10-15)	On Cap	2,4´-DDD	0.55
2-MONTH	3	10-15	Sample	Cap Material	Station-3-(10-15)	On Cap	2,4´-DDE	<0.13
2-MONTH	3	10-15	Sample	Cap Material	Station-3-(10-15)	On Cap	2,4´-DDT	<0.12
2-MONTH	3	10-15	Sample	Cap Material	Station-3-(10-15)	On Cap	4,4´-DDD	<0.74
2-MONTH	3	10-15	Sample	Cap Material	Station-3-(10-15)	On Cap	4,4´-DDT	<0.21
2-MONTH	3	10-15	Sample	Cap Material	Station-3-(10-15)	On Cap	4,4´-DDE	<0.13
2-MONTH	3	10-15	Sample	Cap Material	Station-3-(10-15)	On Cap	Total DDX	0.55
2-MONTH	3	15-20	Sample	Cap Material	Station-3-(15-20)	On Cap	2,4´-DDD	<0.86
2-MONTH	3	15-20	Sample	Cap Material	Station-3-(15-20)	On Cap	2,4´-DDE	<0.25
2-MONTH	3	15-20	Sample	Cap Material	Station-3-(15-20)	On Cap	2,4´-DDT	<0.24
2-MONTH	3	15-20	Sample	Cap Material	Station-3-(15-20)	On Cap	4,4´-DDD	2.12
2-MONTH	3	15-20	Sample	Cap Material	Station-3-(15-20)	On Cap	4,4´-DDT	<0.36
2-MONTH	3	15-20	Sample	Cap Material	Station-3-(15-20)	On Cap	4,4´-DDE	<0.25
2-MONTH	3	15-20	Sample	Cap Material	Station-3-(15-20)	On Cap	Total DDX	2.12
2-MONTH	3	20-25	Sample	Cap Material	Station-3-(20-25)	On Cap	2,4´-DDD	<0.86
2-MONTH	3	20-25	Sample	Cap Material	Station-3-(20-25)	On Cap	2,4´-DDE	<0.25
2-MONTH	3	20-25	Sample	Cap Material	Station-3-(20-25)	On Cap	2,4´-DDT	<0.24
2-MONTH	3	20-25	Sample	Cap Material	Station-3-(20-25)	On Cap	4,4´-DDD	2.26
2-MONTH	3	20-25	Sample	Cap Material	Station-3-(20-25)	On Cap	4,4´-DDT	<0.36
2-MONTH	3	20-25	Sample	Cap Material	Station-3-(20-25)	On Cap	4,4´-DDE	<0.25
2-MONTH	3	20-25	Sample	Cap Material	Station-3-(20-25)	On Cap	Total DDX	2.26
2-MONTH	3	25-30	Sample	Native Sediment	Station-3-(25-30)	On Cap	2,4´-DDD	<0.86
2-MONTH	3	25-30	Sample	Native Sediment	Station-3-(25-30)	On Cap	2,4´-DDE	<0.25
2-MONTH	3	25-30	Sample	Native Sediment	Station-3-(25-30)	On Cap	2,4´-DDT	<0.24
2-MONTH	3	25-30	Sample	Native Sediment	Station-3-(25-30)	On Cap	4,4´-DDD	1.35
2-MONTH	3	25-30	Sample	Native Sediment	Station-3-(25-30)	On Cap	4,4´-DDT	<0.36
2-MONTH	3	25-30	Sample	Native Sediment	Station-3-(25-30)	On Cap	4,4´-DDE	<0.25
2-MONTH	3	25-30	Sample	Transition Depth	Station-3-(25-30)	On Cap	Total DDX	1.35
2-MONTH	3	30-35	Sample	Native Sediment	Station-3-(30-35)	On Cap	2,4´-DDD	<0.86
2-MONTH	3	30-35	Sample	Native Sediment	Station-3-(30-35)	On Cap	2,4´-DDE	0.34
2-MONTH	3	30-35	Sample	Native Sediment	Station-3-(30-35)	On Cap	2,4´-DDT	<0.24
2-MONTH	3	30-35	Sample	Native Sediment	Station-3-(30-35)	On Cap	4,4´-DDD	0.94
2-MONTH	3	30-35	Sample	Native Sediment	Station-3-(30-35)	On Cap	4,4´-DDT	<0.36
2-MONTH	3	30-35	Sample	Native Sediment	Station-3-(30-35)	On Cap	4,4´-DDE	0.12
2-MONTH	3	30-35	Sample	Native Sediment	Station-3-(30-35)	On Cap	Total DDX	1.40

Table 1. Compilation of *in situ* Porewater DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
2-MONTH	3	35-40	Sample	Native Sediment	Station-3-(35-40)	On Cap	2,4´-DDD	1.21
2-MONTH	3	35-40	Sample	Native Sediment	Station-3-(35-40)	On Cap	2,4´-DDE	0.13
2-MONTH	3	35-40	Sample	Native Sediment	Station-3-(35-40)	On Cap	2,4´-DDT	<0.11
2-MONTH	3	35-40	Sample	Native Sediment	Station-3-(35-40)	On Cap	4,4´-DDD	2.65
2-MONTH	3	35-40	Sample	Native Sediment	Station-3-(35-40)	On Cap	4,4´-DDT	<0.19
2-MONTH	3	35-40	Sample	Native Sediment	Station-3-(35-40)	On Cap	4,4´-DDE	0.47
2-MONTH	3	35-40	Sample	Native Sediment	Station-3-(35-40)	On Cap	Total DDX	4.46
2-MONTH	3	40-45	Sample	Native Sediment	Station-3-(40-45)	On Cap	2,4´-DDD	<0.65
2-MONTH	3	40-45	Sample	Native Sediment	Station-3-(40-45)	On Cap	2,4´-DDE	0.12
2-MONTH	3	40-45	Sample	Native Sediment	Station-3-(40-45)	On Cap	2,4´-DDT	<0.11
2-MONTH	3	40-45	Sample	Native Sediment	Station-3-(40-45)	On Cap	4,4´-DDD	0.72
2-MONTH	3	40-45	Sample	Native Sediment	Station-3-(40-45)	On Cap	4,4´-DDT	<0.19
2-MONTH	3	40-45	Sample	Native Sediment	Station-3-(40-45)	On Cap	4,4´-DDE	0.33
2-MONTH	3	40-45	Sample	Native Sediment	Station-3-(40-45)	On Cap	Total DDX	1.17
2-MONTH	3	45-50	Sample	Native Sediment	Station-3-(45-50)	On Cap	2,4´-DDD	<0.65
2-MONTH	3	45-50	Sample	Native Sediment	Station-3-(45-50)	On Cap	2,4´-DDE	<0.11
2-MONTH	3	45-50	Sample	Native Sediment	Station-3-(45-50)	On Cap	2,4´-DDT	<0.11
2-MONTH	3	45-50	Sample	Native Sediment	Station-3-(45-50)	On Cap	4,4´-DDD	0.65
2-MONTH	3	45-50	Sample	Native Sediment	Station-3-(45-50)	On Cap	4,4´-DDT	<0.19
2-MONTH	3	45-50	Sample	Native Sediment	Station-3-(45-50)	On Cap	4,4´-DDE	<0.11
2-MONTH	3	45-50	Sample	Native Sediment	Station-3-(45-50)	On Cap	Total DDX	0.65
2-MONTH	3	50-55	Sample	Native Sediment	Station-3-(50-55)	On Cap	2,4´-DDD	<0.65
2-MONTH	3	50-55	Sample	Native Sediment	Station-3-(50-55)	On Cap	2,4´-DDE	<0.11
2-MONTH	3	50-55	Sample	Native Sediment	Station-3-(50-55)	On Cap	2,4´-DDT	<0.11
2-MONTH	3	50-55	Sample	Native Sediment	Station-3-(50-55)	On Cap	4,4´-DDD	1.31
2-MONTH	3	50-55	Sample	Native Sediment	Station-3-(50-55)	On Cap	4,4´-DDT	<0.19
2-MONTH	3	50-55	Sample	Native Sediment	Station-3-(50-55)	On Cap	4,4´-DDE	<0.11
2-MONTH	3	50-55	Sample	Native Sediment	Station-3-(50-55)	On Cap	Total DDX	1.31
2-MONTH	3	5-10	Sample	Cap Material	Station-3-(5-10)	On Cap	2,4´-DDD	<0.67
2-MONTH	3	5-10	Sample	Cap Material	Station-3-(5-10)	On Cap	2,4´-DDE	<0.13
2-MONTH	3	5-10	Sample	Cap Material	Station-3-(5-10)	On Cap	2,4´-DDT	<0.12
2-MONTH	3	5-10	Sample	Cap Material	Station-3-(5-10)	On Cap	4,4´-DDD	0.73
2-MONTH	3	5-10	Sample	Cap Material	Station-3-(5-10)	On Cap	4,4´-DDT	<0.21
2-MONTH	3	5-10	Sample	Cap Material	Station-3-(5-10)	On Cap	4,4´-DDE	<0.13
2-MONTH	3	5-10	Sample	Cap Material	Station-3-(5-10)	On Cap	Total DDX	0.73
2-MONTH	3	55-60	Sample	Native Sediment	Station-3-(55-60)	On Cap	2,4´-DDD	<1.01
2-MONTH	3	55-60	Sample	Native Sediment	Station-3-(55-60)	On Cap	2,4´-DDE	0.17
2-MONTH	3	55-60	Sample	Native Sediment	Station-3-(55-60)	On Cap	2,4´-DDT	<0.18
2-MONTH	3	55-60	Sample	Native Sediment	Station-3-(55-60)	On Cap	4,4´-DDD	1.71

Table 1. Compilation of *in situ* Porewater DDX Results for all Monitoring Events
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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
2-MONTH	3	55-60	Sample	Native Sediment	Station-3-(55-60)	On Cap	4,4´-DDT	0.19
2-MONTH	3	55-60	Sample	Native Sediment	Station-3-(55-60)	On Cap	4,4´-DDE	<0.19
2-MONTH	3	55-60	Sample	Native Sediment	Station-3-(55-60)	On Cap	Total DDX	2.08
2-MONTH	4	0-5	Sample	Cap Material	Station-4-(0-5)	On Cap	2,4´-DDD	<0.61
2-MONTH	4	0-5	Sample	Cap Material	Station-4-(0-5)	On Cap	2,4´-DDE	<0.12
2-MONTH	4	0-5	Sample	Cap Material	Station-4-(0-5)	On Cap	2,4´-DDT	<0.11
2-MONTH	4	0-5	Sample	Cap Material	Station-4-(0-5)	On Cap	4,4´-DDD	<0.67
2-MONTH	4	0-5	Sample	Cap Material	Station-4-(0-5)	On Cap	4,4´-DDT	<0.19
2-MONTH	4	0-5	Sample	Cap Material	Station-4-(0-5)	On Cap	4,4´-DDE	<0.12
2-MONTH	4	0-5	Sample	Cap Material	Station-4-(0-5)	On Cap	Total DDX	<0.67
2-MONTH	4	10-15	Sample	Cap Material	Station-4-(10-15)	On Cap	2,4´-DDD	<0.61
2-MONTH	4	10-15	Sample	Cap Material	Station-4-(10-15)	On Cap	2,4´-DDE	<0.12
2-MONTH	4	10-15	Sample	Cap Material	Station-4-(10-15)	On Cap	2,4´-DDT	<0.11
2-MONTH	4	10-15	Sample	Cap Material	Station-4-(10-15)	On Cap	4,4´-DDD	1.65
2-MONTH	4	10-15	Sample	Cap Material	Station-4-(10-15)	On Cap	4,4´-DDT	<0.19
2-MONTH	4	10-15	Sample	Cap Material	Station-4-(10-15)	On Cap	4,4´-DDE	1.00
2-MONTH	4	10-15	Sample	Cap Material	Station-4-(10-15)	On Cap	Total DDX	2.65
2-MONTH	4	15-20	Sample	Cap Material	Station-4-(15-20)	On Cap	2,4´-DDD	<0.61
2-MONTH	4	15-20	Sample	Cap Material	Station-4-(15-20)	On Cap	2,4´-DDE	<0.11
2-MONTH	4	15-20	Sample	Cap Material	Station-4-(15-20)	On Cap	2,4´-DDT	<0.1
2-MONTH	4	15-20	Sample	Cap Material	Station-4-(15-20)	On Cap	4,4´-DDD	0.56
2-MONTH	4	15-20	Sample	Cap Material	Station-4-(15-20)	On Cap	4,4´-DDT	<0.19
2-MONTH	4	15-20	Sample	Cap Material	Station-4-(15-20)	On Cap	4,4´-DDE	<0.11
2-MONTH	4	15-20	Sample	Cap Material	Station-4-(15-20)	On Cap	Total DDX	0.56
2-MONTH	4	20-25	Sample	Cap Material	Station-4-(20-25)	On Cap	2,4´-DDD	<0.61
2-MONTH	4	20-25	Sample	Cap Material	Station-4-(20-25)	On Cap	2,4´-DDE	<0.11
2-MONTH	4	20-25	Sample	Cap Material	Station-4-(20-25)	On Cap	2,4´-DDT	<0.1
2-MONTH	4	20-25	Sample	Cap Material	Station-4-(20-25)	On Cap	4,4´-DDD	<0.68
2-MONTH	4	20-25	Sample	Cap Material	Station-4-(20-25)	On Cap	4,4´-DDT	<0.19
2-MONTH	4	20-25	Sample	Cap Material	Station-4-(20-25)	On Cap	4,4´-DDE	<0.11
2-MONTH	4	20-25	Sample	Cap Material	Station-4-(20-25)	On Cap	Total DDX	<0.68
2-MONTH	4	25-30	Sample	Cap Material	Station-4-(25-30)	On Cap	2,4´-DDD	<0.61
2-MONTH	4	25-30	Sample	Cap Material	Station-4-(25-30)	On Cap	2,4´-DDE	<0.11
2-MONTH	4	25-30	Sample	Cap Material	Station-4-(25-30)	On Cap	2,4´-DDT	<0.1
2-MONTH	4	25-30	Sample	Cap Material	Station-4-(25-30)	On Cap	4,4´-DDD	<0.68
2-MONTH	4	25-30	Sample	Cap Material	Station-4-(25-30)	On Cap	4,4´-DDT	<0.19
2-MONTH	4	25-30	Sample	Cap Material	Station-4-(25-30)	On Cap	4,4´-DDE	<0.11
2-MONTH	4	25-30	Sample	Cap Material	Station-4-(25-30)	On Cap	Total DDX	<0.68
2-MONTH	4	30-35	Sample	Native Sediment	Station-4-(30-35)	On Cap	2,4´-DDD	<0.61

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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
2-MONTH	4	30-35	Sample	Native Sediment	Station-4-(30-35)	On Cap	2,4´-DDE	0.19
2-MONTH	4	30-35	Sample	Native Sediment	Station-4-(30-35)	On Cap	2,4´-DDT	<0.1
2-MONTH	4	30-35	Sample	Native Sediment	Station-4-(30-35)	On Cap	4,4´-DDD	<0.68
2-MONTH	4	30-35	Sample	Native Sediment	Station-4-(30-35)	On Cap	4,4´-DDT	<0.19
2-MONTH	4	30-35	Sample	Native Sediment	Station-4-(30-35)	On Cap	4,4´-DDE	<0.11
2-MONTH	4	30-35	Sample	Transition Depth	Station-4-(30-35)	On Cap	Total DDX	0.19
2-MONTH	4	35-40	Sample	Native Sediment	Station-4-(35-40)	On Cap	2,4´-DDD	0.47
2-MONTH	4	35-40	Sample	Native Sediment	Station-4-(35-40)	On Cap	2,4´-DDE	<0.12
2-MONTH	4	35-40	Sample	Native Sediment	Station-4-(35-40)	On Cap	2,4´-DDT	<0.11
2-MONTH	4	35-40	Sample	Native Sediment	Station-4-(35-40)	On Cap	4,4´-DDD	2.03
2-MONTH	4	35-40	Sample	Native Sediment	Station-4-(35-40)	On Cap	4,4´-DDT	0.21
2-MONTH	4	35-40	Sample	Native Sediment	Station-4-(35-40)	On Cap	4,4´-DDE	0.39
2-MONTH	4	35-40	Sample	Native Sediment	Station-4-(35-40)	On Cap	Total DDX	3.09
2-MONTH	4	40-45	Sample	Native Sediment	Station-4-(40-45)	On Cap	2,4´-DDD	<0.63
2-MONTH	4	40-45	Sample	Native Sediment	Station-4-(40-45)	On Cap	2,4´-DDE	<0.12
2-MONTH	4	40-45	Sample	Native Sediment	Station-4-(40-45)	On Cap	2,4´-DDT	<0.11
2-MONTH	4	40-45	Sample	Native Sediment	Station-4-(40-45)	On Cap	4,4´-DDD	0.70
2-MONTH	4	40-45	Sample	Native Sediment	Station-4-(40-45)	On Cap	4,4´-DDT	<0.19
2-MONTH	4	40-45	Sample	Native Sediment	Station-4-(40-45)	On Cap	4,4´-DDE	<0.11
2-MONTH	4	40-45	Sample	Native Sediment	Station-4-(40-45)	On Cap	Total DDX	0.70
2-MONTH	4	45-50	Sample	Native Sediment	Station-4-(45-50)	On Cap	2,4´-DDD	<0.63
2-MONTH	4	45-50	Sample	Native Sediment	Station-4-(45-50)	On Cap	2,4´-DDE	<0.12
2-MONTH	4	45-50	Sample	Native Sediment	Station-4-(45-50)	On Cap	2,4´-DDT	<0.11
2-MONTH	4	45-50	Sample	Native Sediment	Station-4-(45-50)	On Cap	4,4´-DDD	<0.69
2-MONTH	4	45-50	Sample	Native Sediment	Station-4-(45-50)	On Cap	4,4´-DDT	<0.19
2-MONTH	4	45-50	Sample	Native Sediment	Station-4-(45-50)	On Cap	4,4´-DDE	<0.11
2-MONTH	4	45-50	Sample	Native Sediment	Station-4-(45-50)	On Cap	Total DDX	<0.69
2-MONTH	4	50-55	Sample	Native Sediment	Station-4-(50-55)	On Cap	2,4´-DDD	<0.63
2-MONTH	4	50-55	Sample	Native Sediment	Station-4-(50-55)	On Cap	2,4´-DDE	<0.12
2-MONTH	4	50-55	Sample	Native Sediment	Station-4-(50-55)	On Cap	2,4´-DDT	<0.11
2-MONTH	4	50-55	Sample	Native Sediment	Station-4-(50-55)	On Cap	4,4´-DDD	0.53
2-MONTH	4	50-55	Sample	Native Sediment	Station-4-(50-55)	On Cap	4,4´-DDT	<0.19
2-MONTH	4	50-55	Sample	Native Sediment	Station-4-(50-55)	On Cap	4,4´-DDE	<0.11
2-MONTH	4	50-55	Sample	Native Sediment	Station-4-(50-55)	On Cap	Total DDX	0.53
2-MONTH	4	5-10	Sample	Cap Material	Station-4-(5-10)	On Cap	2,4´-DDD	<0.61
2-MONTH	4	5-10	Sample	Cap Material	Station-4-(5-10)	On Cap	2,4´-DDE	<0.12
2-MONTH	4	5-10	Sample	Cap Material	Station-4-(5-10)	On Cap	2,4´-DDT	<0.11
2-MONTH	4	5-10	Sample	Cap Material	Station-4-(5-10)	On Cap	4,4´-DDD	<0.67
2-MONTH	4	5-10	Sample	Cap Material	Station-4-(5-10)	On Cap	4,4´-DDT	<0.19

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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
2-MONTH	4	5-10	Sample	Cap Material	Station-4-(5-10)	On Cap	4,4´-DDE	<0.12
2-MONTH	4	5-10	Sample	Cap Material	Station-4-(5-10)	On Cap	Total DDX	<0.67
2-MONTH	4	55-60	Sample	Native Sediment	Station-4-(55-60)	On Cap	2,4´-DDD	0.66
2-MONTH	4	55-60	Sample	Native Sediment	Station-4-(55-60)	On Cap	2,4´-DDE	0.19
2-MONTH	4	55-60	Sample	Native Sediment	Station-4-(55-60)	On Cap	2,4´-DDT	0.14
2-MONTH	4	55-60	Sample	Native Sediment	Station-4-(55-60)	On Cap	4,4´-DDD	0.87
2-MONTH	4	55-60	Sample	Native Sediment	Station-4-(55-60)	On Cap	4,4´-DDT	0.22
2-MONTH	4	55-60	Sample	Native Sediment	Station-4-(55-60)	On Cap	4,4´-DDE	0.20
2-MONTH	4	55-60	Sample	Native Sediment	Station-4-(55-60)	On Cap	Total DDX	2.28
2-MONTH	5	0-5	Sample	Cap Material	Station-5-(0-5)	On Cap	2,4´-DDD	<0.52
2-MONTH	5	0-5	Sample	Cap Material	Station-5-(0-5)	On Cap	2,4´-DDE	0.18
2-MONTH	5	0-5	Sample	Cap Material	Station-5-(0-5)	On Cap	2,4´-DDT	<0.11
2-MONTH	5	0-5	Sample	Cap Material	Station-5-(0-5)	On Cap	4,4´-DDD	<0.58
2-MONTH	5	0-5	Sample	Cap Material	Station-5-(0-5)	On Cap	4,4´-DDT	<0.18
2-MONTH	5	0-5	Sample	Cap Material	Station-5-(0-5)	On Cap	4,4´-DDE	<0.11
2-MONTH	5	0-5	Sample	Cap Material	Station-5-(0-5)	On Cap	Total DDX	0.18
2-MONTH	5	10-15	Sample	Cap Material	Station-5-(10-15)	On Cap	2,4´-DDD	<0.52
2-MONTH	5	10-15	Sample	Cap Material	Station-5-(10-15)	On Cap	2,4´-DDE	<0.12
2-MONTH	5	10-15	Sample	Cap Material	Station-5-(10-15)	On Cap	2,4´-DDT	<0.11
2-MONTH	5	10-15	Sample	Cap Material	Station-5-(10-15)	On Cap	4,4´-DDD	1.10
2-MONTH	5	10-15	Sample	Cap Material	Station-5-(10-15)	On Cap	4,4´-DDT	<0.18
2-MONTH	5	10-15	Sample	Cap Material	Station-5-(10-15)	On Cap	4,4´-DDE	0.57
2-MONTH	5	10-15	Sample	Cap Material	Station-5-(10-15)	On Cap	Total DDX	1.67
2-MONTH	5	15-20	Sample	Cap Material	Station-5-(15-20)	On Cap	2,4´-DDD	<0.77
2-MONTH	5	15-20	Sample	Cap Material	Station-5-(15-20)	On Cap	2,4´-DDE	<0.15
2-MONTH	5	15-20	Sample	Cap Material	Station-5-(15-20)	On Cap	2,4´-DDT	<0.14
2-MONTH	5	15-20	Sample	Cap Material	Station-5-(15-20)	On Cap	4,4´-DDD	0.66
2-MONTH	5	15-20	Sample	Cap Material	Station-5-(15-20)	On Cap	4,4´-DDT	<0.25
2-MONTH	5	15-20	Sample	Cap Material	Station-5-(15-20)	On Cap	4,4´-DDE	0.11
2-MONTH	5	15-20	Sample	Cap Material	Station-5-(15-20)	On Cap	Total DDX	0.77
2-MONTH	5	20-25	Sample	Cap Material	Station-5-(20-25)	On Cap	2,4´-DDD	<0.77
2-MONTH	5	20-25	Sample	Cap Material	Station-5-(20-25)	On Cap	2,4´-DDE	<0.15
2-MONTH	5	20-25	Sample	Cap Material	Station-5-(20-25)	On Cap	2,4´-DDT	<0.14
2-MONTH	5	20-25	Sample	Cap Material	Station-5-(20-25)	On Cap	4,4´-DDD	<0.85
2-MONTH	5	20-25	Sample	Cap Material	Station-5-(20-25)	On Cap	4,4´-DDT	<0.25
2-MONTH	5	20-25	Sample	Cap Material	Station-5-(20-25)	On Cap	4,4´-DDE	<0.15
2-MONTH	5	20-25	Sample	Cap Material	Station-5-(20-25)	On Cap	Total DDX	<0.85
2-MONTH	5	25-30	Sample	Cap Material	Station-5-(25-30)	On Cap	2,4´-DDD	<0.77
2-MONTH	5	25-30	Sample	Cap Material	Station-5-(25-30)	On Cap	2,4´-DDE	<0.15

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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
2-MONTH	5	25-30	Sample	Cap Material	Station-5-(25-30)	On Cap	2,4´-DDT	<0.14
2-MONTH	5	25-30	Sample	Cap Material	Station-5-(25-30)	On Cap	4,4´-DDD	0.76
2-MONTH	5	25-30	Sample	Cap Material	Station-5-(25-30)	On Cap	4,4´-DDT	<0.25
2-MONTH	5	25-30	Sample	Cap Material	Station-5-(25-30)	On Cap	4,4´-DDE	<0.15
2-MONTH	5	25-30	Sample	Cap Material	Station-5-(25-30)	On Cap	Total DDX	0.76
2-MONTH	5	30-35	Sample	Native Sediment	Station-5-(30-35)	On Cap	2,4´-DDD	<0.77
2-MONTH	5	30-35	Sample	Native Sediment	Station-5-(30-35)	On Cap	2,4´-DDE	0.13
2-MONTH	5	30-35	Sample	Native Sediment	Station-5-(30-35)	On Cap	2,4´-DDT	<0.14
2-MONTH	5	30-35	Sample	Native Sediment	Station-5-(30-35)	On Cap	4,4´-DDD	<0.85
2-MONTH	5	30-35	Sample	Native Sediment	Station-5-(30-35)	On Cap	4,4´-DDT	<0.25
2-MONTH	5	30-35	Sample	Native Sediment	Station-5-(30-35)	On Cap	4,4´-DDE	<0.15
2-MONTH	5	30-35	Sample	Transition Depth	Station-5-(30-35)	On Cap	Total DDX	0.13
2-MONTH	5	35-40	Sample	Native Sediment	Station-5-(35-40)	On Cap	2,4´-DDD	0.68
2-MONTH	5	35-40	Sample	Native Sediment	Station-5-(35-40)	On Cap	2,4´-DDE	<0.12
2-MONTH	5	35-40	Sample	Native Sediment	Station-5-(35-40)	On Cap	2,4´-DDT	<0.11
2-MONTH	5	35-40	Sample	Native Sediment	Station-5-(35-40)	On Cap	4,4´-DDD	<0.65
2-MONTH	5	35-40	Sample	Native Sediment	Station-5-(35-40)	On Cap	4,4´-DDT	<0.19
2-MONTH	5	35-40	Sample	Native Sediment	Station-5-(35-40)	On Cap	4,4´-DDE	0.12
2-MONTH	5	35-40	Sample	Native Sediment	Station-5-(35-40)	On Cap	Total DDX	0.80
2-MONTH	5	40-45	Sample	Native Sediment	Station-5-(40-45)	On Cap	2,4´-DDD	<0.59
2-MONTH	5	40-45	Sample	Native Sediment	Station-5-(40-45)	On Cap	2,4´-DDE	<0.12
2-MONTH	5	40-45	Sample	Native Sediment	Station-5-(40-45)	On Cap	2,4´-DDT	<0.11
2-MONTH	5	40-45	Sample	Native Sediment	Station-5-(40-45)	On Cap	4,4´-DDD	0.58
2-MONTH	5	40-45	Sample	Native Sediment	Station-5-(40-45)	On Cap	4,4´-DDT	<0.19
2-MONTH	5	40-45	Sample	Native Sediment	Station-5-(40-45)	On Cap	4,4´-DDE	<0.12
2-MONTH	5	40-45	Sample	Native Sediment	Station-5-(40-45)	On Cap	Total DDX	0.58
2-MONTH	5	45-50	Sample	Native Sediment	Station-5-(45-50)	On Cap	2,4´-DDD	0.52
2-MONTH	5	45-50	Sample	Native Sediment	Station-5-(45-50)	On Cap	2,4´-DDE	0.13
2-MONTH	5	45-50	Sample	Native Sediment	Station-5-(45-50)	On Cap	2,4´-DDT	<0.11
2-MONTH	5	45-50	Sample	Native Sediment	Station-5-(45-50)	On Cap	4,4´-DDD	0.70
2-MONTH	5	45-50	Sample	Native Sediment	Station-5-(45-50)	On Cap	4,4´-DDT	<0.19
2-MONTH	5	45-50	Sample	Native Sediment	Station-5-(45-50)	On Cap	4,4´-DDE	<0.12
2-MONTH	5	45-50	Sample	Native Sediment	Station-5-(45-50)	On Cap	Total DDX	1.35
2-MONTH	5	50-55	Sample	Native Sediment	Station-5-(50-55)	On Cap	2,4´-DDD	<0.59
2-MONTH	5	50-55	Sample	Native Sediment	Station-5-(50-55)	On Cap	2,4´-DDE	<0.12
2-MONTH	5	50-55	Sample	Native Sediment	Station-5-(50-55)	On Cap	2,4´-DDT	<0.11
2-MONTH	5	50-55	Sample	Native Sediment	Station-5-(50-55)	On Cap	4,4´-DDD	1.12
2-MONTH	5	50-55	Sample	Native Sediment	Station-5-(50-55)	On Cap	4,4´-DDT	<0.19
2-MONTH	5	50-55	Sample	Native Sediment	Station-5-(50-55)	On Cap	4,4´-DDE	<0.12

Table 1. Compilation of *in situ* Porewater DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
2-MONTH	5	50-55	Sample	Native Sediment	Station-5-(50-55)	On Cap	Total DDX	1.12
2-MONTH	5	5-10	Sample	Cap Material	Station-5-(5-10)	On Cap	2,4´-DDD	0.42
2-MONTH	5	5-10	Sample	Cap Material	Station-5-(5-10)	On Cap	2,4´-DDE	<0.12
2-MONTH	5	5-10	Sample	Cap Material	Station-5-(5-10)	On Cap	2,4´-DDT	<0.11
2-MONTH	5	5-10	Sample	Cap Material	Station-5-(5-10)	On Cap	4,4´-DDD	0.98
2-MONTH	5	5-10	Sample	Cap Material	Station-5-(5-10)	On Cap	4,4´-DDT	<0.18
2-MONTH	5	5-10	Sample	Cap Material	Station-5-(5-10)	On Cap	4,4´-DDE	<0.11
2-MONTH	5	5-10	Sample	Cap Material	Station-5-(5-10)	On Cap	Total DDX	1.40
2-MONTH	5	55-60	Sample	Native Sediment	Station-5-(55-60)	On Cap	2,4´-DDD	0.89
2-MONTH	5	55-60	Sample	Native Sediment	Station-5-(55-60)	On Cap	2,4´-DDE	0.16
2-MONTH	5	55-60	Sample	Native Sediment	Station-5-(55-60)	On Cap	2,4´-DDT	<0.13
2-MONTH	5	55-60	Sample	Native Sediment	Station-5-(55-60)	On Cap	4,4´-DDD	0.73
2-MONTH	5	55-60	Sample	Native Sediment	Station-5-(55-60)	On Cap	4,4´-DDT	<0.23
2-MONTH	5	55-60	Sample	Native Sediment	Station-5-(55-60)	On Cap	4,4´-DDE	0.10
2-MONTH	5	55-60	Sample	Native Sediment	Station-5-(55-60)	On Cap	Total DDX	1.88
2-MONTH	6	0-5	Sample	Native Sediment-Off Cap	Station-6-(0-5)	Off Cap	2,4´-DDD	<0.4
2-MONTH	6	0-5	Sample	Native Sediment-Off Cap	Station-6-(0-5)	Off Cap	2,4´-DDE	0.07
2-MONTH	6	0-5	Sample	Native Sediment-Off Cap	Station-6-(0-5)	Off Cap	2,4´-DDT	<0.07
2-MONTH	6	0-5	Sample	Native Sediment-Off Cap	Station-6-(0-5)	Off Cap	4,4´-DDD	<0.44
2-MONTH	6	0-5	Sample	Native Sediment-Off Cap	Station-6-(0-5)	Off Cap	4,4´-DDT	<0.12
2-MONTH	6	0-5	Sample	Native Sediment-Off Cap	Station-6-(0-5)	Off Cap	4,4´-DDE	0.35
2-MONTH	6	0-5	Sample	Native Sediment-Off Cap	Station-6-(0-5)	Off Cap	Total DDX	0.42
2-MONTH	6	10-15	Sample	Native Sediment-Off Cap	Station-6-(10-15)	Off Cap	2,4´-DDD	<0.4
2-MONTH	6	10-15	Sample	Native Sediment-Off Cap	Station-6-(10-15)	Off Cap	2,4´-DDE	<0.07
2-MONTH	6	10-15	Sample	Native Sediment-Off Cap	Station-6-(10-15)	Off Cap	2,4´-DDT	<0.07
2-MONTH	6	10-15	Sample	Native Sediment-Off Cap	Station-6-(10-15)	Off Cap	4,4´-DDD	<0.44
2-MONTH	6	10-15	Sample	Native Sediment-Off Cap	Station-6-(10-15)	Off Cap	4,4´-DDT	<0.12
2-MONTH	6	10-15	Sample	Native Sediment-Off Cap	Station-6-(10-15)	Off Cap	4,4´-DDE	<0.07
2-MONTH	6	10-15	Sample	Native Sediment-Off Cap	Station-6-(10-15)	Off Cap	Total DDX	<0.44
2-MONTH	6	15-20	Sample	Native Sediment-Off Cap	Station-6-(15-20)	Off Cap	2,4´-DDD	<0.43
2-MONTH	6	15-20	Sample	Native Sediment-Off Cap	Station-6-(15-20)	Off Cap	2,4´-DDE	<0.08
2-MONTH	6	15-20	Sample	Native Sediment-Off Cap	Station-6-(15-20)	Off Cap	2,4´-DDT	<0.07
2-MONTH	6	15-20	Sample	Native Sediment-Off Cap	Station-6-(15-20)	Off Cap	4,4´-DDD	<0.47
2-MONTH	6	15-20	Sample	Native Sediment-Off Cap	Station-6-(15-20)	Off Cap	4,4´-DDT	<0.13
2-MONTH	6	15-20	Sample	Native Sediment-Off Cap	Station-6-(15-20)	Off Cap	4,4´-DDE	<0.08
2-MONTH	6	15-20	Sample	Native Sediment-Off Cap	Station-6-(15-20)	Off Cap	Total DDX	<0.47
2-MONTH	6	20-25	Sample	Native Sediment-Off Cap	Station-6-(20-25)	Off Cap	2,4´-DDD	<0.43
2-MONTH	6	20-25	Sample	Native Sediment-Off Cap	Station-6-(20-25)	Off Cap	2,4´-DDE	<0.08
2-MONTH	6	20-25	Sample	Native Sediment-Off Cap	Station-6-(20-25)	Off Cap	2,4´-DDT	<0.07

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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
2-MONTH	6	20-25	Sample	Native Sediment-Off Cap	Station-6-(20-25)	Off Cap	4,4´-DDD	<0.47
2-MONTH	6	20-25	Sample	Native Sediment-Off Cap	Station-6-(20-25)	Off Cap	4,4´-DDT	<0.13
2-MONTH	6	20-25	Sample	Native Sediment-Off Cap	Station-6-(20-25)	Off Cap	4,4´-DDE	<0.08
2-MONTH	6	20-25	Sample	Native Sediment-Off Cap	Station-6-(20-25)	Off Cap	Total DDX	<0.47
2-MONTH	6	25-30	Sample	Native Sediment-Off Cap	Station-6-(25-30)	Off Cap	2,4´-DDD	<0.43
2-MONTH	6	25-30	Sample	Native Sediment-Off Cap	Station-6-(25-30)	Off Cap	2,4´-DDE	0.07
2-MONTH	6	25-30	Sample	Native Sediment-Off Cap	Station-6-(25-30)	Off Cap	2,4´-DDT	<0.07
2-MONTH	6	25-30	Sample	Native Sediment-Off Cap	Station-6-(25-30)	Off Cap	4,4´-DDD	<0.47
2-MONTH	6	25-30	Sample	Native Sediment-Off Cap	Station-6-(25-30)	Off Cap	4,4´-DDT	<0.13
2-MONTH	6	25-30	Sample	Native Sediment-Off Cap	Station-6-(25-30)	Off Cap	4,4´-DDE	<0.08
2-MONTH	6	25-30	Sample	Native Sediment-Off Cap	Station-6-(25-30)	Off Cap	Total DDX	0.07
2-MONTH	6	30-35	Sample	Native Sediment-Off Cap	Station-6-(30-35)	Off Cap	2,4´-DDD	<0.43
2-MONTH	6	30-35	Sample	Native Sediment-Off Cap	Station-6-(30-35)	Off Cap	2,4´-DDE	0.08
2-MONTH	6	30-35	Sample	Native Sediment-Off Cap	Station-6-(30-35)	Off Cap	2,4´-DDT	<0.07
2-MONTH	6	30-35	Sample	Native Sediment-Off Cap	Station-6-(30-35)	Off Cap	4,4´-DDD	<0.47
2-MONTH	6	30-35	Sample	Native Sediment-Off Cap	Station-6-(30-35)	Off Cap	4,4´-DDT	<0.13
2-MONTH	6	30-35	Sample	Native Sediment-Off Cap	Station-6-(30-35)	Off Cap	4,4´-DDE	<0.08
2-MONTH	6	30-35	Sample	Native Sediment-Off Cap	Station-6-(30-35)	Off Cap	Total DDX	0.08
2-MONTH	6	35-40	Sample	Native Sediment-Off Cap	Station-6-(35-40)	Off Cap	2,4´-DDD	<0.67
2-MONTH	6	35-40	Sample	Native Sediment-Off Cap	Station-6-(35-40)	Off Cap	2,4´-DDE	<0.12
2-MONTH	6	35-40	Sample	Native Sediment-Off Cap	Station-6-(35-40)	Off Cap	2,4´-DDT	<0.11
2-MONTH	6	35-40	Sample	Native Sediment-Off Cap	Station-6-(35-40)	Off Cap	4,4´-DDD	<0.75
2-MONTH	6	35-40	Sample	Native Sediment-Off Cap	Station-6-(35-40)	Off Cap	4,4´-DDT	<0.21
2-MONTH	6	35-40	Sample	Native Sediment-Off Cap	Station-6-(35-40)	Off Cap	4,4´-DDE	<0.12
2-MONTH	6	35-40	Sample	Native Sediment-Off Cap	Station-6-(35-40)	Off Cap	Total DDX	<0.75
2-MONTH	6	40-45	Sample	Native Sediment-Off Cap	Station-6-(40-45)	Off Cap	2,4´-DDD	<0.67
2-MONTH	6	40-45	Sample	Native Sediment-Off Cap	Station-6-(40-45)	Off Cap	2,4´-DDE	<0.12
2-MONTH	6	40-45	Sample	Native Sediment-Off Cap	Station-6-(40-45)	Off Cap	2,4´-DDT	<0.11
2-MONTH	6	40-45	Sample	Native Sediment-Off Cap	Station-6-(40-45)	Off Cap	4,4´-DDD	<0.75
2-MONTH	6	40-45	Sample	Native Sediment-Off Cap	Station-6-(40-45)	Off Cap	4,4´-DDT	<0.21
2-MONTH	6	40-45	Sample	Native Sediment-Off Cap	Station-6-(40-45)	Off Cap	4,4´-DDE	<0.12
2-MONTH	6	40-45	Sample	Native Sediment-Off Cap	Station-6-(40-45)	Off Cap	Total DDX	<0.75
2-MONTH	6	45-50	Sample	Native Sediment-Off Cap	Station-6-(45-50)	Off Cap	2,4´-DDD	0.59
2-MONTH	6	45-50	Sample	Native Sediment-Off Cap	Station-6-(45-50)	Off Cap	2,4´-DDE	<0.12
2-MONTH	6	45-50	Sample	Native Sediment-Off Cap	Station-6-(45-50)	Off Cap	2,4´-DDT	<0.11
2-MONTH	6	45-50	Sample	Native Sediment-Off Cap	Station-6-(45-50)	Off Cap	4,4´-DDD	0.46
2-MONTH	6	45-50	Sample	Native Sediment-Off Cap	Station-6-(45-50)	Off Cap	4,4´-DDT	<0.21
2-MONTH	6	45-50	Sample	Native Sediment-Off Cap	Station-6-(45-50)	Off Cap	4,4´-DDE	<0.12
2-MONTH	6	45-50	Sample	Native Sediment-Off Cap	Station-6-(45-50)	Off Cap	Total DDX	1.04

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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
2-MONTH	6	50-55	Sample	Native Sediment-Off Cap	Station-6-(50-55)	Off Cap	2,4´-DDD	<0.67
2-MONTH	6	50-55	Sample	Native Sediment-Off Cap	Station-6-(50-55)	Off Cap	2,4´-DDE	<0.12
2-MONTH	6	50-55	Sample	Native Sediment-Off Cap	Station-6-(50-55)	Off Cap	2,4´-DDT	<0.11
2-MONTH	6	50-55	Sample	Native Sediment-Off Cap	Station-6-(50-55)	Off Cap	4,4´-DDD	<0.75
2-MONTH	6	50-55	Sample	Native Sediment-Off Cap	Station-6-(50-55)	Off Cap	4,4´-DDT	<0.21
2-MONTH	6	50-55	Sample	Native Sediment-Off Cap	Station-6-(50-55)	Off Cap	4,4´-DDE	<0.12
2-MONTH	6	50-55	Sample	Native Sediment-Off Cap	Station-6-(50-55)	Off Cap	Total DDX	<0.75
2-MONTH	6	5-10	Sample	Native Sediment-Off Cap	Station-6-(5-10)	Off Cap	2,4´-DDD	<0.4
2-MONTH	6	5-10	Sample	Native Sediment-Off Cap	Station-6-(5-10)	Off Cap	2,4´-DDE	<0.07
2-MONTH	6	5-10	Sample	Native Sediment-Off Cap	Station-6-(5-10)	Off Cap	2,4´-DDT	<0.07
2-MONTH	6	5-10	Sample	Native Sediment-Off Cap	Station-6-(5-10)	Off Cap	4,4´-DDD	<0.44
2-MONTH	6	5-10	Sample	Native Sediment-Off Cap	Station-6-(5-10)	Off Cap	4,4´-DDT	<0.12
2-MONTH	6	5-10	Sample	Native Sediment-Off Cap	Station-6-(5-10)	Off Cap	4,4´-DDE	<0.07
2-MONTH	6	5-10	Sample	Native Sediment-Off Cap	Station-6-(5-10)	Off Cap	Total DDX	<0.44
2-MONTH	6	55-60	Sample	Native Sediment-Off Cap	Station-6-(55-60)	Off Cap	2,4´-DDD	<1.16
2-MONTH	6	55-60	Sample	Native Sediment-Off Cap	Station-6-(55-60)	Off Cap	2,4´-DDE	0.11
2-MONTH	6	55-60	Sample	Native Sediment-Off Cap	Station-6-(55-60)	Off Cap	2,4´-DDT	<0.2
2-MONTH	6	55-60	Sample	Native Sediment-Off Cap	Station-6-(55-60)	Off Cap	4,4´-DDD	<1.29
2-MONTH	6	55-60	Sample	Native Sediment-Off Cap	Station-6-(55-60)	Off Cap	4,4´-DDT	<0.36
2-MONTH	6	55-60	Sample	Native Sediment-Off Cap	Station-6-(55-60)	Off Cap	4,4´-DDE	<0.21
2-MONTH	6	55-60	Sample	Native Sediment-Off Cap	Station-6-(55-60)	Off Cap	Total DDX	0.11
2-MONTH	7	0-5	Sample	Native Sediment-Off Cap	Station-7-(0-5)	Off Cap	2,4´-DDD	<0.45
2-MONTH	7	0-5	Sample	Native Sediment-Off Cap	Station-7-(0-5)	Off Cap	2,4´-DDE	<0.09
2-MONTH	7	0-5	Sample	Native Sediment-Off Cap	Station-7-(0-5)	Off Cap	2,4´-DDT	<0.08
2-MONTH	7	0-5	Sample	Native Sediment-Off Cap	Station-7-(0-5)	Off Cap	4,4´-DDD	<0.49
2-MONTH	7	0-5	Sample	Native Sediment-Off Cap	Station-7-(0-5)	Off Cap	4,4´-DDT	<0.15
2-MONTH	7	0-5	Sample	Native Sediment-Off Cap	Station-7-(0-5)	Off Cap	4,4´-DDE	<0.09
2-MONTH	7	0-5	Sample	Native Sediment-Off Cap	Station-7-(0-5)	Off Cap	Total DDX	<0.49
2-MONTH	7	10-15	Sample	Native Sediment-Off Cap	Station-7-(10-15)	Off Cap	2,4´-DDD	<0.45
2-MONTH	7	10-15	Sample	Native Sediment-Off Cap	Station-7-(10-15)	Off Cap	2,4´-DDE	<0.09
2-MONTH	7	10-15	Sample	Native Sediment-Off Cap	Station-7-(10-15)	Off Cap	2,4´-DDT	<0.08
2-MONTH	7	10-15	Sample	Native Sediment-Off Cap	Station-7-(10-15)	Off Cap	4,4´-DDD	<0.49
2-MONTH	7	10-15	Sample	Native Sediment-Off Cap	Station-7-(10-15)	Off Cap	4,4´-DDT	<0.15
2-MONTH	7	10-15	Sample	Native Sediment-Off Cap	Station-7-(10-15)	Off Cap	4,4´-DDE	<0.09
2-MONTH	7	10-15	Sample	Native Sediment-Off Cap	Station-7-(10-15)	Off Cap	Total DDX	<0.49
2-MONTH	7	15-20	Sample	Native Sediment-Off Cap	Station-7-(15-20)	Off Cap	2,4´-DDD	<0.44
2-MONTH	7	15-20	Sample	Native Sediment-Off Cap	Station-7-(15-20)	Off Cap	2,4´-DDE	<0.08
2-MONTH	7	15-20	Sample	Native Sediment-Off Cap	Station-7-(15-20)	Off Cap	2,4´-DDT	<0.08
2-MONTH	7	15-20	Sample	Native Sediment-Off Cap	Station-7-(15-20)	Off Cap	4,4´-DDD	<0.49

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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
2-MONTH	7	15-20	Sample	Native Sediment-Off Cap	Station-7-(15-20)	Off Cap	4,4´-DDT	<0.14
2-MONTH	7	15-20	Sample	Native Sediment-Off Cap	Station-7-(15-20)	Off Cap	4,4´-DDE	<0.08
2-MONTH	7	15-20	Sample	Native Sediment-Off Cap	Station-7-(15-20)	Off Cap	Total DDX	<0.49
2-MONTH	7	20-25	Sample	Native Sediment-Off Cap	Station-7-(20-25)	Off Cap	2,4´-DDD	<0.44
2-MONTH	7	20-25	Sample	Native Sediment-Off Cap	Station-7-(20-25)	Off Cap	2,4´-DDE	<0.08
2-MONTH	7	20-25	Sample	Native Sediment-Off Cap	Station-7-(20-25)	Off Cap	2,4´-DDT	<0.08
2-MONTH	7	20-25	Sample	Native Sediment-Off Cap	Station-7-(20-25)	Off Cap	4,4´-DDD	<0.49
2-MONTH	7	20-25	Sample	Native Sediment-Off Cap	Station-7-(20-25)	Off Cap	4,4´-DDT	<0.14
2-MONTH	7	20-25	Sample	Native Sediment-Off Cap	Station-7-(20-25)	Off Cap	4,4´-DDE	<0.08
2-MONTH	7	20-25	Sample	Native Sediment-Off Cap	Station-7-(20-25)	Off Cap	Total DDX	<0.49
2-MONTH	7	25-30	Sample	Native Sediment-Off Cap	Station-7-(25-30)	Off Cap	2,4´-DDD	<0.44
2-MONTH	7	25-30	Sample	Native Sediment-Off Cap	Station-7-(25-30)	Off Cap	2,4´-DDE	<0.08
2-MONTH	7	25-30	Sample	Native Sediment-Off Cap	Station-7-(25-30)	Off Cap	2,4´-DDT	<0.08
2-MONTH	7	25-30	Sample	Native Sediment-Off Cap	Station-7-(25-30)	Off Cap	4,4´-DDD	<0.49
2-MONTH	7	25-30	Sample	Native Sediment-Off Cap	Station-7-(25-30)	Off Cap	4,4´-DDT	<0.14
2-MONTH	7	25-30	Sample	Native Sediment-Off Cap	Station-7-(25-30)	Off Cap	4,4´-DDE	<0.08
2-MONTH	7	25-30	Sample	Native Sediment-Off Cap	Station-7-(25-30)	Off Cap	Total DDX	<0.49
2-MONTH	7	30-35	Sample	Native Sediment-Off Cap	Station-7-(30-35)	Off Cap	2,4´-DDD	<0.44
2-MONTH	7	30-35	Sample	Native Sediment-Off Cap	Station-7-(30-35)	Off Cap	2,4´-DDE	<0.08
2-MONTH	7	30-35	Sample	Native Sediment-Off Cap	Station-7-(30-35)	Off Cap	2,4´-DDT	<0.08
2-MONTH	7	30-35	Sample	Native Sediment-Off Cap	Station-7-(30-35)	Off Cap	4,4´-DDD	<0.49
2-MONTH	7	30-35	Sample	Native Sediment-Off Cap	Station-7-(30-35)	Off Cap	4,4´-DDT	<0.14
2-MONTH	7	30-35	Sample	Native Sediment-Off Cap	Station-7-(30-35)	Off Cap	4,4´-DDE	<0.08
2-MONTH	7	30-35	Sample	Native Sediment-Off Cap	Station-7-(30-35)	Off Cap	Total DDX	<0.49
2-MONTH	7	35-40	Sample	Native Sediment-Off Cap	Station-7-(35-40)	Off Cap	2,4´-DDD	<0.46
2-MONTH	7	35-40	Sample	Native Sediment-Off Cap	Station-7-(35-40)	Off Cap	2,4´-DDE	<0.09
2-MONTH	7	35-40	Sample	Native Sediment-Off Cap	Station-7-(35-40)	Off Cap	2,4´-DDT	<0.08
2-MONTH	7	35-40	Sample	Native Sediment-Off Cap	Station-7-(35-40)	Off Cap	4,4´-DDD	<0.51
2-MONTH	7	35-40	Sample	Native Sediment-Off Cap	Station-7-(35-40)	Off Cap	4,4´-DDT	<0.14
2-MONTH	7	35-40	Sample	Native Sediment-Off Cap	Station-7-(35-40)	Off Cap	4,4´-DDE	<0.09
2-MONTH	7	35-40	Sample	Native Sediment-Off Cap	Station-7-(35-40)	Off Cap	Total DDX	<0.51
2-MONTH	7	40-45	Sample	Native Sediment-Off Cap	Station-7-(40-45)	Off Cap	2,4´-DDD	<0.46
2-MONTH	7	40-45	Sample	Native Sediment-Off Cap	Station-7-(40-45)	Off Cap	2,4´-DDE	<0.09
2-MONTH	7	40-45	Sample	Native Sediment-Off Cap	Station-7-(40-45)	Off Cap	2,4´-DDT	<0.08
2-MONTH	7	40-45	Sample	Native Sediment-Off Cap	Station-7-(40-45)	Off Cap	4,4´-DDD	<0.51
2-MONTH	7	40-45	Sample	Native Sediment-Off Cap	Station-7-(40-45)	Off Cap	4,4´-DDT	<0.14
2-MONTH	7	40-45	Sample	Native Sediment-Off Cap	Station-7-(40-45)	Off Cap	4,4´-DDE	<0.09
2-MONTH	7	40-45	Sample	Native Sediment-Off Cap	Station-7-(40-45)	Off Cap	Total DDX	<0.51
2-MONTH	7	45-50	Sample	Native Sediment-Off Cap	Station-7-(45-50)	Off Cap	2,4´-DDD	<0.46

Table 1. Compilation of *in situ* Porewater DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
2-MONTH	7	45-50	Sample	Native Sediment-Off Cap	Station-7-(45-50)	Off Cap	2,4´-DDE	<0.09
2-MONTH	7	45-50	Sample	Native Sediment-Off Cap	Station-7-(45-50)	Off Cap	2,4´-DDT	<0.08
2-MONTH	7	45-50	Sample	Native Sediment-Off Cap	Station-7-(45-50)	Off Cap	4,4´-DDD	<0.51
2-MONTH	7	45-50	Sample	Native Sediment-Off Cap	Station-7-(45-50)	Off Cap	4,4´-DDT	<0.14
2-MONTH	7	45-50	Sample	Native Sediment-Off Cap	Station-7-(45-50)	Off Cap	4,4´-DDE	<0.09
2-MONTH	7	45-50	Sample	Native Sediment-Off Cap	Station-7-(45-50)	Off Cap	Total DDX	<0.51
2-MONTH	7	50-55	Sample	Native Sediment-Off Cap	Station-7-(50-55)	Off Cap	2,4´-DDD	<0.46
2-MONTH	7	50-55	Sample	Native Sediment-Off Cap	Station-7-(50-55)	Off Cap	2,4´-DDE	<0.09
2-MONTH	7	50-55	Sample	Native Sediment-Off Cap	Station-7-(50-55)	Off Cap	2,4´-DDT	<0.08
2-MONTH	7	50-55	Sample	Native Sediment-Off Cap	Station-7-(50-55)	Off Cap	4,4´-DDD	<0.51
2-MONTH	7	50-55	Sample	Native Sediment-Off Cap	Station-7-(50-55)	Off Cap	4,4´-DDT	<0.14
2-MONTH	7	50-55	Sample	Native Sediment-Off Cap	Station-7-(50-55)	Off Cap	4,4´-DDE	<0.09
2-MONTH	7	50-55	Sample	Native Sediment-Off Cap	Station-7-(50-55)	Off Cap	Total DDX	<0.51
2-MONTH	7	5-10	Sample	Native Sediment-Off Cap	Station-7-(5-10)	Off Cap	2,4´-DDD	<0.45
2-MONTH	7	5-10	Sample	Native Sediment-Off Cap	Station-7-(5-10)	Off Cap	2,4´-DDE	<0.09
2-MONTH	7	5-10	Sample	Native Sediment-Off Cap	Station-7-(5-10)	Off Cap	2,4´-DDT	<0.08
2-MONTH	7	5-10	Sample	Native Sediment-Off Cap	Station-7-(5-10)	Off Cap	4,4´-DDD	<0.49
2-MONTH	7	5-10	Sample	Native Sediment-Off Cap	Station-7-(5-10)	Off Cap	4,4´-DDT	<0.15
2-MONTH	7	5-10	Sample	Native Sediment-Off Cap	Station-7-(5-10)	Off Cap	4,4´-DDE	<0.09
2-MONTH	7	5-10	Sample	Native Sediment-Off Cap	Station-7-(5-10)	Off Cap	Total DDX	<0.49
2-MONTH	7	55-60	Sample	Native Sediment-Off Cap	Station-7-(55-60)	Off Cap	2,4´-DDD	<0.46
2-MONTH	7	55-60	Sample	Native Sediment-Off Cap	Station-7-(55-60)	Off Cap	2,4´-DDE	0.08
2-MONTH	7	55-60	Sample	Native Sediment-Off Cap	Station-7-(55-60)	Off Cap	2,4´-DDT	<0.08
2-MONTH	7	55-60	Sample	Native Sediment-Off Cap	Station-7-(55-60)	Off Cap	4,4´-DDD	<0.51
2-MONTH	7	55-60	Sample	Native Sediment-Off Cap	Station-7-(55-60)	Off Cap	4,4´-DDT	<0.14
2-MONTH	7	55-60	Sample	Native Sediment-Off Cap	Station-7-(55-60)	Off Cap	4,4´-DDE	<0.09
2-MONTH	7	55-60	Sample	Native Sediment-Off Cap	Station-7-(55-60)	Off Cap	Total DDX	0.08
14-MONTH	1	0-5	Sample	Cap Material	Site 1 (0-5cm)	On Cap	4,4´-DDE	<0.08
14-MONTH	1	0-5	Sample	Cap Material	Site 1 (0-5cm)	On Cap	4,4´-DDT	<0.11
14-MONTH	1	0-5	Sample	Cap Material	Site 1 (0-5cm)	On Cap	2,4´-DDD	<0.31
14-MONTH	1	0-5	Sample	Cap Material	Site 1 (0-5cm)	On Cap	2,4´-DDE	<0.08
14-MONTH	1	0-5	Sample	Cap Material	Site 1 (0-5cm)	On Cap	2,4´-DDT	<0.07
14-MONTH	1	0-5	Sample	Cap Material	Site 1 (0-5cm)	On Cap	4,4´-DDD	0.41
14-MONTH	1	0-5	Sample	Cap Material	Site 1 (0-5cm)	On Cap	Total DDX	0.41
14-MONTH	1	10-15	Sample	Cap Material	Site 1 (10-15cm)	On Cap	4,4´-DDE	<0.08
14-MONTH	1	10-15	Sample	Cap Material	Site 1 (10-15cm)	On Cap	4,4´-DDT	<0.11
14-MONTH	1	10-15	Sample	Cap Material	Site 1 (10-15cm)	On Cap	2,4´-DDD	<0.31
14-MONTH	1	10-15	Sample	Cap Material	Site 1 (10-15cm)	On Cap	2,4´-DDE	<0.08
14-MONTH	1	10-15	Sample	Cap Material	Site 1 (10-15cm)	On Cap	2,4´-DDT	<0.07

Table 1. Compilation of *in situ* Porewater DDX Results for all Monitoring Events
SSC Pacific
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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
14-MONTH	1	10-15	Sample	Cap Material	Site 1 (10-15cm)	On Cap	4,4´-DDD	<0.34
14-MONTH	1	10-15	Sample	Cap Material	Site 1 (10-15cm)	On Cap	Total DDX	<0.341
14-MONTH	1	15-20	Sample	Native Sediment	Site 1 (15-20cm)	On Cap	4,4´-DDE	<0.03
14-MONTH	1	15-20	Sample	Native Sediment	Site 1 (15-20cm)	On Cap	4,4´-DDT	<0.06
14-MONTH	1	15-20	Sample	Native Sediment	Site 1 (15-20cm)	On Cap	2,4´-DDD	<0.25
14-MONTH	1	15-20	Sample	Native Sediment	Site 1 (15-20cm)	On Cap	2,4´-DDE	<0.03
14-MONTH	1	15-20	Sample	Native Sediment	Site 1 (15-20cm)	On Cap	2,4´-DDT	<0.03
14-MONTH	1	15-20	Sample	Native Sediment	Site 1 (15-20cm)	On Cap	4,4´-DDD	<0.28
14-MONTH	1	15-20	Sample	Native Sediment	Site 1 (15-20cm)	On Cap	Total DDX	<0.277
14-MONTH	1	20-25	Sample	Native Sediment	Site 1 (20-25cm)	On Cap	4,4´-DDE	<0.03
14-MONTH	1	20-25	Sample	Native Sediment	Site 1 (20-25cm)	On Cap	4,4´-DDT	<0.06
14-MONTH	1	20-25	Sample	Native Sediment	Site 1 (20-25cm)	On Cap	2,4´-DDD	<0.25
14-MONTH	1	20-25	Sample	Native Sediment	Site 1 (20-25cm)	On Cap	2,4´-DDE	<0.03
14-MONTH	1	20-25	Sample	Native Sediment	Site 1 (20-25cm)	On Cap	2,4´-DDT	<0.03
14-MONTH	1	20-25	Sample	Native Sediment	Site 1 (20-25cm)	On Cap	4,4´-DDD	0.44
14-MONTH	1	20-25	Sample	Native Sediment	Site 1 (20-25cm)	On Cap	Total DDX	0.44
14-MONTH	2	0-5	Sample	Cap Material	Site 2 (0-5cm)	On Cap	4,4´-DDE	<0.05
14-MONTH	2	0-5	Sample	Cap Material	Site 2 (0-5cm)	On Cap	4,4´-DDT	<0.08
14-MONTH	2	0-5	Sample	Cap Material	Site 2 (0-5cm)	On Cap	2,4´-DDD	<0.27
14-MONTH	2	0-5	Sample	Cap Material	Site 2 (0-5cm)	On Cap	2,4´-DDE	<0.05
14-MONTH	2	0-5	Sample	Cap Material	Site 2 (0-5cm)	On Cap	2,4´-DDT	<0.05
14-MONTH	2	0-5	Sample	Cap Material	Site 2 (0-5cm)	On Cap	4,4´-DDD	0.36
14-MONTH	2	0-5	Sample	Cap Material	Site 2 (0-5cm)	On Cap	Total DDX	0.36
14-MONTH	2	10-15	Sample	Cap Material	Site 2 (10-15cm)	On Cap	4,4´-DDE	0.09
14-MONTH	2	10-15	Sample	Cap Material	Site 2 (10-15cm)	On Cap	4,4´-DDT	0.24
14-MONTH	2	10-15	Sample	Cap Material	Site 2 (10-15cm)	On Cap	2,4´-DDD	<0.27
14-MONTH	2	10-15	Sample	Cap Material	Site 2 (10-15cm)	On Cap	2,4´-DDE	<0.05
14-MONTH	2	10-15	Sample	Cap Material	Site 2 (10-15cm)	On Cap	2,4´-DDT	<0.05
14-MONTH	2	10-15	Sample	Cap Material	Site 2 (10-15cm)	On Cap	4,4´-DDD	1.38
14-MONTH	2	10-15	Sample	Cap Material	Site 2 (10-15cm)	On Cap	Total DDX	1.72
14-MONTH	2	15-20	Sample	Native Sediment	Site 2 (15-20cm)	On Cap	4,4´-DDE	<0.03
14-MONTH	2	15-20	Sample	Native Sediment	Site 2 (15-20cm)	On Cap	4,4´-DDT	<0.07
14-MONTH	2	15-20	Sample	Native Sediment	Site 2 (15-20cm)	On Cap	2,4´-DDD	<0.26
14-MONTH	2	15-20	Sample	Native Sediment	Site 2 (15-20cm)	On Cap	2,4´-DDE	<0.03
14-MONTH	2	15-20	Sample	Native Sediment	Site 2 (15-20cm)	On Cap	2,4´-DDT	<0.03
14-MONTH	2	15-20	Sample	Native Sediment	Site 2 (15-20cm)	On Cap	4,4´-DDD	0.93
14-MONTH	2	15-20	Sample	Transition Depth	Site 2 (15-20cm)	On Cap	Total DDX	0.93
14-MONTH	2	20-25	Sample	Native Sediment	Site 2 (20-25cm)	On Cap	4,4´-DDE	0.04
14-MONTH	2	20-25	Sample	Native Sediment	Site 2 (20-25cm)	On Cap	4,4´-DDT	<0.07

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SSC Pacific
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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
14-MONTH	2	20-25	Sample	Native Sediment	Site 2 (20-25cm)	On Cap	2,4´-DDD	<0.26
14-MONTH	2	20-25	Sample	Native Sediment	Site 2 (20-25cm)	On Cap	2,4´-DDE	<0.03
14-MONTH	2	20-25	Sample	Native Sediment	Site 2 (20-25cm)	On Cap	2,4´-DDT	<0.03
14-MONTH	2	20-25	Sample	Native Sediment	Site 2 (20-25cm)	On Cap	4,4´-DDD	1.10
14-MONTH	2	20-25	Sample	Native Sediment	Site 2 (20-25cm)	On Cap	Total DDX	1.14
14-MONTH	3	0-5	Primary	Cap Material	Site 3 (0-5cm)	On Cap	4,4´-DDE	0.11
14-MONTH	3	0-5	Primary	Cap Material	Site 3 (0-5cm)	On Cap	4,4´-DDT	<0.09
14-MONTH	3	0-5	Primary	Cap Material	Site 3 (0-5cm)	On Cap	2,4´-DDD	<0.28
14-MONTH	3	0-5	Primary	Cap Material	Site 3 (0-5cm)	On Cap	2,4´-DDE	<0.06
14-MONTH	3	0-5	Primary	Cap Material	Site 3 (0-5cm)	On Cap	2,4´-DDT	<0.06
14-MONTH	3	0-5	Primary	Cap Material	Site 3 (0-5cm)	On Cap	4,4´-DDD	1.59
14-MONTH	3	0-5	Primary	Cap Material	Site 3 (0-5cm)	On Cap	Total DDX	1.70
14-MONTH	3	0-5	Sample	Cap Material	Site 3 (0-5cm)-Avg	On Cap	4,4´-DDE	0.07
14-MONTH	3	0-5	Sample	Cap Material	Site 3 (0-5cm)-Avg	On Cap	4,4´-DDT	<0.1
14-MONTH	3	0-5	Sample	Cap Material	Site 3 (0-5cm)-Avg	On Cap	2,4´-DDD	<0.29
14-MONTH	3	0-5	Sample	Cap Material	Site 3 (0-5cm)-Avg	On Cap	2,4´-DDE	<0.07
14-MONTH	3	0-5	Sample	Cap Material	Site 3 (0-5cm)-Avg	On Cap	2,4´-DDT	<0.07
14-MONTH	3	0-5	Sample	Cap Material	Site 3 (0-5cm)-Avg	On Cap	4,4´-DDD	1.31
14-MONTH	3	0-5	Sample	Cap Material	Site 3 (0-5cm)-Avg	On Cap	Total DDX	1.38
14-MONTH	3	20-25	Primary	Native Sediment	Site 3 (20-25cm)	On Cap	4,4´-DDE	0.10
14-MONTH	3	20-25	Primary	Native Sediment	Site 3 (20-25cm)	On Cap	4,4´-DDT	<0.08
14-MONTH	3	20-25	Primary	Native Sediment	Site 3 (20-25cm)	On Cap	2,4´-DDD	<0.27
14-MONTH	3	20-25	Primary	Native Sediment	Site 3 (20-25cm)	On Cap	2,4´-DDE	<0.05
14-MONTH	3	20-25	Primary	Native Sediment	Site 3 (20-25cm)	On Cap	2,4´-DDT	<0.05
14-MONTH	3	20-25	Primary	Native Sediment	Site 3 (20-25cm)	On Cap	4,4´-DDD	2.01
14-MONTH	3	20-25	Primary	Transition Depth	Site 3 (20-25cm)	On Cap	Total DDX	2.11
14-MONTH	3	20-25	Sample	Native Sediment	Site 3 (20-25cm)-Avg	On Cap	4,4´-DDE	0.07
14-MONTH	3	20-25	Sample	Native Sediment	Site 3 (20-25cm)-Avg	On Cap	4,4´-DDT	<0.1
14-MONTH	3	20-25	Sample	Native Sediment	Site 3 (20-25cm)-Avg	On Cap	2,4´-DDD	<0.3
14-MONTH	3	20-25	Sample	Native Sediment	Site 3 (20-25cm)-Avg	On Cap	2,4´-DDE	<0.07
14-MONTH	3	20-25	Sample	Native Sediment	Site 3 (20-25cm)-Avg	On Cap	2,4´-DDT	<0.06
14-MONTH	3	20-25	Sample	Native Sediment	Site 3 (20-25cm)-Avg	On Cap	4,4´-DDD	1.37
14-MONTH	3	20-25	Sample	Transition Depth	Site 3 (20-25cm)-Avg	On Cap	Total DDX	1.44
14-MONTH	3	25-30	Primary	Native Sediment	Site 3 (25-30cm)	On Cap	4,4´-DDE	<0.05
14-MONTH	3	25-30	Primary	Native Sediment	Site 3 (25-30cm)	On Cap	4,4´-DDT	<0.08
14-MONTH	3	25-30	Primary	Native Sediment	Site 3 (25-30cm)	On Cap	2,4´-DDD	<0.27
14-MONTH	3	25-30	Primary	Native Sediment	Site 3 (25-30cm)	On Cap	2,4´-DDE	<0.05
14-MONTH	3	25-30	Primary	Native Sediment	Site 3 (25-30cm)	On Cap	2,4´-DDT	<0.05
14-MONTH	3	25-30	Primary	Native Sediment	Site 3 (25-30cm)	On Cap	4,4´-DDD	0.65

Table 1. Compilation of *in situ* Porewater DDX Results for all Monitoring Events
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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
14-MONTH	3	25-30	Primary	Native Sediment	Site 3 (25-30cm)	On Cap	Total DDX	0.65
14-MONTH	3	25-30	Sample	Native Sediment	Site 3 (25-30cm)-Avg	On Cap	4,4´-DDE	<0.07
14-MONTH	3	25-30	Sample	Native Sediment	Site 3 (25-30cm)-Avg	On Cap	4,4´-DDT	<0.1
14-MONTH	3	25-30	Sample	Native Sediment	Site 3 (25-30cm)-Avg	On Cap	2,4´-DDD	<0.3
14-MONTH	3	25-30	Sample	Native Sediment	Site 3 (25-30cm)-Avg	On Cap	2,4´-DDE	<0.07
14-MONTH	3	25-30	Sample	Native Sediment	Site 3 (25-30cm)-Avg	On Cap	2,4´-DDT	<0.06
14-MONTH	3	25-30	Sample	Native Sediment	Site 3 (25-30cm)-Avg	On Cap	4,4´-DDD	0.66
14-MONTH	3	25-30	Sample	Native Sediment	Site 3 (25-30cm)-Avg	On Cap	Total DDX	0.66
14-MONTH	3	0-5	Duplicate	Cap Material	Site 3 duo (0-5cm)	On Cap	4,4´-DDE	<0.07
14-MONTH	3	0-5	Duplicate	Cap Material	Site 3 duo (0-5cm)	On Cap	4,4´-DDT	<0.1
14-MONTH	3	0-5	Duplicate	Cap Material	Site 3 duo (0-5cm)	On Cap	2,4´-DDD	<0.29
14-MONTH	3	0-5	Duplicate	Cap Material	Site 3 duo (0-5cm)	On Cap	2,4´-DDE	<0.07
14-MONTH	3	0-5	Duplicate	Cap Material	Site 3 duo (0-5cm)	On Cap	2,4´-DDT	<0.07
14-MONTH	3	0-5	Duplicate	Cap Material	Site 3 duo (0-5cm)	On Cap	4,4´-DDD	1.03
14-MONTH	3	0-5	Duplicate	Cap Material	Site 3 duo (0-5cm)	On Cap	Total DDX	1.03
14-MONTH	3	20-25	Duplicate	Native Sediment	Site 3 duo (20-25cm)	On Cap	4,4´-DDE	<0.07
14-MONTH	3	20-25	Duplicate	Native Sediment	Site 3 duo (20-25cm)	On Cap	4,4´-DDT	<0.1
14-MONTH	3	20-25	Duplicate	Native Sediment	Site 3 duo (20-25cm)	On Cap	2,4´-DDD	<0.3
14-MONTH	3	20-25	Duplicate	Native Sediment	Site 3 duo (20-25cm)	On Cap	2,4´-DDE	<0.07
14-MONTH	3	20-25	Duplicate	Native Sediment	Site 3 duo (20-25cm)	On Cap	2,4´-DDT	<0.06
14-MONTH	3	20-25	Duplicate	Native Sediment	Site 3 duo (20-25cm)	On Cap	4,4´-DDD	0.74
14-MONTH	3	20-25	Duplicate	Transition Depth	Site 3 duo (20-25cm)	On Cap	Total DDX	0.74
14-MONTH	3	25-30	Duplicate	Native Sediment	Site 3 duo (25-30cm)	On Cap	4,4´-DDE	<0.07
14-MONTH	3	25-30	Duplicate	Native Sediment	Site 3 duo (25-30cm)	On Cap	4,4´-DDT	<0.1
14-MONTH	3	25-30	Duplicate	Native Sediment	Site 3 duo (25-30cm)	On Cap	2,4´-DDD	<0.3
14-MONTH	3	25-30	Duplicate	Native Sediment	Site 3 duo (25-30cm)	On Cap	2,4´-DDE	<0.07
14-MONTH	3	25-30	Duplicate	Native Sediment	Site 3 duo (25-30cm)	On Cap	2,4´-DDT	<0.06
14-MONTH	3	25-30	Duplicate	Native Sediment	Site 3 duo (25-30cm)	On Cap	4,4´-DDD	0.67
14-MONTH	3	25-30	Duplicate	Native Sediment	Site 3 duo (25-30cm)	On Cap	Total DDX	0.67
14-MONTH	3	30-35	Sample	Native Sediment	Site 3 duo (30-35cm)	On Cap	4,4´-DDE	<0.05
14-MONTH	3	30-35	Sample	Native Sediment	Site 3 duo (30-35cm)	On Cap	4,4´-DDT	<0.09
14-MONTH	3	30-35	Sample	Native Sediment	Site 3 duo (30-35cm)	On Cap	2,4´-DDD	<0.27
14-MONTH	3	30-35	Sample	Native Sediment	Site 3 duo (30-35cm)	On Cap	2,4´-DDE	<0.05
14-MONTH	3	30-35	Sample	Native Sediment	Site 3 duo (30-35cm)	On Cap	2,4´-DDT	<0.05
14-MONTH	3	30-35	Sample	Native Sediment	Site 3 duo (30-35cm)	On Cap	4,4´-DDD	0.65
14-MONTH	3	30-35	Sample	Native Sediment	Site 3 duo (30-35cm)	On Cap	Total DDX	0.65
14-MONTH	3	31-36	Sample	Native Sediment	Site 3 duo (31-36cm)	On Cap	4,4´-DDE	<0.05
14-MONTH	3	31-36	Sample	Native Sediment	Site 3 duo (31-36cm)	On Cap	4,4´-DDT	<0.09
14-MONTH	3	31-36	Sample	Native Sediment	Site 3 duo (31-36cm)	On Cap	2,4´-DDD	<0.27

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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
14-MONTH	3	31-36	Sample	Native Sediment	Site 3 duo (31-36cm)	On Cap	2,4´-DDE	<0.05
14-MONTH	3	31-36	Sample	Native Sediment	Site 3 duo (31-36cm)	On Cap	2,4´-DDT	<0.05
14-MONTH	3	31-36	Sample	Native Sediment	Site 3 duo (31-36cm)	On Cap	4,4´-DDD	1.01
14-MONTH	3	31-36	Sample	Native Sediment	Site 3 duo (31-36cm)	On Cap	Total DDX	1.01
14-MONTH	4	0-5	Sample	Cap Material	Site 4 (0-5cm)	On Cap	4,4´-DDE	0.11
14-MONTH	4	0-5	Sample	Cap Material	Site 4 (0-5cm)	On Cap	4,4´-DDT	<0.08
14-MONTH	4	0-5	Sample	Cap Material	Site 4 (0-5cm)	On Cap	2,4´-DDD	<0.28
14-MONTH	4	0-5	Sample	Cap Material	Site 4 (0-5cm)	On Cap	2,4´-DDE	<0.05
14-MONTH	4	0-5	Sample	Cap Material	Site 4 (0-5cm)	On Cap	2,4´-DDT	<0.05
14-MONTH	4	0-5	Sample	Cap Material	Site 4 (0-5cm)	On Cap	4,4´-DDD	0.82
14-MONTH	4	0-5	Sample	Cap Material	Site 4 (0-5cm)	On Cap	Total DDX	0.93
14-MONTH	4	36-41	Sample	Native Sediment	Site 4 (36-41cm)	On Cap	4,4´-DDE	<0.07
14-MONTH	4	36-41	Sample	Native Sediment	Site 4 (36-41cm)	On Cap	4,4´-DDT	<0.12
14-MONTH	4	36-41	Sample	Native Sediment	Site 4 (36-41cm)	On Cap	2,4´-DDD	<0.34
14-MONTH	4	36-41	Sample	Native Sediment	Site 4 (36-41cm)	On Cap	2,4´-DDE	<0.08
14-MONTH	4	36-41	Sample	Native Sediment	Site 4 (36-41cm)	On Cap	2,4´-DDT	<0.07
14-MONTH	4	36-41	Sample	Native Sediment	Site 4 (36-41cm)	On Cap	4,4´-DDD	1.13
14-MONTH	4	36-41	Sample	Transition Depth	Site 4 (36-41cm)	On Cap	Total DDX	1.13
14-MONTH	4	41-46	Sample	Native Sediment	Site 4 (41-46cm)	On Cap	4,4´-DDE	0.10
14-MONTH	4	41-46	Sample	Native Sediment	Site 4 (41-46cm)	On Cap	4,4´-DDT	<0.12
14-MONTH	4	41-46	Sample	Native Sediment	Site 4 (41-46cm)	On Cap	2,4´-DDD	<0.34
14-MONTH	4	41-46	Sample	Native Sediment	Site 4 (41-46cm)	On Cap	2,4´-DDE	<0.08
14-MONTH	4	41-46	Sample	Native Sediment	Site 4 (41-46cm)	On Cap	2,4´-DDT	<0.07
14-MONTH	4	41-46	Sample	Native Sediment	Site 4 (41-46cm)	On Cap	4,4´-DDD	0.83
14-MONTH	4	41-46	Sample	Native Sediment	Site 4 (41-46cm)	On Cap	Total DDX	0.93
14-MONTH	4	46-54	Sample	Native Sediment	Site 4 (46-54cm)	On Cap	4,4´-DDE	0.03
14-MONTH	4	46-54	Sample	Native Sediment	Site 4 (46-54cm)	On Cap	4,4´-DDT	<0.05
14-MONTH	4	46-54	Sample	Native Sediment	Site 4 (46-54cm)	On Cap	2,4´-DDD	<0.17
14-MONTH	4	46-54	Sample	Native Sediment	Site 4 (46-54cm)	On Cap	2,4´-DDE	<0.03
14-MONTH	4	46-54	Sample	Native Sediment	Site 4 (46-54cm)	On Cap	2,4´-DDT	<0.03
14-MONTH	4	46-54	Sample	Native Sediment	Site 4 (46-54cm)	On Cap	4,4´-DDD	0.33
14-MONTH	4	46-54	Sample	Native Sediment	Site 4 (46-54cm)	On Cap	Total DDX	0.37
14-MONTH	5	0-5	Sample	Cap Material	Site 5 (0-5cm)	On Cap	4,4´-DDE	0.07
14-MONTH	5	0-5	Sample	Cap Material	Site 5 (0-5cm)	On Cap	4,4´-DDT	<0.08
14-MONTH	5	0-5	Sample	Cap Material	Site 5 (0-5cm)	On Cap	2,4´-DDD	<0.28
14-MONTH	5	0-5	Sample	Cap Material	Site 5 (0-5cm)	On Cap	2,4´-DDE	<0.05
14-MONTH	5	0-5	Sample	Cap Material	Site 5 (0-5cm)	On Cap	2,4´-DDT	<0.04
14-MONTH	5	0-5	Sample	Cap Material	Site 5 (0-5cm)	On Cap	4,4´-DDD	0.56
14-MONTH	5	0-5	Sample	Cap Material	Site 5 (0-5cm)	On Cap	Total DDX	0.63

Table 1. Compilation of *in situ* Porewater DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
14-MONTH	5	37-42	Sample	Native Sediment	Site 5 (37-42cm)	On Cap	4,4´-DDE	<0.05
14-MONTH	5	37-42	Sample	Native Sediment	Site 5 (37-42cm)	On Cap	4,4´-DDT	<0.08
14-MONTH	5	37-42	Sample	Native Sediment	Site 5 (37-42cm)	On Cap	2,4´-DDD	<0.28
14-MONTH	5	37-42	Sample	Native Sediment	Site 5 (37-42cm)	On Cap	2,4´-DDE	<0.05
14-MONTH	5	37-42	Sample	Native Sediment	Site 5 (37-42cm)	On Cap	2,4´-DDT	<0.05
14-MONTH	5	37-42	Sample	Native Sediment	Site 5 (37-42cm)	On Cap	4,4´-DDD	<0.32
14-MONTH	5	37-42	Sample	Transition Depth	Site 5 (37-42cm)	On Cap	Total DDX	<0.316
14-MONTH	5	42-47	Sample	Native Sediment	Site 5 (42-47cm)	On Cap	4,4´-DDE	<0.05
14-MONTH	5	42-47	Sample	Native Sediment	Site 5 (42-47cm)	On Cap	4,4´-DDT	<0.08
14-MONTH	5	42-47	Sample	Native Sediment	Site 5 (42-47cm)	On Cap	2,4´-DDD	<0.28
14-MONTH	5	42-47	Sample	Native Sediment	Site 5 (42-47cm)	On Cap	2,4´-DDE	<0.05
14-MONTH	5	42-47	Sample	Native Sediment	Site 5 (42-47cm)	On Cap	2,4´-DDT	<0.05
14-MONTH	5	42-47	Sample	Native Sediment	Site 5 (42-47cm)	On Cap	4,4´-DDD	<0.32
14-MONTH	5	42-47	Sample	Native Sediment	Site 5 (42-47cm)	On Cap	Total DDX	<0.316
14-MONTH	5	47-52	Sample	Native Sediment	Site 5 (47-52cm)-0.5ml	On Cap	4,4´-DDE	<0.08
14-MONTH	5	47-52	Sample	Native Sediment	Site 5 (47-52cm)-0.5ml	On Cap	4,4´-DDT	<0.12
14-MONTH	5	47-52	Sample	Native Sediment	Site 5 (47-52cm)-0.5ml	On Cap	2,4´-DDD	<0.35
14-MONTH	5	47-52	Sample	Native Sediment	Site 5 (47-52cm)-0.5ml	On Cap	2,4´-DDE	<0.08
14-MONTH	5	47-52	Sample	Native Sediment	Site 5 (47-52cm)-0.5ml	On Cap	2,4´-DDT	<0.07
14-MONTH	5	47-52	Sample	Native Sediment	Site 5 (47-52cm)-0.5ml	On Cap	4,4´-DDD	<0.39
14-MONTH	5	47-52	Sample	Native Sediment	Site 5 (47-52cm)-0.5ml	On Cap	Total DDX	<0.39
14-MONTH	6	0-10	Sample	Native Sediment-Off Cap	Site 6 (0-10cm)-1ml	Off Cap	4,4´-DDE	0.02
14-MONTH	6	0-10	Sample	Native Sediment-Off Cap	Site 6 (0-10cm)-1ml	Off Cap	4,4´-DDT	<0.04
14-MONTH	6	0-10	Sample	Native Sediment-Off Cap	Site 6 (0-10cm)-1ml	Off Cap	2,4´-DDD	<0.13
14-MONTH	6	0-10	Sample	Native Sediment-Off Cap	Site 6 (0-10cm)-1ml	Off Cap	2,4´-DDE	<0.02
14-MONTH	6	0-10	Sample	Native Sediment-Off Cap	Site 6 (0-10cm)-1ml	Off Cap	2,4´-DDT	<0.01
14-MONTH	6	0-10	Sample	Native Sediment-Off Cap	Site 6 (0-10cm)-1ml	Off Cap	4,4´-DDD	0.17
14-MONTH	6	0-10	Sample	Native Sediment-Off Cap	Site 6 (0-10cm)-1ml	Off Cap	Total DDX	0.19
14-MONTH	7	0-10	Sample	Native Sediment-Off Cap	Site 7 (0-10cm)-1ml	Off Cap	4,4´-DDE	0.03
14-MONTH	7	0-10	Sample	Native Sediment-Off Cap	Site 7 (0-10cm)-1ml	Off Cap	4,4´-DDT	<0.04
14-MONTH	7	0-10	Sample	Native Sediment-Off Cap	Site 7 (0-10cm)-1ml	Off Cap	2,4´-DDD	<0.13
14-MONTH	7	0-10	Sample	Native Sediment-Off Cap	Site 7 (0-10cm)-1ml	Off Cap	2,4´-DDE	<0.02
14-MONTH	7	0-10	Sample	Native Sediment-Off Cap	Site 7 (0-10cm)-1ml	Off Cap	2,4´-DDT	<0.02
14-MONTH	7	0-10	Sample	Native Sediment-Off Cap	Site 7 (0-10cm)-1ml	Off Cap	4,4´-DDD	<0.15
14-MONTH	7	0-10	Sample	Native Sediment-Off Cap	Site 7 (0-10cm)-1ml	Off Cap	Total DDX	0.03
25-MONTH	1	10.5-15.5	Sample	Native Sediment	STN 1 1A+1B 10.5-15.5 cm	On Cap	4,4´-DDE	0.07
25-MONTH	1	10.5-15.5	Sample	Native Sediment	STN 1 1A+1B 10.5-15.5 cm	On Cap	4,4´-DDT	<0.027
25-MONTH	1	10.5-15.5	Sample	Native Sediment	STN 1 1A+1B 10.5-15.5 cm	On Cap	2,4´-DDD	0.12
25-MONTH	1	10.5-15.5	Sample	Native Sediment	STN 1 1A+1B 10.5-15.5 cm	On Cap	2,4´-DDE	<0.016

Table 1. Compilation of *in situ* Porewater DDX Results for all Monitoring Events
SSC Pacific
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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
25-MONTH	1	10.5-15.5	Sample	Native Sediment	STN 1 1A+1B 10.5-15.5 cm	On Cap	2,4´-DDT	<0.015
25-MONTH	1	10.5-15.5	Sample	Native Sediment	STN 1 1A+1B 10.5-15.5 cm	On Cap	4,4´-DDD	0.34
25-MONTH	1	10.5-15.5	Sample	Transition Depth	STN 1 1A+1B 10.5-15.5 cm	On Cap	Total DDX	0.54
25-MONTH	1	15.5-20.5	Sample	Native Sediment	STN 1 1A+1B 15.5-20.5 cm	On Cap	4,4´-DDE	0.06
25-MONTH	1	15.5-20.5	Sample	Native Sediment	STN 1 1A+1B 15.5-20.5 cm	On Cap	4,4´-DDT	<0.027
25-MONTH	1	15.5-20.5	Sample	Native Sediment	STN 1 1A+1B 15.5-20.5 cm	On Cap	2,4´-DDD	0.12
25-MONTH	1	15.5-20.5	Sample	Native Sediment	STN 1 1A+1B 15.5-20.5 cm	On Cap	2,4´-DDE	<0.016
25-MONTH	1	15.5-20.5	Sample	Native Sediment	STN 1 1A+1B 15.5-20.5 cm	On Cap	2,4´-DDT	<0.015
25-MONTH	1	15.5-20.5	Sample	Native Sediment	STN 1 1A+1B 15.5-20.5 cm	On Cap	4,4´-DDD	0.27
25-MONTH	1	15.5-20.5	Sample	Native Sediment	STN 1 1A+1B 15.5-20.5 cm	On Cap	Total DDX	0.46
25-MONTH	1	20.5-25.5	Sample	Native Sediment	STN 1 1A+1B 20.5-25.5 cm	On Cap	4,4´-DDE	0.08
25-MONTH	1	20.5-25.5	Sample	Native Sediment	STN 1 1A+1B 20.5-25.5 cm	On Cap	4,4´-DDT	<0.026
25-MONTH	1	20.5-25.5	Sample	Native Sediment	STN 1 1A+1B 20.5-25.5 cm	On Cap	2,4´-DDD	0.15
25-MONTH	1	20.5-25.5	Sample	Native Sediment	STN 1 1A+1B 20.5-25.5 cm	On Cap	2,4´-DDE	<0.015
25-MONTH	1	20.5-25.5	Sample	Native Sediment	STN 1 1A+1B 20.5-25.5 cm	On Cap	2,4´-DDT	<0.014
25-MONTH	1	20.5-25.5	Sample	Native Sediment	STN 1 1A+1B 20.5-25.5 cm	On Cap	4,4´-DDD	0.40
25-MONTH	1	20.5-25.5	Sample	Native Sediment	STN 1 1A+1B 20.5-25.5 cm	On Cap	Total DDX	0.62
25-MONTH	1	5.5-10.5	Sample	Cap Material	STN 1 1A+1B 5.5-10.5 cm	On Cap	4,4´-DDE	0.04
25-MONTH	1	5.5-10.5	Sample	Cap Material	STN 1 1A+1B 5.5-10.5 cm	On Cap	4,4´-DDT	<0.024
25-MONTH	1	5.5-10.5	Sample	Cap Material	STN 1 1A+1B 5.5-10.5 cm	On Cap	2,4´-DDD	0.11
25-MONTH	1	5.5-10.5	Sample	Cap Material	STN 1 1A+1B 5.5-10.5 cm	On Cap	2,4´-DDE	<0.014
25-MONTH	1	5.5-10.5	Sample	Cap Material	STN 1 1A+1B 5.5-10.5 cm	On Cap	2,4´-DDT	<0.012
25-MONTH	1	5.5-10.5	Sample	Cap Material	STN 1 1A+1B 5.5-10.5 cm	On Cap	4,4´-DDD	0.31
25-MONTH	1	5.5-10.5	Sample	Cap Material	STN 1 1A+1B 5.5-10.5 cm	On Cap	Total DDX	0.46
25-MONTH	2	0-5	Sample	Cap Material	STN 2 2A+2B 0-5 cm	On Cap	4,4´-DDE	0.01
25-MONTH	2	0-5	Sample	Cap Material	STN 2 2A+2B 0-5 cm	On Cap	4,4´-DDT	<0.023
25-MONTH	2	0-5	Sample	Cap Material	STN 2 2A+2B 0-5 cm	On Cap	2,4´-DDD	<0.082
25-MONTH	2	0-5	Sample	Cap Material	STN 2 2A+2B 0-5 cm	On Cap	2,4´-DDE	<0.014
25-MONTH	2	0-5	Sample	Cap Material	STN 2 2A+2B 0-5 cm	On Cap	2,4´-DDT	<0.012
25-MONTH	2	0-5	Sample	Cap Material	STN 2 2A+2B 0-5 cm	On Cap	4,4´-DDD	0.09
25-MONTH	2	0-5	Sample	Cap Material	STN 2 2A+2B 0-5 cm	On Cap	Total DDX	0.10
25-MONTH	2	10-15	Sample	Cap Material	STN 2 2A+2B 10-15 cm	On Cap	4,4´-DDE	<0.033
25-MONTH	2	10-15	Sample	Cap Material	STN 2 2A+2B 10-15 cm	On Cap	4,4´-DDT	<0.048
25-MONTH	2	10-15	Sample	Cap Material	STN 2 2A+2B 10-15 cm	On Cap	2,4´-DDD	<0.129
25-MONTH	2	10-15	Sample	Cap Material	STN 2 2A+2B 10-15 cm	On Cap	2,4´-DDE	<0.033
25-MONTH	2	10-15	Sample	Cap Material	STN 2 2A+2B 10-15 cm	On Cap	2,4´-DDT	<0.031
25-MONTH	2	10-15	Sample	Cap Material	STN 2 2A+2B 10-15 cm	On Cap	4,4´-DDD	0.19
25-MONTH	2	10-15	Sample	Cap Material	STN 2 2A+2B 10-15 cm	On Cap	Total DDX	0.19
25-MONTH	2	15-20	Sample	Native Sediment	STN 2 2A+2B 15-20 cm	On Cap	4,4´-DDE	0.02

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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
25-MONTH	2	15-20	Sample	Native Sediment	STN 2 2A+2B 15-20 cm	On Cap	4,4´-DDT	0.06
25-MONTH	2	15-20	Sample	Native Sediment	STN 2 2A+2B 15-20 cm	On Cap	2,4´-DDD	<0.11
25-MONTH	2	15-20	Sample	Native Sediment	STN 2 2A+2B 15-20 cm	On Cap	2,4´-DDE	0.08
25-MONTH	2	15-20	Sample	Native Sediment	STN 2 2A+2B 15-20 cm	On Cap	2,4´-DDT	<0.019
25-MONTH	2	15-20	Sample	Native Sediment	STN 2 2A+2B 15-20 cm	On Cap	4,4´-DDD	0.28
25-MONTH	2	15-20	Sample	Transition Depth	STN 2 2A+2B 15-20 cm	On Cap	Total DDX	0.44
25-MONTH	2	20-25	Sample	Native Sediment	STN 2 2A+2B 20-25 cm	On Cap	4,4´-DDE	0.03
25-MONTH	2	20-25	Sample	Native Sediment	STN 2 2A+2B 20-25 cm	On Cap	4,4´-DDT	0.04
25-MONTH	2	20-25	Sample	Native Sediment	STN 2 2A+2B 20-25 cm	On Cap	2,4´-DDD	<0.107
25-MONTH	2	20-25	Sample	Native Sediment	STN 2 2A+2B 20-25 cm	On Cap	2,4´-DDE	0.03
25-MONTH	2	20-25	Sample	Native Sediment	STN 2 2A+2B 20-25 cm	On Cap	2,4´-DDT	<0.019
25-MONTH	2	20-25	Sample	Native Sediment	STN 2 2A+2B 20-25 cm	On Cap	4,4´-DDD	0.39
25-MONTH	2	20-25	Sample	Native Sediment	STN 2 2A+2B 20-25 cm	On Cap	Total DDX	0.50
25-MONTH	2	25-30	Sample	Native Sediment	STN 2 2A+2B 25-30 cm	On Cap	4,4´-DDE	0.04
25-MONTH	2	25-30	Sample	Native Sediment	STN 2 2A+2B 25-30 cm	On Cap	4,4´-DDT	0.05
25-MONTH	2	25-30	Sample	Native Sediment	STN 2 2A+2B 25-30 cm	On Cap	2,4´-DDD	<0.113
25-MONTH	2	25-30	Sample	Native Sediment	STN 2 2A+2B 25-30 cm	On Cap	2,4´-DDE	0.11
25-MONTH	2	25-30	Sample	Native Sediment	STN 2 2A+2B 25-30 cm	On Cap	2,4´-DDT	<0.022
25-MONTH	2	25-30	Sample	Native Sediment	STN 2 2A+2B 25-30 cm	On Cap	4,4´-DDD	0.33
25-MONTH	2	25-30	Sample	Native Sediment	STN 2 2A+2B 25-30 cm	On Cap	Total DDX	0.53
25-MONTH	2	30-35	Sample	Native Sediment	STN 2 2A+2B 30-35 cm	On Cap	4,4´-DDE	0.02
25-MONTH	2	30-35	Sample	Native Sediment	STN 2 2A+2B 30-35 cm	On Cap	4,4´-DDT	0.03
25-MONTH	2	30-35	Sample	Native Sediment	STN 2 2A+2B 30-35 cm	On Cap	2,4´-DDD	<0.094
25-MONTH	2	30-35	Sample	Native Sediment	STN 2 2A+2B 30-35 cm	On Cap	2,4´-DDE	0.07
25-MONTH	2	30-35	Sample	Native Sediment	STN 2 2A+2B 30-35 cm	On Cap	2,4´-DDT	<0.015
25-MONTH	2	30-35	Sample	Native Sediment	STN 2 2A+2B 30-35 cm	On Cap	4,4´-DDD	0.31
25-MONTH	2	30-35	Sample	Native Sediment	STN 2 2A+2B 30-35 cm	On Cap	Total DDX	0.43
25-MONTH	2	35-40	Sample	Native Sediment	STN 2 2A+2B 35-40 cm	On Cap	4,4´-DDE	0.03
25-MONTH	2	35-40	Sample	Native Sediment	STN 2 2A+2B 35-40 cm	On Cap	4,4´-DDT	0.06
25-MONTH	2	35-40	Sample	Native Sediment	STN 2 2A+2B 35-40 cm	On Cap	2,4´-DDD	0.11
25-MONTH	2	35-40	Sample	Native Sediment	STN 2 2A+2B 35-40 cm	On Cap	2,4´-DDE	<0.021
25-MONTH	2	35-40	Sample	Native Sediment	STN 2 2A+2B 35-40 cm	On Cap	2,4´-DDT	<0.019
25-MONTH	2	35-40	Sample	Native Sediment	STN 2 2A+2B 35-40 cm	On Cap	4,4´-DDD	0.35
25-MONTH	2	35-40	Sample	Native Sediment	STN 2 2A+2B 35-40 cm	On Cap	Total DDX	0.55
25-MONTH	2	40-45	Sample	Native Sediment	STN 2 2A+2B 40-45 cm	On Cap	4,4´-DDE	0.01
25-MONTH	2	40-45	Sample	Native Sediment	STN 2 2A+2B 40-45 cm	On Cap	4,4´-DDT	0.04
25-MONTH	2	40-45	Sample	Native Sediment	STN 2 2A+2B 40-45 cm	On Cap	2,4´-DDD	0.08
25-MONTH	2	40-45	Sample	Native Sediment	STN 2 2A+2B 40-45 cm	On Cap	2,4´-DDE	<0.014
25-MONTH	2	40-45	Sample	Native Sediment	STN 2 2A+2B 40-45 cm	On Cap	2,4´-DDT	<0.013

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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
25-MONTH	2	40-45	Sample	Native Sediment	STN 2 2A+2B 40-45 cm	On Cap	4,4´-DDD	0.35
25-MONTH	2	40-45	Sample	Native Sediment	STN 2 2A+2B 40-45 cm	On Cap	Total DDX	0.48
25-MONTH	2	45-50	Sample	Native Sediment	STN 2 2A+2B 45-50 cm	On Cap	4,4´-DDE	<0.021
25-MONTH	2	45-50	Sample	Native Sediment	STN 2 2A+2B 45-50 cm	On Cap	4,4´-DDT	<0.035
25-MONTH	2	45-50	Sample	Native Sediment	STN 2 2A+2B 45-50 cm	On Cap	2,4´-DDD	<0.112
25-MONTH	2	45-50	Sample	Native Sediment	STN 2 2A+2B 45-50 cm	On Cap	2,4´-DDE	<0.022
25-MONTH	2	45-50	Sample	Native Sediment	STN 2 2A+2B 45-50 cm	On Cap	2,4´-DDT	<0.02
25-MONTH	2	45-50	Sample	Native Sediment	STN 2 2A+2B 45-50 cm	On Cap	4,4´-DDD	0.29
25-MONTH	2	45-50	Sample	Native Sediment	STN 2 2A+2B 45-50 cm	On Cap	Total DDX	0.29
25-MONTH	2	50-55	Sample	Native Sediment	STN 2 2A+2B 50-55 cm	On Cap	4,4´-DDE	<0.016
25-MONTH	2	50-55	Sample	Native Sediment	STN 2 2A+2B 50-55 cm	On Cap	4,4´-DDT	0.04
25-MONTH	2	50-55	Sample	Native Sediment	STN 2 2A+2B 50-55 cm	On Cap	2,4´-DDD	0.09
25-MONTH	2	50-55	Sample	Native Sediment	STN 2 2A+2B 50-55 cm	On Cap	2,4´-DDE	0.06
25-MONTH	2	50-55	Sample	Native Sediment	STN 2 2A+2B 50-55 cm	On Cap	2,4´-DDT	<0.015
25-MONTH	2	50-55	Sample	Native Sediment	STN 2 2A+2B 50-55 cm	On Cap	4,4´-DDD	0.28
25-MONTH	2	50-55	Sample	Native Sediment	STN 2 2A+2B 50-55 cm	On Cap	Total DDX	0.47
25-MONTH	2	5-10	Sample	Cap Material	STN 2 2A+2B 5-10 cm	On Cap	4,4´-DDE	<0.02
25-MONTH	2	5-10	Sample	Cap Material	STN 2 2A+2B 5-10 cm	On Cap	4,4´-DDT	<0.033
25-MONTH	2	5-10	Sample	Cap Material	STN 2 2A+2B 5-10 cm	On Cap	2,4´-DDD	<0.107
25-MONTH	2	5-10	Sample	Cap Material	STN 2 2A+2B 5-10 cm	On Cap	2,4´-DDE	<0.02
25-MONTH	2	5-10	Sample	Cap Material	STN 2 2A+2B 5-10 cm	On Cap	2,4´-DDT	<0.019
25-MONTH	2	5-10	Sample	Cap Material	STN 2 2A+2B 5-10 cm	On Cap	4,4´-DDD	0.12
25-MONTH	2	5-10	Sample	Cap Material	STN 2 2A+2B 5-10 cm	On Cap	Total DDX	0.12
25-MONTH	3	10-15	Sample	Cap Material	STN 3 3A+3B 10-15 cm	On Cap	4,4´-DDE	0.07
25-MONTH	3	10-15	Sample	Cap Material	STN 3 3A+3B 10-15 cm	On Cap	4,4´-DDT	<0.021
25-MONTH	3	10-15	Sample	Cap Material	STN 3 3A+3B 10-15 cm	On Cap	2,4´-DDD	0.16
25-MONTH	3	10-15	Sample	Cap Material	STN 3 3A+3B 10-15 cm	On Cap	2,4´-DDE	<0.012
25-MONTH	3	10-15	Sample	Cap Material	STN 3 3A+3B 10-15 cm	On Cap	2,4´-DDT	<0.011
25-MONTH	3	10-15	Sample	Cap Material	STN 3 3A+3B 10-15 cm	On Cap	4,4´-DDD	0.32
25-MONTH	3	10-15	Sample	Cap Material	STN 3 3A+3B 10-15 cm	On Cap	Total DDX	0.55
25-MONTH	3	15-20	Sample	Cap Material	STN 3 3A+3B 15-20 cm	On Cap	4,4´-DDE	0.05
25-MONTH	3	15-20	Sample	Cap Material	STN 3 3A+3B 15-20 cm	On Cap	4,4´-DDT	<0.026
25-MONTH	3	15-20	Sample	Cap Material	STN 3 3A+3B 15-20 cm	On Cap	2,4´-DDD	0.18
25-MONTH	3	15-20	Sample	Cap Material	STN 3 3A+3B 15-20 cm	On Cap	2,4´-DDE	<0.016
25-MONTH	3	15-20	Sample	Cap Material	STN 3 3A+3B 15-20 cm	On Cap	2,4´-DDT	<0.014
25-MONTH	3	15-20	Sample	Cap Material	STN 3 3A+3B 15-20 cm	On Cap	4,4´-DDD	0.30
25-MONTH	3	15-20	Sample	Cap Material	STN 3 3A+3B 15-20 cm	On Cap	Total DDX	0.52
25-MONTH	3	20-25	Sample	Cap Material	STN 3 3A+3B 20-25 cm	On Cap	4,4´-DDE	0.07
25-MONTH	3	20-25	Sample	Cap Material	STN 3 3A+3B 20-25 cm	On Cap	4,4´-DDT	<0.024

Table 1. Compilation of *in situ* Porewater DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
25-MONTH	3	20-25	Sample	Cap Material	STN 3 3A+3B 20-25 cm	On Cap	2,4´-DDD	0.20
25-MONTH	3	20-25	Sample	Cap Material	STN 3 3A+3B 20-25 cm	On Cap	2,4´-DDE	<0.014
25-MONTH	3	20-25	Sample	Cap Material	STN 3 3A+3B 20-25 cm	On Cap	2,4´-DDT	<0.013
25-MONTH	3	20-25	Sample	Cap Material	STN 3 3A+3B 20-25 cm	On Cap	4,4´-DDD	0.38
25-MONTH	3	20-25	Sample	Cap Material	STN 3 3A+3B 20-25 cm	On Cap	Total DDX	0.64
25-MONTH	3	25-30	Sample	Native Sediment	STN 3 3A+3B 25-30 cm	On Cap	4,4´-DDE	0.05
25-MONTH	3	25-30	Sample	Native Sediment	STN 3 3A+3B 25-30 cm	On Cap	4,4´-DDT	<0.025
25-MONTH	3	25-30	Sample	Native Sediment	STN 3 3A+3B 25-30 cm	On Cap	2,4´-DDD	0.12
25-MONTH	3	25-30	Sample	Native Sediment	STN 3 3A+3B 25-30 cm	On Cap	2,4´-DDE	<0.015
25-MONTH	3	25-30	Sample	Native Sediment	STN 3 3A+3B 25-30 cm	On Cap	2,4´-DDT	<0.013
25-MONTH	3	25-30	Sample	Native Sediment	STN 3 3A+3B 25-30 cm	On Cap	4,4´-DDD	0.38
25-MONTH	3	25-30	Sample	Native Sediment	STN 3 3A+3B 25-30 cm	On Cap	Total DDX	0.55
25-MONTH	3	30-35	Sample	Native Sediment	STN 3 3A+3B 30-35 cm	On Cap	4,4´-DDE	0.04
25-MONTH	3	30-35	Sample	Native Sediment	STN 3 3A+3B 30-35 cm	On Cap	4,4´-DDT	<0.021
25-MONTH	3	30-35	Sample	Native Sediment	STN 3 3A+3B 30-35 cm	On Cap	2,4´-DDD	0.13
25-MONTH	3	30-35	Sample	Native Sediment	STN 3 3A+3B 30-35 cm	On Cap	2,4´-DDE	<0.012
25-MONTH	3	30-35	Sample	Native Sediment	STN 3 3A+3B 30-35 cm	On Cap	2,4´-DDT	<0.011
25-MONTH	3	30-35	Sample	Native Sediment	STN 3 3A+3B 30-35 cm	On Cap	4,4´-DDD	0.32
25-MONTH	3	30-35	Sample	Native Sediment	STN 3 3A+3B 30-35 cm	On Cap	Total DDX	0.50
25-MONTH	3	35-40	Sample	Native Sediment	STN 3 3A+3B 35-40 cm	On Cap	4,4´-DDE	0.04
25-MONTH	3	35-40	Sample	Native Sediment	STN 3 3A+3B 35-40 cm	On Cap	4,4´-DDT	<0.023
25-MONTH	3	35-40	Sample	Native Sediment	STN 3 3A+3B 35-40 cm	On Cap	2,4´-DDD	0.16
25-MONTH	3	35-40	Sample	Native Sediment	STN 3 3A+3B 35-40 cm	On Cap	2,4´-DDE	<0.013
25-MONTH	3	35-40	Sample	Native Sediment	STN 3 3A+3B 35-40 cm	On Cap	2,4´-DDT	<0.012
25-MONTH	3	35-40	Sample	Native Sediment	STN 3 3A+3B 35-40 cm	On Cap	4,4´-DDD	0.30
25-MONTH	3	35-40	Sample	Native Sediment	STN 3 3A+3B 35-40 cm	On Cap	Total DDX	0.51
25-MONTH	3	40-45	Sample	Native Sediment	STN 3 3A+3B 40-45 cm	On Cap	4,4´-DDE	0.05
25-MONTH	3	40-45	Sample	Native Sediment	STN 3 3A+3B 40-45 cm	On Cap	4,4´-DDT	<0.024
25-MONTH	3	40-45	Sample	Native Sediment	STN 3 3A+3B 40-45 cm	On Cap	2,4´-DDD	0.11
25-MONTH	3	40-45	Sample	Native Sediment	STN 3 3A+3B 40-45 cm	On Cap	2,4´-DDE	<0.014
25-MONTH	3	40-45	Sample	Native Sediment	STN 3 3A+3B 40-45 cm	On Cap	2,4´-DDT	<0.013
25-MONTH	3	40-45	Sample	Native Sediment	STN 3 3A+3B 40-45 cm	On Cap	4,4´-DDD	0.35
25-MONTH	3	40-45	Sample	Native Sediment	STN 3 3A+3B 40-45 cm	On Cap	Total DDX	0.51
25-MONTH	3	45-50	Sample	Native Sediment	STN 3 3A+3B 45-50 cm	On Cap	4,4´-DDE	0.05
25-MONTH	3	45-50	Sample	Native Sediment	STN 3 3A+3B 45-50 cm	On Cap	4,4´-DDT	<0.023
25-MONTH	3	45-50	Sample	Native Sediment	STN 3 3A+3B 45-50 cm	On Cap	2,4´-DDD	0.14
25-MONTH	3	45-50	Sample	Native Sediment	STN 3 3A+3B 45-50 cm	On Cap	2,4´-DDE	<0.013
25-MONTH	3	45-50	Sample	Native Sediment	STN 3 3A+3B 45-50 cm	On Cap	2,4´-DDT	<0.012
25-MONTH	3	45-50	Sample	Native Sediment	STN 3 3A+3B 45-50 cm	On Cap	4,4´-DDD	0.37

Table 1. Compilation of *in situ* Porewater DDX Results for all Monitoring Events
SSC Pacific
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Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
25-MONTH	3	45-50	Sample	Native Sediment	STN 3 3A+3B 45-50 cm	On Cap	Total DDX	0.55
25-MONTH	3	50-55	Sample	Native Sediment	STN 3 3A+3B 50-55 cm	On Cap	4,4´-DDE	0.05
25-MONTH	3	50-55	Sample	Native Sediment	STN 3 3A+3B 50-55 cm	On Cap	4,4´-DDT	<0.022
25-MONTH	3	50-55	Sample	Native Sediment	STN 3 3A+3B 50-55 cm	On Cap	2,4´-DDD	0.11
25-MONTH	3	50-55	Sample	Native Sediment	STN 3 3A+3B 50-55 cm	On Cap	2,4´-DDE	<0.013
25-MONTH	3	50-55	Sample	Native Sediment	STN 3 3A+3B 50-55 cm	On Cap	2,4´-DDT	<0.011
25-MONTH	3	50-55	Sample	Native Sediment	STN 3 3A+3B 50-55 cm	On Cap	4,4´-DDD	0.27
25-MONTH	3	50-55	Sample	Native Sediment	STN 3 3A+3B 50-55 cm	On Cap	Total DDX	0.42
25-MONTH	3	5-10	Sample	Cap Material	STN 3 3A+3B 5-10 cm	On Cap	4,4´-DDE	0.06
25-MONTH	3	5-10	Sample	Cap Material	STN 3 3A+3B 5-10 cm	On Cap	4,4´-DDT	<0.023
25-MONTH	3	5-10	Sample	Cap Material	STN 3 3A+3B 5-10 cm	On Cap	2,4´-DDD	0.14
25-MONTH	3	5-10	Sample	Cap Material	STN 3 3A+3B 5-10 cm	On Cap	2,4´-DDE	<0.014
25-MONTH	3	5-10	Sample	Cap Material	STN 3 3A+3B 5-10 cm	On Cap	2,4´-DDT	<0.012
25-MONTH	3	5-10	Sample	Cap Material	STN 3 3A+3B 5-10 cm	On Cap	4,4´-DDD	0.27
25-MONTH	3	5-10	Sample	Cap Material	STN 3 3A+3B 5-10 cm	On Cap	Total DDX	0.47
25-MONTH	3	0-5	Sample	Cap Material	STN 3 3B 0-5 cm	On Cap	4,4´-DDE	0.12
25-MONTH	3	0-5	Sample	Cap Material	STN 3 3B 0-5 cm	On Cap	4,4´-DDT	<0.021
25-MONTH	3	0-5	Sample	Cap Material	STN 3 3B 0-5 cm	On Cap	2,4´-DDD	0.25
25-MONTH	3	0-5	Sample	Cap Material	STN 3 3B 0-5 cm	On Cap	2,4´-DDE	<0.012
25-MONTH	3	0-5	Sample	Cap Material	STN 3 3B 0-5 cm	On Cap	2,4´-DDT	<0.011
25-MONTH	3	0-5	Sample	Cap Material	STN 3 3B 0-5 cm	On Cap	4,4´-DDD	0.22
25-MONTH	3	0-5	Sample	Cap Material	STN 3 3B 0-5 cm	On Cap	Total DDX	0.30
25-MONTH	4	0-5	Sample	Cap Material	STN 4 4A+4B 0-5 cm	On Cap	4,4´-DDE	<0.017
25-MONTH	4	0-5	Sample	Cap Material	STN 4 4A+4B 0-5 cm	On Cap	4,4´-DDT	<0.029
25-MONTH	4	0-5	Sample	Cap Material	STN 4 4A+4B 0-5 cm	On Cap	2,4´-DDD	<0.1
25-MONTH	4	0-5	Sample	Cap Material	STN 4 4A+4B 0-5 cm	On Cap	2,4´-DDE	<0.017
25-MONTH	4	0-5	Sample	Cap Material	STN 4 4A+4B 0-5 cm	On Cap	2,4´-DDT	<0.016
25-MONTH	4	0-5	Sample	Cap Material	STN 4 4A+4B 0-5 cm	On Cap	4,4´-DDD	<0.111
25-MONTH	4	0-5	Sample	Cap Material	STN 4 4A+4B 0-5 cm	On Cap	Total DDX	<0.111
25-MONTH	4	20-25	Sample	Native Sediment	STN 4 4A+4B 20-25 cm	On Cap	4,4´-DDE	0.02
25-MONTH	4	20-25	Sample	Native Sediment	STN 4 4A+4B 20-25 cm	On Cap	4,4´-DDT	<0.028
25-MONTH	4	20-25	Sample	Native Sediment	STN 4 4A+4B 20-25 cm	On Cap	2,4´-DDD	<0.097
25-MONTH	4	20-25	Sample	Native Sediment	STN 4 4A+4B 20-25 cm	On Cap	2,4´-DDE	<0.017
25-MONTH	4	20-25	Sample	Native Sediment	STN 4 4A+4B 20-25 cm	On Cap	2,4´-DDT	<0.015
25-MONTH	4	20-25	Sample	Native Sediment	STN 4 4A+4B 20-25 cm	On Cap	4,4´-DDD	<0.108
25-MONTH	4	20-25	Sample	Transition Depth	STN 4 4A+4B 20-25 cm	On Cap	Total DDX	0.02
25-MONTH	4	25-30	Sample	Native Sediment	STN 4 4A+4B 25-30 cm	On Cap	4,4´-DDE	0.02
25-MONTH	4	25-30	Sample	Native Sediment	STN 4 4A+4B 25-30 cm	On Cap	4,4´-DDT	<0.026
25-MONTH	4	25-30	Sample	Native Sediment	STN 4 4A+4B 25-30 cm	On Cap	2,4´-DDD	<0.091

Table 1. Compilation of *in situ* Porewater DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
25-MONTH	4	25-30	Sample	Native Sediment	STN 4 4A+4B 25-30 cm	On Cap	2,4´-DDE	<0.015
25-MONTH	4	25-30	Sample	Native Sediment	STN 4 4A+4B 25-30 cm	On Cap	2,4´-DDT	<0.014
25-MONTH	4	25-30	Sample	Native Sediment	STN 4 4A+4B 25-30 cm	On Cap	4,4´-DDD	<0.101
25-MONTH	4	25-30	Sample	Native Sediment	STN 4 4A+4B 25-30 cm	On Cap	Total DDX	0.02
25-MONTH	4	30-35	Sample	Native Sediment	STN 4 4A+4B 30-35 cm	On Cap	4,4´-DDE	0.02
25-MONTH	4	30-35	Sample	Native Sediment	STN 4 4A+4B 30-35 cm	On Cap	4,4´-DDT	<0.024
25-MONTH	4	30-35	Sample	Native Sediment	STN 4 4A+4B 30-35 cm	On Cap	2,4´-DDD	<0.084
25-MONTH	4	30-35	Sample	Native Sediment	STN 4 4A+4B 30-35 cm	On Cap	2,4´-DDE	<0.014
25-MONTH	4	30-35	Sample	Native Sediment	STN 4 4A+4B 30-35 cm	On Cap	2,4´-DDT	<0.013
25-MONTH	4	30-35	Sample	Native Sediment	STN 4 4A+4B 30-35 cm	On Cap	4,4´-DDD	<0.094
25-MONTH	4	30-35	Sample	Native Sediment	STN 4 4A+4B 30-35 cm	On Cap	Total DDX	0.02
25-MONTH	4	5-10	Sample	Cap Material	STN 4 4A+4B 5-10 cm	On Cap	4,4´-DDE	<0.022
25-MONTH	4	5-10	Sample	Cap Material	STN 4 4A+4B 5-10 cm	On Cap	4,4´-DDT	<0.036
25-MONTH	4	5-10	Sample	Cap Material	STN 4 4A+4B 5-10 cm	On Cap	2,4´-DDD	<0.112
25-MONTH	4	5-10	Sample	Cap Material	STN 4 4A+4B 5-10 cm	On Cap	2,4´-DDE	<0.023
25-MONTH	4	5-10	Sample	Cap Material	STN 4 4A+4B 5-10 cm	On Cap	2,4´-DDT	<0.021
25-MONTH	4	5-10	Sample	Cap Material	STN 4 4A+4B 5-10 cm	On Cap	4,4´-DDD	<0.124
25-MONTH	4	5-10	Sample	Cap Material	STN 4 4A+4B 5-10 cm	On Cap	Total DDX	<0.124
25-MONTH	5	19-24	Sample	Cap Material	STN 5 5A+5B 19-24 cm	On Cap	4,4´-DDE	0.02
25-MONTH	5	19-24	Sample	Cap Material	STN 5 5A+5B 19-24 cm	On Cap	4,4´-DDT	<0.031
25-MONTH	5	19-24	Sample	Cap Material	STN 5 5A+5B 19-24 cm	On Cap	2,4´-DDD	<0.101
25-MONTH	5	19-24	Sample	Cap Material	STN 5 5A+5B 19-24 cm	On Cap	2,4´-DDE	<0.019
25-MONTH	5	19-24	Sample	Cap Material	STN 5 5A+5B 19-24 cm	On Cap	2,4´-DDT	<0.018
25-MONTH	5	19-24	Sample	Cap Material	STN 5 5A+5B 19-24 cm	On Cap	4,4´-DDD	<0.111
25-MONTH	5	19-24	Sample	Cap Material	STN 5 5A+5B 19-24 cm	On Cap	Total DDX	0.02
25-MONTH	5	29-34	Sample	Cap Material	STN 5 5A+5B 29-34 cm	On Cap	4,4´-DDE	0.02
25-MONTH	5	29-34	Sample	Cap Material	STN 5 5A+5B 29-34 cm	On Cap	4,4´-DDT	<0.027
25-MONTH	5	29-34	Sample	Cap Material	STN 5 5A+5B 29-34 cm	On Cap	2,4´-DDD	<0.093
25-MONTH	5	29-34	Sample	Cap Material	STN 5 5A+5B 29-34 cm	On Cap	2,4´-DDE	0.02
25-MONTH	5	29-34	Sample	Cap Material	STN 5 5A+5B 29-34 cm	On Cap	2,4´-DDT	<0.014
25-MONTH	5	29-34	Sample	Cap Material	STN 5 5A+5B 29-34 cm	On Cap	4,4´-DDD	<0.104
25-MONTH	5	29-34	Sample	Cap Material	STN 5 5A+5B 29-34 cm	On Cap	Total DDX	0.03
25-MONTH	5	34-39	Sample	Cap Material	STN 5 5A+5B 34-39 cm	On Cap	4,4´-DDE	0.02
25-MONTH	5	34-39	Sample	Cap Material	STN 5 5A+5B 34-39 cm	On Cap	4,4´-DDT	<0.028
25-MONTH	5	34-39	Sample	Cap Material	STN 5 5A+5B 34-39 cm	On Cap	2,4´-DDD	<0.096
25-MONTH	5	34-39	Sample	Cap Material	STN 5 5A+5B 34-39 cm	On Cap	2,4´-DDE	<0.017
25-MONTH	5	34-39	Sample	Cap Material	STN 5 5A+5B 34-39 cm	On Cap	2,4´-DDT	<0.016
25-MONTH	5	34-39	Sample	Cap Material	STN 5 5A+5B 34-39 cm	On Cap	4,4´-DDD	<0.106
25-MONTH	5	34-39	Sample	Cap Material	STN 5 5A+5B 34-39 cm	On Cap	Total DDX	0.02

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SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
25-MONTH	5	39-44	Sample	Cap Material	STN 5 5A+5B 39-44 cm	On Cap	4,4´-DDE	0.03
25-MONTH	5	39-44	Sample	Cap Material	STN 5 5A+5B 39-44 cm	On Cap	4,4´-DDT	<0.027
25-MONTH	5	39-44	Sample	Cap Material	STN 5 5A+5B 39-44 cm	On Cap	2,4´-DDD	<0.092
25-MONTH	5	39-44	Sample	Cap Material	STN 5 5A+5B 39-44 cm	On Cap	2,4´-DDE	<0.016
25-MONTH	5	39-44	Sample	Cap Material	STN 5 5A+5B 39-44 cm	On Cap	2,4´-DDT	<0.015
25-MONTH	5	39-44	Sample	Cap Material	STN 5 5A+5B 39-44 cm	On Cap	4,4´-DDD	<0.102
25-MONTH	5	39-44	Sample	Cap Material	STN 5 5A+5B 39-44 cm	On Cap	Total DDX	0.03
25-MONTH	5	44-49	Sample	Native Sediment	STN 5 5A+5B 44-49 cm	On Cap	4,4´-DDE	0.03
25-MONTH	5	44-49	Sample	Native Sediment	STN 5 5A+5B 44-49 cm	On Cap	4,4´-DDT	<0.028
25-MONTH	5	44-49	Sample	Native Sediment	STN 5 5A+5B 44-49 cm	On Cap	2,4´-DDD	<0.096
25-MONTH	5	44-49	Sample	Native Sediment	STN 5 5A+5B 44-49 cm	On Cap	2,4´-DDE	<0.017
25-MONTH	5	44-49	Sample	Native Sediment	STN 5 5A+5B 44-49 cm	On Cap	2,4´-DDT	<0.015
25-MONTH	5	44-49	Sample	Native Sediment	STN 5 5A+5B 44-49 cm	On Cap	4,4´-DDD	0.14
25-MONTH	5	44-49	Sample	Transition Depth	STN 5 5A+5B 44-49 cm	On Cap	Total DDX	0.17
25-MONTH	5	4-9	Sample	Cap Material	STN 5 5A+5B 4-9 cm	On Cap	4,4´-DDE	<0.014
25-MONTH	5	4-9	Sample	Cap Material	STN 5 5A+5B 4-9 cm	On Cap	4,4´-DDT	<0.024
25-MONTH	5	4-9	Sample	Cap Material	STN 5 5A+5B 4-9 cm	On Cap	2,4´-DDD	<0.085
25-MONTH	5	4-9	Sample	Cap Material	STN 5 5A+5B 4-9 cm	On Cap	2,4´-DDE	<0.014
25-MONTH	5	4-9	Sample	Cap Material	STN 5 5A+5B 4-9 cm	On Cap	2,4´-DDT	<0.013
25-MONTH	5	4-9	Sample	Cap Material	STN 5 5A+5B 4-9 cm	On Cap	4,4´-DDD	<0.095
25-MONTH	5	4-9	Sample	Cap Material	STN 5 5A+5B 4-9 cm	On Cap	Total DDX	<0.095
25-MONTH	5	1-4	Sample	Cap Material	STN 5 5B 1-4 cm	On Cap	4,4´-DDE	<0.013
25-MONTH	5	1-4	Sample	Cap Material	STN 5 5B 1-4 cm	On Cap	4,4´-DDT	<0.023
25-MONTH	5	1-4	Sample	Cap Material	STN 5 5B 1-4 cm	On Cap	2,4´-DDD	<0.085
25-MONTH	5	1-4	Sample	Cap Material	STN 5 5B 1-4 cm	On Cap	2,4´-DDE	<0.013
25-MONTH	5	1-4	Sample	Cap Material	STN 5 5B 1-4 cm	On Cap	2,4´-DDT	<0.012
25-MONTH	5	1-4	Sample	Cap Material	STN 5 5B 1-4 cm	On Cap	4,4´-DDD	<0.096
25-MONTH	5	1-4	Sample	Cap Material	STN 5 5B 1-4 cm	On Cap	Total DDX	<0.319
25-MONTH	6	0-5	Sample	Native Sediment-Off Cap	STN 6 6A+6B 0-5 cm	Off Cap	4,4´-DDE	0.02
25-MONTH	6	0-5	Sample	Native Sediment-Off Cap	STN 6 6A+6B 0-5 cm	Off Cap	4,4´-DDT	<0.022
25-MONTH	6	0-5	Sample	Native Sediment-Off Cap	STN 6 6A+6B 0-5 cm	Off Cap	2,4´-DDD	<0.079
25-MONTH	6	0-5	Sample	Native Sediment-Off Cap	STN 6 6A+6B 0-5 cm	Off Cap	2,4´-DDE	<0.013
25-MONTH	6	0-5	Sample	Native Sediment-Off Cap	STN 6 6A+6B 0-5 cm	Off Cap	2,4´-DDT	<0.012
25-MONTH	6	0-5	Sample	Native Sediment-Off Cap	STN 6 6A+6B 0-5 cm	Off Cap	4,4´-DDD	<0.089
25-MONTH	6	0-5	Sample	Native Sediment-Off Cap	STN 6 6A+6B 0-5 cm	Off Cap	Total DDX	0.02
25-MONTH	6	5-10	Sample	Native Sediment-Off Cap	STN 6 6A+6B 5-10 cm	Off Cap	4,4´-DDE	0.02
25-MONTH	6	5-10	Sample	Native Sediment-Off Cap	STN 6 6A+6B 5-10 cm	Off Cap	4,4´-DDT	<0.022
25-MONTH	6	5-10	Sample	Native Sediment-Off Cap	STN 6 6A+6B 5-10 cm	Off Cap	2,4´-DDD	<0.08
25-MONTH	6	5-10	Sample	Native Sediment-Off Cap	STN 6 6A+6B 5-10 cm	Off Cap	2,4´-DDE	<0.013

Table 1. Compilation of *in situ* Porewater DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Sample Interval (cm)	Sample Type	Sample Interface[2]	Sample ID[3]	Within Cap Footprint?	Analyte[4]	Result (ng/L; ND=<DL)
25-MONTH	6	5-10	Sample	Native Sediment-Off Cap	STN 6 6A+6B 5-10 cm	Off Cap	2,4´-DDT	<0.012
25-MONTH	6	5-10	Sample	Native Sediment-Off Cap	STN 6 6A+6B 5-10 cm	Off Cap	4,4´-DDD	<0.089
25-MONTH	6	5-10	Sample	Native Sediment-Off Cap	STN 6 6A+6B 5-10 cm	Off Cap	Total DDX	0.02
25-MONTH	7	4-9	Sample	Native Sediment-Off Cap	STN 7 7A+7B 4-9 cm	Off Cap	4,4´-DDE	<0.012
25-MONTH	7	4-9	Sample	Native Sediment-Off Cap	STN 7 7A+7B 4-9 cm	Off Cap	4,4´-DDT	<0.021
25-MONTH	7	4-9	Sample	Native Sediment-Off Cap	STN 7 7A+7B 4-9 cm	Off Cap	2,4´-DDD	<0.077
25-MONTH	7	4-9	Sample	Native Sediment-Off Cap	STN 7 7A+7B 4-9 cm	Off Cap	2,4´-DDE	<0.012
25-MONTH	7	4-9	Sample	Native Sediment-Off Cap	STN 7 7A+7B 4-9 cm	Off Cap	2,4´-DDT	<0.011
25-MONTH	7	4-9	Sample	Native Sediment-Off Cap	STN 7 7A+7B 4-9 cm	Off Cap	4,4´-DDD	<0.086
25-MONTH	7	4-9	Sample	Native Sediment-Off Cap	STN 7 7A+7B 4-9 cm	Off Cap	Total DDX	<0.086
25-MONTH	7	9-14	Sample	Native Sediment-Off Cap	STN 7 7A+7B 9-14 cm	Off Cap	4,4´-DDE	<0.013
25-MONTH	7	9-14	Sample	Native Sediment-Off Cap	STN 7 7A+7B 9-14 cm	Off Cap	4,4´-DDT	<0.022
25-MONTH	7	9-14	Sample	Native Sediment-Off Cap	STN 7 7A+7B 9-14 cm	Off Cap	2,4´-DDD	<0.08
25-MONTH	7	9-14	Sample	Native Sediment-Off Cap	STN 7 7A+7B 9-14 cm	Off Cap	2,4´-DDE	<0.013
25-MONTH	7	9-14	Sample	Native Sediment-Off Cap	STN 7 7A+7B 9-14 cm	Off Cap	2,4´-DDT	<0.012
25-MONTH	7	9-14	Sample	Native Sediment-Off Cap	STN 7 7A+7B 9-14 cm	Off Cap	4,4´-DDD	<0.089
25-MONTH	7	9-14	Sample	Native Sediment-Off Cap	STN 7 7A+7B 9-14 cm	Off Cap	Total DDX	<0.089

Notes:

1. Sample collections dates: Baseline 3 (October, 2012), 2-Month (September, 2014), 14-Month (September, 2015) and 25-Month (August, 2016)
2. Sample interface determined by comparing sample interval (cm) to depth to cap-native sediment interface. Sample intervals containing the depth to cap-native sediment interface were labeled as transition depths.
3. Sample ID's with -Avg suffix represented an average of primary and duplicate samples.
4. Total DDX represents the sum of detected congeners.

cm: centimeter(s)
DL: detection limit
ND: not detected
ng/L: nanogram(s)/liter

Table 2: Field, Laboratory Data and Calculations for *in-situ* SPME Study during Baseline 3 Event
SSC Pacific
Quantico, Virginia

Sample ID	Sample Interval (cm)	Station ID	Within Cap Footprint?	Sample Type[1]	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QU-101012-1-1B	4-6	1	In Cap	Primary	4,4´-DDE	ND	0.03	2	1.19E-06	526667	0.64	<25122.16	<0.07
QU-101012-1-1B	4-6	1	In Cap	Primary	4,4´-DDT	ND	0.03	2	1.19E-06	288937	0.64	<25122.16	<0.14
QU-101012-1-1B	4-6	1	In Cap	Primary	4,4´-DDD	0.05	0.03	2	1.19E-06	67258	0.63	41870.27455	0.98
QU-101012-PRC-1-1B	4-6	1	In Cap	Duplicate	4,4´-DDE	ND	0.03	2	1.19E-06	526667	0.64	<25122.16	<0.07
QU-101012-PRC-1-1B	4-6	1	In Cap	Duplicate	4,4´-DDT	ND	0.03	2	1.19E-06	288937	0.64	<25122.16	<0.14
QU-101012-PRC-1-1B	4-6	1	In Cap	Duplicate	4,4´-DDD	0.05	0.03	2	1.19E-06	67258	0.63	41870.27455	0.98
QU-101012-2-1B	4-6	2	In Cap	Primary	4,4´-DDE	ND	0.03	2	1.19E-06	526667	0.58	<25122.16	<0.08
QU-101012-2-1B	4-6	2	In Cap	Primary	4,4´-DDT	ND	0.03	2	1.19E-06	288937	0.58	<25122.16	<0.15
QU-101012-2-1B	4-6	2	In Cap	Primary	4,4´-DDD	ND	0.03	2	1.19E-06	67258	0.60	<25122.16	<0.63
QU-101012-PRC-2-1B	4-6	2	In Cap	Duplicate	4,4´-DDE	ND	0.03	2	1.19E-06	526667	0.58	<25122.16	<0.08
QU-101012-PRC-2-1B	4-6	2	In Cap	Duplicate	4,4´-DDT	ND	0.03	2	1.19E-06	288937	0.58	<25122.16	<0.15
QU-101012-PRC-2-1B	4-6	2	In Cap	Duplicate	4,4´-DDD	0.04	0.03	2	1.19E-06	67258	0.60	33496.21964	0.84
QU-101012-3-1B	4-6	3	In Cap	Primary	4,4´-DDE	ND	0.03	2	1.19E-06	526667	0.61	<25122.16	<0.08
QU-101012-3-1B	4-6	3	In Cap	Primary	4,4´-DDT	ND	0.03	2	1.19E-06	288937	0.61	<25122.16	<0.14
QU-101012-3-1B	4-6	3	In Cap	Primary	4,4´-DDD	0.06	0.03	2	1.19E-06	67258	0.60	50244.32947	1.24
QU-101012-PRC-3-1B	4-6	3	In Cap	Duplicate	4,4´-DDE	ND	0.03	2	1.19E-06	526667	0.61	<25122.16	<0.08
QU-101012-PRC-3-1B	4-6	3	In Cap	Duplicate	4,4´-DDT	ND	0.03	2	1.19E-06	288937	0.61	<25122.16	<0.14
QU-101012-PRC-3-1B	4-6	3	In Cap	Duplicate	4,4´-DDD	ND	0.03	2	1.19E-06	67258	0.60	<25122.16	<0.62
QU-101012-4-1B	4-6	4	In Cap	Primary	4,4´-DDE	0.04	0.03	2	1.19E-06	526667	1.00	33496.21964	0.06
QU-101012-4-1B	4-6	4	In Cap	Primary	4,4´-DDT	ND	0.03	2	1.19E-06	288937	0.77	<25122.16	<0.11
QU-101012-4-1B	4-6	4	In Cap	Primary	4,4´-DDD	0.04	0.03	2	1.19E-06	67258	0.75	33496.21964	0.66
QU-101012-PRC-4-1B	4-6	4	In Cap	Duplicate	4,4´-DDE	0.05	0.03	2	1.19E-06	526667	1.00	41870.27455	0.08
QU-101012-PRC-4-1B	4-6	4	In Cap	Duplicate	4,4´-DDT	ND	0.03	2	1.19E-06	288937	0.77	<25122.16	<0.11
QU-101012-PRC-4-1B	4-6	4	In Cap	Duplicate	4,4´-DDD	ND	0.03	2	1.19E-06	67258	0.75	<25122.16	<0.5
QU-101012-5-1B	4-6	5	In Cap	Primary	4,4´-DDE	ND	0.03	2	1.19E-06	526667	0.80	<25122.16	<0.06
QU-101012-5-1B	4-6	5	In Cap	Primary	4,4´-DDT	ND	0.03	2	1.19E-06	288937	0.67	<25122.16	<0.13
QU-101012-5-1B	4-6	5	In Cap	Primary	4,4´-DDD	0.04	0.03	2	1.19E-06	67258	0.73	33496.21964	0.68
QU-101012-PRC-5-1B	4-6	5	In Cap	Duplicate	4,4´-DDE	ND	0.03	2	1.19E-06	526667	0.80	<25122.16	<0.06
QU-101012-PRC-5-1B	4-6	5	In Cap	Duplicate	4,4´-DDT	ND	0.03	2	1.19E-06	288937	0.67	<25122.16	<0.13
QU-101012-PRC-5-1B	4-6	5	In Cap	Duplicate	4,4´-DDD	ND	0.03	2	1.19E-06	67258	0.73	<25122.16	<0.51
QU-101012-6-1B	4-6	6	Off Cap	Primary	4,4´-DDE	ND	0.03	2	1.19E-06	526667	0.34	<25122.16	<0.14
QU-101012-6-1B	4-6	6	Off Cap	Primary	4,4´-DDT	ND	0.03	2	1.19E-06	288937	0.42	<25122.16	<0.2
QU-101012-6-1B	4-6	6	Off Cap	Primary	4,4´-DDD	ND	0.03	2	1.19E-06	67258	0.62	<25122.16	<0.6
QU-101012-PRC-6-1B	4-6	6	Off Cap	Duplicate	4,4´-DDE	ND	0.03	2	1.19E-06	526667	0.34	<25122.16	<0.14
QU-101012-PRC-6-1B	4-6	6	Off Cap	Duplicate	4,4´-DDT	ND	0.03	2	1.19E-06	288937	0.42	<25122.16	<0.2
QU-101012-PRC-6-1B	4-6	6	Off Cap	Duplicate	4,4´-DDD	ND	0.03	2	1.19E-06	67258	0.62	<25122.16	<0.6

Footnotes:

1. Average of primary and duplicate samples are presented in Table 1. Compilation of in situ Porewater DDX Results for all Monitoring Events.
2. 0.597 µL polydimethylsiloxane (PDMS) per cm of this type of SPME fiber.
3. Fiber:Water Partition Coefficient calculated as Log Kfs = LogKow - 0.91 (Mayer et al. 2000). Log Kow referenced from ATDSR (2002).
4. Fraction to steady state (fss) calculated based on performance reference compound (PRC) mass transfer kinetics.
5. Concentration of exposure solution = (Concentration in fiber ÷ fss) ÷ Kfs. If not detected, reported as < detection limit.

Abbreviations:

cm: centimeter(s)
L: Liter(s)
ND: Not detected
ng: nanogram(s)
PDMS: Polydimethylsiloxane
SPME: solid phase microextraction

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2-1-SPME1-1	0-5	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.49	<20097.73	<0.541
QT2-1-SPME2-1	0-5	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.48	<20097.73	<0.56
QT2-1-SPME1-1	0-5	1	In Cap	2,4´-DDE	0.13	0.06	5	2.99E-06	5.17E+05	0.47	43545.09	0.18
QT2-1-SPME2-1	0-5	1	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.41	<20097.73	<0.094
QT2-1-SPME1-1	0-5	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.46	<20097.73	<0.076
QT2-1-SPME2-1	0-5	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.41	<20097.73	<0.086
QT2-1-SPME1-1	0-5	1	In Cap	4,4´-DDD	0.16	0.06	5	2.99E-06	6.73E+04	0.49	53593.95	1.62
QT2-1-SPME2-1	0-5	1	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.48	<20097.73	<0.624
QT2-1-SPME1-1	0-5	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.47	<20097.73	<0.147
QT2-1-SPME2-1	0-5	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.43	<20097.73	<0.161
QT2-1-SPME1-1	0-5	1	In Cap	4,4'-DDE [2C]	0.65	0.06	5	2.99E-06	5.27E+05	0.47	217725.43	0.89
QT2-1-SPME2-1	0-5	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.41	<20097.73	<0.093
QT2-1-SPME1-3	10-15	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.49	<20097.73	<0.541
QT2-1-SPME2-3	10-15	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.48	<20097.73	<0.56
QT2-1-SPME1-3	10-15	1	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.47	<20097.73	<0.083
QT2-1-SPME2-3	10-15	1	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.41	<20097.73	<0.094
QT2-1-SPME1-3	10-15	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.46	<20097.73	<0.076
QT2-1-SPME2-3	10-15	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.41	<20097.73	<0.086
QT2-1-SPME1-3	10-15	1	In Cap	4,4´-DDD	0.23	0.06	5	2.99E-06	6.73E+04	0.49	77041.31	2.32
QT2-1-SPME2-3	10-15	1	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.48	<20097.73	<0.624
QT2-1-SPME1-3	10-15	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.47	<20097.73	<0.147
QT2-1-SPME2-3	10-15	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.43	<20097.73	<0.161
QT2-1-SPME1-3	10-15	1	In Cap	4,4'-DDE [2C]	0.63	0.06	5	2.99E-06	5.27E+05	0.47	211026.18	0.86
QT2-1-SPME2-3	10-15	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.41	<20097.73	<0.093
QT2-1-SPME1-4	15-20	1	In Cap	2,4´-DDD	0.07	0.06	5	2.99E-06	7.55E+04	0.51	23447.35	0.60
QT2-1-SPME2-4	15-20	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.45	<20097.73	<0.596
QT2-1-SPME1-4	15-20	1	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.38	<20097.73	<0.102
QT2-1-SPME2-4	15-20	1	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.36	<20097.73	<0.109
QT2-1-SPME1-4	15-20	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.38	<20097.73	<0.094
QT2-1-SPME2-4	15-20	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.35	<20097.73	<0.1
QT2-1-SPME1-4	15-20	1	In Cap	4,4´-DDD	0.15	0.06	5	2.99E-06	6.73E+04	0.52	50244.33	1.43
QT2-1-SPME2-4	15-20	1	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.45	<20097.73	<0.661
QT2-1-SPME1-4	15-20	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.42	<20097.73	<0.165
QT2-1-SPME2-4	15-20	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.38	<20097.73	<0.181
QT2-1-SPME1-4	15-20	1	In Cap	4,4'-DDE [2C]	0.25	0.06	5	2.99E-06	5.27E+05	0.38	83740.55	0.42
QT2-1-SPME2-4	15-20	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.36	<20097.73	<0.107
QT2 1 1-5	20-25	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.51	<20097.73	<0.518
QT2 1 2-5	20-25	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.45	<20097.73	<0.596
QT2 1 1-5	20-25	1	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.38	<20097.73	<0.102
QT2 1 2-5	20-25	1	In Cap	2,4´-DDE	0.07	0.06	5	2.99E-06	5.17E+05	0.36	23447.35	0.13
QT2 1 1-5	20-25	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.38	<20097.73	<0.094

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2 1 2-5	20-25	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.35	<20097.73	<0.1
QT2 1 1-5	20-25	1	In Cap	4,4´-DDD	0.14	0.06	5	2.99E-06	6.73E+04	0.52	46894.71	1.34
QT2 1 2-5	20-25	1	In Cap	4,4´-DDD	0.07	0.06	5	2.99E-06	6.73E+04	0.45	23447.35	0.77
QT2 1 1-5	20-25	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.42	<20097.73	<0.165
QT2 1 2-5	20-25	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.38	<20097.73	<0.181
QT2 1 1-5	20-25	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.38	<20097.73	<0.1
QT2 1 2-5	20-25	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.36	<20097.73	<0.107
QT2-1-SPME1-6	25-30	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.51	<20097.73	<0.518
QT2-1-SPME2-6	25-30	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.45	<20097.73	<0.596
QT2-1-SPME1-6	25-30	1	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.38	<20097.73	<0.102
QT2-1-SPME2-6	25-30	1	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.36	<20097.73	<0.109
QT2-1-SPME1-6	25-30	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.38	<20097.73	<0.094
QT2-1-SPME2-6	25-30	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.35	<20097.73	<0.1
QT2-1-SPME1-6	25-30	1	In Cap	4,4´-DDD	0.14	0.06	5	2.99E-06	6.73E+04	0.52	46894.71	1.34
QT2-1-SPME2-6	25-30	1	In Cap	4,4´-DDD	0.11	0.06	5	2.99E-06	6.73E+04	0.45	36845.84	1.21
QT2-1-SPME1-6	25-30	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.42	<20097.73	<0.165
QT2-1-SPME2-6	25-30	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.38	<20097.73	<0.181
QT2-1-SPME1-6	25-30	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.38	<20097.73	<0.1
QT2-1-SPME2-6	25-30	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.36	<20097.73	<0.107
QT2-1-SPME1-7	30-35	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.51	<20097.73	<0.518
QT2-1-SPME2-7	30-35	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.45	<20097.73	<0.596
QT2-1-SPME1-7	30-35	1	In Cap	2,4´-DDE	0.14	0.06	5	2.99E-06	5.17E+05	0.38	46894.71	0.24
QT2-1-SPME2-7	30-35	1	In Cap	2,4´-DDE	0.15	0.06	5	2.99E-06	5.17E+05	0.36	50244.33	0.27
QT2-1-SPME1-7	30-35	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.38	<20097.73	<0.094
QT2-1-SPME2-7	30-35	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.35	<20097.73	<0.1
QT2-1-SPME1-7	30-35	1	In Cap	4,4´-DDD	0.11	0.06	5	2.99E-06	6.73E+04	0.52	36845.84	1.05
QT2-1-SPME2-7	30-35	1	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.45	<20097.73	<0.661
QT2-1-SPME1-7	30-35	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.42	<20097.73	<0.165
QT2-1-SPME2-7	30-35	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.38	<20097.73	<0.181
QT2-1-SPME1-7	30-35	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.38	<20097.73	<0.1
QT2-1-SPME2-7	30-35	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.36	<20097.73	<0.107
QT2-1-SPME1-8	35-40	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.37	<20097.73	<0.712
QT2-1-SPME2-8	35-40	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.50	<20097.73	<0.535
QT2-1-SPME1-8	35-40	1	In Cap	2,4´-DDE	0.19	0.06	5	2.99E-06	5.17E+05	0.35	63642.82	0.35
QT2-1-SPME2-8	35-40	1	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.45	<20097.73	<0.087
QT2-1-SPME1-8	35-40	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.35	<20097.73	<0.101
QT2-1-SPME2-8	35-40	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.45	<20097.73	<0.079
QT2-1-SPME1-8	35-40	1	In Cap	4,4´-DDD	0.15	0.06	5	2.99E-06	6.73E+04	0.38	50244.33	1.99
QT2-1-SPME2-8	35-40	1	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.50	<20097.73	<0.597
QT2-1-SPME1-8	35-40	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.36	<20097.73	<0.195
QT2-1-SPME2-8	35-40	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.46	<20097.73	<0.15

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2-1-SPME1-8	35-40	1	In Cap	4,4'-DDE [2C]	0.32	0.06	5	2.99E-06	5.27E+05	0.35	107187.90	0.58
QT2-1-SPME2-8	35-40	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.45	<20097.73	<0.085
QT2-1-SPME1-9	40-45	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.37	<20097.73	<0.712
QT2-1-SPME2-9	40-45	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.50	<20097.73	<0.535
QT2-1-SPME1-9	40-45	1	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.35	<20097.73	<0.111
QT2-1-SPME2-9	40-45	1	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.45	<20097.73	<0.087
QT2-1-SPME1-9	40-45	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.35	<20097.73	<0.101
QT2-1-SPME2-9	40-45	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.45	<20097.73	<0.079
QT2-1-SPME1-9	40-45	1	In Cap	4,4´-DDD	0.07	0.06	5	2.99E-06	6.73E+04	0.38	23447.35	0.93
QT2-1-SPME2-9	40-45	1	In Cap	4,4´-DDD	0.09	0.06	5	2.99E-06	6.73E+04	0.50	30146.60	0.90
QT2-1-SPME1-9	40-45	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.36	<20097.73	<0.195
QT2-1-SPME2-9	40-45	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.46	<20097.73	<0.15
QT2-1-SPME1-9	40-45	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.35	<20097.73	<0.109
QT2-1-SPME2-9	40-45	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.45	<20097.73	<0.085
QT2 1 1-10	45-50	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.37	<20097.73	<0.712
QT2 1 2-10	45-50	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.50	<20097.73	<0.535
QT2 1 1-10	45-50	1	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.35	<20097.73	<0.111
QT2 1 2-10	45-50	1	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.45	<20097.73	<0.087
QT2 1 1-10	45-50	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.35	<20097.73	<0.101
QT2 1 2-10	45-50	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.45	<20097.73	<0.079
QT2 1 1-10	45-50	1	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.38	<20097.7318	<0.796
QT2 1 2-10	45-50	1	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.50	<20097.73	<0.597
QT2 1 1-10	45-50	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.36	<20097.73	<0.195
QT2 1 2-10	45-50	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.46	<20097.73	<0.15
QT2 1 1-10	45-50	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.35	<20097.73	<0.109
QT2 1 2-10	45-50	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.45	<20097.73	<0.085
QT2-1-SPME1-11	50-55	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.37	<20097.73	<0.712
QT2-1-SPME2-11	50-55	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.50	<20097.73	<0.535
QT2-1-SPME1-11	50-55	1	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.35	<20097.73	<0.111
QT2-1-SPME2-11	50-55	1	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.45	<20097.73	<0.087
QT2-1-SPME1-11	50-55	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.35	<20097.73	<0.101
QT2-1-SPME2-11	50-55	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.45	<20097.73	<0.079
QT2-1-SPME1-11	50-55	1	In Cap	4,4´-DDD	0.08	0.06	5	2.99E-06	6.73E+04	0.38	26796.98	1.06
QT2-1-SPME2-11	50-55	1	In Cap	4,4´-DDD	0.09	0.06	5	2.99E-06	6.73E+04	0.50	30146.60	0.90
QT2-1-SPME1-11	50-55	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.36	<20097.73	<0.195
QT2-1-SPME2-11	50-55	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.46	<20097.73	<0.15
QT2-1-SPME1-11	50-55	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.35	<20097.73	<0.109
QT2-1-SPME2-11	50-55	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.45	<20097.73	<0.085
QT2 1 1-2	5-10	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.49	<20097.73	<0.541
QT2 1 2-2	5-10	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.48	<20097.73	<0.56
QT2 1 1-2	5-10	1	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.47	<20097.73	<0.083

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2 1 2-2	5-10	1	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.41	<20097.73	<0.094
QT2 1 1-2	5-10	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.46	<20097.73	<0.076
QT2 1 2-2	5-10	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.41	<20097.73	<0.086
QT2 1 1-2	5-10	1	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.49	<20097.73	<0.606
QT2 1 2-2	5-10	1	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.48	<20097.73	<0.624
QT2 1 1-2	5-10	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.47	<20097.73	<0.147
QT2 1 2-2	5-10	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.43	<20097.73	<0.161
QT2 1 1-2	5-10	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.47	<20097.73	<0.082
QT2 1 2-2	5-10	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.41	<20097.73	<0.093
QT2-1-SPME1-12	55-59.9	1	In Cap	2,4´-DDD	ND	0.06	4.9	2.93E-06	7.55E+04	0.37	<20507.89	<0.726
QT2-1-SPME1-12	55-59.9	1	In Cap	2,4´-DDE	0.15	0.06	4.9	2.93E-06	5.17E+05	0.35	51269.72	0.28
QT2-1-SPME1-12	55-59.9	1	In Cap	2,4´-DDT	ND	0.06	4.9	2.93E-06	5.70E+05	0.35	<20507.89	<0.103
QT2-1-SPME1-12	55-59.9	1	In Cap	4,4´-DDD	ND	0.06	4.9	2.93E-06	6.73E+04	0.38	<20507.89	<0.813
QT2-1-SPME1-12	55-59.9	1	In Cap	4,4´-DDT	ND	0.06	4.9	2.93E-06	2.89E+05	0.36	<20507.89	<0.199
QT2-1-SPME1-12	55-59.9	1	In Cap	4,4'-DDE [2C]	ND	0.06	4.9	2.93E-06	5.27E+05	0.35	<20507.89	<0.111
QT2-1-SPME2-12	55-60	1	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.50	<20097.73	<0.535
QT2-1-SPME2-12	55-60	1	In Cap	2,4´-DDE	0.11	0.06	5	2.99E-06	5.17E+05	0.45	36845.84	0.16
QT2-1-SPME2-12	55-60	1	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.45	<20097.73	<0.079
QT2-1-SPME2-12	55-60	1	In Cap	4,4´-DDD	0.09	0.06	5	2.99E-06	6.73E+04	0.50	30146.60	0.90
QT2-1-SPME2-12	55-60	1	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.46	<20097.73	<0.15
QT2-1-SPME2-12	55-60	1	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.45	<20097.73	<0.085
QT2-2-SPME1-1	0-5	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.45	<20097.73	<0.596
QT2-2-SPME2-1	0-5	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.40	<20097.73	<0.662
QT2-2-SPME1-1	0-5	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.37	<20097.73	<0.104
QT2-2-SPME2-1	0-5	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.31	<20097.73	<0.124
QT2-2-SPME1-1	0-5	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.37	<20097.73	<0.096
QT2-2-SPME2-1	0-5	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.31	<20097.73	<0.114
QT2-2-SPME1-1	0-5	2	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.45	<20097.73	<0.662
QT2-2-SPME2-1	0-5	2	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.41	<20097.73	<0.733
QT2-2-SPME1-1	0-5	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.39	<20097.73	<0.176
QT2-2-SPME2-1	0-5	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.34	<20097.73	<0.205
QT2-2-SPME1-1	0-5	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.37	<20097.73	<0.103
QT2-2-SPME2-1	0-5	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.31	<20097.73	<0.122
QT2-2-SPME1-3	10-15	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.45	<20097.73	<0.596
QT2-2-SPME2-3	10-15	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.40	<20097.73	<0.662
QT2-2-SPME1-3	10-15	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.37	<20097.73	<0.104
QT2-2-SPME2-3	10-15	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.31	<20097.73	<0.124
QT2-2-SPME1-3	10-15	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.37	<20097.73	<0.096
QT2-2-SPME2-3	10-15	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.31	<20097.73	<0.114
QT2-2-SPME1-3	10-15	2	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.45	<20097.73	<0.662
QT2-2-SPME2-3	10-15	2	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.41	<20097.73	<0.733

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2-2-SPME1-3	10-15	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.39	<20097.73	<0.176
QT2-2-SPME2-3	10-15	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.34	<20097.73	<0.205
QT2-2-SPME1-3	10-15	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.37	<20097.73	<0.103
QT2-2-SPME2-3	10-15	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.31	<20097.73	<0.122
QT2-2-SPME1-4	15-20	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.40	<20097.73	<0.67
QT2-2-SPME2-4	15-20	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.45	<20097.73	<0.592
QT2-2-SPME1-4	15-20	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.30	<20097.73	<0.131
QT2-2-SPME2-4	15-20	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.35	<20097.73	<0.113
QT2-2-SPME1-4	15-20	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.29	<20097.73	<0.121
QT2-2-SPME2-4	15-20	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.34	<20097.73	<0.104
QT2-2-SPME1-4	15-20	2	In Cap	4,4´-DDD	0.13	0.06	5	2.99E-06	6.73E+04	0.40	43545.09	1.60
QT2-2-SPME2-4	15-20	2	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.46	<20097.73	<0.655
QT2-2-SPME1-4	15-20	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.33	<20097.73	<0.214
QT2-2-SPME2-4	15-20	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.38	<20097.73	<0.185
QT2-2-SPME1-4	15-20	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.30	<20097.73	<0.129
QT2-2-SPME2-4	15-20	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.34	<20097.73	<0.111
QT2 2 1-5	20-25	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.40	<20097.73	<0.67
QT2 2 2-5	20-25	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.45	<20097.73	<0.592
QT2 2 1-5	20-25	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.30	<20097.73	<0.131
QT2 2 2-5	20-25	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.35	<20097.73	<0.113
QT2 2 1-5	20-25	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.29	<20097.73	<0.121
QT2 2 2-5	20-25	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.34	<20097.73	<0.104
QT2 2 1-5	20-25	2	In Cap	4,4´-DDD	0.18	0.06	5	2.99E-06	6.73E+04	0.40	60293.20	2.22
QT2 2 2-5	20-25	2	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.46	<20097.73	<0.655
QT2 2 1-5	20-25	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.33	<20097.73	<0.214
QT2 2 2-5	20-25	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.38	<20097.73	<0.185
QT2 2 1-5	20-25	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.30	<20097.73	<0.129
QT2 2 2-5	20-25	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.34	<20097.73	<0.111
QT2-2-SPME1-6	25-30	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.40	<20097.73	<0.67
QT2-2-SPME2-6	25-30	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.45	<20097.73	<0.592
QT2-2-SPME1-6	25-30	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.30	<20097.73	<0.131
QT2-2-SPME2-6	25-30	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.35	<20097.73	<0.113
QT2-2-SPME1-6	25-30	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.29	<20097.73	<0.121
QT2-2-SPME2-6	25-30	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.34	<20097.73	<0.104
QT2-2-SPME1-6	25-30	2	In Cap	4,4´-DDD	0.25	0.06	5	2.99E-06	6.73E+04	0.40	83740.55	3.08
QT2-2-SPME2-6	25-30	2	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.46	<20097.73	<0.655
QT2-2-SPME1-6	25-30	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.33	<20097.73	<0.214
QT2-2-SPME2-6	25-30	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.38	<20097.73	<0.185
QT2-2-SPME1-6	25-30	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.30	<20097.73	<0.129
QT2-2-SPME2-6	25-30	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.34	<20097.73	<0.111
QT2-2-SPME1-7	30-35	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.40	<20097.73	<0.67

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2-2-SPME2-7	30-35	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.45	<20097.73	<0.592
QT2-2-SPME1-7	30-35	2	In Cap	2,4´-DDE	0.14	0.06	5	2.99E-06	5.17E+05	0.30	46894.71	0.31
QT2-2-SPME2-7	30-35	2	In Cap	2,4´-DDE	0.14	0.06	5	2.99E-06	5.17E+05	0.35	46894.71	0.26
QT2-2-SPME1-7	30-35	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.29	<20097.73	<0.121
QT2-2-SPME2-7	30-35	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.34	<20097.73	<0.104
QT2-2-SPME1-7	30-35	2	In Cap	4,4´-DDD	0.16	0.06	5	2.99E-06	6.73E+04	0.40	53593.95	1.97
QT2-2-SPME2-7	30-35	2	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.46	<20097.73	<0.655
QT2-2-SPME1-7	30-35	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.33	<20097.73	<0.214
QT2-2-SPME2-7	30-35	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.38	<20097.73	<0.185
QT2-2-SPME1-7	30-35	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.30	<20097.73	<0.129
QT2-2-SPME2-7	30-35	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.34	<20097.73	<0.111
QT2-2-SPME1-8	35-40	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.35	<20097.73	<0.759
QT2-2-SPME2-8	35-40	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.35	<20097.73	<0.756
QT2-2-SPME1-8	35-40	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.26	<20097.73	<0.15
QT2-2-SPME2-8	35-40	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.30	<20097.73	<0.132
QT2-2-SPME1-8	35-40	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.26	<20097.73	<0.138
QT2-2-SPME2-8	35-40	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.29	<20097.73	<0.121
QT2-2-SPME1-8	35-40	2	In Cap	4,4´-DDD	0.07	0.06	5	2.99E-06	6.73E+04	0.36	23447.35	0.98
QT2-2-SPME2-8	35-40	2	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.36	<20097.73	<0.84
QT2-2-SPME1-8	35-40	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.29	<20097.73	<0.244
QT2-2-SPME2-8	35-40	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.31	<20097.73	<0.223
QT2-2-SPME1-8	35-40	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.26	<20097.73	<0.147
QT2-2-SPME2-8	35-40	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.29	<20097.73	<0.13
QT2-2-SPME1-9	40-45	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.35	<20097.73	<0.759
QT2-2-SPME2-9	40-45	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.35	<20097.73	<0.756
QT2-2-SPME1-9	40-45	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.26	<20097.73	<0.15
QT2-2-SPME2-9	40-45	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.30	<20097.73	<0.132
QT2-2-SPME1-9	40-45	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.26	<20097.73	<0.138
QT2-2-SPME2-9	40-45	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.29	<20097.73	<0.121
QT2-2-SPME1-9	40-45	2	In Cap	4,4´-DDD	0.16	0.06	5	2.99E-06	6.73E+04	0.36	53593.95	2.24
QT2-2-SPME2-9	40-45	2	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.36	<20097.73	<0.84
QT2-2-SPME1-9	40-45	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.29	<20097.73	<0.244
QT2-2-SPME2-9	40-45	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.31	<20097.73	<0.223
QT2-2-SPME1-9	40-45	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.26	<20097.73	<0.147
QT2-2-SPME2-9	40-45	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.29	<20097.73	<0.13
QT2 2 1-10	45-50	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.35	<20097.73	<0.759
QT2 2 2-10	45-50	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.35	<20097.73	<0.756
QT2 2 1-10	45-50	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.26	<20097.73	<0.15
QT2 2 2-10	45-50	2	In Cap	2,4´-DDE	0.10	0.06	5	2.99E-06	5.17E+05	0.30	33496.22	0.22
QT2 2 1-10	45-50	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.26	<20097.73	<0.138
QT2 2 2-10	45-50	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.29	<20097.73	<0.121

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2 2 1-10	45-50	2	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.36	<20097.73	<0.838
QT2 2 2-10	45-50	2	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.36	<20097.73	<0.84
QT2 2 1-10	45-50	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.29	<20097.73	<0.244
QT2 2 2-10	45-50	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.31	<20097.73	<0.223
QT2 2 1-10	45-50	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.26	<20097.73	<0.147
QT2 2 2-10	45-50	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.29	<20097.73	<0.13
QT2-2-SPME1-11	50-55	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.35	<20097.73	<0.759
QT2-2-SPME2-11	50-55	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.35	<20097.73	<0.756
QT2-2-SPME1-11	50-55	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.26	<20097.73	<0.15
QT2-2-SPME2-11	50-55	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.30	<20097.73	<0.132
QT2-2-SPME1-11	50-55	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.26	<20097.73	<0.138
QT2-2-SPME2-11	50-55	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.29	<20097.73	<0.121
QT2-2-SPME1-11	50-55	2	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.36	<20097.73	<0.838
QT2-2-SPME2-11	50-55	2	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.36	<20097.73	<0.84
QT2-2-SPME1-11	50-55	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.29	<20097.73	<0.244
QT2-2-SPME2-11	50-55	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.31	<20097.73	<0.223
QT2-2-SPME1-11	50-55	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.26	<20097.73	<0.147
QT2-2-SPME2-11	50-55	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.29	<20097.73	<0.13
QT2 2 1-2	5-10	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.45	<20097.73	<0.596
QT2 2 2-2	5-10	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.40	<20097.73	<0.662
QT2 2 1-2	5-10	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.37	<20097.73	<0.104
QT2 2 2-2	5-10	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.31	<20097.73	<0.124
QT2 2 1-2	5-10	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.37	<20097.73	<0.096
QT2 2 2-2	5-10	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.31	<20097.73	<0.114
QT2 2 1-2	5-10	2	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.45	<20097.73	<0.662
QT2 2 2-2	5-10	2	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.41	<20097.73	<0.733
QT2 2 1-2	5-10	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.39	<20097.73	<0.176
QT2 2 2-2	5-10	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.34	<20097.73	<0.205
QT2 2 1-2	5-10	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.37	<20097.73	<0.103
QT2 2 2-2	5-10	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.31	<20097.73	<0.122
QT2-2-SPME1-12	55-59.4	2	In Cap	2,4´-DDD	ND	0.06	4.4	2.63E-06	7.55E+04	0.35	<22838.33	<0.863
QT2-2-SPME1-12	55-59.4	2	In Cap	2,4´-DDE	0.11	0.06	4.4	2.63E-06	5.17E+05	0.26	41870.27	0.31
QT2-2-SPME1-12	55-59.4	2	In Cap	2,4´-DDT	ND	0.06	4.4	2.63E-06	5.70E+05	0.26	<22838.33	<0.157
QT2-2-SPME1-12	55-59.4	2	In Cap	4,4´-DDD	0.09	0.06	4.4	2.63E-06	6.73E+04	0.36	34257.50	1.43
QT2-2-SPME1-12	55-59.4	2	In Cap	4,4´-DDT	ND	0.06	4.4	2.63E-06	2.89E+05	0.29	<22838.33	<0.277
QT2-2-SPME1-12	55-59.4	2	In Cap	4,4'-DDE [2C]	ND	0.06	4.4	2.63E-06	5.27E+05	0.26	<22838.33	<0.167
QT2-2-SPME2-12	55-60	2	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.35	<20097.73	<0.756
QT2-2-SPME2-12	55-60	2	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.30	<20097.73	<0.132
QT2-2-SPME2-12	55-60	2	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.29	<20097.73	<0.121
QT2-2-SPME2-12	55-60	2	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.36	<20097.73	<0.84
QT2-2-SPME2-12	55-60	2	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.31	<20097.73	<0.223

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2-2-SPME2-12	55-60	2	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.29	<20097.73	<0.13
QT2-3L-SPME1-1	0-5	3	In Cap	2,4´-DDD	0.19	0.06	5	2.99E-06	7.55E+04	0.40	63642.82	2.13
QT2-3L-SPME2-1	0-5	3	In Cap	2,4´-DDD	0.07	0.06	5	2.99E-06	7.55E+04	0.67	23447.35	0.46
QT2-3L-SPME1-1	0-5	3	In Cap	2,4´-DDE	0.11	0.06	5	2.99E-06	5.17E+05	0.30	36845.84	0.24
QT2-3L-SPME2-1	0-5	3	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.54	<20097.73	<0.072
QT2-3L-SPME1-1	0-5	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.30	<20097.73	<0.118
QT2-3L-SPME2-1	0-5	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.53	<20097.73	<0.066
QT2-3L-SPME1-1	0-5	3	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.40	<20097.73	<0.744
QT2-3L-SPME2-1	0-5	3	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.68	<20097.73	<0.439
QT2-3L-SPME1-1	0-5	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.33	<20097.73	<0.211
QT2-3L-SPME2-1	0-5	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.58	<20097.73	<0.12
QT2-3L-SPME1-1	0-5	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.30	<20097.73	<0.126
QT2-3L-SPME2-1	0-5	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.54	<20097.73	<0.071
QT2-3L-SPME1-3	10-15	3	In Cap	2,4´-DDD	0.08	0.06	5	2.99E-06	7.55E+04	0.40	26796.98	0.90
QT2-3L-SPME2-3	10-15	3	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.67	<20097.73	<0.396
QT2-3L-SPME1-3	10-15	3	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.30	<20097.73	<0.129
QT2-3L-SPME2-3	10-15	3	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.54	<20097.73	<0.072
QT2-3L-SPME1-3	10-15	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.30	<20097.73	<0.118
QT2-3L-SPME2-3	10-15	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.53	<20097.73	<0.066
QT2-3L-SPME1-3	10-15	3	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.40	<20097.73	<0.744
QT2-3L-SPME2-3	10-15	3	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.68	<20097.73	<0.439
QT2-3L-SPME1-3	10-15	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.33	<20097.73	<0.211
QT2-3L-SPME2-3	10-15	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.58	<20097.73	<0.12
QT2-3L-SPME1-3	10-15	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.30	<20097.73	<0.126
QT2-3L-SPME2-3	10-15	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.54	<20097.73	<0.071
QT2-3L-SPME1-4	15-20	3	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.31	<20097.73	<0.864
QT2-3L-SPME2-4	15-20	3	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.49	<20097.73	<0.54
QT2-3L-SPME1-4	15-20	3	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.15	<20097.73	<0.252
QT2-3L-SPME2-4	15-20	3	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.43	<20097.73	<0.09
QT2-3L-SPME1-4	15-20	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.15	<20097.73	<0.238
QT2-3L-SPME2-4	15-20	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.43	<20097.73	<0.082
QT2-3L-SPME1-4	15-20	3	In Cap	4,4´-DDD	0.13	0.06	5	2.99E-06	6.73E+04	0.32	43545.09	2.02
QT2-3L-SPME2-4	15-20	3	In Cap	4,4´-DDD	0.22	0.06	5	2.99E-06	6.73E+04	0.50	73691.68	2.21
QT2-3L-SPME1-4	15-20	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.19	<20097.73	<0.362
QT2-3L-SPME2-4	15-20	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.45	<20097.73	<0.154
QT2-3L-SPME1-4	15-20	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.15	<20097.73	<0.249
QT2-3L-SPME2-4	15-20	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.43	<20097.73	<0.088
QT2 3L 1-5	20-25	3	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.31	<20097.73	<0.864
QT2 3L 2-5	20-25	3	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.49	<20097.73	<0.54
QT2 3L 1-5	20-25	3	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.15	<20097.73	<0.252
QT2 3L 2-5	20-25	3	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.43	<20097.73	<0.09

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2 3L 1-5	20-25	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.15	<20097.73	<0.238
QT2 3L 2-5	20-25	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.43	<20097.73	<0.082
QT2 3L 1-5	20-25	3	In Cap	4,4´-DDD	0.09	0.06	5	2.99E-06	6.73E+04	0.32	30146.60	1.40
QT2 3L 2-5	20-25	3	In Cap	4,4´-DDD	0.31	0.06	5	2.99E-06	6.73E+04	0.50	103838.28	3.11
QT2 3L 1-5	20-25	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.19	<20097.73	<0.362
QT2 3L 2-5	20-25	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.45	<20097.73	<0.154
QT2 3L 1-5	20-25	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.15	<20097.73	<0.249
QT2 3L 2-5	20-25	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.43	<20097.73	<0.088
QT2-3L-SPME1-6	25-30	3	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.31	<20097.73	<0.864
QT2-3L-SPME2-6	25-30	3	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.49	<20097.73	<0.54
QT2-3L-SPME1-6	25-30	3	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.15	<20097.73	<0.252
QT2-3L-SPME2-6	25-30	3	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.43	<20097.73	<0.09
QT2-3L-SPME1-6	25-30	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.15	<20097.73	<0.238
QT2-3L-SPME2-6	25-30	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.43	<20097.73	<0.082
QT2-3L-SPME1-6	25-30	3	In Cap	4,4´-DDD	0.09	0.06	5	2.99E-06	6.73E+04	0.32	30146.60	1.40
QT2-3L-SPME2-6	25-30	3	In Cap	4,4´-DDD	0.13	0.06	5	2.99E-06	6.73E+04	0.50	43545.09	1.30
QT2-3L-SPME1-6	25-30	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.19	<20097.73	<0.362
QT2-3L-SPME2-6	25-30	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.45	<20097.73	<0.154
QT2-3L-SPME1-6	25-30	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.15	<20097.73	<0.249
QT2-3L-SPME2-6	25-30	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.43	<20097.73	<0.088
QT2-3L-SPME1-7	30-35	3	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.31	<20097.73	<0.864
QT2-3L-SPME2-7	30-35	3	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.49	<20097.73	<0.54
QT2-3L-SPME1-7	30-35	3	In Cap	2,4´-DDE	0.12	0.06	5	2.99E-06	5.17E+05	0.15	40195.46	0.50
QT2-3L-SPME2-7	30-35	3	In Cap	2,4´-DDE	0.12	0.06	5	2.99E-06	5.17E+05	0.43	40195.46	0.18
QT2-3L-SPME1-7	30-35	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.15	<20097.73	<0.238
QT2-3L-SPME2-7	30-35	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.43	<20097.73	<0.082
QT2-3L-SPME1-7	30-35	3	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.32	<20097.73	<0.934
QT2-3L-SPME2-7	30-35	3	In Cap	4,4´-DDD	0.14	0.06	5	2.99E-06	6.73E+04	0.50	46894.71	1.40
QT2-3L-SPME1-7	30-35	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.19	<20097.73	<0.362
QT2-3L-SPME2-7	30-35	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.45	<20097.73	<0.154
QT2-3L-SPME1-7	30-35	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.15	<20097.73	<0.249
QT2-3L-SPME2-7	30-35	3	In Cap	4,4'-DDE [2C]	0.08	0.06	5	2.99E-06	5.27E+05	0.43	26796.98	0.12
QT2-3L-SPME1-8	35-40	3	In Cap	2,4´-DDD	0.07	0.06	5	2.99E-06	7.55E+04	0.46	23447.35	0.68
QT2-3L-SPME2-8	35-40	3	In Cap	2,4´-DDD	0.16	0.06	5	2.99E-06	7.55E+04	0.41	53593.95	1.74
QT2-3L-SPME1-8	35-40	3	In Cap	2,4´-DDE	0.11	0.06	5	2.99E-06	5.17E+05	0.35	36845.84	0.20
QT2-3L-SPME2-8	35-40	3	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.34	<20097.73	<0.115
QT2-3L-SPME1-8	35-40	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.35	<20097.73	<0.102
QT2-3L-SPME2-8	35-40	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.34	<20097.73	<0.105
QT2-3L-SPME1-8	35-40	3	In Cap	4,4´-DDD	0.11	0.06	5	2.99E-06	6.73E+04	0.46	36845.84	1.19
QT2-3L-SPME2-8	35-40	3	In Cap	4,4´-DDD	0.34	0.06	5	2.99E-06	6.73E+04	0.41	113887.15	4.11
QT2-3L-SPME1-8	35-40	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.38	<20097.73	<0.182

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2-3L-SPME2-8	35-40	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.36	<20097.73	<0.194
QT2-3L-SPME1-8	35-40	3	In Cap	4,4'-DDE [2C]	0.29	0.06	5	2.99E-06	5.27E+05	0.35	97139.04	0.53
QT2-3L-SPME2-8	35-40	3	In Cap	4,4'-DDE [2C]	0.22	0.06	5	2.99E-06	5.27E+05	0.34	73691.68	0.41
QT2-3L-SPME1-9	40-45	3	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.46	<20097.73	<0.585
QT2-3L-SPME2-9	40-45	3	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.41	<20097.73	<0.653
QT2-3L-SPME1-9	40-45	3	In Cap	2,4´-DDE	0.10	0.06	5	2.99E-06	5.17E+05	0.35	33496.22	0.18
QT2-3L-SPME2-9	40-45	3	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.34	<20097.73	<0.115
QT2-3L-SPME1-9	40-45	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.35	<20097.73	<0.102
QT2-3L-SPME2-9	40-45	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.34	<20097.73	<0.105
QT2-3L-SPME1-9	40-45	3	In Cap	4,4´-DDD	0.10	0.06	5	2.99E-06	6.73E+04	0.46	33496.22	1.08
QT2-3L-SPME2-9	40-45	3	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.41	<20097.73	<0.725
QT2-3L-SPME1-9	40-45	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.38	<20097.73	<0.182
QT2-3L-SPME2-9	40-45	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.36	<20097.73	<0.194
QT2-3L-SPME1-9	40-45	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.35	<20097.73	<0.109
QT2-3L-SPME2-9	40-45	3	In Cap	4,4'-DDE [2C]	0.32	0.06	5	2.99E-06	5.27E+05	0.34	107187.90	0.60
QT2 3L 1-10	45-50	3	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.46	<20097.73	<0.585
QT2 3L 2-10	45-50	3	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.41	<20097.73	<0.653
QT2 3L 1-10	45-50	3	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.35	<20097.73	<0.111
QT2 3L 2-10	45-50	3	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.34	<20097.73	<0.115
QT2 3L 1-10	45-50	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.35	<20097.73	<0.102
QT2 3L 2-10	45-50	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.34	<20097.73	<0.105
QT2 3L 1-10	45-50	3	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.46	<20097.73	<0.647
QT2 3L 2-10	45-50	3	In Cap	4,4´-DDD	0.08	0.06	5	2.99E-06	6.73E+04	0.41	26796.98	0.97
QT2 3L 1-10	45-50	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.38	<20097.73	<0.182
QT2 3L 2-10	45-50	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.36	<20097.73	<0.194
QT2 3L 1-10	45-50	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.35	<20097.73	<0.109
QT2 3L 2-10	45-50	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.34	<20097.73	<0.113
QT2-3L-SPME1-11	50-55	3	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.46	<20097.73	<0.585
QT2-3L-SPME2-11	50-55	3	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.41	<20097.73	<0.653
QT2-3L-SPME1-11	50-55	3	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.35	<20097.73	<0.111
QT2-3L-SPME2-11	50-55	3	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.34	<20097.73	<0.115
QT2-3L-SPME1-11	50-55	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.35	<20097.73	<0.102
QT2-3L-SPME2-11	50-55	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.34	<20097.73	<0.105
QT2-3L-SPME1-11	50-55	3	In Cap	4,4´-DDD	0.12	0.06	5	2.99E-06	6.73E+04	0.46	40195.46	1.29
QT2-3L-SPME2-11	50-55	3	In Cap	4,4´-DDD	0.11	0.06	5	2.99E-06	6.73E+04	0.41	36845.84	1.33
QT2-3L-SPME1-11	50-55	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.38	<20097.73	<0.182
QT2-3L-SPME2-11	50-55	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.36	<20097.73	<0.194
QT2-3L-SPME1-11	50-55	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.35	<20097.73	<0.109
QT2-3L-SPME2-11	50-55	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.34	<20097.73	<0.113
QT2 3L 1-2	5-10	3	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.40	<20097.73	<0.673
QT2 3L 2-2	5-10	3	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.67	<20097.73	<0.396

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2 3L 1-2	5-10	3	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.30	<20097.73	<0.129
QT2 3L 2-2	5-10	3	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.54	<20097.73	<0.072
QT2 3L 1-2	5-10	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.30	<20097.73	<0.118
QT2 3L 2-2	5-10	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.53	<20097.73	<0.066
QT2 3L 1-2	5-10	3	In Cap	4,4´-DDD	0.10	0.06	5	2.99E-06	6.73E+04	0.40	33496.22	1.24
QT2 3L 2-2	5-10	3	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.68	<20097.73	<0.439
QT2 3L 1-2	5-10	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.33	<20097.73	<0.211
QT2 3L 2-2	5-10	3	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.58	<20097.73	<0.12
QT2 3L 1-2	5-10	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.30	<20097.73	<0.126
QT2 3L 2-2	5-10	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.54	<20097.73	<0.071
QT2-3L-SPME1-12	55-57.9	3	In Cap	2,4´-DDD	ND	0.06	2.9	1.73E-06	7.55E+04	0.46	<34651.26	<1.008
QT2-3L-SPME1-12	55-57.9	3	In Cap	2,4´-DDE	ND	0.06	2.9	1.73E-06	5.17E+05	0.35	<34651.26	<0.191
QT2-3L-SPME1-12	55-57.9	3	In Cap	2,4´-DDT	ND	0.06	2.9	1.73E-06	5.70E+05	0.35	<34651.26	<0.176
QT2-3L-SPME1-12	55-57.9	3	In Cap	4,4´-DDD	0.08	0.06	2.9	1.73E-06	6.73E+04	0.46	46201.68	1.49
QT2-3L-SPME1-12	55-57.9	3	In Cap	4,4´-DDT	ND	0.06	2.9	1.73E-06	2.89E+05	0.38	<34651.26	<0.315
QT2-3L-SPME1-12	55-57.9	3	In Cap	4,4'-DDE [2C]	ND	0.06	2.9	1.73E-06	5.27E+05	0.35	<34651.26	<0.188
QT2-3L-SPME2-12	55-60	3	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.41	<20097.73	<0.653
QT2-3L-SPME2-12	55-60	3	In Cap	2,4´-DDE	0.13	0.06	5	2.99E-06	5.17E+05	0.34	43545.09	0.25
QT2-3L-SPME2-12	55-60	3	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.34	<20097.73	<0.105
QT2-3L-SPME2-12	55-60	3	In Cap	4,4´-DDD	0.16	0.06	5	2.99E-06	6.73E+04	0.41	53593.95	1.93
QT2-3L-SPME2-12	55-60	3	In Cap	4,4´-DDT	0.07	0.06	5	2.99E-06	2.89E+05	0.36	23447.35	0.23
QT2-3L-SPME2-12	55-60	3	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.34	<20097.73	<0.113
QT2-4-SPME1-1	0-5	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.44	<20097.73	<0.608
QT2-4-SPME2-1	0-5	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.64	<20097.73	<0.417
QT2-4-SPME1-1	0-5	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.32	<20097.73	<0.12
QT2-4-SPME2-1	0-5	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.47	<20097.73	<0.083
QT2-4-SPME1-1	0-5	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.32	<20097.73	<0.111
QT2-4-SPME2-1	0-5	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.46	<20097.73	<0.076
QT2-4-SPME1-1	0-5	4	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.45	<20097.73	<0.671
QT2-4-SPME2-1	0-5	4	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.65	<20097.73	<0.461
QT2-4-SPME1-1	0-5	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.36	<20097.73	<0.195
QT2-4-SPME2-1	0-5	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.52	<20097.73	<0.133
QT2-4-SPME1-1	0-5	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.32	<20097.73	<0.118
QT2-4-SPME2-1	0-5	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.47	<20097.73	<0.081
QT2-4-SPME1-3	10-15	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.44	<20097.73	<0.608
QT2-4-SPME2-3	10-15	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.64	<20097.73	<0.417
QT2-4-SPME1-3	10-15	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.32	<20097.73	<0.12
QT2-4-SPME2-3	10-15	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.47	<20097.73	<0.083
QT2-4-SPME1-3	10-15	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.32	<20097.73	<0.111
QT2-4-SPME2-3	10-15	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.46	<20097.73	<0.076
QT2-4-SPME1-3	10-15	4	In Cap	4,4´-DDD	0.24	0.06	5	2.99E-06	6.73E+04	0.45	80390.93	2.69

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2-4-SPME2-3	10-15	4	In Cap	4,4´-DDD	0.08	0.06	5	2.99E-06	6.73E+04	0.65	26796.98	0.61
QT2-4-SPME1-3	10-15	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.36	<20097.73	<0.195
QT2-4-SPME2-3	10-15	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.52	<20097.73	<0.133
QT2-4-SPME1-3	10-15	4	In Cap	4,4'-DDE [2C]	1.00	0.06	5	2.99E-06	5.27E+05	0.32	334962.20	1.97
QT2-4-SPME2-3	10-15	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.47	<20097.73	<0.081
QT2-4-SPME1-4	15-20	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.43	<20097.73	<0.614
QT2-4-SPME2-4	15-20	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.46	<20097.73	<0.575
QT2-4-SPME1-4	15-20	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.34	<20097.73	<0.113
QT2-4-SPME2-4	15-20	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.40	<20097.73	<0.097
QT2-4-SPME1-4	15-20	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.34	<20097.73	<0.104
QT2-4-SPME2-4	15-20	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.40	<20097.73	<0.088
QT2-4-SPME1-4	15-20	4	In Cap	4,4´-DDD	0.07	0.06	5	2.99E-06	6.73E+04	0.44	23447.35	0.79
QT2-4-SPME2-4	15-20	4	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.47	<20097.73	<0.64
QT2-4-SPME1-4	15-20	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.37	<20097.73	<0.188
QT2-4-SPME2-4	15-20	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.42	<20097.73	<0.165
QT2-4-SPME1-4	15-20	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.34	<20097.73	<0.111
QT2-4-SPME2-4	15-20	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.40	<20097.73	<0.095
QT2 4 1-5	20-25	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.43	<20097.73	<0.614
QT2 4 2-5	20-25	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.46	<20097.73	<0.575
QT2 4 1-5	20-25	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.34	<20097.73	<0.113
QT2 4 2-5	20-25	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.40	<20097.73	<0.097
QT2 4 1-5	20-25	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.34	<20097.73	<0.104
QT2 4 2-5	20-25	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.40	<20097.73	<0.088
QT2 4 1-5	20-25	4	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.44	<20097.73	<0.681
QT2 4 2-5	20-25	4	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.47	<20097.73	<0.64
QT2 4 1-5	20-25	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.37	<20097.73	<0.188
QT2 4 2-5	20-25	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.42	<20097.73	<0.165
QT2 4 1-5	20-25	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.34	<20097.73	<0.111
QT2 4 2-5	20-25	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.40	<20097.73	<0.095
QT2-4-SPME1-6	25-30	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.43	<20097.73	<0.614
QT2-4-SPME2-6	25-30	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.46	<20097.73	<0.575
QT2-4-SPME1-6	25-30	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.34	<20097.73	<0.113
QT2-4-SPME2-6	25-30	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.40	<20097.73	<0.097
QT2-4-SPME1-6	25-30	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.34	<20097.73	<0.104
QT2-4-SPME2-6	25-30	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.40	<20097.73	<0.088
QT2-4-SPME1-6	25-30	4	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.44	<20097.73	<0.681
QT2-4-SPME2-6	25-30	4	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.47	<20097.73	<0.64
QT2-4-SPME1-6	25-30	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.37	<20097.73	<0.188
QT2-4-SPME2-6	25-30	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.42	<20097.73	<0.165
QT2-4-SPME1-6	25-30	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.34	<20097.73	<0.111
QT2-4-SPME2-6	25-30	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.40	<20097.73	<0.095

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2-4-SPME1-7	30-35	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.43	<20097.73	<0.614
QT2-4-SPME2-7	30-35	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.46	<20097.73	<0.575
QT2-4-SPME1-7	30-35	4	In Cap	2,4´-DDE	0.18	0.06	5	2.99E-06	5.17E+05	0.34	60293.20	0.34
QT2-4-SPME2-7	30-35	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.40	<20097.73	<0.097
QT2-4-SPME1-7	30-35	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.34	<20097.73	<0.104
QT2-4-SPME2-7	30-35	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.40	<20097.73	<0.088
QT2-4-SPME1-7	30-35	4	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.44	<20097.73	<0.681
QT2-4-SPME2-7	30-35	4	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.47	<20097.73	<0.64
QT2-4-SPME1-7	30-35	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.37	<20097.73	<0.188
QT2-4-SPME2-7	30-35	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.42	<20097.73	<0.165
QT2-4-SPME1-7	30-35	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.34	<20097.73	<0.111
QT2-4-SPME2-7	30-35	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.40	<20097.73	<0.095
QT2-4-SPME1-8	35-40	4	In Cap	2,4´-DDD	0.07	0.06	5	2.99E-06	7.55E+04	0.43	23447.35	0.73
QT2-4-SPME2-8	35-40	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.61	<20097.73	<0.434
QT2-4-SPME1-8	35-40	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.34	<20097.73	<0.116
QT2-4-SPME2-8	35-40	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.57	<20097.73	<0.068
QT2-4-SPME1-8	35-40	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.33	<20097.73	<0.106
QT2-4-SPME2-8	35-40	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.57	<20097.73	<0.062
QT2-4-SPME1-8	35-40	4	In Cap	4,4´-DDD	0.33	0.06	5	2.99E-06	6.73E+04	0.43	110537.52	3.81
QT2-4-SPME2-8	35-40	4	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.62	<20097.73	<0.486
QT2-4-SPME1-8	35-40	4	In Cap	4,4´-DDT	0.11	0.06	5	2.99E-06	2.89E+05	0.36	36845.84	0.35
QT2-4-SPME2-8	35-40	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.58	<20097.73	<0.119
QT2-4-SPME1-8	35-40	4	In Cap	4,4'-DDE [2C]	0.39	0.06	5	2.99E-06	5.27E+05	0.34	130635.26	0.74
QT2-4-SPME2-8	35-40	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.57	<20097.73	<0.067
QT2-4-SPME1-9	40-45	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.43	<20097.73	<0.625
QT2-4-SPME2-9	40-45	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.61	<20097.73	<0.434
QT2-4-SPME1-9	40-45	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.34	<20097.73	<0.116
QT2-4-SPME2-9	40-45	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.57	<20097.73	<0.068
QT2-4-SPME1-9	40-45	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.33	<20097.73	<0.106
QT2-4-SPME2-9	40-45	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.57	<20097.73	<0.062
QT2-4-SPME1-9	40-45	4	In Cap	4,4´-DDD	0.10	0.06	5	2.99E-06	6.73E+04	0.43	33496.22	1.15
QT2-4-SPME2-9	40-45	4	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.62	<20097.73	<0.486
QT2-4-SPME1-9	40-45	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.36	<20097.73	<0.192
QT2-4-SPME2-9	40-45	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.58	<20097.73	<0.119
QT2-4-SPME1-9	40-45	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.34	<20097.73	<0.114
QT2-4-SPME2-9	40-45	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.57	<20097.73	<0.067
QT2 4 1-10	45-50	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.43	<20097.73	<0.625
QT2 4 2-10	45-50	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.61	<20097.73	<0.434
QT2 4 1-10	45-50	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.34	<20097.73	<0.116
QT2 4 2-10	45-50	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.57	<20097.73	<0.068
QT2 4 1-10	45-50	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.33	<20097.73	<0.106

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2 4 2-10	45-50	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.57	<20097.73	<0.062
QT2 4 1-10	45-50	4	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.43	<20097.73	<0.693
QT2 4 2-10	45-50	4	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.62	<20097.73	<0.486
QT2-4-SPME1-11	45-50	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.36	<20097.73	<0.192
QT2 4 2-10	45-50	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.58	<20097.73	<0.119
QT2 4 1-10	45-50	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.34	<20097.73	<0.114
QT2 4 2-10	45-50	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.57	<20097.73	<0.067
QT2-4-SPME1-11	50-55	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.43	<20097.73	<0.625
QT2-4-SPME2-11	50-55	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.61	<20097.73	<0.434
QT2-4-SPME1-11	50-55	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.34	<20097.73	<0.116
QT2-4-SPME2-11	50-55	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.57	<20097.73	<0.068
QT2-4-SPME1-11	50-55	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.33	<20097.73	<0.106
QT2-4-SPME2-11	50-55	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.57	<20097.73	<0.062
QT2-4-SPME1-11	50-55	4	In Cap	4,4´-DDD	0.07	0.06	5	2.99E-06	6.73E+04	0.43	23447.35	0.81
QT2-4-SPME2-11	50-55	4	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.62	<20097.73	<0.486
QT2 4 1-10	50-55	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.36	<20097.73	<0.192
QT2-4-SPME2-11	50-55	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.58	<20097.73	<0.119
QT2-4-SPME1-11	50-55	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.34	<20097.73	<0.114
QT2-4-SPME2-11	50-55	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.57	<20097.73	<0.067
QT2 4 1-2	5-10	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.44	<20097.73	<0.608
QT2 4 2-2	5-10	4	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.64	<20097.73	<0.417
QT2 4 1-2	5-10	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.32	<20097.73	<0.12
QT2 4 2-2	5-10	4	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.47	<20097.73	<0.083
QT2 4 1-2	5-10	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.32	<20097.73	<0.111
QT2 4 2-2	5-10	4	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.46	<20097.73	<0.076
QT2 4 1-2	5-10	4	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.45	<20097.73	<0.671
QT2 4 2-2	5-10	4	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.65	<20097.73	<0.461
QT2 4 1-2	5-10	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.36	<20097.73	<0.195
QT2 4 2-2	5-10	4	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.52	<20097.73	<0.133
QT2 4 1-2	5-10	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.32	<20097.73	<0.118
QT2 4 2-2	5-10	4	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.47	<20097.73	<0.081
QT2-4-SPME1-12	55-59	4	In Cap	2,4´-DDD	0.08	0.06	4	2.39E-06	7.55E+04	0.43	33496.22	1.04
QT2-4-SPME2-12	55-59	4	In Cap	2,4´-DDD	ND	0.06	4	2.39E-06	7.55E+04	0.61	<25122.16	<0.543
QT2-4-SPME1-12	55-59	4	In Cap	2,4´-DDE	0.14	0.06	4	2.39E-06	5.17E+05	0.34	58618.38	0.34
QT2-4-SPME2-12	55-59	4	In Cap	2,4´-DDE	ND	0.06	4	2.39E-06	5.17E+05	0.57	<25122.16	<0.085
QT2-4-SPME1-12	55-59	4	In Cap	2,4´-DDT	0.11	0.06	4	2.39E-06	5.70E+05	0.33	46057.30	0.24
QT2-4-SPME2-12	55-59	4	In Cap	2,4´-DDT	ND	0.06	4	2.39E-06	5.70E+05	0.57	<25122.16	<0.078
QT2-4-SPME1-12	55-59	4	In Cap	4,4´-DDD	0.10	0.06	4	2.39E-06	6.73E+04	0.43	41870.27	1.44
QT2-4-SPME2-12	55-59	4	In Cap	4,4´-DDD	ND	0.06	4	2.39E-06	6.73E+04	0.62	<25122.16	<0.607
QT2-4-SPME1-12	55-59	4	In Cap	4,4´-DDT	0.09	0.06	4	2.39E-06	2.89E+05	0.36	37683.25	0.36
QT2-4-SPME2-12	55-59	4	In Cap	4,4´-DDT	ND	0.06	4	2.39E-06	2.89E+05	0.58	<25122.16	<0.149

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2-4-SPME1-12	55-59	4	In Cap	4,4'-DDE [2C]	0.15	0.06	4	2.39E-06	5.27E+05	0.34	62805.41	0.35
QT2-4-SPME2-12	55-59	4	In Cap	4,4'-DDE [2C]	ND	0.06	4	2.39E-06	5.27E+05	0.57	<25122.16	<0.084
QT2-5-SPME1-1	0-5	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.51	<20097.73	<0.522
QT2-5-SPME2-1	0-5	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.53	<20097.73	<0.5
QT2-5-SPME1-1	0-5	5	In Cap	2,4´-DDE	0.09	0.06	5	2.99E-06	5.17E+05	0.40	30146.60	0.15
QT2-5-SPME2-1	0-5	5	In Cap	2,4´-DDE	0.11	0.06	5	2.99E-06	5.17E+05	0.34	36845.84	0.21
QT2-5-SPME1-1	0-5	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.39	<20097.73	<0.089
QT2-5-SPME2-1	0-5	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.33	<20097.73	<0.108
QT2-5-SPME1-1	0-5	5	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.52	<20097.73	<0.579
QT2-5-SPME2-1	0-5	5	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.54	<20097.73	<0.548
QT2-5-SPME1-1	0-5	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.43	<20097.73	<0.161
QT2-5-SPME2-1	0-5	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.39	<20097.73	<0.177
QT2-5-SPME1-1	0-5	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.40	<20097.73	<0.096
QT2-5-SPME2-1	0-5	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.33	<20097.73	<0.114
QT2-5-SPME1-3	10-15	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.51	<20097.73	<0.522
QT2-5-SPME2-3	10-15	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.53	<20097.73	<0.5
QT2-5-SPME1-3	10-15	5	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.40	<20097.73	<0.097
QT2-5-SPME2-3	10-15	5	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.34	<20097.73	<0.116
QT2-5-SPME1-3	10-15	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.39	<20097.73	<0.089
QT2-5-SPME2-3	10-15	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.33	<20097.73	<0.108
QT2-5-SPME1-3	10-15	5	In Cap	4,4´-DDD	0.20	0.06	5	2.99E-06	6.73E+04	0.52	66992.44	1.93
QT2-5-SPME2-3	10-15	5	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.54	<20097.73	<0.548
QT2-5-SPME1-3	10-15	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.43	<20097.73	<0.161
QT2-5-SPME2-3	10-15	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.39	<20097.73	<0.177
QT2-5-SPME1-3	10-15	5	In Cap	4,4'-DDE [2C]	0.68	0.06	5	2.99E-06	5.27E+05	0.40	227774.29	1.09
QT2-5-SPME2-3	10-15	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.33	<20097.73	<0.114
QT2-5-SPME1-4	15-20	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.39	<20097.73	<0.689
QT2-5-SPME2-4	15-20	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.35	<20097.73	<0.769
QT2-5-SPME1-4	15-20	5	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.32	<20097.73	<0.122
QT2-5-SPME2-4	15-20	5	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.26	<20097.73	<0.151
QT2-5-SPME1-4	15-20	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.32	<20097.73	<0.112
QT2-5-SPME2-4	15-20	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.25	<20097.73	<0.139
QT2-5-SPME1-4	15-20	5	In Cap	4,4´-DDD	0.07	0.06	5	2.99E-06	6.73E+04	0.39	23447.35	0.89
QT2-5-SPME2-4	15-20	5	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.35	<20097.73	<0.85
QT2-5-SPME1-4	15-20	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.34	<20097.73	<0.206
QT2-5-SPME2-4	15-20	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.28	<20097.73	<0.246
QT2-5-SPME1-4	15-20	5	In Cap	4,4'-DDE [2C]	0.07	0.06	5	2.99E-06	5.27E+05	0.32	23447.35	0.14
QT2-5-SPME2-4	15-20	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.26	<20097.73	<0.148
QT2 5 1-5	20-25	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.39	<20097.73	<0.689
QT2 5 2-5	20-25	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.35	<20097.73	<0.769
QT2 5 1-5	20-25	5	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.32	<20097.73	<0.122

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2 5 2-5	20-25	5	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.26	<20097.73	<0.151
QT2 5 1-5	20-25	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.32	<20097.73	<0.112
QT2 5 2-5	20-25	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.25	<20097.73	<0.139
QT2 5 1-5	20-25	5	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.39	<20097.73	<0.766
QT2 5 2-5	20-25	5	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.35	<20097.73	<0.85
QT2 5 1-5	20-25	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.34	<20097.73	<0.206
QT2 5 2-5	20-25	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.28	<20097.73	<0.246
QT2 5 1-5	20-25	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.32	<20097.73	<0.12
QT2 5 2-5	20-25	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.26	<20097.73	<0.148
QT2-5-SPME1-6	25-30	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.39	<20097.73	<0.689
QT2-5-SPME2-6	25-30	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.35	<20097.73	<0.769
QT2-5-SPME1-6	25-30	5	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.32	<20097.73	<0.122
QT2-5-SPME2-6	25-30	5	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.26	<20097.73	<0.151
QT2-5-SPME1-6	25-30	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.32	<20097.73	<0.112
QT2-5-SPME2-6	25-30	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.25	<20097.73	<0.139
QT2-5-SPME1-6	25-30	5	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.39	<20097.73	<0.766
QT2-5-SPME2-6	25-30	5	In Cap	4,4´-DDD	0.08	0.06	5	2.99E-06	6.73E+04	0.35	26796.98	1.13
QT2-5-SPME1-6	25-30	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.34	<20097.73	<0.206
QT2-5-SPME2-6	25-30	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.28	<20097.73	<0.246
QT2-5-SPME1-6	25-30	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.32	<20097.73	<0.12
QT2-5-SPME2-6	25-30	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.26	<20097.73	<0.148
QT2-5-SPME1-7	30-35	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.39	<20097.73	<0.689
QT2-5-SPME2-7	30-35	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.35	<20097.73	<0.769
QT2-5-SPME1-7	30-35	5	In Cap	2,4´-DDE	0.09	0.06	5	2.99E-06	5.17E+05	0.32	30146.60	0.18
QT2-5-SPME2-7	30-35	5	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.26	<20097.73	<0.151
QT2-5-SPME1-7	30-35	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.32	<20097.73	<0.112
QT2-5-SPME2-7	30-35	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.25	<20097.73	<0.139
QT2-5-SPME1-7	30-35	5	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.39	<20097.73	<0.766
QT2-5-SPME2-7	30-35	5	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.35	<20097.73	<0.85
QT2-5-SPME1-7	30-35	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.34	<20097.73	<0.206
QT2-5-SPME2-7	30-35	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.28	<20097.73	<0.246
QT2-5-SPME1-7	30-35	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.32	<20097.73	<0.12
QT2-5-SPME2-7	30-35	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.26	<20097.73	<0.148
QT2-5-SPME1-8	35-40	5	In Cap	2,4´-DDD	0.11	0.06	5	2.99E-06	7.55E+04	0.45	36845.84	1.08
QT2-5-SPME2-8	35-40	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.47	<20097.73	<0.561
QT2-5-SPME1-8	35-40	5	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.32	<20097.73	<0.122
QT2-5-SPME2-8	35-40	5	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.41	<20097.73	<0.095
QT2-5-SPME1-8	35-40	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.31	<20097.73	<0.112
QT2-5-SPME2-8	35-40	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.41	<20097.73	<0.087
QT2-5-SPME1-8	35-40	5	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.46	<20097.73	<0.649
QT2-5-SPME2-8	35-40	5	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.48	<20097.73	<0.625

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2-5-SPME1-8	35-40	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.36	<20097.73	<0.194
QT2-5-SPME2-8	35-40	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.43	<20097.73	<0.162
QT2-5-SPME1-8	35-40	5	In Cap	4,4'-DDE [2C]	0.10	0.06	5	2.99E-06	5.27E+05	0.32	33496.22	0.20
QT2-5-SPME2-8	35-40	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.41	<20097.73	<0.094
QT2-5-SPME1-9	40-45	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.45	<20097.73	<0.589
QT2-5-SPME2-9	40-45	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.47	<20097.73	<0.561
QT2-5-SPME1-9	40-45	5	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.32	<20097.73	<0.122
QT2-5-SPME2-9	40-45	5	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.41	<20097.73	<0.095
QT2-5-SPME1-9	40-45	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.31	<20097.73	<0.112
QT2-5-SPME2-9	40-45	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.41	<20097.73	<0.087
QT2-5-SPME1-9	40-45	5	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.46	<20097.73	<0.649
QT2-5-SPME2-9	40-45	5	In Cap	4,4´-DDD	0.08	0.06	5	2.99E-06	6.73E+04	0.48	26796.98	0.83
QT2-5-SPME1-9	40-45	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.36	<20097.73	<0.194
QT2-5-SPME2-9	40-45	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.43	<20097.73	<0.162
QT2-5-SPME1-9	40-45	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.32	<20097.73	<0.12
QT2-5-SPME2-9	40-45	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.41	<20097.73	<0.094
QT2 5 1-10	45-50	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.45	<20097.73	<0.589
QT2 5 2-10	45-50	5	In Cap	2,4´-DDD	0.08	0.06	5	2.99E-06	7.55E+04	0.47	26796.98	0.75
QT2 5 1-10	45-50	5	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.32	<20097.73	<0.122
QT2 5 2-10	45-50	5	In Cap	2,4´-DDE	0.13	0.06	5	2.99E-06	5.17E+05	0.41	43545.09	0.21
QT2 5 1-10	45-50	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.31	<20097.73	<0.112
QT2 5 2-10	45-50	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.41	<20097.73	<0.087
QT2 5 1-10	45-50	5	In Cap	4,4´-DDD	0.10	0.06	5	2.99E-06	6.73E+04	0.46	33496.22	1.08
QT2 5 2-10	45-50	5	In Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.48	<20097.73	<0.625
QT2 5 1-10	45-50	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.36	<20097.73	<0.194
QT2 5 2-10	45-50	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.43	<20097.73	<0.162
QT2 5 1-10	45-50	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.32	<20097.73	<0.12
QT2 5 2-10	45-50	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.41	<20097.73	<0.094
QT2-5-SPME1-11	50-55	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.45	<20097.73	<0.589
QT2-5-SPME2-11	50-55	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.47	<20097.73	<0.561
QT2-5-SPME1-11	50-55	5	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.32	<20097.73	<0.122
QT2-5-SPME2-11	50-55	5	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.41	<20097.73	<0.095
QT2-5-SPME1-11	50-55	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.31	<20097.73	<0.112
QT2-5-SPME2-11	50-55	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.41	<20097.73	<0.087
QT2-5-SPME1-11	50-55	5	In Cap	4,4´-DDD	0.11	0.06	5	2.99E-06	6.73E+04	0.46	36845.84	1.19
QT2-5-SPME2-11	50-55	5	In Cap	4,4´-DDD	0.10	0.06	5	2.99E-06	6.73E+04	0.48	33496.22	1.04
QT2-5-SPME1-11	50-55	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.36	<20097.73	<0.194
QT2-5-SPME2-11	50-55	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.43	<20097.73	<0.162
QT2-5-SPME1-11	50-55	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.32	<20097.73	<0.12
QT2-5-SPME2-11	50-55	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.41	<20097.73	<0.094
QT2 5 1-2	5-10	5	In Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.51	<20097.73	<0.522

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2 5 2-2	5-10	5	In Cap	2,4´-DDD	0.07	0.06	5	2.99E-06	7.55E+04	0.53	23447.35	0.58
QT2 5 1-2	5-10	5	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.40	<20097.73	<0.097
QT2 5 2-2	5-10	5	In Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.34	<20097.73	<0.116
QT2 5 1-2	5-10	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.39	<20097.73	<0.089
QT2 5 2-2	5-10	5	In Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.33	<20097.73	<0.108
QT2 5 1-2	5-10	5	In Cap	4,4´-DDD	0.09	0.06	5	2.99E-06	6.73E+04	0.52	30146.60	0.87
QT2 5 2-2	5-10	5	In Cap	4,4´-DDD	0.12	0.06	5	2.99E-06	6.73E+04	0.54	40195.46	1.10
QT2 5 1-2	5-10	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.43	<20097.73	<0.161
QT2 5 2-2	5-10	5	In Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.39	<20097.73	<0.177
QT2 5 1-2	5-10	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.40	<20097.73	<0.096
QT2 5 2-2	5-10	5	In Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.33	<20097.73	<0.114
QT2-5-SPME1-12	55-59.3	5	In Cap	2,4´-DDD	ND	0.06	4.3	2.57E-06	7.55E+04	0.45	<23369.46	<0.684
QT2-5-SPME1-12	55-59.3	5	In Cap	2,4´-DDE	0.08	0.06	4.3	2.57E-06	5.17E+05	0.32	31159.27	0.19
QT2-5-SPME1-12	55-59.3	5	In Cap	2,4´-DDT	ND	0.06	4.3	2.57E-06	5.70E+05	0.31	<23369.46	<0.131
QT2-5-SPME1-12	55-59.3	5	In Cap	4,4´-DDD	0.09	0.06	4.3	2.57E-06	6.73E+04	0.46	35054.18	1.13
QT2-5-SPME1-12	55-59.3	5	In Cap	4,4´-DDT	ND	0.06	4.3	2.57E-06	2.89E+05	0.36	<23369.46	<0.226
QT2-5-SPME1-12	55-59.3	5	In Cap	4,4'-DDE [2C]	0.07	0.06	4.3	2.57E-06	5.27E+05	0.32	27264.36	0.16
QT2-5-SPME2-12	55-59.9	5	In Cap	2,4´-DDD	0.15	0.06	4.9	2.93E-06	7.55E+04	0.47	51269.72	1.43
QT2-5-SPME2-12	55-59.9	5	In Cap	2,4´-DDE	0.08	0.06	4.9	2.93E-06	5.17E+05	0.41	27343.85	0.13
QT2-5-SPME2-12	55-59.9	5	In Cap	2,4´-DDT	ND	0.06	4.9	2.93E-06	5.70E+05	0.41	<20507.89	<0.089
QT2-5-SPME2-12	55-59.9	5	In Cap	4,4´-DDD	ND	0.06	4.9	2.93E-06	6.73E+04	0.48	<20507.89	<0.638
QT2-5-SPME2-12	55-59.9	5	In Cap	4,4´-DDT	ND	0.06	4.9	2.93E-06	2.89E+05	0.43	<20507.89	<0.166
QT2-5-SPME2-12	55-59.9	5	In Cap	4,4'-DDE [2C]	ND	0.06	4.9	2.93E-06	5.27E+05	0.41	<20507.89	<0.095
QT2-6-SPME1-1	0-5	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.69	<20097.73	<0.386
QT2-6-SPME2-1	0-5	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.66	<20097.73	<0.4
QT2-6-SPME1-1	0-5	6	Off Cap	2,4´-DDE	0.09	0.06	5	2.99E-06	5.17E+05	0.52	30146.60	0.11
QT2-6-SPME2-1	0-5	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.53	<20097.73	<0.073
QT2-6-SPME1-1	0-5	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.51	<20097.73	<0.069
QT2-6-SPME2-1	0-5	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.52	<20097.73	<0.067
QT2-6-SPME1-1	0-5	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.70	<20097.73	<0.427
QT2-6-SPME2-1	0-5	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.67	<20097.73	<0.444
QT2-6-SPME1-1	0-5	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.58	<20097.73	<0.121
QT2-6-SPME2-1	0-5	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.57	<20097.73	<0.122
QT2-6-SPME1-1	0-5	6	Off Cap	4,4'-DDE [2C]	0.54	0.06	5	2.99E-06	5.27E+05	0.52	180879.59	0.66
QT2-6-SPME2-1	0-5	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.53	<20097.73	<0.072
QT2-6-SPME1-3	10-15	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.69	<20097.73	<0.386
QT2-6-SPME2-3	10-15	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.66	<20097.73	<0.4
QT2-6-SPME1-3	10-15	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.52	<20097.73	<0.074
QT2-6-SPME2-3	10-15	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.53	<20097.73	<0.073
QT2-6-SPME1-3	10-15	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.51	<20097.73	<0.069
QT2-6-SPME2-3	10-15	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.52	<20097.73	<0.067

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2-6-SPME1-3	10-15	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.70	<20097.73	<0.427
QT2-6-SPME2-3	10-15	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.67	<20097.73	<0.444
QT2-6-SPME1-3	10-15	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.58	<20097.73	<0.121
QT2-6-SPME2-3	10-15	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.57	<20097.73	<0.122
QT2-6-SPME1-3	10-15	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.52	<20097.73	<0.073
QT2-6-SPME2-3	10-15	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.53	<20097.73	<0.072
QT2-6-SPME1-4	15-20	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.62	<20097.73	<0.428
QT2-6-SPME2-4	15-20	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.66	<20097.73	<0.4
QT2-6-SPME1-4	15-20	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.48	<20097.73	<0.081
QT2-6-SPME2-4	15-20	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.53	<20097.73	<0.073
QT2-6-SPME1-4	15-20	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.47	<20097.73	<0.075
QT2-6-SPME2-4	15-20	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.52	<20097.73	<0.067
QT2-6-SPME1-4	15-20	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.63	<20097.73	<0.475
QT2-6-SPME2-4	15-20	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.67	<20097.73	<0.444
QT2-6-SPME1-4	15-20	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.52	<20097.73	<0.133
QT2-6-SPME2-4	15-20	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.57	<20097.73	<0.122
QT2-6-SPME1-4	15-20	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.48	<20097.73	<0.08
QT2-6-SPME2-4	15-20	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.53	<20097.73	<0.072
QT2 6 1-5	20-25	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.62	<20097.73	<0.428
QT2 6 2-5	20-25	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.66	<20097.73	<0.4
QT2 6 1-5	20-25	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.48	<20097.73	<0.081
QT2 6 2-5	20-25	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.53	<20097.73	<0.073
QT2 6 1-5	20-25	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.47	<20097.73	<0.075
QT2 6 2-5	20-25	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.52	<20097.73	<0.067
QT2 6 1-5	20-25	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.63	<20097.73	<0.475
QT2 6 2-5	20-25	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.67	<20097.73	<0.444
QT2 6 1-5	20-25	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.52	<20097.73	<0.133
QT2 6 2-5	20-25	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.57	<20097.73	<0.122
QT2 6 1-5	20-25	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.48	<20097.73	<0.08
QT2 6 2-5	20-25	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.53	<20097.73	<0.072
QT2-6-SPME1-6	25-30	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.62	<20097.73	<0.428
QT2-6-SPME2-6	25-30	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.66	<20097.73	<0.4
QT2-6-SPME1-6	25-30	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.48	<20097.73	<0.081
QT2-6-SPME2-6	25-30	6	Off Cap	2,4´-DDE	0.08	0.06	5	2.99E-06	5.17E+05	0.53	26796.98	0.10
QT2-6-SPME1-6	25-30	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.47	<20097.73	<0.075
QT2-6-SPME2-6	25-30	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.52	<20097.73	<0.067
QT2-6-SPME1-6	25-30	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.63	<20097.73	<0.475
QT2-6-SPME2-6	25-30	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.67	<20097.73	<0.444
QT2-6-SPME1-6	25-30	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.52	<20097.73	<0.133
QT2-6-SPME2-6	25-30	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.57	<20097.73	<0.122
QT2-6-SPME1-6	25-30	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.48	<20097.73	<0.08

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2-6-SPME2-6	25-30	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.53	<20097.73	<0.072
QT2-6-SPME1-7	30-35	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.62	<20097.73	<0.428
QT2-6-SPME2-7	30-35	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.66	<20097.73	<0.4
QT2-6-SPME1-7	30-35	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.48	<20097.73	<0.081
QT2-6-SPME2-7	30-35	6	Off Cap	2,4´-DDE	0.10	0.06	5	2.99E-06	5.17E+05	0.53	33496.22	0.12
QT2-6-SPME1-7	30-35	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.47	<20097.73	<0.075
QT2-6-SPME2-7	30-35	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.52	<20097.73	<0.067
QT2-6-SPME1-7	30-35	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.63	<20097.73	<0.475
QT2-6-SPME2-7	30-35	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.67	<20097.73	<0.444
QT2-6-SPME1-7	30-35	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.52	<20097.73	<0.133
QT2-6-SPME2-7	30-35	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.57	<20097.73	<0.122
QT2-6-SPME1-7	30-35	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.48	<20097.73	<0.08
QT2-6-SPME2-7	30-35	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.53	<20097.73	<0.072
QT2-6-SPME1-8	35-40	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.64	<20097.73	<0.419
QT2-6-SPME2-8	35-40	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.39	<20097.73	<0.674
QT2-6-SPME1-8	35-40	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.48	<20097.73	<0.081
QT2-6-SPME2-8	35-40	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.31	<20097.73	<0.125
QT2-6-SPME1-8	35-40	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.47	<20097.73	<0.075
QT2-6-SPME2-8	35-40	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.31	<20097.73	<0.114
QT2-6-SPME1-8	35-40	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.64	<20097.73	<0.463
QT2-6-SPME2-8	35-40	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.40	<20097.73	<0.747
QT2-6-SPME1-8	35-40	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.53	<20097.73	<0.132
QT2-6-SPME2-8	35-40	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.34	<20097.73	<0.207
QT2-6-SPME1-8	35-40	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.48	<20097.73	<0.08
QT2-6-SPME2-8	35-40	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.31	<20097.73	<0.122
QT2-6-SPME1-9	40-45	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.64	<20097.73	<0.419
QT2-6-SPME2-9	40-45	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.39	<20097.73	<0.674
QT2-6-SPME1-9	40-45	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.48	<20097.73	<0.081
QT2-6-SPME2-9	40-45	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.31	<20097.73	<0.125
QT2-6-SPME1-9	40-45	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.47	<20097.73	<0.075
QT2-6-SPME2-9	40-45	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.31	<20097.73	<0.114
QT2-6-SPME1-9	40-45	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.64	<20097.73	<0.463
QT2-6-SPME2-9	40-45	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.40	<20097.73	<0.747
QT2-6-SPME1-9	40-45	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.53	<20097.73	<0.132
QT2-6-SPME2-9	40-45	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.34	<20097.73	<0.207
QT2-6-SPME1-9	40-45	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.48	<20097.73	<0.08
QT2-6-SPME2-9	40-45	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.31	<20097.73	<0.122
QT2 6 1-10	45-50	6	Off Cap	2,4´-DDD	0.12	0.06	5	2.99E-06	7.55E+04	0.64	40195.46	0.84
QT2 6 2-10	45-50	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.39	<20097.73	<0.674
QT2 6 1-10	45-50	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.48	<20097.73	<0.081
QT2 6 2-10	45-50	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.31	<20097.73	<0.125

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2 6 1-10	45-50	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.47	<20097.73	<0.075
QT2 6 2-10	45-50	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.31	<20097.73	<0.114
QT2 6 1-10	45-50	6	Off Cap	4,4´-DDD	0.07	0.06	5	2.99E-06	6.73E+04	0.64	23447.35	0.54
QT2 6 2-10	45-50	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.40	<20097.73	<0.747
QT2 6 1-10	45-50	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.53	<20097.73	<0.132
QT2 6 2-10	45-50	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.34	<20097.73	<0.207
QT2 6 1-10	45-50	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.48	<20097.73	<0.08
QT2 6 2-10	45-50	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.31	<20097.73	<0.122
QT2-6-SPME1-11	50-55	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.64	<20097.73	<0.419
QT2-6-SPME2-11	50-55	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.39	<20097.73	<0.674
QT2-6-SPME1-11	50-55	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.48	<20097.73	<0.081
QT2-6-SPME2-11	50-55	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.31	<20097.73	<0.125
QT2-6-SPME1-11	50-55	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.47	<20097.73	<0.075
QT2-6-SPME2-11	50-55	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.31	<20097.73	<0.114
QT2-6-SPME1-11	50-55	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.64	<20097.73	<0.463
QT2-6-SPME2-11	50-55	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.40	<20097.73	<0.747
QT2-6-SPME1-11	50-55	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.53	<20097.73	<0.132
QT2-6-SPME2-11	50-55	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.34	<20097.73	<0.207
QT2-6-SPME1-11	50-55	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.48	<20097.73	<0.08
QT2-6-SPME2-11	50-55	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.31	<20097.73	<0.122
QT2 6 1-2	5-10	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.69	<20097.73	<0.386
QT2 6 2-2	5-10	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.66	<20097.73	<0.4
QT2 6 1-2	5-10	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.52	<20097.73	<0.074
QT2 6 2-2	5-10	6	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.53	<20097.73	<0.073
QT2 6 1-2	5-10	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.51	<20097.73	<0.069
QT2 6 2-2	5-10	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.52	<20097.73	<0.067
QT2 6 1-2	5-10	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.70	<20097.73	<0.427
QT2 6 2-2	5-10	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.67	<20097.73	<0.444
QT2 6 1-2	5-10	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.58	<20097.73	<0.121
QT2 6 2-2	5-10	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.57	<20097.73	<0.122
QT2 6 1-2	5-10	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.52	<20097.73	<0.073
QT2 6 2-2	5-10	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.53	<20097.73	<0.072
QT2-6-SPME2-12	55-57.9	6	Off Cap	2,4´-DDD	ND	0.06	2.9	1.73E-06	7.55E+04	0.39	<34651.26	<1.163
QT2-6-SPME2-12	55-57.9	6	Off Cap	2,4´-DDE	ND	0.06	2.9	1.73E-06	5.17E+05	0.31	<34651.26	<0.215
QT2-6-SPME2-12	55-57.9	6	Off Cap	2,4´-DDT	ND	0.06	2.9	1.73E-06	5.70E+05	0.31	<34651.26	<0.197
QT2-6-SPME2-12	55-57.9	6	Off Cap	4,4´-DDD	ND	0.06	2.9	1.73E-06	6.73E+04	0.40	<34651.26	<1.289
QT2-6-SPME2-12	55-57.9	6	Off Cap	4,4´-DDT	ND	0.06	2.9	1.73E-06	2.89E+05	0.34	<34651.26	<0.357
QT2-6-SPME2-12	55-57.9	6	Off Cap	4,4'-DDE [2C]	ND	0.06	2.9	1.73E-06	5.27E+05	0.31	<34651.26	<0.211
QT2-6-SPME1-12	55-60	6	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.64	<20097.73	<0.419
QT2-6-SPME1-12	55-60	6	Off Cap	2,4´-DDE	0.08	0.06	5	2.99E-06	5.17E+05	0.48	26796.98	0.11
QT2-6-SPME1-12	55-60	6	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.47	<20097.73	<0.075

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2-6-SPME1-12	55-60	6	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.64	<20097.73	<0.463
QT2-6-SPME1-12	55-60	6	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.53	<20097.73	<0.132
QT2-6-SPME1-12	55-60	6	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.48	<20097.73	<0.08
QT2-7-SPME1-1	0-5	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.59	<20097.73	<0.448
QT2-7-SPME2-1	0-5	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.62	<20097.73	<0.429
QT2-7-SPME1-1	0-5	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.43	<20097.73	<0.091
QT2-7-SPME2-1	0-5	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.50	<20097.73	<0.079
QT2-7-SPME1-1	0-5	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.42	<20097.73	<0.084
QT2-7-SPME2-1	0-5	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.49	<20097.73	<0.072
QT2-7-SPME1-1	0-5	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.60	<20097.73	<0.495
QT2-7-SPME2-1	0-5	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.63	<20097.73	<0.476
QT2-7-SPME1-1	0-5	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.48	<20097.73	<0.146
QT2-7-SPME2-1	0-5	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.53	<20097.73	<0.13
QT2-7-SPME1-1	0-5	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.42	<20097.73	<0.09
QT2-7-SPME2-1	0-5	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.49	<20097.73	<0.077
QT2-7-SPME1-3	10-15	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.59	<20097.73	<0.448
QT2-7-SPME2-3	10-15	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.62	<20097.73	<0.429
QT2-7-SPME1-3	10-15	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.43	<20097.73	<0.091
QT2-7-SPME2-3	10-15	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.50	<20097.73	<0.079
QT2-7-SPME1-3	10-15	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.42	<20097.73	<0.084
QT2-7-SPME2-3	10-15	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.49	<20097.73	<0.072
QT2-7-SPME1-3	10-15	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.60	<20097.73	<0.495
QT2-7-SPME2-3	10-15	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.63	<20097.73	<0.476
QT2-7-SPME1-3	10-15	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.48	<20097.73	<0.146
QT2-7-SPME2-3	10-15	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.53	<20097.73	<0.13
QT2-7-SPME1-3	10-15	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.42	<20097.73	<0.09
QT2-7-SPME2-3	10-15	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.49	<20097.73	<0.077
QT2-7-SPME1-4	15-20	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.61	<20097.73	<0.437
QT2-7-SPME2-4	15-20	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.60	<20097.73	<0.442
QT2-7-SPME1-4	15-20	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.46	<20097.73	<0.084
QT2-7-SPME2-4	15-20	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.51	<20097.73	<0.077
QT2-7-SPME1-4	15-20	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.45	<20097.73	<0.078
QT2-7-SPME2-4	15-20	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.50	<20097.73	<0.07
QT2-7-SPME1-4	15-20	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.62	<20097.73	<0.484
QT2-7-SPME2-4	15-20	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.61	<20097.73	<0.492
QT2-7-SPME1-4	15-20	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.51	<20097.73	<0.137
QT2-7-SPME2-4	15-20	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.54	<20097.73	<0.13
QT2-7-SPME1-4	15-20	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.46	<20097.73	<0.083
QT2-7-SPME2-4	15-20	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.50	<20097.73	<0.076
QT2 7 1-5	20-25	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.61	<20097.73	<0.437
QT2 7 2-5	20-25	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.60	<20097.73	<0.442

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2 7 1-5	20-25	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.46	<20097.73	<0.084
QT2 7 2-5	20-25	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.51	<20097.73	<0.077
QT2 7 1-5	20-25	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.45	<20097.73	<0.078
QT2 7 2-5	20-25	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.50	<20097.73	<0.07
QT2 7 1-5	20-25	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.62	<20097.73	<0.484
QT2 7 2-5	20-25	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.61	<20097.73	<0.492
QT2 7 1-5	20-25	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.51	<20097.73	<0.137
QT2 7 2-5	20-25	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.54	<20097.73	<0.13
QT2 7 1-5	20-25	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.46	<20097.73	<0.083
QT2 7 2-5	20-25	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.50	<20097.73	<0.076
QT2-7-SPME1-6	25-30	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.61	<20097.73	<0.437
QT2-7-SPME2-6	25-30	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.60	<20097.73	<0.442
QT2-7-SPME1-6	25-30	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.46	<20097.73	<0.084
QT2-7-SPME2-6	25-30	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.51	<20097.73	<0.077
QT2-7-SPME1-6	25-30	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.45	<20097.73	<0.078
QT2-7-SPME2-6	25-30	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.50	<20097.73	<0.07
QT2-7-SPME1-6	25-30	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.62	<20097.73	<0.484
QT2-7-SPME2-6	25-30	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.61	<20097.73	<0.492
QT2-7-SPME1-6	25-30	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.51	<20097.73	<0.137
QT2-7-SPME2-6	25-30	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.54	<20097.73	<0.13
QT2-7-SPME1-6	25-30	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.46	<20097.73	<0.083
QT2-7-SPME2-6	25-30	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.50	<20097.73	<0.076
QT2-7-SPME1-7	30-35	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.61	<20097.73	<0.437
QT2-7-SPME2-7	30-35	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.60	<20097.73	<0.442
QT2-7-SPME1-7	30-35	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.46	<20097.73	<0.084
QT2-7-SPME2-7	30-35	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.51	<20097.73	<0.077
QT2-7-SPME1-7	30-35	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.45	<20097.73	<0.078
QT2-7-SPME2-7	30-35	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.50	<20097.73	<0.07
QT2-7-SPME1-7	30-35	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.62	<20097.73	<0.484
QT2-7-SPME2-7	30-35	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.61	<20097.73	<0.492
QT2-7-SPME1-7	30-35	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.51	<20097.73	<0.137
QT2-7-SPME2-7	30-35	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.54	<20097.73	<0.13
QT2-7-SPME1-7	30-35	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.46	<20097.73	<0.083
QT2-7-SPME2-7	30-35	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.50	<20097.73	<0.076
QT2-7-SPME1-8	35-40	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.60	<20097.73	<0.445
QT2-7-SPME2-8	35-40	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.58	<20097.73	<0.455
QT2-7-SPME1-8	35-40	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.43	<20097.73	<0.09
QT2-7-SPME2-8	35-40	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.47	<20097.73	<0.082
QT2-7-SPME1-8	35-40	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.42	<20097.73	<0.084
QT2-7-SPME2-8	35-40	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.47	<20097.73	<0.076
QT2-7-SPME1-8	35-40	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.61	<20097.73	<0.491

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2-7-SPME2-8	35-40	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.59	<20097.73	<0.505
QT2-7-SPME1-8	35-40	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.48	<20097.73	<0.145
QT2-7-SPME2-8	35-40	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.51	<20097.73	<0.137
QT2-7-SPME1-8	35-40	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.43	<20097.73	<0.089
QT2-7-SPME2-8	35-40	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.47	<20097.73	<0.081
QT2-7-SPME1-9	40-45	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.60	<20097.73	<0.445
QT2-7-SPME2-9	40-45	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.58	<20097.73	<0.455
QT2-7-SPME1-9	40-45	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.43	<20097.73	<0.09
QT2-7-SPME2-9	40-45	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.47	<20097.73	<0.082
QT2-7-SPME1-9	40-45	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.42	<20097.73	<0.084
QT2-7-SPME2-9	40-45	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.47	<20097.73	<0.076
QT2-7-SPME1-9	40-45	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.61	<20097.73	<0.491
QT2-7-SPME2-9	40-45	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.59	<20097.73	<0.505
QT2-7-SPME1-9	40-45	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.48	<20097.73	<0.145
QT2-7-SPME2-9	40-45	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.51	<20097.73	<0.137
QT2-7-SPME1-9	40-45	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.43	<20097.73	<0.089
QT2-7-SPME2-9	40-45	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.47	<20097.73	<0.081
QT2 7 1-10	45-50	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.60	<20097.73	<0.445
QT2 7 2-10	45-50	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.58	<20097.73	<0.455
QT2 7 1-10	45-50	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.43	<20097.73	<0.09
QT2 7 2-10	45-50	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.47	<20097.73	<0.082
QT2 7 1-10	45-50	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.42	<20097.73	<0.084
QT2 7 2-10	45-50	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.47	<20097.73	<0.076
QT2 7 1-10	45-50	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.61	<20097.73	<0.491
QT2 7 2-10	45-50	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.59	<20097.73	<0.505
QT2 7 1-10	45-50	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.48	<20097.73	<0.145
QT2 7 2-10	45-50	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.51	<20097.73	<0.137
QT2 7 1-10	45-50	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.43	<20097.73	<0.089
QT2 7 2-10	45-50	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.47	<20097.73	<0.081
QT2-7-SPME1-11	50-55	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.60	<20097.73	<0.445
QT2-7-SPME2-11	50-55	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.58	<20097.73	<0.455
QT2-7-SPME1-11	50-55	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.43	<20097.73	<0.09
QT2-7-SPME2-11	50-55	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.47	<20097.73	<0.082
QT2-7-SPME1-11	50-55	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.42	<20097.73	<0.084
QT2-7-SPME2-11	50-55	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.47	<20097.73	<0.076
QT2-7-SPME1-11	50-55	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.61	<20097.73	<0.491
QT2-7-SPME2-11	50-55	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.59	<20097.73	<0.505
QT2-7-SPME1-11	50-55	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.48	<20097.73	<0.145
QT2-7-SPME2-11	50-55	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.51	<20097.73	<0.137
QT2-7-SPME1-11	50-55	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.43	<20097.73	<0.089
QT2-7-SPME2-11	50-55	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.47	<20097.73	<0.081

Table 3: Field, Laboratory Data and Calculations for in-situ SPME Study during 2-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
QT2 7 1-2	5-10	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.59	<20097.73	<0.448
QT2 7 2-2	5-10	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.62	<20097.73	<0.429
QT2 7 1-2	5-10	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.43	<20097.73	<0.091
QT2 7 2-2	5-10	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.50	<20097.73	<0.079
QT2 7 1-2	5-10	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.42	<20097.73	<0.084
QT2 7 2-2	5-10	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.49	<20097.73	<0.072
QT2 7 1-2	5-10	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.60	<20097.73	<0.495
QT2 7 2-2	5-10	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.63	<20097.73	<0.476
QT2 7 1-2	5-10	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.48	<20097.73	<0.146
QT2 7 2-2	5-10	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.53	<20097.73	<0.13
QT2 7 1-2	5-10	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.42	<20097.73	<0.09
QT2 7 2-2	5-10	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.49	<20097.73	<0.077
QT2-7-SPME1-12	55-60	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.60	<20097.73	<0.445
QT2-7-SPME2-12	55-60	7	Off Cap	2,4´-DDD	ND	0.06	5	2.99E-06	7.55E+04	0.58	<20097.73	<0.455
QT2-7-SPME1-12	55-60	7	Off Cap	2,4´-DDE	ND	0.06	5	2.99E-06	5.17E+05	0.43	<20097.73	<0.09
QT2-7-SPME2-12	55-60	7	Off Cap	2,4´-DDE	0.09	0.06	5	2.99E-06	5.17E+05	0.47	30146.60	0.12
QT2-7-SPME1-12	55-60	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.42	<20097.73	<0.084
QT2-7-SPME2-12	55-60	7	Off Cap	2,4´-DDT	ND	0.06	5	2.99E-06	5.70E+05	0.47	<20097.73	<0.076
QT2-7-SPME1-12	55-60	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.61	<20097.73	<0.491
QT2-7-SPME2-12	55-60	7	Off Cap	4,4´-DDD	ND	0.06	5	2.99E-06	6.73E+04	0.59	<20097.73	<0.505
QT2-7-SPME1-12	55-60	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.48	<20097.73	<0.145
QT2-7-SPME2-12	55-60	7	Off Cap	4,4´-DDT	ND	0.06	5	2.99E-06	2.89E+05	0.51	<20097.73	<0.137
QT2-7-SPME1-12	55-60	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.43	<20097.73	<0.089
QT2-7-SPME2-12	55-60	7	Off Cap	4,4'-DDE [2C]	ND	0.06	5	2.99E-06	5.27E+05	0.47	<20097.73	<0.081

Footnotes:

1.Duplicate samples per station and interval deployed. Average of duplicates presented in Table 1. Compilation of in situ Porewater DDX Results for all Monitoring Events.

2. 0.597 µL polydimethylsiloxane (PDMS) per cm of this type of SPME fiber.

3. Fiber:Water Partition Coefficient calculated as Log Kfs = LogKow - 0.91 (Mayer et al. 2000). Log Kow referenced from ATDSR (2002).

4. Fraction to steady state (fss) calculated based on performance reference compound (PRC) mass transfer kinetics.

5. Concentration of exposure solution = (Concentration in fiber ÷ fss) ÷ Kfs. If not detected, reported as < detection limit.

Abbreviations:

cm: centimeter(s)
L: Liter(s)
ND: Not detected
ng: nanogram(s)
PDMS: Polydimethylsiloxane
SPME: solid phase microextraction

Table 4: Field, Laboratory Data and Calculations for *in-situ* SPME Study during 14-Month Event
SSC Pacific
Quantico, Virginia

Sample ID	Sample Interval (cm)	Station ID	Within Cap Footprint?	Sample Type[1]	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
Site 1 (0-5cm)	0-5	1	In Cap	Sample	4,4´-DDE	ND	0.05	5	2.98541E-06	526667	0.41	<16748.11	<0.08
Site 1 (0-5cm)	0-5	1	In Cap	Sample	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.51	<16748.11	<0.11
Site 1 (0-5cm)	0-5	1	In Cap	Sample	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.71	<16748.11	<0.31
Site 1 (0-5cm)	0-5	1	In Cap	Sample	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.41	<16748.11	<0.08
Site 1 (0-5cm)	0-5	1	In Cap	Sample	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.40	<16748.11	<0.07
Site 1 (0-5cm)	0-5	1	In Cap	Sample	4,4´-DDD	0.06	0.05	5	2.98541E-06	67258	0.73	20097.73179	0.41
Site 1 (10-15cm)	10-15	1	In Cap	Sample	4,4´-DDE	ND	0.05	5	2.98541E-06	526667	0.41	<16748.11	<0.08
Site 1 (10-15cm)	10-15	1	In Cap	Sample	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.51	<16748.11	<0.11
Site 1 (10-15cm)	10-15	1	In Cap	Sample	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.71	<16748.11	<0.31
Site 1 (10-15cm)	10-15	1	In Cap	Sample	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.41	<16748.11	<0.08
Site 1 (10-15cm)	10-15	1	In Cap	Sample	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.40	<16748.11	<0.07
Site 1 (10-15cm)	10-15	1	In Cap	Sample	4,4´-DDD	ND	0.05	5	2.98541E-06	67258	0.73	<16748.11	<0.34
Site 1 (15-20cm)	15-20	1	In Cap	Sample	4,4´-DDE	ND	0.05	5	2.98541E-06	526667	1.00	<16748.11	<0.03
Site 1 (15-20cm)	15-20	1	In Cap	Sample	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	1.00	<16748.11	<0.06
Site 1 (15-20cm)	15-20	1	In Cap	Sample	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.90	<16748.11	<0.25
Site 1 (15-20cm)	15-20	1	In Cap	Sample	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	1.00	<16748.11	<0.03
Site 1 (15-20cm)	15-20	1	In Cap	Sample	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	1.00	<16748.11	<0.03
Site 1 (15-20cm)	15-20	1	In Cap	Sample	4,4´-DDD	ND	0.05	5	2.98541E-06	67258	0.90	<16748.11	<0.28
Site 1 (20-25cm)	20-25	1	In Cap	Sample	4,4´-DDE	ND	0.05	5	2.98541E-06	526667	1.00	<16748.11	<0.03
Site 1 (20-25cm)	20-25	1	In Cap	Sample	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	1.00	<16748.11	<0.06
Site 1 (20-25cm)	20-25	1	In Cap	Sample	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.90	<16748.11	<0.25
Site 1 (20-25cm)	20-25	1	In Cap	Sample	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	1.00	<16748.11	<0.03
Site 1 (20-25cm)	20-25	1	In Cap	Sample	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	1.00	<16748.11	<0.03
Site 1 (20-25cm)	20-25	1	In Cap	Sample	4,4´-DDD	0.08	0.05	5	2.98541E-06	67258	0.90	26796.97571	0.44
Site 2 (0-5cm)	0-5	2	In Cap	Sample	4,4´-DDE	ND	0.05	5	2.98541E-06	526667	0.66	<16748.11	<0.05
Site 2 (0-5cm)	0-5	2	In Cap	Sample	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.71	<16748.11	<0.08
Site 2 (0-5cm)	0-5	2	In Cap	Sample	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.82	<16748.11	<0.27
Site 2 (0-5cm)	0-5	2	In Cap	Sample	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.66	<16748.11	<0.05
Site 2 (0-5cm)	0-5	2	In Cap	Sample	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.65	<16748.11	<0.05
Site 2 (0-5cm)	0-5	2	In Cap	Sample	4,4´-DDD	0.06	0.05	5	2.98541E-06	67258	0.83	20097.73179	0.36
Site 2 (10-15cm)	10-15	2	In Cap	Sample	4,4´-DDE	0.09	0.05	5	2.98541E-06	526667	0.66	30146.59768	0.09
Site 2 (10-15cm)	10-15	2	In Cap	Sample	4,4´-DDT	0.15	0.05	5	2.98541E-06	288937	0.71	50244.32947	0.24
Site 2 (10-15cm)	10-15	2	In Cap	Sample	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.82	<16748.11	<0.27
Site 2 (10-15cm)	10-15	2	In Cap	Sample	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.66	<16748.11	<0.05
Site 2 (10-15cm)	10-15	2	In Cap	Sample	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.65	<16748.11	<0.05
Site 2 (10-15cm)	10-15	2	In Cap	Sample	4,4´-DDD	0.23	0.05	5	2.98541E-06	67258	0.83	77041.30518	1.38
Site 2 (15-20cm)	15-20	2	In Cap	Sample	4,4´-DDE	ND	0.05	5	2.98541E-06	526667	1.00	<16748.11	<0.03
Site 2 (15-20cm)	15-20	2	In Cap	Sample	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.80	<16748.11	<0.07
Site 2 (15-20cm)	15-20	2	In Cap	Sample	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.85	<16748.11	<0.26
Site 2 (15-20cm)	15-20	2	In Cap	Sample	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	1.00	<16748.11	<0.03
Site 2 (15-20cm)	15-20	2	In Cap	Sample	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	1.00	<16748.11	<0.03
Site 2 (15-20cm)	15-20	2	In Cap	Sample	4,4´-DDD	0.16	0.05	5	2.98541E-06	67258	0.86	53593.95143	0.93
Site 2 (20-25cm)	20-25	2	In Cap	Sample	4,4´-DDE	0.06	0.05	5	2.98541E-06	526667	1.00	20097.73179	0.04

Table 4: Field, Laboratory Data and Calculations for *in-situ* SPME Study during 14-Month Event
SSC Pacific
Quantico, Virginia

Sample ID	Sample Interval (cm)	Station ID	Within Cap Footprint?	Sample Type[1]	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
Site 2 (20-25cm)	20-25	2	In Cap	Sample	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.80	<16748.11	<0.07
Site 2 (20-25cm)	20-25	2	In Cap	Sample	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.85	<16748.11	<0.26
Site 2 (20-25cm)	20-25	2	In Cap	Sample	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	1.00	<16748.11	<0.03
Site 2 (20-25cm)	20-25	2	In Cap	Sample	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	1.00	<16748.11	<0.03
Site 2 (20-25cm)	20-25	2	In Cap	Sample	4,4´-DDD	0.19	0.05	5	2.98541E-06	67258	0.86	63642.81732	1.10
Site 3 (0-5cm)	0-5	3	In Cap	Primary	4,4´-DDE	0.09	0.05	5	2.98541E-06	526667	0.54	30146.59768	0.11
Site 3 (0-5cm)	0-5	3	In Cap	Primary	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.63	<16748.11	<0.09
Site 3 (0-5cm)	0-5	3	In Cap	Primary	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.80	<16748.11	<0.28
Site 3 (0-5cm)	0-5	3	In Cap	Primary	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.55	<16748.11	<0.06
Site 3 (0-5cm)	0-5	3	In Cap	Primary	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.53	<16748.11	<0.06
Site 3 (0-5cm)	0-5	3	In Cap	Primary	4,4´-DDD	0.26	0.05	5	2.98541E-06	67258	0.81	87090.17107	1.59
Site 3 (20-25cm)	20-25	3	In Cap	Primary	4,4´-DDE	0.09	0.05	5	2.98541E-06	526667	0.60	30146.59768	0.10
Site 3 (20-25cm)	20-25	3	In Cap	Primary	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.68	<16748.11	<0.08
Site 3 (20-25cm)	20-25	3	In Cap	Primary	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.83	<16748.11	<0.27
Site 3 (20-25cm)	20-25	3	In Cap	Primary	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.60	<16748.11	<0.05
Site 3 (20-25cm)	20-25	3	In Cap	Primary	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.59	<16748.11	<0.05
Site 3 (20-25cm)	20-25	3	In Cap	Primary	4,4´-DDD	0.34	0.05	5	2.98541E-06	67258	0.84	113887.1468	2.01
Site 3 (25-30cm)	25-30	3	In Cap	Primary	4,4´-DDE	ND	0.05	5	2.98541E-06	526667	0.60	<16748.11	<0.05
Site 3 (25-30cm)	25-30	3	In Cap	Primary	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.68	<16748.11	<0.08
Site 3 (25-30cm)	25-30	3	In Cap	Primary	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.83	<16748.11	<0.27
Site 3 (25-30cm)	25-30	3	In Cap	Primary	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.60	<16748.11	<0.05
Site 3 (25-30cm)	25-30	3	In Cap	Primary	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.59	<16748.11	<0.05
Site 3 (25-30cm)	25-30	3	In Cap	Primary	4,4´-DDD	0.11	0.05	5	2.98541E-06	67258	0.84	36845.84161	0.65
Site 3 duo (30-35cm)	30-35	3	In Cap	Sample	4,4´-DDE	ND	0.05	5	2.98541E-06	526667	0.60	<16748.11	<0.05
Site 3 duo (30-35cm)	30-35	3	In Cap	Sample	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.68	<16748.11	<0.09
Site 3 duo (30-35cm)	30-35	3	In Cap	Sample	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.83	<16748.11	<0.27
Site 3 duo (30-35cm)	30-35	3	In Cap	Sample	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.60	<16748.11	<0.05
Site 3 duo (30-35cm)	30-35	3	In Cap	Sample	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.58	<16748.11	<0.05
Site 3 duo (30-35cm)	30-35	3	In Cap	Sample	4,4´-DDD	0.11	0.05	5	2.98541E-06	67258	0.84	36845.84161	0.65
Site 3 duo (0-5cm)	0-5	3	In Cap	Duplicate	4,4´-DDE	ND	0.05	5	2.98541E-06	526667	0.45	<16748.11	<0.07
Site 3 duo (0-5cm)	0-5	3	In Cap	Duplicate	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.56	<16748.11	<0.1
Site 3 duo (0-5cm)	0-5	3	In Cap	Duplicate	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.76	<16748.11	<0.29
Site 3 duo (0-5cm)	0-5	3	In Cap	Duplicate	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.46	<16748.11	<0.07
Site 3 duo (0-5cm)	0-5	3	In Cap	Duplicate	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.44	<16748.11	<0.07
Site 3 duo (0-5cm)	0-5	3	In Cap	Duplicate	4,4´-DDD	0.16	0.05	5	2.98541E-06	67258	0.77	53593.95143	1.03
Site 3 duo (20-25cm)	20-25	3	In Cap	Duplicate	4,4´-DDE	ND	0.05	5	2.98541E-06	526667	0.47	<16748.11	<0.07
Site 3 duo (20-25cm)	20-25	3	In Cap	Duplicate	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.55	<16748.11	<0.1
Site 3 duo (20-25cm)	20-25	3	In Cap	Duplicate	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.73	<16748.11	<0.3
Site 3 duo (20-25cm)	20-25	3	In Cap	Duplicate	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.47	<16748.11	<0.07
Site 3 duo (20-25cm)	20-25	3	In Cap	Duplicate	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.46	<16748.11	<0.06
Site 3 duo (20-25cm)	20-25	3	In Cap	Duplicate	4,4´-DDD	0.11	0.05	5	2.98541E-06	67258	0.75	36845.84161	0.74
Site 3 duo (25-30cm)	25-30	3	In Cap	Duplicate	4,4´-DDE	ND	0.05	5	2.98541E-06	526667	0.47	<16748.11	<0.07
Site 3 duo (25-30cm)	25-30	3	In Cap	Duplicate	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.55	<16748.11	<0.1

Table 4: Field, Laboratory Data and Calculations for *in-situ* SPME Study during 14-Month Event
SSC Pacific
Quantico, Virginia

Sample ID	Sample Interval (cm)	Station ID	Within Cap Footprint?	Sample Type[1]	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
Site 3 duo (25-30cm)	25-30	3	In Cap	Duplicate	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.73	<16748.11	<0.3
Site 3 duo (25-30cm)	25-30	3	In Cap	Duplicate	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.47	<16748.11	<0.07
Site 3 duo (25-30cm)	25-30	3	In Cap	Duplicate	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.46	<16748.11	<0.06
Site 3 duo (25-30cm)	25-30	3	In Cap	Duplicate	4,4´-DDD	0.10	0.05	5	2.98541E-06	67258	0.75	33496.21964	0.67
Site 3 duo (31-36cm)	31-36	3	In Cap	Sample	4,4´-DDE	ND	0.05	5	2.98541E-06	526667	0.60	<16748.11	<0.05
Site 3 duo (31-36cm)	31-36	3	In Cap	Sample	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.68	<16748.11	<0.09
Site 3 duo (31-36cm)	31-36	3	In Cap	Sample	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.83	<16748.11	<0.27
Site 3 duo (31-36cm)	31-36	3	In Cap	Sample	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.60	<16748.11	<0.05
Site 3 duo (31-36cm)	31-36	3	In Cap	Sample	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.58	<16748.11	<0.05
Site 3 duo (31-36cm)	31-36	3	In Cap	Sample	4,4´-DDD	0.17	0.05	5	2.98541E-06	67258	0.84	56943.57339	1.01
Site 4 (0-5cm)	0-5	4	In Cap	Sample	4,4´-DDE	0.11	0.05	5	2.98541E-06	526667	0.63	36845.84161	0.11
Site 4 (0-5cm)	0-5	4	In Cap	Sample	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.68	<16748.11	<0.08
Site 4 (0-5cm)	0-5	4	In Cap	Sample	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.78	<16748.11	<0.28
Site 4 (0-5cm)	0-5	4	In Cap	Sample	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.63	<16748.11	<0.05
Site 4 (0-5cm)	0-5	4	In Cap	Sample	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.63	<16748.11	<0.05
Site 4 (0-5cm)	0-5	4	In Cap	Sample	4,4´-DDD	0.13	0.05	5	2.98541E-06	67258	0.79	43545.08554	0.82
Site 4 (36-41cm)	36-41	4	In Cap	Sample	4,4´-DDE	ND	0.05	5	2.98541E-06	526667	0.43	<16748.11	<0.07
Site 4 (36-41cm)	36-41	4	In Cap	Sample	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.50	<16748.11	<0.12
Site 4 (36-41cm)	36-41	4	In Cap	Sample	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.65	<16748.11	<0.34
Site 4 (36-41cm)	36-41	4	In Cap	Sample	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.43	<16748.11	<0.08
Site 4 (36-41cm)	36-41	4	In Cap	Sample	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.42	<16748.11	<0.07
Site 4 (36-41cm)	36-41	4	In Cap	Sample	4,4´-DDD	0.15	0.05	5	2.98541E-06	67258	0.66	50244.32947	1.13
Site 4 (41-46cm)	41-46	4	In Cap	Sample	4,4´-DDE	0.07	0.05	5	2.98541E-06	526667	0.43	23447.35375	0.10
Site 4 (41-46cm)	41-46	4	In Cap	Sample	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.50	<16748.11	<0.12
Site 4 (41-46cm)	41-46	4	In Cap	Sample	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.65	<16748.11	<0.34
Site 4 (41-46cm)	41-46	4	In Cap	Sample	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.43	<16748.11	<0.08
Site 4 (41-46cm)	41-46	4	In Cap	Sample	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.42	<16748.11	<0.07
Site 4 (41-46cm)	41-46	4	In Cap	Sample	4,4´-DDD	0.11	0.05	5	2.98541E-06	67258	0.66	36845.84161	0.83
Site 4 (46-54cm)	46-54	4	In Cap	Sample	4,4´-DDE	0.06	0.05	8	4.77666E-06	526667	0.69	12561.08237	0.03
Site 4 (46-54cm)	46-54	4	In Cap	Sample	4,4´-DDT	ND	0.05	8	4.77666E-06	288937	0.74	<10467.57	<0.05
Site 4 (46-54cm)	46-54	4	In Cap	Sample	2,4´-DDD	ND	0.05	8	4.77666E-06	75521	0.84	<10467.57	<0.17
Site 4 (46-54cm)	46-54	4	In Cap	Sample	2,4´-DDE	ND	0.05	8	4.77666E-06	516595	0.69	<10467.57	<0.03
Site 4 (46-54cm)	46-54	4	In Cap	Sample	2,4´-DDT	ND	0.05	8	4.77666E-06	569687	0.68	<10467.57	<0.03
Site 4 (46-54cm)	46-54	4	In Cap	Sample	4,4´-DDD	0.09	0.05	8	4.77666E-06	67258	0.85	18841.62355	0.33
Site 5 (0-5cm)	0-5	5	In Cap	Sample	4,4´-DDE	0.07	0.05	5	2.98541E-06	526667	0.66	23447.35375	0.07
Site 5 (0-5cm)	0-5	5	In Cap	Sample	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.71	<16748.11	<0.08
Site 5 (0-5cm)	0-5	5	In Cap	Sample	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.79	<16748.11	<0.28
Site 5 (0-5cm)	0-5	5	In Cap	Sample	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.67	<16748.11	<0.05
Site 5 (0-5cm)	0-5	5	In Cap	Sample	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.66	<16748.11	<0.04
Site 5 (0-5cm)	0-5	5	In Cap	Sample	4,4´-DDD	0.09	0.05	5	2.98541E-06	67258	0.80	30146.59768	0.56
Site 5 (37-42cm)	37-42	5	In Cap	Sample	4,4´-DDE	ND	0.05	5	2.98541E-06	526667	0.65	<16748.11	<0.05
Site 5 (37-42cm)	37-42	5	In Cap	Sample	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.70	<16748.11	<0.08
Site 5 (37-42cm)	37-42	5	In Cap	Sample	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.78	<16748.11	<0.28

Table 4: Field, Laboratory Data and Calculations for *in-situ* SPME Study during 14-Month Event
SSC Pacific
Quantico, Virginia

Sample ID	Sample Interval (cm)	Station ID	Within Cap Footprint?	Sample Type[1]	Analyte	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
Site 5 (37-42cm)	37-42	5	In Cap	Sample	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.65	<16748.11	<0.05
Site 5 (37-42cm)	37-42	5	In Cap	Sample	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.64	<16748.11	<0.05
Site 5 (37-42cm)	37-42	5	In Cap	Sample	4,4´-DDD	ND	0.05	5	2.98541E-06	67258	0.79	<16748.11	<0.32
Site 5 (42-47cm)	42-47	5	In Cap	Sample	4,4´-DDE	ND	0.05	5	2.98541E-06	526667	0.65	<16748.11	<0.05
Site 5 (42-47cm)	42-47	5	In Cap	Sample	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.70	<16748.11	<0.08
Site 5 (42-47cm)	42-47	5	In Cap	Sample	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.78	<16748.11	<0.28
Site 5 (42-47cm)	42-47	5	In Cap	Sample	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.65	<16748.11	<0.05
Site 5 (42-47cm)	42-47	5	In Cap	Sample	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.64	<16748.11	<0.05
Site 5 (42-47cm)	42-47	5	In Cap	Sample	4,4´-DDD	ND	0.05	5	2.98541E-06	67258	0.79	<16748.11	<0.32
Site 5 (47-52cm)-0.5ml	47-52	5	In Cap	Sample	4,4´-DDE	ND	0.05	5	2.98541E-06	526667	0.42	<16748.11	<0.08
Site 5 (47-52cm)-0.5ml	47-52	5	In Cap	Sample	4,4´-DDT	ND	0.05	5	2.98541E-06	288937	0.49	<16748.11	<0.12
Site 5 (47-52cm)-0.5ml	47-52	5	In Cap	Sample	2,4´-DDD	ND	0.05	5	2.98541E-06	75521	0.63	<16748.11	<0.35
Site 5 (47-52cm)-0.5ml	47-52	5	In Cap	Sample	2,4´-DDE	ND	0.05	5	2.98541E-06	516595	0.42	<16748.11	<0.08
Site 5 (47-52cm)-0.5ml	47-52	5	In Cap	Sample	2,4´-DDT	ND	0.05	5	2.98541E-06	569687	0.41	<16748.11	<0.07
Site 5 (47-52cm)-0.5ml	47-52	5	In Cap	Sample	4,4´-DDD	ND	0.05	5	2.98541E-06	67258	0.64	<16748.11	<0.39
Site 6 (0-10cm)-1ml	0-10	6	Off Cap	Sample	4,4´-DDE	0.07	0.05	10	5.97082E-06	526667	1.00	11723.67688	0.02
Site 6 (0-10cm)-1ml	0-10	6	Off Cap	Sample	4,4´-DDT	ND	0.05	10	5.97082E-06	288937	0.81	<8374.05	<0.04
Site 6 (0-10cm)-1ml	0-10	6	Off Cap	Sample	2,4´-DDD	ND	0.05	10	5.97082E-06	75521	0.87	<8374.05	<0.13
Site 6 (0-10cm)-1ml	0-10	6	Off Cap	Sample	2,4´-DDE	ND	0.05	10	5.97082E-06	516595	1.00	<8374.05	<0.02
Site 6 (0-10cm)-1ml	0-10	6	Off Cap	Sample	2,4´-DDT	ND	0.05	10	5.97082E-06	569687	1.00	<8374.05	<0.01
Site 6 (0-10cm)-1ml	0-10	6	Off Cap	Sample	4,4´-DDD	0.06	0.05	10	5.97082E-06	67258	0.88	10048.86589	0.17
Site 7 (0-10cm)-1ml	0-10	7	Off Cap	Sample	4,4´-DDE	0.06	0.05	10	5.97082E-06	526667	0.67	10048.86589	0.03
Site 7 (0-10cm)-1ml	0-10	7	Off Cap	Sample	4,4´-DDT	ND	0.05	10	5.97082E-06	288937	0.72	<8374.05	<0.04
Site 7 (0-10cm)-1ml	0-10	7	Off Cap	Sample	2,4´-DDD	ND	0.05	10	5.97082E-06	75521	0.83	<8374.05	<0.13
Site 7 (0-10cm)-1ml	0-10	7	Off Cap	Sample	2,4´-DDE	ND	0.05	10	5.97082E-06	516595	0.67	<8374.05	<0.02
Site 7 (0-10cm)-1ml	0-10	7	Off Cap	Sample	2,4´-DDT	ND	0.05	10	5.97082E-06	569687	0.66	<8374.05	<0.02
Site 7 (0-10cm)-1ml	0-10	7	Off Cap	Sample	4,4´-DDD	ND	0.05	10	5.97082E-06	67258	0.83	<8374.05	<0.15

Footnotes:

1. Duplicate samples deployed at station 3, intervals 0-5, 20-25 and 25-30 cm.
2. 0.597 µL polydimethylsiloxane (PDMS) per cm of this type of SPME fiber.
3. Fiber:Water Partition Coefficient calculated as Log Kfs = LogKow - 0.91 (Mayer et al. 2000). Log Kow referenced from ATDSR (2002).
4. Fraction to steady state (fss) calculated based on performance reference compound (PRC) mass transfer kinetics.
5. Concentration of exposure solution = (Concentration in fiber ÷ fss) ÷ Kfs. If not detected, reported as < detection limit.

Abbreviations:

cm: centimeter(s)
L: Liter(s)
ND: Not detected
ng: nanogram(s)
PDMS: Polydimethylsiloxane
SPME: solid phase microextraction

Table 5: Field, Laboratory Data and Calculations for *in-situ* SPME Study during 25-Month Event

SSC Pacific

Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	ANALYTE	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
STN 1 1A+1B 5.5-10.5 cm	5.5-10.5	1	In Cap	4,4´-DDE	0.09	0.03	5	5.971E-06	526667	0.71	15073.3	0.04
STN 1 1A+1B 5.5-10.5 cm	5.5-10.5	1	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.74	<5024.43	<0.024
STN 1 1A+1B 5.5-10.5 cm	5.5-10.5	1	In Cap	2,4´-DDD	0.04	0.03	5	5.971E-06	75521	0.79	6699.2	0.11
STN 1 1A+1B 5.5-10.5 cm	5.5-10.5	1	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.71	<5024.43	<0.014
STN 1 1A+1B 5.5-10.5 cm	5.5-10.5	1	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.71	<5024.43	<0.012
STN 1 1A+1B 5.5-10.5 cm	5.5-10.5	1	In Cap	4,4´-DDD	0.10	0.03	5	5.971E-06	67258	0.80	16748.1	0.31
STN 1 1A+1B 10.5-15.5 cm	10.5-15.5	1	In Cap	4,4´-DDE	0.13	0.03	5	5.971E-06	526667	0.60	21772.5	0.07
STN 1 1A+1B 10.5-15.5 cm	10.5-15.5	1	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.64	<5024.43	<0.027
STN 1 1A+1B 10.5-15.5 cm	10.5-15.5	1	In Cap	2,4´-DDD	0.04	0.03	5	5.971E-06	75521	0.72	6699.2	0.12
STN 1 1A+1B 10.5-15.5 cm	10.5-15.5	1	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.60	<5024.43	<0.016
STN 1 1A+1B 10.5-15.5 cm	10.5-15.5	1	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.60	<5024.43	<0.015
STN 1 1A+1B 10.5-15.5 cm	10.5-15.5	1	In Cap	4,4´-DDD	0.10	0.03	5	5.971E-06	67258	0.72	16748.1	0.34
STN 1 1A+1B 15.5-20.5 cm	15.5-20.5	1	In Cap	4,4´-DDE	0.12	0.03	5	5.971E-06	526667	0.61	20097.7	0.06
STN 1 1A+1B 15.5-20.5 cm	15.5-20.5	1	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.64	<5024.43	<0.027
STN 1 1A+1B 15.5-20.5 cm	15.5-20.5	1	In Cap	2,4´-DDD	0.04	0.03	5	5.971E-06	75521	0.73	6699.2	0.12
STN 1 1A+1B 15.5-20.5 cm	15.5-20.5	1	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.61	<5024.43	<0.016
STN 1 1A+1B 15.5-20.5 cm	15.5-20.5	1	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.60	<5024.43	<0.015
STN 1 1A+1B 15.5-20.5 cm	15.5-20.5	1	In Cap	4,4´-DDD	0.08	0.03	5	5.971E-06	67258	0.73	13398.5	0.27
STN 1 1A+1B 20.5-25.5 cm	20.5-25.5	1	In Cap	4,4´-DDE	0.15	0.03	5	5.971E-06	526667	0.63	25122.2	0.08
STN 1 1A+1B 20.5-25.5 cm	20.5-25.5	1	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.67	<5024.43	<0.026
STN 1 1A+1B 20.5-25.5 cm	20.5-25.5	1	In Cap	2,4´-DDD	0.05	0.03	5	5.971E-06	75521	0.74	8374.1	0.15
STN 1 1A+1B 20.5-25.5 cm	20.5-25.5	1	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.63	<5024.43	<0.015
STN 1 1A+1B 20.5-25.5 cm	20.5-25.5	1	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.63	<5024.43	<0.014
STN 1 1A+1B 20.5-25.5 cm	20.5-25.5	1	In Cap	4,4´-DDD	0.12	0.03	5	5.971E-06	67258	0.75	20097.7	0.40
STN 2 2A+2B 0-5 cm	0-5	2	In Cap	4,4´-DDE	0.03	0.03	5	5.971E-06	526667	0.71	5024.4	0.01
STN 2 2A+2B 0-5 cm	0-5	2	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.74	<5024.43	<0.023
STN 2 2A+2B 0-5 cm	0-5	2	In Cap	2,4´-DDD	ND	0.03	5	5.971E-06	75521	0.82	<5024.43	<0.082
STN 2 2A+2B 0-5 cm	0-5	2	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.71	<5024.43	<0.014
STN 2 2A+2B 0-5 cm	0-5	2	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.71	<5024.43	<0.012
STN 2 2A+2B 0-5 cm	0-5	2	In Cap	4,4´-DDD	0.03	0.03	5	5.971E-06	67258	0.82	5024.4	0.09
STN 2 2A+2B 5-10 cm	5-10	2	In Cap	4,4´-DDE	ND	0.03	5	5.971E-06	526667	0.48	<5024.43	<0.02
STN 2 2A+2B 5-10 cm	5-10	2	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.52	<5024.43	<0.033
STN 2 2A+2B 5-10 cm	5-10	2	In Cap	2,4´-DDD	ND	0.03	5	5.971E-06	75521	0.62	<5024.43	<0.107
STN 2 2A+2B 5-10 cm	5-10	2	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.48	<5024.43	<0.02
STN 2 2A+2B 5-10 cm	5-10	2	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.47	<5024.43	<0.019
STN 2 2A+2B 5-10 cm	5-10	2	In Cap	4,4´-DDD	0.03	0.03	5	5.971E-06	67258	0.63	5024.4	0.12
STN 2 2A+2B 10-15 cm	10-15	2	In Cap	4,4´-DDE	ND	0.03	5	5.971E-06	526667	0.29	<5024.43	<0.033
STN 2 2A+2B 10-15 cm	10-15	2	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.36	<5024.43	<0.048
STN 2 2A+2B 10-15 cm	10-15	2	In Cap	2,4´-DDD	ND	0.03	5	5.971E-06	75521	0.51	<5024.43	<0.129
STN 2 2A+2B 10-15 cm	10-15	2	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.29	<5024.43	<0.033
STN 2 2A+2B 10-15 cm	10-15	2	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.28	<5024.43	<0.031

Table 5: Field, Laboratory Data and Calculations for *in-situ* SPME Study during 25-Month Event

SSC Pacific

Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	ANALYTE	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
STN 2 2A+2B 10-15 cm	10-15	2	In Cap	4,4´-DDD	0.04	0.03	5	5.971E-06	67258	0.53	6699.2	0.19
STN 2 2A+2B 15-20 cm	15-20	2	In Cap	4,4´-DDE	0.03	0.03	5	5.971E-06	526667	0.47	5024.4	0.02
STN 2 2A+2B 15-20 cm	15-20	2	In Cap	4,4´-DDT	0.05	0.03	5	5.971E-06	288937	0.51	8374.1	0.06
STN 2 2A+2B 15-20 cm	15-20	2	In Cap	2,4´-DDD	ND	0.03	5	5.971E-06	75521	0.61	<5024.43	<0.11
STN 2 2A+2B 15-20 cm	15-20	2	In Cap	2,4´-DDE	0.12	0.03	5	5.971E-06	516595	0.47	20097.7	0.08
STN 2 2A+2B 15-20 cm	15-20	2	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.46	<5024.43	<0.019
STN 2 2A+2B 15-20 cm	15-20	2	In Cap	4,4´-DDD	0.07	0.03	5	5.971E-06	67258	0.61	11723.7	0.28
STN 2 2A+2B 20-25 cm	20-25	2	In Cap	4,4´-DDE	0.04	0.03	5	5.971E-06	526667	0.48	6699.2	0.03
STN 2 2A+2B 20-25 cm	20-25	2	In Cap	4,4´-DDT	0.04	0.03	5	5.971E-06	288937	0.52	6699.2	0.04
STN 2 2A+2B 20-25 cm	20-25	2	In Cap	2,4´-DDD	ND	0.03	5	5.971E-06	75521	0.62	<5024.43	<0.107
STN 2 2A+2B 20-25 cm	20-25	2	In Cap	2,4´-DDE	0.05	0.03	5	5.971E-06	516595	0.48	8374.1	0.03
STN 2 2A+2B 20-25 cm	20-25	2	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.47	<5024.43	<0.019
STN 2 2A+2B 20-25 cm	20-25	2	In Cap	4,4´-DDD	0.10	0.03	5	5.971E-06	67258	0.63	16748.1	0.39
STN 2 2A+2B 25-30 cm	25-30	2	In Cap	4,4´-DDE	0.05	0.03	5	5.971E-06	526667	0.41	8374.1	0.04
STN 2 2A+2B 25-30 cm	25-30	2	In Cap	4,4´-DDT	0.04	0.03	5	5.971E-06	288937	0.47	6699.2	0.05
STN 2 2A+2B 25-30 cm	25-30	2	In Cap	2,4´-DDD	ND	0.03	5	5.971E-06	75521	0.59	<5024.43	<0.113
STN 2 2A+2B 25-30 cm	25-30	2	In Cap	2,4´-DDE	0.14	0.03	5	5.971E-06	516595	0.41	23447.4	0.11
STN 2 2A+2B 25-30 cm	25-30	2	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.40	<5024.43	<0.022
STN 2 2A+2B 25-30 cm	25-30	2	In Cap	4,4´-DDD	0.08	0.03	5	5.971E-06	67258	0.60	13398.5	0.33
STN 2 2A+2B 30-35 cm	30-35	2	In Cap	4,4´-DDE	0.03	0.03	5	5.971E-06	526667	0.60	5024.4	0.02
STN 2 2A+2B 30-35 cm	30-35	2	In Cap	4,4´-DDT	0.03	0.03	5	5.971E-06	288937	0.63	5024.4	0.03
STN 2 2A+2B 30-35 cm	30-35	2	In Cap	2,4´-DDD	ND	0.03	5	5.971E-06	75521	0.71	<5024.43	<0.094
STN 2 2A+2B 30-35 cm	30-35	2	In Cap	2,4´-DDE	0.13	0.03	5	5.971E-06	516595	0.60	21772.5	0.07
STN 2 2A+2B 30-35 cm	30-35	2	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.59	<5024.43	<0.015
STN 2 2A+2B 30-35 cm	30-35	2	In Cap	4,4´-DDD	0.09	0.03	5	5.971E-06	67258	0.71	15073.3	0.31
STN 2 2A+2B 35-40 cm	35-40	2	In Cap	4,4´-DDE	0.04	0.03	5	5.971E-06	526667	0.46	6699.2	0.03
STN 2 2A+2B 35-40 cm	35-40	2	In Cap	4,4´-DDT	0.05	0.03	5	5.971E-06	288937	0.51	8374.1	0.06
STN 2 2A+2B 35-40 cm	35-40	2	In Cap	2,4´-DDD	0.03	0.03	5	5.971E-06	75521	0.62	5024.4	0.11
STN 2 2A+2B 35-40 cm	35-40	2	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.47	<5024.43	<0.021
STN 2 2A+2B 35-40 cm	35-40	2	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.46	<5024.43	<0.019
STN 2 2A+2B 35-40 cm	35-40	2	In Cap	4,4´-DDD	0.09	0.03	5	5.971E-06	67258	0.63	15073.3	0.35
STN 2 2A+2B 40-45 cm	40-45	2	In Cap	4,4´-DDE	0.03	0.03	5	5.971E-06	526667	0.69	5024.4	0.01
STN 2 2A+2B 40-45 cm	40-45	2	In Cap	4,4´-DDT	0.05	0.03	5	5.971E-06	288937	0.72	8374.1	0.04
STN 2 2A+2B 40-45 cm	40-45	2	In Cap	2,4´-DDD	0.03	0.03	5	5.971E-06	75521	0.79	5024.4	0.08
STN 2 2A+2B 40-45 cm	40-45	2	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.69	<5024.43	<0.014
STN 2 2A+2B 40-45 cm	40-45	2	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.68	<5024.43	<0.013
STN 2 2A+2B 40-45 cm	40-45	2	In Cap	4,4´-DDD	0.11	0.03	5	5.971E-06	67258	0.79	18422.9	0.35
STN 2 2A+2B 45-50 cm	45-50	2	In Cap	4,4´-DDE	ND	0.03	5	5.971E-06	526667	0.45	<5024.43	<0.021
STN 2 2A+2B 45-50 cm	45-50	2	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.49	<5024.43	<0.035
STN 2 2A+2B 45-50 cm	45-50	2	In Cap	2,4´-DDD	ND	0.03	5	5.971E-06	75521	0.60	<5024.43	<0.112
STN 2 2A+2B 45-50 cm	45-50	2	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.45	<5024.43	<0.022

Table 5: Field, Laboratory Data and Calculations for *in-situ* SPME Study during 25-Month Event

SSC Pacific

Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	ANALYTE	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
STN 2 2A+2B 45-50 cm	45-50	2	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.44	<5024.43	<0.02
STN 2 2A+2B 45-50 cm	45-50	2	In Cap	4,4´-DDD	0.07	0.03	5	5.971E-06	67258	0.60	11723.7	0.29
STN 2 2A+2B 50-55 cm	50-55	2	In Cap	4,4´-DDE	ND	0.03	5	5.971E-06	526667	0.61	<5024.43	<0.016
STN 2 2A+2B 50-55 cm	50-55	2	In Cap	4,4´-DDT	0.04	0.03	5	5.971E-06	288937	0.64	6699.2	0.04
STN 2 2A+2B 50-55 cm	50-55	2	In Cap	2,4´-DDD	0.03	0.03	5	5.971E-06	75521	0.71	5024.4	0.09
STN 2 2A+2B 50-55 cm	50-55	2	In Cap	2,4´-DDE	0.12	0.03	5	5.971E-06	516595	0.61	20097.7	0.06
STN 2 2A+2B 50-55 cm	50-55	2	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.61	<5024.43	<0.015
STN 2 2A+2B 50-55 cm	50-55	2	In Cap	4,4´-DDD	0.08	0.03	5	5.971E-06	67258	0.72	13398.5	0.28
STN 3 3B 0-5 cm	0-5	3	In Cap	4,4´-DDE	0.15	0.03	5	2.985E-06	526667	0.82	50244.3	0.12
STN 3 3B 0-5 cm	0-5	3	In Cap	4,4´-DDT	ND	0.03	5	2.985E-06	288937	0.84	<10048.87	<0.021
STN 3 3B 0-5 cm	0-5	3	In Cap	2,4´-DDD	0.05	0.03	5	2.985E-06	75521	0.88	16748.1	0.25
STN 3 3B 0-5 cm	0-5	3	In Cap	2,4´-DDE	ND	0.03	5	2.985E-06	516595	0.82	<10048.87	<0.012
STN 3 3B 0-5 cm	0-5	3	In Cap	2,4´-DDT	ND	0.03	5	2.985E-06	569687	0.82	<10048.87	<0.011
STN 3 3B 0-5 cm	0-5	3	In Cap	4,4´-DDD	0.04	0.03	5	2.985E-06	67258	0.89	13398.5	0.22
STN 3 3A+3B 5-10 cm	5-10	3	In Cap	4,4´-DDE	0.14	0.03	5	5.971E-06	526667	0.72	23447.4	0.06
STN 3 3A+3B 5-10 cm	5-10	3	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.75	<5024.43	<0.023
STN 3 3A+3B 5-10 cm	5-10	3	In Cap	2,4´-DDD	0.05	0.03	5	5.971E-06	75521	0.82	8374.1	0.14
STN 3 3A+3B 5-10 cm	5-10	3	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.72	<5024.43	<0.014
STN 3 3A+3B 5-10 cm	5-10	3	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.72	<5024.43	<0.012
STN 3 3A+3B 5-10 cm	5-10	3	In Cap	4,4´-DDD	0.09	0.03	5	5.971E-06	67258	0.82	15073.3	0.27
STN 3 3A+3B 10-15 cm	10-15	3	In Cap	4,4´-DDE	0.17	0.03	5	5.971E-06	526667	0.81	28471.8	0.07
STN 3 3A+3B 10-15 cm	10-15	3	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.82	<5024.43	<0.021
STN 3 3A+3B 10-15 cm	10-15	3	In Cap	2,4´-DDD	0.06	0.03	5	5.971E-06	75521	0.85	10048.9	0.16
STN 3 3A+3B 10-15 cm	10-15	3	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.81	<5024.43	<0.012
STN 3 3A+3B 10-15 cm	10-15	3	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.81	<5024.43	<0.011
STN 3 3A+3B 10-15 cm	10-15	3	In Cap	4,4´-DDD	0.11	0.03	5	5.971E-06	67258	0.85	18422.9	0.32
STN 3 3A+3B 15-20 cm	15-20	3	In Cap	4,4´-DDE	0.09	0.03	5	5.971E-06	526667	0.62	15073.3	0.05
STN 3 3A+3B 15-20 cm	15-20	3	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.66	<5024.43	<0.026
STN 3 3A+3B 15-20 cm	15-20	3	In Cap	2,4´-DDD	0.06	0.03	5	5.971E-06	75521	0.74	10048.9	0.18
STN 3 3A+3B 15-20 cm	15-20	3	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.62	<5024.43	<0.016
STN 3 3A+3B 15-20 cm	15-20	3	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.61	<5024.43	<0.014
STN 3 3A+3B 15-20 cm	15-20	3	In Cap	4,4´-DDD	0.09	0.03	5	5.971E-06	67258	0.75	15073.3	0.30
STN 3 3A+3B 20-25 cm	20-25	3	In Cap	4,4´-DDE	0.14	0.03	5	5.971E-06	526667	0.68	23447.4	0.07
STN 3 3A+3B 20-25 cm	20-25	3	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.72	<5024.43	<0.024
STN 3 3A+3B 20-25 cm	20-25	3	In Cap	2,4´-DDD	0.07	0.03	5	5.971E-06	75521	0.79	11723.7	0.20
STN 3 3A+3B 20-25 cm	20-25	3	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.68	<5024.43	<0.014
STN 3 3A+3B 20-25 cm	20-25	3	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.68	<5024.43	<0.013
STN 3 3A+3B 20-25 cm	20-25	3	In Cap	4,4´-DDD	0.12	0.03	5	5.971E-06	67258	0.79	20097.7	0.38
STN 3 3A+3B 25-30 cm	25-30	3	In Cap	4,4´-DDE	0.11	0.03	5	5.971E-06	526667	0.66	18422.9	0.05
STN 3 3A+3B 25-30 cm	25-30	3	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.69	<5024.43	<0.025
STN 3 3A+3B 25-30 cm	25-30	3	In Cap	2,4´-DDD	0.04	0.03	5	5.971E-06	75521	0.77	6699.2	0.12

Table 5: Field, Laboratory Data and Calculations for *in-situ* SPME Study during 25-Month Event

SSC Pacific

Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	ANALYTE	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
STN 3 3A+3B 25-30 cm	25-30	3	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.66	<5024.43	<0.015
STN 3 3A+3B 25-30 cm	25-30	3	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.66	<5024.43	<0.013
STN 3 3A+3B 25-30 cm	25-30	3	In Cap	4,4´-DDD	0.12	0.03	5	5.971E-06	67258	0.78	20097.7	0.38
STN 3 3A+3B 30-35 cm	30-35	3	In Cap	4,4´-DDE	0.11	0.03	5	5.971E-06	526667	0.80	18422.9	0.04
STN 3 3A+3B 30-35 cm	30-35	3	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.82	<5024.43	<0.021
STN 3 3A+3B 30-35 cm	30-35	3	In Cap	2,4´-DDD	0.05	0.03	5	5.971E-06	75521	0.84	8374.1	0.13
STN 3 3A+3B 30-35 cm	30-35	3	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.81	<5024.43	<0.012
STN 3 3A+3B 30-35 cm	30-35	3	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.80	<5024.43	<0.011
STN 3 3A+3B 30-35 cm	30-35	3	In Cap	4,4´-DDD	0.11	0.03	5	5.971E-06	67258	0.85	18422.9	0.32
STN 3 3A+3B 35-40 cm	35-40	3	In Cap	4,4´-DDE	0.10	0.03	5	5.971E-06	526667	0.73	16748.1	0.04
STN 3 3A+3B 35-40 cm	35-40	3	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.76	<5024.43	<0.023
STN 3 3A+3B 35-40 cm	35-40	3	In Cap	2,4´-DDD	0.06	0.03	5	5.971E-06	75521	0.82	10048.9	0.16
STN 3 3A+3B 35-40 cm	35-40	3	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.73	<5024.43	<0.013
STN 3 3A+3B 35-40 cm	35-40	3	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.73	<5024.43	<0.012
STN 3 3A+3B 35-40 cm	35-40	3	In Cap	4,4´-DDD	0.10	0.03	5	5.971E-06	67258	0.82	16748.1	0.30
STN 3 3A+3B 40-45 cm	40-45	3	In Cap	4,4´-DDE	0.10	0.03	5	5.971E-06	526667	0.69	16748.1	0.05
STN 3 3A+3B 40-45 cm	40-45	3	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.72	<5024.43	<0.024
STN 3 3A+3B 40-45 cm	40-45	3	In Cap	2,4´-DDD	0.04	0.03	5	5.971E-06	75521	0.78	6699.2	0.11
STN 3 3A+3B 40-45 cm	40-45	3	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.69	<5024.43	<0.014
STN 3 3A+3B 40-45 cm	40-45	3	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.68	<5024.43	<0.013
STN 3 3A+3B 40-45 cm	40-45	3	In Cap	4,4´-DDD	0.11	0.03	5	5.971E-06	67258	0.78	18422.9	0.35
STN 3 3A+3B 45-50 cm	45-50	3	In Cap	4,4´-DDE	0.11	0.03	5	5.971E-06	526667	0.73	18422.9	0.05
STN 3 3A+3B 45-50 cm	45-50	3	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.76	<5024.43	<0.023
STN 3 3A+3B 45-50 cm	45-50	3	In Cap	2,4´-DDD	0.05	0.03	5	5.971E-06	75521	0.81	8374.1	0.14
STN 3 3A+3B 45-50 cm	45-50	3	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.73	<5024.43	<0.013
STN 3 3A+3B 45-50 cm	45-50	3	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.73	<5024.43	<0.012
STN 3 3A+3B 45-50 cm	45-50	3	In Cap	4,4´-DDD	0.12	0.03	5	5.971E-06	67258	0.82	20097.7	0.37
STN 3 3A+3B 50-55 cm	50-55	3	In Cap	4,4´-DDE	0.12	0.03	5	5.971E-06	526667	0.77	20097.7	0.05
STN 3 3A+3B 50-55 cm	50-55	3	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.79	<5024.43	<0.022
STN 3 3A+3B 50-55 cm	50-55	3	In Cap	2,4´-DDD	0.04	0.03	5	5.971E-06	75521	0.84	6699.2	0.11
STN 3 3A+3B 50-55 cm	50-55	3	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.77	<5024.43	<0.013
STN 3 3A+3B 50-55 cm	50-55	3	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.77	<5024.43	<0.011
STN 3 3A+3B 50-55 cm	50-55	3	In Cap	4,4´-DDD	0.09	0.03	5	5.971E-06	67258	0.84	15073.3	0.27
STN 4 4A+4B 0-5 cm	0-5	4	In Cap	4,4´-DDE	ND	0.03	5	5.971E-06	526667	0.57	<5024.43	<0.017
STN 4 4A+4B 0-5 cm	0-5	4	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.60	<5024.43	<0.029
STN 4 4A+4B 0-5 cm	0-5	4	In Cap	2,4´-DDD	ND	0.03	5	5.971E-06	75521	0.67	<5024.43	<0.1
STN 4 4A+4B 0-5 cm	0-5	4	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.57	<5024.43	<0.017
STN 4 4A+4B 0-5 cm	0-5	4	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.57	<5024.43	<0.016
STN 4 4A+4B 0-5 cm	0-5	4	In Cap	4,4´-DDD	ND	0.03	5	5.971E-06	67258	0.67	<5024.43	<0.111
STN 4 4A+4B 5-10 cm	5-10	4	In Cap	4,4´-DDE	ND	0.03	5	5.971E-06	526667	0.43	<5024.43	<0.022
STN 4 4A+4B 5-10 cm	5-10	4	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.48	<5024.43	<0.036

Table 5: Field, Laboratory Data and Calculations for *in-situ* SPME Study during 25-Month Event

SSC Pacific

Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	ANALYTE	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
STN 4 4A+4B 5-10 cm	5-10	4	In Cap	2,4´-DDD	ND	0.03	5	5.971E-06	75521	0.59	<5024.43	<0.112
STN 4 4A+4B 5-10 cm	5-10	4	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.43	<5024.43	<0.023
STN 4 4A+4B 5-10 cm	5-10	4	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.42	<5024.43	<0.021
STN 4 4A+4B 5-10 cm	5-10	4	In Cap	4,4´-DDD	ND	0.03	5	5.971E-06	67258	0.60	<5024.43	<0.124
STN 4 4A+4B 20-25 cm	20-25	4	In Cap	4,4´-DDE	0.04	0.03	5	5.971E-06	526667	0.58	6699.2	0.02
STN 4 4A+4B 20-25 cm	20-25	4	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.61	<5024.43	<0.028
STN 4 4A+4B 20-25 cm	20-25	4	In Cap	2,4´-DDD	ND	0.03	5	5.971E-06	75521	0.69	<5024.43	<0.097
STN 4 4A+4B 20-25 cm	20-25	4	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.58	<5024.43	<0.017
STN 4 4A+4B 20-25 cm	20-25	4	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.57	<5024.43	<0.015
STN 4 4A+4B 20-25 cm	20-25	4	In Cap	4,4´-DDD	ND	0.03	5	5.971E-06	67258	0.69	<5024.43	<0.108
STN 4 4A+4B 25-30 cm	25-30	4	In Cap	4,4´-DDE	0.04	0.03	5	5.971E-06	526667	0.64	6699.2	0.02
STN 4 4A+4B 25-30 cm	25-30	4	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.67	<5024.43	<0.026
STN 4 4A+4B 25-30 cm	25-30	4	In Cap	2,4´-DDD	ND	0.03	5	5.971E-06	75521	0.73	<5024.43	<0.091
STN 4 4A+4B 25-30 cm	25-30	4	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.64	<5024.43	<0.015
STN 4 4A+4B 25-30 cm	25-30	4	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.64	<5024.43	<0.014
STN 4 4A+4B 25-30 cm	25-30	4	In Cap	4,4´-DDD	ND	0.03	5	5.971E-06	67258	0.74	<5024.43	<0.101
STN 4 4A+4B 30-35 cm	30-35	4	In Cap	4,4´-DDE	0.05	0.03	5	5.971E-06	526667	0.70	8374.1	0.02
STN 4 4A+4B 30-35 cm	30-35	4	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.73	<5024.43	<0.024
STN 4 4A+4B 30-35 cm	30-35	4	In Cap	2,4´-DDD	ND	0.03	5	5.971E-06	75521	0.79	<5024.43	<0.084
STN 4 4A+4B 30-35 cm	30-35	4	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.70	<5024.43	<0.014
STN 4 4A+4B 30-35 cm	30-35	4	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.70	<5024.43	<0.013
STN 4 4A+4B 30-35 cm	30-35	4	In Cap	4,4´-DDD	ND	0.03	5	5.971E-06	67258	0.80	<5024.43	<0.094
STN 5 5B 1-4 cm	1-4	5	In Cap	4,4´-DDE	ND	0.03	3	1.791E-06	526667	0.75	<16748.11	<0.013
STN 5 5B 1-4 cm	1-4	5	In Cap	4,4´-DDT	ND	0.03	3	1.791E-06	288937	0.76	<16748.11	<0.023
STN 5 5B 1-4 cm	1-4	5	In Cap	2,4´-DDD	ND	0.03	3	1.791E-06	75521	0.78	<16748.11	<0.085
STN 5 5B 1-4 cm	1-4	5	In Cap	2,4´-DDE	ND	0.03	3	1.791E-06	516595	0.75	<16748.11	<0.013
STN 5 5B 1-4 cm	1-4	5	In Cap	2,4´-DDT	ND	0.03	3	1.791E-06	569687	0.75	<16748.11	<0.012
STN 5 5B 1-4 cm	1-4	5	In Cap	4,4´-DDD	ND	0.03	3	1.791E-06	67258	0.78	<16748.11	<0.096
STN 5 5A+5B 4-9 cm	4-9	5	In Cap	4,4´-DDE	ND	0.03	5	5.971E-06	526667	0.70	<5024.43	<0.014
STN 5 5A+5B 4-9 cm	4-9	5	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.73	<5024.43	<0.024
STN 5 5A+5B 4-9 cm	4-9	5	In Cap	2,4´-DDD	ND	0.03	5	5.971E-06	75521	0.78	<5024.43	<0.085
STN 5 5A+5B 4-9 cm	4-9	5	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.70	<5024.43	<0.014
STN 5 5A+5B 4-9 cm	4-9	5	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.70	<5024.43	<0.013
STN 5 5A+5B 4-9 cm	4-9	5	In Cap	4,4´-DDD	ND	0.03	5	5.971E-06	67258	0.79	<5024.43	<0.095
STN 5 5A+5B 19-24 cm	19-24	5	In Cap	4,4´-DDE	0.03	0.03	5	5.971E-06	526667	0.51	5024.4	0.02
STN 5 5A+5B 19-24 cm	19-24	5	In Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.56	<5024.43	<0.031
STN 5 5A+5B 19-24 cm	19-24	5	In Cap	2,4´-DDD	ND	0.03	5	5.971E-06	75521	0.66	<5024.43	<0.101
STN 5 5A+5B 19-24 cm	19-24	5	In Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.51	<5024.43	<0.019
STN 5 5A+5B 19-24 cm	19-24	5	In Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.50	<5024.43	<0.018
STN 5 5A+5B 19-24 cm	19-24	5	In Cap	4,4´-DDD	ND	0.03	5	5.971E-06	67258	0.67	<5024.43	<0.111
STN 5 5A+5B 29-34 cm	29-34	5	In Cap	4,4´-DDE	0.03	0.03	5	5.971E-06	526667	0.62	5024.4	0.02

Table 5: Field, Laboratory Data and Calculations for *in-situ* SPME Study during 25-Month Event

SSC Pacific

Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	ANALYTE	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
STN 5 5A+5B 29-34 cm	29-34	5	In Cap	4,4′-DDT	ND	0.03	5	5.971E-06	288937	0.65	<5024.43	<0.027
STN 5 5A+5B 29-34 cm	29-34	5	In Cap	2,4′-DDD	ND	0.03	5	5.971E-06	75521	0.71	<5024.43	<0.093
STN 5 5A+5B 29-34 cm	29-34	5	In Cap	2,4′-DDE	0.03	0.03	5	5.971E-06	516595	0.62	5024.4	0.02
STN 5 5A+5B 29-34 cm	29-34	5	In Cap	2,4′-DDT	ND	0.03	5	5.971E-06	569687	0.61	<5024.43	<0.014
STN 5 5A+5B 29-34 cm	29-34	5	In Cap	4,4′-DDD	ND	0.03	5	5.971E-06	67258	0.72	<5024.43	<0.104
STN 5 5A+5B 34-39 cm	34-39	5	In Cap	4,4′-DDE	0.03	0.03	5	5.971E-06	526667	0.57	5024.4	0.02
STN 5 5A+5B 34-39 cm	34-39	5	In Cap	4,4′-DDT	ND	0.03	5	5.971E-06	288937	0.61	<5024.43	<0.028
STN 5 5A+5B 34-39 cm	34-39	5	In Cap	2,4′-DDD	ND	0.03	5	5.971E-06	75521	0.69	<5024.43	<0.096
STN 5 5A+5B 34-39 cm	34-39	5	In Cap	2,4′-DDE	ND	0.03	5	5.971E-06	516595	0.57	<5024.43	<0.017
STN 5 5A+5B 34-39 cm	34-39	5	In Cap	2,4′-DDT	ND	0.03	5	5.971E-06	569687	0.57	<5024.43	<0.016
STN 5 5A+5B 34-39 cm	34-39	5	In Cap	4,4′-DDD	ND	0.03	5	5.971E-06	67258	0.70	<5024.43	<0.106
STN 5 5A+5B 39-44 cm	39-44	5	In Cap	4,4′-DDE	0.05	0.03	5	5.971E-06	526667	0.61	8374.1	0.03
STN 5 5A+5B 39-44 cm	39-44	5	In Cap	4,4′-DDT	ND	0.03	5	5.971E-06	288937	0.65	<5024.43	<0.027
STN 5 5A+5B 39-44 cm	39-44	5	In Cap	2,4′-DDD	ND	0.03	5	5.971E-06	75521	0.73	<5024.43	<0.092
STN 5 5A+5B 39-44 cm	39-44	5	In Cap	2,4′-DDE	ND	0.03	5	5.971E-06	516595	0.61	<5024.43	<0.016
STN 5 5A+5B 39-44 cm	39-44	5	In Cap	2,4′-DDT	ND	0.03	5	5.971E-06	569687	0.61	<5024.43	<0.015
STN 5 5A+5B 39-44 cm	39-44	5	In Cap	4,4′-DDD	ND	0.03	5	5.971E-06	67258	0.73	<5024.43	<0.102
STN 5 5A+5B 44-49 cm	44-49	5	In Cap	4,4′-DDE	0.05	0.03	5	5.971E-06	526667	0.58	8374.1	0.03
STN 5 5A+5B 44-49 cm	44-49	5	In Cap	4,4′-DDT	ND	0.03	5	5.971E-06	288937	0.61	<5024.43	<0.028
STN 5 5A+5B 44-49 cm	44-49	5	In Cap	2,4′-DDD	ND	0.03	5	5.971E-06	75521	0.69	<5024.43	<0.096
STN 5 5A+5B 44-49 cm	44-49	5	In Cap	2,4′-DDE	ND	0.03	5	5.971E-06	516595	0.58	<5024.43	<0.017
STN 5 5A+5B 44-49 cm	44-49	5	In Cap	2,4′-DDT	ND	0.03	5	5.971E-06	569687	0.58	<5024.43	<0.015
STN 5 5A+5B 44-49 cm	44-49	5	In Cap	4,4′-DDD	0.04	0.03	5	5.971E-06	67258	0.70	6699.2	0.14
STN 6 6A+6B 0-5 cm	0-5	6	Off Cap	4,4′-DDE	0.04	0.03	5	5.971E-06	526667	0.76	6699.2	0.02
STN 6 6A+6B 0-5 cm	0-5	6	Off Cap	4,4′-DDT	ND	0.03	5	5.971E-06	288937	0.78	<5024.43	<0.022
STN 6 6A+6B 0-5 cm	0-5	6	Off Cap	2,4′-DDD	ND	0.03	5	5.971E-06	75521	0.84	<5024.43	<0.079
STN 6 6A+6B 0-5 cm	0-5	6	Off Cap	2,4′-DDE	ND	0.03	5	5.971E-06	516595	0.76	<5024.43	<0.013
STN 6 6A+6B 0-5 cm	0-5	6	Off Cap	2,4′-DDT	ND	0.03	5	5.971E-06	569687	0.76	<5024.43	<0.012
STN 6 6A+6B 0-5 cm	0-5	6	Off Cap	4,4′-DDD	ND	0.03	5	5.971E-06	67258	0.84	<5024.43	<0.089
STN 6 6A+6B 5-10 cm	5-10	6	Off Cap	4,4′-DDE	0.04	0.03	5	5.971E-06	526667	0.76	6699.2	0.02
STN 6 6A+6B 5-10 cm	5-10	6	Off Cap	4,4′-DDT	ND	0.03	5	5.971E-06	288937	0.78	<5024.43	<0.022
STN 6 6A+6B 5-10 cm	5-10	6	Off Cap	2,4′-DDD	ND	0.03	5	5.971E-06	75521	0.84	<5024.43	<0.08
STN 6 6A+6B 5-10 cm	5-10	6	Off Cap	2,4′-DDE	ND	0.03	5	5.971E-06	516595	0.76	<5024.43	<0.013
STN 6 6A+6B 5-10 cm	5-10	6	Off Cap	2,4′-DDT	ND	0.03	5	5.971E-06	569687	0.75	<5024.43	<0.012
STN 6 6A+6B 5-10 cm	5-10	6	Off Cap	4,4′-DDD	ND	0.03	5	5.971E-06	67258	0.84	<5024.43	<0.089
STN 7 7A+7B 4-9 cm	4-9	7	Off Cap	4,4′-DDE	ND	0.03	5	5.971E-06	526667	0.80	<5024.43	<0.012
STN 7 7A+7B 4-9 cm	4-9	7	Off Cap	4,4′-DDT	ND	0.03	5	5.971E-06	288937	0.82	<5024.43	<0.021
STN 7 7A+7B 4-9 cm	4-9	7	Off Cap	2,4′-DDD	ND	0.03	5	5.971E-06	75521	0.87	<5024.43	<0.077
STN 7 7A+7B 4-9 cm	4-9	7	Off Cap	2,4′-DDE	ND	0.03	5	5.971E-06	516595	0.80	<5024.43	<0.012
STN 7 7A+7B 4-9 cm	4-9	7	Off Cap	2,4′-DDT	ND	0.03	5	5.971E-06	569687	0.79	<5024.43	<0.011
STN 7 7A+7B 4-9 cm	4-9	7	Off Cap	4,4′-DDD	ND	0.03	5	5.971E-06	67258	0.87	<5024.43	<0.086

Table 5: Field, Laboratory Data and Calculations for *in-situ* SPME Study during 25-Month Event
SSC Pacific
Quantico, Virginia

Sample ID[1]	Sample Interval (cm)	Station ID	Within Cap Footprint?	ANALYTE	Analytical Result (ng)	Detection Limit (ng)	Fiber Length (cm)	PDMS Volume per Sample (L)[2]	Fiber:Water Partition Coefficient[3] (Kfs, L/L PDMS)	Fraction to Steady State[4]	[PDMS DDx] (ng/L)	[Freely Dissolved Porewater DDx] (ng/L)[5]
STN 7 7A+7B 9-14 cm	9-14	7	Off Cap	4,4´-DDE	ND	0.03	5	5.971E-06	526667	0.75	<5024.43	<0.013
STN 7 7A+7B 9-14 cm	9-14	7	Off Cap	4,4´-DDT	ND	0.03	5	5.971E-06	288937	0.78	<5024.43	<0.022
STN 7 7A+7B 9-14 cm	9-14	7	Off Cap	2,4´-DDD	ND	0.03	5	5.971E-06	75521	0.83	<5024.43	<0.08
STN 7 7A+7B 9-14 cm	9-14	7	Off Cap	2,4´-DDE	ND	0.03	5	5.971E-06	516595	0.75	<5024.43	<0.013
STN 7 7A+7B 9-14 cm	9-14	7	Off Cap	2,4´-DDT	ND	0.03	5	5.971E-06	569687	0.75	<5024.43	<0.012
STN 7 7A+7B 9-14 cm	9-14	7	Off Cap	4,4´-DDD	ND	0.03	5	5.971E-06	67258	0.84	<5024.43	<0.089

Footnotes:

1.Duplicate samples (A and B) deployed per station and interval. Samples compiled prior to analysis to improve analytical detection limits.
2. 0.597 µL polydimethylsiloxane (PDMS) per cm of this type of SPME fiber.
3. Fiber:Water Partition Coefficient calculated as Log Kfs = LogKow - 0.91 (Mayer et al. 2000). Log Kow referenced from ATDSR (2002).
4. Fraction to steady state (fss) calculated based on performance reference compound (PRC) mass transfer kinetics.
5. Concentration of exposure solution = (Concentration in fiber ÷ fss) ÷ Kfs. If not detected, reported as < detection limit.

Abbreviations:

cm: centimeter(s)
L: Liter(s)
ND: Not detected
ng: nanogram(s)
PDMS: Polydimethylsiloxane
SPME: solid phase microextraction

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

10 January 2013

Gunther Rosen
Navy -- SPAWAR
Environmental Science and Applied System Branch, 536
San Diego, CA 92152

RE: Quantico

Enclosed are the results of analyses for samples received by the laboratory on 26-Oct-2012. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Patty Tuminello
Project Coordinator

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
QU-101012-1-1B	2102603-01	Passive Sampler	25-Oct-2012	26-Oct-2012
QU-101012-PRC-1-1B	2102603-02	Passive Sampler	25-Oct-2012	26-Oct-2012
QU-101012-2-1B	2102603-03	Passive Sampler	25-Oct-2012	26-Oct-2012
QU-101012-PRC-2-1B	2102603-04	Passive Sampler	25-Oct-2012	26-Oct-2012
QU-101012-3-1B	2102603-05	Passive Sampler	25-Oct-2012	26-Oct-2012
QU-101012-PRC-3-1B	2102603-06	Passive Sampler	25-Oct-2012	26-Oct-2012
QU-101012-4-1B	2102603-07	Passive Sampler	25-Oct-2012	26-Oct-2012
QU-101012-PRC-4-1B	2102603-08	Passive Sampler	25-Oct-2012	26-Oct-2012
QU-101012-5-1B	2102603-09	Passive Sampler	25-Oct-2012	26-Oct-2012
QU-101012-PRC-5-1B	2102603-10	Passive Sampler	25-Oct-2012	26-Oct-2012
QU-101012-6-1B	2102603-11	Passive Sampler	25-Oct-2012	26-Oct-2012
QU-101012-PRC-6-1B	2102603-12	Passive Sampler	25-Oct-2012	26-Oct-2012
QU-101012-SB	2102603-13	Passive Sampler	25-Oct-2012	26-Oct-2012

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QU-101012-1-1B

2102603-01 (Passive Sampler)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**0.05**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4'-DDD [2C]	**0.06**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4´-DDE	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDE [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4´-DDT	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDT [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QU-101012-PRC-1-1B

2102603-02 (Passive Sampler)

ERDC- EL-EP-C (Environmental Chemistry Branch)

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
4,4´-DDD	**0.05**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4'-DDD [2C]	**0.06**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4´-DDE	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDE [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4´-DDT	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDT [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U

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3909 Halls Ferry Road
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QU-101012-2-1B

2102603-03 (Passive Sampler)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDD [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4´-DDE	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDE [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4´-DDT	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDT [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QU-101012-PRC-2-1B

2102603-04 (Passive Sampler)

ERDC- EL-EP-C (Environmental Chemistry Branch)

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
4,4´-DDD	**0.04**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4'-DDD [2C]	**0.06**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4´-DDE	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDE [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4´-DDT	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDT [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QU-101012-3-1B

2102603-05 (Passive Sampler)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**0.06**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4'-DDD [2C]	**0.07**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4´-DDE	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDE [2C]	**0.04**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4´-DDT	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDT [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QU-101012-PRC-3-1B

2102603-06 (Passive Sampler)

ERDC- EL-EP-C (Environmental Chemistry Branch)

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
4,4´-DDD	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDD [2C]	**0.04**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4´-DDE	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDE [2C]	**0.04**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4´-DDT	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDT [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QU-101012-4-1B

2102603-07 (Passive Sampler)

ERDC- EL-EP-C (Environmental Chemistry Branch)

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
4,4´-DDD	**0.04**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4'-DDD [2C]	**0.04**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4´-DDE	**0.04**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4'-DDE [2C]	**0.05**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4´-DDT	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDT [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QU-101012-PRC-4-1B

2102603-08 (Passive Sampler)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDD [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4´-DDE	**0.05**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4'-DDE [2C]	**0.06**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4´-DDT	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDT [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QU-101012-5-1B

2102603-09 (Passive Sampler)

ERDC- EL-EP-C (Environmental Chemistry Branch)

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
4,4´-DDD	**0.04**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4'-DDD [2C]	**0.04**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4´-DDE	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDE [2C]	**0.05**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4´-DDT	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDT [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QU-101012-PRC-5-1B

2102603-10 (Passive Sampler)

ERDC- EL-EP-C (Environmental Chemistry Branch)

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
4,4´-DDD	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDD [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4´-DDE	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDE [2C]	**0.04**	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	J
4,4´-DDT	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDT [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QU-101012-6-1B

2102603-11 (Passive Sampler)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDD [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4´-DDE	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDE [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4´-DDT	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDT [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QU-101012-PRC-6-1B

2102603-12 (Passive Sampler)

ERDC- EL-EP-C (Environmental Chemistry Branch)

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
4,4´-DDD	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDD [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4´-DDE	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDE [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4´-DDT	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDT [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QU-101012-SB

2102603-13 (Passive Sampler)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDD [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4´-DDE	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDE [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4´-DDT	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U
4,4'-DDT [2C]	ND	0.12	ng	1	26-Oct-2012	26-Nov-2012	EPA 8081A	U

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Notes and Definitions

U	Analyte included in the analysis, but not detected
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

17 March 2015

Gunther Rosen
Navy -- SPAWAR
Environmental Science and Applied System Branch, 536(
San Diego, CA 92152

RE: ETV SEA Ring

Enclosed are the results of analyses for samples received by the laboratory on 02-Oct-2014-02-Oct-2014. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Dale Rosado, Ph. D.
Chemist

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
QT2-6-SPME1-1	4100204-01	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-6-SPME1-3	4100204-02	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-6-SPME1-4	4100204-03	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-6-SPME1-6	4100204-04	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-6-SPME1-7	4100204-05	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-6-SPME1-8	4100204-06	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-6-SPME1-9	4100204-07	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-6-SPME1-11	4100204-08	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-6-SPME1-12	4100204-09	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-6-SPME2-1	4100204-10	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-6-SPME2-3	4100204-11	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-6-SPME2-4	4100204-12	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-6-SPME2-6	4100204-13	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-6-SPME2-7	4100204-14	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-6-SPME2-8	4100204-15	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-6-SPME2-9	4100204-16	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-6-SPME2-11	4100204-17	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-6-SPME2-12	4100204-18	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-3L-SPME1-1	4100204-19	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-3L-SPME1-3	4100204-20	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-3L-SPME1-4	4100204-21	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-3L-SPME1-6	4100204-22	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-3L-SPME1-7	4100204-23	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-3L-SPME1-8	4100204-24	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-3L-SPME1-9	4100204-25	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-3L-SPME1-11	4100204-26	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-3L-SPME1-12	4100204-27	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-3L-SPME2-1	4100204-28	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-3L-SPME2-3	4100204-29	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-3L-SPME2-4	4100204-30	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-3L-SPME2-6	4100204-31	Passive Sampler	25-Sep-2014	02-Oct-2014

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3909 Halls Ferry Road
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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: ETV SEA Ring

Project Manager: Gunther Rosen

Reported:
17-Mar-2015

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
QT2-3L-SPME2-7	4100204-32	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-3L-SPME2-8	4100204-33	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-3L-SPME2-9	4100204-34	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-3L-SPME2-11	4100204-35	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-3L-SPME2-12	4100204-36	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-5-SPME1-1	4100204-37	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-5-SPME1-3	4100204-38	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-5-SPME1-4	4100204-39	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-5-SPME1-6	4100204-40	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-5-SPME1-7	4100204-41	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-5-SPME1-8	4100204-42	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-5-SPME1-9	4100204-43	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-5-SPME1-11	4100204-44	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-5-SPME1-12	4100204-45	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-5-SPME2-1	4100204-46	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-5-SPME2-3	4100204-47	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-5-SPME2-4	4100204-48	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-5-SPME2-6	4100204-49	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-5-SPME2-7	4100204-50	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-5-SPME2-8	4100204-51	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-5-SPME2-9	4100204-52	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-5-SPME2-11	4100204-53	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-5-SPME2-12	4100204-54	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-1-SPME1-1	4100204-55	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-1-SPME1-3	4100204-56	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-1-SPME1-4	4100204-57	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-1-SPME1-6	4100204-58	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-1-SPME1-7	4100204-59	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-1-SPME1-8	4100204-60	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-1-SPME1-9	4100204-61	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-1-SPME1-11	4100204-62	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-1-SPME1-12	4100204-63	Passive Sampler	25-Sep-2014	02-Oct-2014

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: ETV SEA Ring

Project Manager: Gunther Rosen

Reported:
17-Mar-2015

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
QT2-1-SPME2-1	4100206-01	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-1-SPME2-3	4100206-02	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-1-SPME2-4	4100206-03	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-1-SPME2-6	4100206-04	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-1-SPME2-7	4100206-05	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-1-SPME2-8	4100206-06	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-1-SPME2-9	4100206-07	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-1-SPME2-11	4100206-08	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-1-SPME2-12	4100206-09	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-2-SPME1-1	4100206-10	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-2-SPME1-3	4100206-11	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-2-SPME1-4	4100206-12	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-2-SPME1-6	4100206-13	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-2-SPME1-7	4100206-14	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-2-SPME1-8	4100206-15	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-2-SPME1-9	4100206-16	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-2-SPME1-11	4100206-17	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-2-SPME1-12	4100206-18	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-2-SPME2-1	4100206-19	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-2-SPME2-3	4100206-20	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-2-SPME2-4	4100206-21	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-2-SPME2-6	4100206-22	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-2-SPME2-7	4100206-23	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-2-SPME2-8	4100206-24	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-2-SPME2-9	4100206-25	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-2-SPME2-11	4100206-26	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-2-SPME2-12	4100206-27	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-4-SPME1-1	4100206-28	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-4-SPME1-3	4100206-29	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-4-SPME1-4	4100206-30	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-4-SPME1-6	4100206-31	Passive Sampler	25-Sep-2014	02-Oct-2014

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: ETV SEA Ring

Project Manager: Gunther Rosen

Reported:
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WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
QT2-4-SPME1-7	4100206-32	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-4-SPME1-8	4100206-33	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-4-SPME1-9	4100206-34	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-4-SPME1-11	4100206-35	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-4-SPME1-12	4100206-36	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-4-SPME2-1	4100206-37	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-4-SPME2-3	4100206-38	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-4-SPME2-4	4100206-39	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-4-SPME2-6	4100206-40	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-4-SPME2-7	4100206-41	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-4-SPME2-8	4100206-42	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-4-SPME2-9	4100206-43	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-4-SPME2-11	4100206-44	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-4-SPME2-12	4100206-45	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-7-SPME1-1	4100206-46	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-7-SPME1-3	4100206-47	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-7-SPME1-4	4100206-48	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-7-SPME1-6	4100206-49	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-7-SPME1-7	4100206-50	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-7-SPME1-8	4100206-51	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-7-SPME1-9	4100206-52	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-7-SPME1-11	4100206-53	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-7-SPME1-12	4100206-54	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-7-SPME2-1	4100206-55	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-7-SPME2-3	4100206-56	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-7-SPME2-4	4100206-57	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-7-SPME2-6	4100206-58	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-7-SPME2-7	4100206-59	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-7-SPME2-8	4100206-60	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-7-SPME2-9	4100206-61	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-7-SPME2-11	4100206-62	Passive Sampler	25-Sep-2014	02-Oct-2014
QT2-7-SPME2-12	4100206-63	Passive Sampler	25-Sep-2014	02-Oct-2014

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Case Narrative

Analyte spikes for 4,4-DDD, 4,4-DDE, and 4,4-DDT were unintentionally added to samples QT2-6 (1-1, 1-3, 1-8), QT2-3L (1-1, 1-3, 1-8), QT2-3L (2-1, 2-3, 2-8), QT2-5 (1-1, 1-3, 1-8), QT2-5 (1-1, 1-3, 1-8), and QT2-1 (1-1, 1-3, 1-8). The results are estimated based on subtraction of the mean concentration of 6 blank spikes from each sample. The 2,4-DDXs were unaffected in these samples.

Case Narrative

Analyte spikes for 4,4-DDD, 4,4-DDE, and 4,4-DDT were unintentionally added to samples QT2-4(1-1, 1-3, 1-8). The results are estimated based on subtraction of the mean concentration of 6 blank spikes from each sample.The 2,4-DDXs were unaffected in this sample.

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Notes and Definitions

Z-03	See case narrative.
U	Analyte included in the analysis, but not detected
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
S-08	The surrogate recovery for this sample is outside of established control limits. There was no remaining sample for a repeat extraction.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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QT2-6-SPME1-1

4100204-01 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C									
Organochlorine Pesticides by EPA Method 8081A									
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDE	**0.09**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	**0.54**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.13**		*104 %*	*25-140*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.97**		*99.0 %*	*30-135*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	

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QT2-6-SPME1-3

4100204-02 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.00**		*99.9 %*	*25-140*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.39**		*79.6 %*	*30-135*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	

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QT2-6-SPME1-4

4100204-03 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.682**		*22.7 %*	*25-140*		*20-Jan-2015*	*20-Feb-2015*	*EPA 8081A*	*S-08*
Surrogate: Decachlorobiphenyl	**0.418**		*13.9 %*	*30-135*		*20-Jan-2015*	*20-Feb-2015*	*EPA 8081A*	*S-08*

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QT2-6-SPME1-6

4100204-04 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.07**		*68.9 %*		*25-140*	*20-Jan-2015*	*20-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.09**		*69.7 %*		*30-135*	*20-Jan-2015*	*20-Feb-2015*	*EPA 8081A*	

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QT2-6-SPME1-7

4100204-05 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.72**		*90.6 %*	*25-140*		*20-Jan-2015*	*20-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.87**		*95.5 %*	*30-135*		*20-Jan-2015*	*20-Feb-2015*	*EPA 8081A*	

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QT2-6-SPME1-8

4100204-06 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.27**		*109 %*	*25-140*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.58**		*86.0 %*	*30-135*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	

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QT2-6-SPME1-9

4100204-07 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.82**		*60.5 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.95**		*65.0 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-6-SPME1-11

4100204-08 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.09**		*69.6 %*		*25-140*	*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.14**		*71.3 %*		*30-135*	*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-6-SPME1-12

4100204-09 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	**0.08**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.80**		*59.9 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.96**		*65.3 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-6-SPME2-1

4100204-10 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.94**		*97.9 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.20**		*107 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-6-SPME2-3

4100204-11 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.87**		*95.8 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.93**		*97.7 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-6-SPME2-4

4100204-12 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.60**		*86.8 %*	*25-140*		*20-Jan-2015*	*03-Mar-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.95**		*98.4 %*	*30-135*		*20-Jan-2015*	*03-Mar-2015*	*EPA 8081A*	

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QT2-6-SPME2-6

4100204-13 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
2,4´-DDE	**0.08**	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.52**		*84.1 %*	*25-140*		*20-Jan-2015*	*03-Mar-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.84**		*94.7 %*	*30-135*		*20-Jan-2015*	*03-Mar-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-6-SPME2-7

4100204-14 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
2,4´-DDE	**0.10**	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.48**		*82.8 %*	*25-140*		*20-Jan-2015*	*03-Mar-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.85**		*95.0 %*	*30-135*		*20-Jan-2015*	*03-Mar-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-6-SPME2-8

4100204-15 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.31**		*110 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.49**		*116 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-6-SPME2-9

4100204-16 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.74**		*91.2 %*	*25-140*		*20-Jan-2015*	*03-Mar-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.73**		*91.1 %*	*30-135*		*20-Jan-2015*	*03-Mar-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-6-SPME2-11

4100204-17 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	03-Mar-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.31**		*77.1 %*		*25-140*	*20-Jan-2015*	*03-Mar-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.84**		*94.7 %*		*30-135*	*20-Jan-2015*	*03-Mar-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-6-SPME2-12

4100204-18 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.30**		*76.6 %*	*25-140*		*20-Jan-2015*	*22-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.09**		*103 %*	*30-135*		*20-Jan-2015*	*22-Feb-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-3L-SPME1-1

4100204-19 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.19**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	J
2,4´-DDE	**0.11**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.61**		*87.0 %*	*25-140*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.25**		*74.9 %*	*30-135*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-3L-SPME1-3

4100204-20 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.08**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	J
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.33**		*111 %*	*25-140*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.71**		*90.3 %*	*30-135*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-3L-SPME1-4

4100204-21 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.13**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.04**		*68.1 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.26**		*75.3 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-3L-SPME1-6

4100204-22 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.09**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.00**		*66.8 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.18**		*72.7 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-3L-SPME1-7

4100204-23 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	**0.12**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.95**		*65.1 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.35**		*78.3 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-3L-SPME1-8

4100204-24 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.07**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	J
2,4´-DDE	**0.11**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.11**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	**0.29**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.65**		*122 %*	*25-140*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.08**		*103 %*	*30-135*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-3L-SPME1-9

4100204-25 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	**0.10**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.10**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.02**		*67.4 %*		*25-140*	*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.10**		*70.0 %*		*30-135*	*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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QT2-3L-SPME1-11

4100204-26 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.12**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.12**		*70.6 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.41**		*80.3 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-3L-SPME1-12

4100204-27 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.08**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.95**		*65.0 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.29**		*76.5 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-3L-SPME2-1

4100204-28 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.07**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	J
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.20**		*107 %*	*25-140*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.30**		*76.7 %*	*30-135*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-3L-SPME2-3

4100204-29 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.22**		*107 %*	*25-140*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.32**		*77.2 %*	*30-135*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-3L-SPME2-4

4100204-30 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.22**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.01**		*66.9 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.10**		*69.9 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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QT2-3L-SPME2-6

4100204-31 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.13**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.29**		*76.5 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.40**		*79.9 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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QT2-3L-SPME2-7

4100204-32 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	**0.12**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.14**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	**0.08**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.37**		*78.8 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.44**		*81.3 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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4100204-33 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.16**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	J
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.34**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	**0.22**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.60**		*120 %*	*25-140*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.69**		*89.5 %*	*30-135*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	

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QT2-3L-SPME2-9

4100204-34 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	**0.32**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.18**		*72.6 %*		*25-140*	*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.22**		*74.0 %*		*30-135*	*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-3L-SPME2-11

4100204-35 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.11**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.08**		*69.3 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.11**		*70.4 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-3L-SPME2-12

4100204-36 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	**0.13**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.16**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	**0.07**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.34**		*78.0 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.60**		*86.6 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-5-SPME1-1

4100204-37 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDE	**0.09**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.85**		*95.1 %*	*25-140*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.31**		*77.1 %*	*30-135*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-5-SPME1-3

4100204-38 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.20**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	**0.68**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.96**		*132 %*	*25-140*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.91**		*97.1 %*	*30-135*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-5-SPME1-4

4100204-39 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.07**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	**0.07**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.16**		*72.2 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.27**		*75.8 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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QT2-5-SPME1-6

4100204-40 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.22**		*74.0 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.40**		*80.1 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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QT2-5-SPME1-7

4100204-41 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	**0.09**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.13**		*70.9 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.23**		*74.4 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-5-SPME1-8

4100204-42 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.11**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	J
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	**0.10**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.51**		*117 %*	*25-140*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.27**		*75.7 %*	*30-135*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-5-SPME1-9

4100204-43 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.34**		*77.9 %*		*25-140*	*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.19**		*73.0 %*		*30-135*	*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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QT2-5-SPME1-11

4100204-44 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.11**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.06**		*68.6 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.31**		*77.0 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-5-SPME1-12

4100204-45 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	**0.08**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.09**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	**0.07**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.11**		*70.4 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.31**		*77.0 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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QT2-5-SPME2-1

4100204-46 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDE	**0.11**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.06**		*102 %*	*25-140*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.30**		*76.8 %*	*30-135*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	

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QT2-5-SPME2-3

4100204-47 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.41**		*114 %*	*25-140*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.54**		*84.5 %*	*30-135*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	

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QT2-5-SPME2-4

4100204-48 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.49**		*82.9 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.69**		*89.5 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-5-SPME2-6

4100204-49 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.08**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.58**		*85.9 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.88**		*96.0 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-5-SPME2-7

4100204-50 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.54**		*84.8 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.85**		*94.9 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-5-SPME2-8

4100204-51 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.31**		*110 %*	*25-140*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.82**		*93.9 %*	*30-135*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-5-SPME2-9

4100204-52 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.08**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.82**		*94.0 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.02**		*101 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-5-SPME2-11

4100204-53 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.10**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.65**		*88.2 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.81**		*93.6 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-5-SPME2-12

4100204-54 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.15**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
2,4´-DDE	**0.08**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**4.24**		*141 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**5.27**		*176 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	*S-GC*

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-1-SPME1-1

4100204-55 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDE	**0.13**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.16**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	**0.65**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.36**		*112 %*	*25-140*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.90**		*96.8 %*	*30-135*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-1-SPME1-3

4100204-56 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.23**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	**0.63**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.80**		*127 %*	*25-140*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.68**		*89.4 %*	*30-135*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-1-SPME1-4

4100204-57 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.07**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.15**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	**0.25**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.79**		*93.1 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.77**		*92.2 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-1-SPME1-6

4100204-58 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.14**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.83**		*94.5 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.79**		*93.0 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-1-SPME1-7

4100204-59 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	**0.14**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.11**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.63**		*87.8 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.86**		*95.3 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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QT2-1-SPME1-8

4100204-60 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
2,4´-DDE	**0.19**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.15**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	**0.32**	0.06	0.19	ng		20-Jan-2015	24-Jan-2015	EPA 8081A	Z-03
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.24**		*108 %*	*25-140*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.73**		*91.0 %*	*30-135*		*20-Jan-2015*	*24-Jan-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-1-SPME1-9

4100204-61 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.07**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.64**		*88.0 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.79**		*93.2 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-1-SPME1-11

4100204-62 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.08**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.73**		*91.0 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.09**		*103 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-1-SPME1-12

4100204-63 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	**0.15**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.53**		*84.4 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.04**		*101 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-1-SPME2-1

4100206-01 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.83**		*61.1 %*	*25-140*		*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.87**		*95.6 %*	*30-135*		*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-1-SPME2-3

4100206-02 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.22**		*107 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.40**		*113 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-1-SPME2-4

4100206-03 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.28**		*76.1 %*		*25-140*	*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.82**		*93.9 %*		*30-135*	*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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QT2-1-SPME2-6

4100206-04 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.11**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.77**		*92.2 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.05**		*102 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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QT2-1-SPME2-7

4100206-05 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	**0.15**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.32**		*77.3 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.73**		*90.9 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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QT2-1-SPME2-8

4100206-06 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.41**		*114 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.49**		*116 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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QT2-1-SPME2-9

4100206-07 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.09**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.47**		*82.2 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.90**		*96.6 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-1-SPME2-11

4100206-08 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.09**	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.46**		*81.8 %*	*25-140*		*20-Jan-2015*	*22-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.18**		*106 %*	*30-135*		*20-Jan-2015*	*22-Feb-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-1-SPME2-12

4100206-09 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
2,4´-DDE	**0.11**	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.09**	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.36**		*78.6 %*	*25-140*		*20-Jan-2015*	*22-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.94**		*98.1 %*	*30-135*		*20-Jan-2015*	*22-Feb-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-2-SPME1-1

4100206-10 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.73**		*91.0 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.50**		*117 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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4100206-11 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.90**		*96.8 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.00**		*99.8 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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QT2-2-SPME1-4

4100206-12 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.13**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.29**		*76.2 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.80**		*93.3 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-2-SPME1-6

4100206-13 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.25**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.54**		*84.8 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.03**		*101 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-2-SPME1-7

4100206-14 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	**0.14**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.16**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.30**		*76.6 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.65**		*88.2 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-2-SPME1-8

4100206-15 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.07**	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.09**		*69.8 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.17**		*106 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-2-SPME1-9

4100206-16 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.16**	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.66**		*88.6 %*	*25-140*		*20-Jan-2015*	*22-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.82**		*94.0 %*	*30-135*		*20-Jan-2015*	*22-Feb-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-2-SPME1-11

4100206-17 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.22**		*74.0 %*	*25-140*		*20-Jan-2015*	*22-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.68**		*89.2 %*	*30-135*		*20-Jan-2015*	*22-Feb-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-2-SPME1-12

4100206-18 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDE	**0.11**	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDD	**0.09**	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.36**		*78.6 %*		*25-140*	*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.94**		*98.1 %*		*30-135*	*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	

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QT2-2-SPME2-1

4100206-19 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.938**		*31.2 %*	*25-140*		*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.17**		*72.3 %*	*30-135*		*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	

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QT2-2-SPME2-3

4100206-20 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.86**		*95.2 %*		*25-140*	*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.00**		*99.9 %*		*30-135*	*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	

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QT2-2-SPME2-4

4100206-21 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.28**		*76.0 %*	*25-140*		*20-Jan-2015*	*22-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.88**		*96.1 %*	*30-135*		*20-Jan-2015*	*22-Feb-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-2-SPME2-6

4100206-22 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.24**		*74.8 %*	*25-140*		*20-Jan-2015*	*22-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.74**		*91.3 %*	*30-135*		*20-Jan-2015*	*22-Feb-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-2-SPME2-7

4100206-23 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDE	**0.14**	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.54**		*84.6 %*	*25-140*		*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.88**		*95.8 %*	*30-135*		*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-2-SPME2-8

4100206-24 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.73**		*91.1 %*	*25-140*		*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.38**		*113 %*	*30-135*		*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	

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QT2-2-SPME2-9

4100206-25 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	22-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.46**		*82.0 %*	*25-140*		*20-Jan-2015*	*22-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.99**		*99.7 %*	*30-135*		*20-Jan-2015*	*22-Feb-2015*	*EPA 8081A*	

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4100206-26 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.22**		*74.0 %*	*25-140*		*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.68**		*89.2 %*	*30-135*		*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-2-SPME2-12

4100206-27 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.30**		*76.6 %*	*25-140*		*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.09**		*103 %*	*30-135*		*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-4-SPME1-1

4100206-28 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	Z-03, U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	Z-03, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.27**		*109 %*	*25-140*		*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.58**		*86.0 %*	*30-135*		*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-4-SPME1-3

4100206-29 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDD	**0.24**	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	Z-03
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	Z-03, U
4,4'-DDE [2C]	**1.00**	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	Z-03
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.04**		*102 %*	*25-140*		*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.21**		*73.6 %*	*30-135*		*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-4-SPME1-4

4100206-30 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.07**	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.92**		*64.1 %*	*25-140*		*20-Jan-2015*	*20-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.02**		*67.3 %*	*30-135*		*20-Jan-2015*	*20-Feb-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-4-SPME1-6

4100206-31 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	20-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.12**		*70.8 %*		*25-140*	*20-Jan-2015*	*20-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.12**		*70.8 %*		*30-135*	*20-Jan-2015*	*20-Feb-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-4-SPME1-7

4100206-32 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	**0.18**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.96**		*65.5 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.24**		*74.8 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-4-SPME1-8

4100206-33 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.07**	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	J
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDD	**0.33**	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	Z-03
4,4´-DDT	**0.11**	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	Z-03, J
4,4'-DDE [2C]	**0.39**	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	Z-03
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.91**		*130 %*	*25-140*		*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.96**		*98.8 %*	*30-135*		*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	

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QT2-4-SPME1-9

4100206-34 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.10**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.93**		*64.4 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.16**		*71.9 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-4-SPME1-11

4100206-35 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	**0.07**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.69**		*56.2 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.79**		*59.6 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-4-SPME1-12

4100206-36 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.08**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
2,4´-DDE	**0.14**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
2,4´-DDT	**0.11**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDD	**0.10**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4´-DDT	**0.09**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
4,4'-DDE [2C]	**0.15**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.62**		*54.1 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.53**		*50.9 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-4-SPME2-1

4100206-37 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.93**		*97.7 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.01**		*100 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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QT2-4-SPME2-3

4100206-38 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	**0.08**	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	J
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.96**		*98.8 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.42**		*114 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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QT2-4-SPME2-4

4100206-39 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.32**		*77.2 %*		*25-140*	*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.00**		*99.9 %*		*30-135*	*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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4100206-40 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.36**		*78.8 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.35**		*78.4 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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QT2-4-SPME2-7

4100206-41 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	12-Mar-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.16**		*72.2 %*		*25-140*	*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.24**		*74.6 %*		*30-135*	*20-Jan-2015*	*12-Mar-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: ETV SEA Ring
Project Manager: Gunther Rosen

Reported:
17-Mar-2015

QT2-4-SPME2-8

4100206-42 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.59**		*120 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.05**		*102 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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3909 Halls Ferry Road
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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-4-SPME2-9

4100206-43 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.82**		*60.6 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.26**		*75.3 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-4-SPME2-11

4100206-44 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.18**		*39.2 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.64**		*54.5 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-4-SPME2-12

4100206-45 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.73**		*57.8 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.34**		*78.0 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-7-SPME1-1

4100206-46 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.00**		*99.9 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.37**		*112 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-7-SPME1-3

4100206-47 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.96**		*98.8 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.06**		*102 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-7-SPME1-4

4100206-48 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.18**		*72.6 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.30**		*110 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-7-SPME1-6

4100206-49 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.15**		*71.5 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.12**		*104 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-7-SPME1-7

4100206-50 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.09**		*69.7 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.74**		*91.3 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-7-SPME1-8

4100206-51 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.28**		*109 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.45**		*115 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-7-SPME1-9

4100206-52 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.72**		*57.3 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.47**		*82.3 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-7-SPME1-11

4100206-53 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.40**		*46.6 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.92**		*64.0 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-7-SPME1-12

4100206-54 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.75**		*58.5 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.45**		*81.6 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

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4100206-55 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.63**		*87.7 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.26**		*109 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-7-SPME2-3

4100206-56 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.18**		*106 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.83**		*94.5 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-7-SPME2-4

4100206-57 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.68**		*56.0 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.62**		*87.3 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-7-SPME2-6

4100206-58 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.43**		*47.5 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.02**		*67.2 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-7-SPME2-7

4100206-59 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.77**		*59.0 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.70**		*90.1 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-7-SPME2-8

4100206-60 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.21**		*107 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.40**		*113 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-7-SPME2-9

4100206-61 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	29-Jan-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.85**		*61.6 %*	*25-140*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.49**		*83.1 %*	*30-135*		*20-Jan-2015*	*29-Jan-2015*	*EPA 8081A*	

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3909 Halls Ferry Road
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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-7-SPME2-11

4100206-62 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.46**		*82.0 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.14**		*105 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

QT2-7-SPME2-12

4100206-63 (Passive Sampler)

ERDC- EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
2,4´-DDE	**0.09**	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	J
2,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDD	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4´-DDT	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
4,4'-DDE [2C]	ND	0.06	0.19	ng		20-Jan-2015	21-Feb-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.04**		*68.1 %*	*25-140*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.80**		*93.2 %*	*30-135*		*20-Jan-2015*	*21-Feb-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B503030 - * DEFAULT PREP *** **											
Blank (B503030-BLK1)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	ND	0.06	0.19	ng							U
2,4´-DDE	ND	0.06	0.19	ng							U
2,4´-DDT	ND	0.06	0.19	ng							U
4,4´-DDD	ND	0.06	0.19	ng							U
4,4´-DDT	ND	0.06	0.19	ng							U
4,4'-DDE [2C]	ND	0.06	0.19	ng							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.75*			*ng*	*3.000*		*125*	*25-140*			
Surrogate: Decachlorobiphenyl	*2.82*			*ng*	*3.000*		*94.0*	*30-135*			
Blank (B503030-BLK2)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	ND	0.06	0.19	ng							U
2,4´-DDE	ND	0.06	0.19	ng							U
2,4´-DDT	ND	0.06	0.19	ng							U
4,4´-DDD	ND	0.06	0.19	ng							U
4,4´-DDT	ND	0.06	0.19	ng							U
4,4'-DDE [2C]	ND	0.06	0.19	ng							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.67*			*ng*	*3.000*		*122*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.01*			*ng*	*3.000*		*100*	*30-135*			
Blank (B503030-BLK3)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	ND	0.06	0.19	ng							U
2,4´-DDE	ND	0.06	0.19	ng							U
2,4´-DDT	ND	0.06	0.19	ng							U
4,4´-DDD	ND	0.06	0.19	ng							U
4,4´-DDT	ND	0.06	0.19	ng							U
4,4'-DDE [2C]	ND	0.06	0.19	ng							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.02*			*ng*	*3.000*		*101*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.14*			*ng*	*3.000*		*105*	*30-135*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B503030 - * DEFAULT PREP *** **											
Blank (B503030-BLK4)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	ND	0.06	0.19	ng							U
2,4´-DDE	ND	0.06	0.19	ng							U
2,4´-DDT	ND	0.06	0.19	ng							U
4,4´-DDD	ND	0.06	0.19	ng							U
4,4´-DDT	ND	0.06	0.19	ng							U
4,4'-DDE [2C]	ND	0.06	0.19	ng							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.62*			*ng*	*3.000*		*121*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.83*			*ng*	*3.000*		*128*	*30-135*			
Blank (B503030-BLK5)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	ND	0.06	0.19	ng							U
2,4´-DDE	ND	0.06	0.19	ng							U
2,4´-DDT	ND	0.06	0.19	ng							U
4,4´-DDD	ND	0.06	0.19	ng							U
4,4´-DDE	ND	0.06	0.19	ng							U
4,4´-DDT	ND	0.06	0.19	ng							U
4,4'-DDE [2C]	ND	0.06	0.19	ng							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.82*			*ng*	*3.000*		*60.6*	*25-140*			
Surrogate: Decachlorobiphenyl	*2.46*			*ng*	*3.000*		*82.1*	*30-135*			
Blank (B503030-BLK6)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	ND	0.06	0.19	ng							U
2,4´-DDE	ND	0.06	0.19	ng							U
2,4´-DDT	ND	0.06	0.19	ng							U
4,4´-DDD	ND	0.06	0.19	ng							U
4,4´-DDE	ND	0.06	0.19	ng							U
4,4´-DDT	ND	0.06	0.19	ng							U
4,4'-DDE [2C]	ND	0.06	0.19	ng							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.62*			*ng*	*3.000*		*121*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.83*			*ng*	*3.000*		*128*	*30-135*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B503030 - * DEFAULT PREP *** **											
Blank (B503030-BLK8)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	ND	0.06	0.19	ng							U
2,4´-DDE	ND	0.06	0.19	ng							U
2,4´-DDT	ND	0.06	0.19	ng							U
4,4´-DDD	ND	0.06	0.19	ng							U
4,4´-DDE	ND	0.06	0.19	ng							U
4,4´-DDT	ND	0.06	0.19	ng							U
4,4'-DDE [2C]	ND	0.06	0.19	ng							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.82*			*ng*	*3.000*		*60.6*	*25-140*			
Surrogate: Decachlorobiphenyl	*2.73*			*ng*	*3.000*		*91.1*	*30-135*			
Blank (B503030-BLK9)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	ND	0.06	0.19	ng							U
2,4´-DDE	ND	0.06	0.19	ng							U
2,4´-DDT	ND	0.06	0.19	ng							U
4,4´-DDD	ND	0.06	0.19	ng							U
4,4´-DDE	ND	0.06	0.19	ng							U
4,4´-DDT	ND	0.06	0.19	ng							U
4,4'-DDE [2C]	ND	0.06	0.19	ng							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.22*			*ng*	*3.000*		*74.0*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.17*			*ng*	*3.000*		*106*	*30-135*			
Blank (B503030-BLKA)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	ND	0.06	0.19	ng							U
2,4´-DDE	ND	0.06	0.19	ng							U
2,4´-DDT	ND	0.06	0.19	ng							U
4,4´-DDD	ND	0.06	0.19	ng							U
4,4´-DDE	ND	0.06	0.19	ng							U
4,4´-DDT	ND	0.06	0.19	ng							U
4,4'-DDE [2C]	0.11	0.06	0.19	ng							J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.22*			*ng*	*3.000*		*74.2*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.31*			*ng*	*3.000*		*110*	*30-135*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B503030 - * DEFAULT PREP *** **											
LCS (B503030-BS1)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.4	0.06	0.19	ng	3.750		90.7	50-125			
2,4´-DDE	3.3	0.06	0.19	ng	3.750		88.8	50-125			
2,4´-DDT	3.5	0.06	0.19	ng	3.750		92.0	50-125			
4,4´-DDD	2.8	0.06	0.19	ng	3.000		91.8	25-150			
4,4´-DDT	2.8	0.06	0.19	ng	3.000		94.4	45-140			
4,4'-DDE [2C]	2.6	0.06	0.19	ng	3.000		87.4	35-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.70*			*ng*	*3.000*		*123*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.00*			*ng*	*3.000*		*99.9*	*30-135*			
LCS (B503030-BS2)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.7	0.06	0.19	ng	3.750		98.1	50-125			
2,4´-DDE	3.6	0.06	0.19	ng	3.750		95.3	50-125			
2,4´-DDT	3.7	0.06	0.19	ng	3.750		99.8	50-125			
4,4´-DDD	2.8	0.06	0.19	ng	3.000		92.9	25-150			
4,4´-DDT	2.8	0.06	0.19	ng	3.000		94.9	45-140			
4,4'-DDE [2C]	2.6	0.06	0.19	ng	3.000		87.6	35-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.77*			*ng*	*3.000*		*126*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.21*			*ng*	*3.000*		*107*	*30-135*			
LCS (B503030-BS3)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.6	0.06	0.19	ng	3.750		96.0	50-125			
2,4´-DDE	3.5	0.06	0.19	ng	3.750		92.8	50-125			
2,4´-DDT	3.6	0.06	0.19	ng	3.750		97.1	50-125			
4,4´-DDD	2.8	0.06	0.19	ng	3.000		94.7	25-150			
4,4´-DDT	2.9	0.06	0.19	ng	3.000		95.7	45-140			
4,4'-DDE [2C]	2.6	0.06	0.19	ng	3.000		87.9	35-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.55*			*ng*	*3.000*		*118*	*25-140*			
Surrogate: Decachlorobiphenyl	*2.92*			*ng*	*3.000*		*97.3*	*30-135*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B503030 - * DEFAULT PREP *** **											
LCS (B503030-BS4)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.5	0.06	0.19	ng	3.750		92.7	50-125			
2,4´-DDE	3.6	0.06	0.19	ng	3.750		96.7	50-125			
2,4´-DDT	3.5	0.06	0.19	ng	3.750		93.2	50-125			
4,4´-DDD	2.7	0.06	0.19	ng	3.000		89.1	25-150			
4,4´-DDT	2.8	0.06	0.19	ng	3.000		93.7	45-140			
4,4'-DDE [2C]	2.6	0.06	0.19	ng	3.000		88.0	35-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.99*			*ng*	*3.000*		*66.5*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.24*			*ng*	*3.000*		*108*	*30-135*			
LCS (B503030-BS5)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.7	0.06	0.19	ng	3.750		99.7	50-125			
2,4´-DDE	3.8	0.06	0.19	ng	3.750		101	50-125			
2,4´-DDT	3.8	0.06	0.19	ng	3.750		101	50-125			
4,4´-DDD	3.1	0.06	0.19	ng	3.000		102	25-150			
4,4´-DDT	3.1	0.06	0.19	ng	3.000		102	45-140			
4,4'-DDE [2C]	2.9	0.06	0.19	ng	3.000		97.5	35-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.88*			*ng*	*3.000*		*62.7*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.12*			*ng*	*3.000*		*104*	*30-135*			
LCS (B503030-BS6)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.3	0.06	0.19	ng	3.750		86.9	50-125			
2,4´-DDE	3.3	0.06	0.19	ng	3.750		88.7	50-125			
2,4´-DDT	3.3	0.06	0.19	ng	3.750		88.2	50-125			
4,4´-DDD	2.6	0.06	0.19	ng	3.000		87.1	25-150			
4,4´-DDT	2.7	0.06	0.19	ng	3.000		88.8	45-140			
4,4'-DDE [2C]	2.6	0.06	0.19	ng	3.000		85.4	35-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.61*			*ng*	*3.000*		*53.6*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.14*			*ng*	*3.000*		*105*	*30-135*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B503030 - * DEFAULT PREP *** **											
LCS (B503030-BS7)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.5	0.06	0.19	ng	3.750		92.7	50-125			
2,4´-DDE	3.6	0.06	0.19	ng	3.750		96.7	50-125			
2,4´-DDT	3.5	0.06	0.19	ng	3.750		93.2	50-125			
4,4´-DDD	2.7	0.06	0.19	ng	3.000		89.1	25-150			
4,4´-DDT	2.8	0.06	0.19	ng	3.000		93.7	45-140			
4,4'-DDE [2C]	2.6	0.06	0.19	ng	3.000		88.0	35-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.99*			*ng*	*3.000*		*66.5*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.24*			*ng*	*3.000*		*108*	*30-135*			
LCS (B503030-BS8)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	2.8	0.06	0.19	ng	3.750		74.4	50-125			
2,4´-DDE	3.0	0.06	0.19	ng	3.750		79.6	50-125			
2,4´-DDT	2.8	0.06	0.19	ng	3.750		73.9	50-125			
4,4´-DDD	2.1	0.06	0.19	ng	3.000		71.2	25-150			
4,4´-DDT	2.4	0.06	0.19	ng	3.000		80.4	45-140			
4,4'-DDE [2C]	2.1	0.06	0.19	ng	3.000		71.6	35-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.74*			*ng*	*3.000*		*57.8*	*25-140*			
Surrogate: Decachlorobiphenyl	*2.66*			*ng*	*3.000*		*88.6*	*30-135*			
LCS (B503030-BS9)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.1	0.06	0.19	ng	3.750		83.4	50-125			
2,4´-DDE	3.3	0.06	0.19	ng	3.750		87.1	50-125			
2,4´-DDT	3.2	0.06	0.19	ng	3.750		84.2	50-125			
4,4´-DDD	2.5	0.06	0.19	ng	3.000		84.0	25-150			
4,4´-DDT	2.5	0.06	0.19	ng	3.000		83.1	45-140			
4,4'-DDE [2C]	2.5	0.06	0.19	ng	3.000		82.7	35-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.62*			*ng*	*3.000*		*53.9*	*25-140*			
Surrogate: Decachlorobiphenyl	*2.64*			*ng*	*3.000*		*87.9*	*30-135*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B503030 - * DEFAULT PREP *** **											
LCS (B503030-BSA)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.7	0.06	0.19	ng	3.750		99.7	50-125			
2,4´-DDE	3.8	0.06	0.19	ng	3.750		101	50-125			
2,4´-DDT	3.8	0.06	0.19	ng	3.750		101	50-125			
4,4´-DDD	3.1	0.06	0.19	ng	3.000		102	25-150			
4,4´-DDT	3.1	0.06	0.19	ng	3.000		102	45-140			
4,4'-DDE [2C]	2.9	0.06	0.19	ng	3.000		97.5	35-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.88*			*ng*	*3.000*		*62.7*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.12*			*ng*	*3.000*		*104*	*30-135*			
LCS Dup (B503030-BSD1)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.7	0.06	0.19	ng	3.750		99.7	50-125	9.41	30	
2,4´-DDE	3.6	0.06	0.19	ng	3.750		96.5	50-125	8.29	30	
2,4´-DDT	3.8	0.06	0.19	ng	3.750		101	50-125	9.42	30	
4,4´-DDD	2.9	0.06	0.19	ng	3.000		95.6	25-150	4.04	30	
4,4´-DDT	2.9	0.06	0.19	ng	3.000		97.8	45-140	3.55	30	
4,4'-DDE [2C]	2.7	0.06	0.19	ng	3.000		90.3	35-140	3.16	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.31*			*ng*	*3.000*		*110*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.28*			*ng*	*3.000*		*109*	*30-135*			
LCS Dup (B503030-BSD2)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.6	0.06	0.19	ng	3.750		95.5	50-125	2.68	30	
2,4´-DDE	3.5	0.06	0.19	ng	3.750		93.1	50-125	2.38	30	
2,4´-DDT	3.6	0.06	0.19	ng	3.750		96.5	50-125	3.32	30	
4,4´-DDD	2.7	0.06	0.19	ng	3.000		90.7	25-150	2.44	30	
4,4´-DDT	2.8	0.06	0.19	ng	3.000		93.5	45-140	1.53	30	
4,4'-DDE [2C]	2.6	0.06	0.19	ng	3.000		85.8	35-140	2.11	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.74*			*ng*	*3.000*		*125*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.18*			*ng*	*3.000*		*106*	*30-135*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B503030 - * DEFAULT PREP *** **											
LCS Dup (B503030-BSD3)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.6	0.06	0.19	ng	3.750		95.1	50-125	0.879	30	
2,4´-DDE	3.5	0.06	0.19	ng	3.750		93.1	50-125	0.310	30	
2,4´-DDT	3.6	0.06	0.19	ng	3.750		97.0	50-125	0.120	30	
4,4´-DDD	2.7	0.06	0.19	ng	3.000		91.4	25-150	3.57	30	
4,4´-DDT	2.8	0.06	0.19	ng	3.000		94.3	45-140	1.55	30	
4,4'-DDE [2C]	2.6	0.06	0.19	ng	3.000		87.4	35-140	0.588	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.53*			*ng*	*3.000*		*118*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.17*			*ng*	*3.000*		*106*	*30-135*			
LCS Dup (B503030-BSD4)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.7	0.06	0.19	ng	3.750		97.8	50-125	5.31	30	
2,4´-DDE	3.8	0.06	0.19	ng	3.750		100	50-125	3.66	30	
2,4´-DDT	3.7	0.06	0.19	ng	3.750		99.6	50-125	6.65	30	
4,4´-DDD	3.0	0.06	0.19	ng	3.000		99.8	25-150	11.4	30	
4,4´-DDT	3.1	0.06	0.19	ng	3.000		102	45-140	8.81	30	
4,4'-DDE [2C]	2.9	0.06	0.19	ng	3.000		98.3	35-140	11.1	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.92*			*ng*	*3.000*		*63.9*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.36*			*ng*	*3.000*		*112*	*30-135*			
LCS Dup (B503030-BSD5)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.7	0.06	0.19	ng	3.750		97.6	50-125	2.13	30	
2,4´-DDE	3.7	0.06	0.19	ng	3.750		98.1	50-125	3.32	30	
2,4´-DDT	3.7	0.06	0.19	ng	3.750		99.0	50-125	1.73	30	
4,4´-DDD	3.1	0.06	0.19	ng	3.000		104	25-150	1.81	30	
4,4´-DDT	3.1	0.06	0.19	ng	3.000		105	45-140	2.75	30	
4,4'-DDE [2C]	2.9	0.06	0.19	ng	3.000		97.2	35-140	0.334	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.85*			*ng*	*3.000*		*61.8*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.18*			*ng*	*3.000*		*106*	*30-135*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B503030 - * DEFAULT PREP *** **											
LCS Dup (B503030-BSD6)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.7	0.06	0.19	ng	3.750		99.7	50-125	13.7	30	
2,4´-DDE	3.8	0.06	0.19	ng	3.750		101	50-125	12.7	30	
2,4´-DDT	3.8	0.06	0.19	ng	3.750		101	50-125	13.2	30	
4,4´-DDD	3.2	0.06	0.19	ng	3.000		105	25-150	18.9	30	
4,4´-DDT	3.2	0.06	0.19	ng	3.000		106	45-140	17.3	30	
4,4'-DDE [2C]	3.0	0.06	0.19	ng	3.000		100	35-140	16.0	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.98*			*ng*	*3.000*		*66.0*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.34*			*ng*	*3.000*		*111*	*30-135*			
LCS Dup (B503030-BSD7)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.2	0.06	0.19	ng	3.750		85.4	50-125	8.21	30	
2,4´-DDE	3.4	0.06	0.19	ng	3.750		89.6	50-125	7.62	30	
2,4´-DDT	3.3	0.06	0.19	ng	3.750		87.1	50-125	6.70	30	
4,4´-DDD	2.5	0.06	0.19	ng	3.000		83.9	25-150	6.02	30	
4,4´-DDT	2.9	0.06	0.19	ng	3.000		96.8	45-140	3.26	30	
4,4'-DDE [2C]	2.5	0.06	0.19	ng	3.000		82.6	35-140	6.30	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.99*			*ng*	*3.000*		*66.3*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.02*			*ng*	*3.000*		*101*	*30-135*			
LCS Dup (B503030-BSD8)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.7	0.06	0.19	ng	3.750		97.8	50-125	27.1	30	
2,4´-DDE	3.8	0.06	0.19	ng	3.750		100	50-125	22.9	30	
2,4´-DDT	3.7	0.06	0.19	ng	3.750		99.6	50-125	29.6	30	
4,4´-DDD	2.7	0.06	0.19	ng	3.000		90.2	25-150	23.5	30	
4,4´-DDT	3.1	0.06	0.19	ng	3.000		102	45-140	24.0	30	
4,4'-DDE [2C]	2.7	0.06	0.19	ng	3.000		89.9	35-140	22.6	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.06*			*ng*	*3.000*		*68.5*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.36*			*ng*	*3.000*		*112*	*30-135*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: ETV SEA Ring	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	17-Mar-2015

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B503030 - * DEFAULT PREP *****											
LCS Dup (B503030-BSD9)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.7	0.06	0.19	ng	3.750		97.6	50-125	15.7	30	
2,4´-DDE	3.7	0.06	0.19	ng	3.750		98.1	50-125	11.8	30	
2,4´-DDT	3.7	0.06	0.19	ng	3.750		99.0	50-125	16.2	30	
4,4´-DDD	3.1	0.06	0.19	ng	3.000		104	25-150	21.3	30	
4,4´-DDT	3.1	0.06	0.19	ng	3.000		105	45-140	23.3	30	
4,4'-DDE [2C]	2.9	0.06	0.19	ng	3.000		97.2	35-140	16.0	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.85*			*ng*	*3.000*		*61.8*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.18*			*ng*	*3.000*		*106*	*30-135*			
LCS Dup (B503030-BSDA)					Prepared: 20-Jan-2015 Analyzed: 30-Jan-2015						
2,4´-DDD	3.7	0.06	0.19	ng	3.750		99.7	50-125	0.00802	30	
2,4´-DDE	3.8	0.06	0.19	ng	3.750		101	50-125	0.669	30	
2,4´-DDT	3.8	0.06	0.19	ng	3.750		101	50-125	0.0675	30	
4,4´-DDD	3.2	0.06	0.19	ng	3.000		105	25-150	3.01	30	
4,4´-DDT	3.2	0.06	0.19	ng	3.000		106	45-140	3.31	30	
4,4'-DDE [2C]	3.0	0.06	0.19	ng	3.000		100	35-140	2.77	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.98*			*ng*	*3.000*		*66.0*	*25-140*			
Surrogate: Decachlorobiphenyl	*3.34*			*ng*	*3.000*		*111*	*30-135*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Chain of Custody Record

Shipped From	Project Manager: Gunther Rosen	Site Contact: Gunther Rosen	Date: 1-Oct-14	COC No:
Courtney Thomas/Danny D. Reible (Texas Tech University)	Tel/Fax: (619)890-9692	Lab Contact: Allyson Holman	Carrier: FedEx	1 of 1 CoCs
911 Boston Ave./Dept of Civil Engineering	Analysis Turnaround Time			Job No.
Lubbock, Tx 79409	Calendar (C) or Work Days (W) _____			
(713)408-6885 Mobile	TAT if different from Below standard			SDG No.
Fax	___ 2 weeks			
Project Name: SEA Ring - SPAWAR Systems Center Pacific	___ 1 week			
Site:	___ 2 days			
P O #	___ 1 day			

Task	Sample Identification	Sample Date	Sample Time	Sample Type	Solvent	# of Cont.	Filtered Sample	DDx	Sample Specific Notes:
1	QT2-6-SPME1-1	9/25/2014	1325	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (0-5 cm)
2	QT2-6-SPME1-3	9/25/2014	1325	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (10-15 cm)
3	QT2-6-SPME1-4	9/25/2014	1325	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (15-20 cm)
4	QT2-6-SPME1-6	9/25/2014	1325	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (25-30 cm)
5	QT2-6-SPME1-7	9/25/2014	1325	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (30-35 cm)
6	QT2-6-SPME1-8	9/25/2014	1325	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (35-40 cm)
7	QT2-6-SPME1-9	9/25/2014	1325	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (40-45 cm)
8	QT2-6-SPME1-11	9/25/2014	1325	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (50-55 cm)
9	QT2-6-SPME1-12	9/25/2014	1325	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (55-60 cm)
								HEX	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= DI H2O/MeOH; 7=ZnAc2,NaOH

Possible Hazard Identification
Non-Hazard *X Flammable* *Skin Irritant* *Poison B* *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client *Disposal By Lab* *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Courtney Thomas	Texas Tech University	10/1/2014 12:00 pm	Michael Case		10/2/14 1600
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Chain of Custody Record

Shipped From	Project Manager: Gunther Rosen	Site Contact: Gunther Rosen	Date: 1-Oct-14	COC No:
Courtney Thomas/Danny D. Reible (Texas Tech University)	Tel/Fax: (619)890-9692	Lab Contact: Allyson Holman	Carrier: FedEx	1 of 1 CoCs
911 Boston Ave./Dept of Civil Engineering	**Analysis Turnaround Time**			Job No.
Lubbock, Tx 79409	Calendar (C) or Work Days (W) _____			
(713)408-6885 Mobile	TAT if different from Below standard			
Fax	___ 2 weeks			SDG No.
Project Name: SEA Ring - SPAWAR Systems Center Pacific	___ 1 week			
Site:	___ 2 days			
P O #	___ 1 day			

Task	Sample Identification	Sample Date	Sample Time	Sample Type	Solvent	# of Cont.	Filtered Sample		DDx	Sample Specific Notes:
10	QT2-6-SPME2-1	9/25/2014	1340	SPME PDMS Extract	Hexane	1	N		X	5 cm fiber segment (0-5 cm)
11	QT2-6-SPME2-3	9/25/2014	1340	SPME PDMS Extract	Hexane	1	N		X	5 cm fiber segment (10-15 cm)
12	QT2-6-SPME2-4	9/25/2014	1340	SPME PDMS Extract	Hexane	1	N		X	5 cm fiber segment (15-20 cm)
13	QT2-6-SPME2-6	9/25/2014	1340	SPME PDMS Extract	Hexane	1	N		X	5 cm fiber segment (25-30 cm)
14	QT2-6-SPME2-7	9/25/2014	1340	SPME PDMS Extract	Hexane	1	N		X	5 cm fiber segment (30-35 cm)
15	QT2-6-SPME2-8	9/25/2014	1340	SPME PDMS Extract	Hexane	1	N		X	5 cm fiber segment (35-40 cm)
16	QT2-6-SPME2-9	9/25/2014	1340	SPME PDMS Extract	Hexane	1	N		X	5 cm fiber segment (40-45 cm)
17	QT2-6-SPME2-11	9/25/2014	1340	SPME PDMS Extract	Hexane	1	N		X	5 cm fiber segment (50-55 cm)
18	QT2-6-SPME2-12	9/25/2014	1340	SPME PDMS Extract	Hexane	1	N		X	2.9 cm fiber segment (55-57.9 cm)
									HEX	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= DI H2O/MeOH; 7=ZnAc2,NaOH

Possible Hazard Identification
Non-Hazard *X Flammable* *Skin Irritant* *Poison B* *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client *Disposal By Lab* *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Courtney Thomas	Texas Tech University	10/1/2014 12:00 pm	Michael Carr		10/2/14 1600
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Chain of Custody Record

Shipped From	Project Manager: Gunther Rosen	Site Contact: Gunther Rosen	Date: 1-Oct-14	COC No:
Courtney Thomas/Danny D. Reible (Texas Tech University)	Tel/Fax: (619)890-9692	Lab Contact: Allyson Holman	Carrier: FedEx	1 of 1 CoCs
911 Boston Ave./Dept of Civil Engineering	Analysis Turnaround Time			Job No.
Lubbock, Tx 79409	Calendar (C) or Work Days (W) _____			
(713)408-6885 Mobile	TAT if different from Below standard			SDG No.
Fax	___ 2 weeks			
Project Name: SEA Ring - SPAWAR Systems Center Pacific	___ 1 week			
Site:	___ 2 days			
P O #	___ 1 day			

Task	Sample Identification	Sample Date	Sample Time	Sample Type	Solvent	# of Cont.	Filtered Sample	DDx	Sample Specific Notes:
19	QT2-3L-SPME1-1	9/25/2014	1420	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (0-5 cm)
20	QT2-3L-SPME1-3	9/25/2014	1420	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (10-15 cm)
21	QT2-3L-SPME1-4	9/25/2014	1420	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (15-20 cm)
22	QT2-3L-SPME1-6	9/25/2014	1420	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (25-30 cm)
23	QT2-3L-SPME1-7	9/25/2014	1420	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (30-35 cm)
24	QT2-3L-SPME1-8	9/25/2014	1420	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (35-40 cm)
25	QT2-3L-SPME1-9	9/25/2014	1420	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (40-45 cm)
26	QT2-3L-SPME1-11	9/25/2014	1420	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (50-55 cm)
27	QT2-3L-SPME1-12	9/25/2014	1420	SPME PDMS Extract	Hexane	1	N	X	2.9 cm fiber segment (55-57.9 cm)
								HEX	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= DI H2O/MeOH; 7=ZnAc2,NaOH

Possible Hazard Identification
Non-Hazard *X Flammable* *Skin Irritant* *Poison B* *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client *Disposal By Lab* *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Courtney Thomas	Texas Tech University	10/1/2014 12:00pm	Michael Cantt		10/2/14 1600
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Chain of Custody Record

Shipped From	Project Manager: Gunther Rosen	Site Contact: Gunther Rosen	Date: 1-Oct-14	COC No:
Courtney Thomas/Danny D. Reible (Texas Tech University)	Tel/Fax: (619)890-9692	Lab Contact: Allyson Holman	Carrier: FedEx	1 of 1 CoCs
911 Boston Ave./Dept of Civil Engineering	Analysis Turnaround Time			Job No.
Lubbock, Tx 79409	Calendar (C) or Work Days (W) _____			
(713)408-6885 Mobile	TAT if different from Below standard			SDG No.
Fax	___ 2 weeks			
Project Name: SEA Ring - SPAWAR Systems Center Pacific	___ 1 week			
Site:	___ 2 days			
P O #	___ 1 day			

Task	Sample Identification	Sample Date	Sample Time	Sample Type	Solvent	# of Cont.	Filtered Sample	DDx	Sample Specific Notes:
28	QT2-3L-SPME2-1	9/25/2014	1431	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (0-5 cm)
29	QT2-3L-SPME2-3	9/25/2014	1431	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (10-15 cm)
30	QT2-3L-SPME2-4	9/25/2014	1431	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (15-20 cm)
31	QT2-3L-SPME2-6	9/25/2014	1431	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (25-30 cm)
32	QT2-3L-SPME2-7	9/25/2014	1431	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (30-35 cm)
33	QT2-3L-SPME2-8	9/25/2014	1431	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (35-40 cm)
34	QT2-3L-SPME2-9	9/25/2014	1431	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (40-45 cm)
35	QT2-3L-SPME2-11	9/25/2014	1431	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (50-55 cm)
36	QT2-3L-SPME2-12	9/25/2014	1431	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (55-60 cm)
								HEX	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= DI H2O/MeOH; 7=ZnAc2,NaOH

Possible Hazard Identification
Non-Hazard *X Flammable* *Skin Irritant* *Poison B* *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client *Disposal By Lab* *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Courtney Thomas	Texas Tech University	10/1/2014 12:00 pm	Michael Cant		10/2/14 1600
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Chain of Custody Record

Shipped From	Project Manager: Gunther Rosen	Site Contact: Gunther Rosen	Date: 1-Oct-14	COC No:
Courtney Thomas/Danny D. Reible (Texas Tech University)	Tel/Fax: (619)890-9692	Lab Contact: Allyson Holman	Carrier: FedEx	1 of 1 CoCs
911 Boston Ave./Dept of Civil Engineering	Analysis Turnaround Time			Job No.
Lubbock, Tx 79409	Calendar (C) or Work Days (W) _____			
(713)408-6885 Mobile	TAT if different from Below standard			SDG No.
Fax	___ 2 weeks			
Project Name: SEA Ring - SPAWAR Systems Center Pacific	___ 1 week			
Site:	___ 2 days			
P O #	___ 1 day			

Task	Sample Identification	Sample Date	Sample Time	Sample Type	Solvent	# of Cont.	Filtered Sample	DDx	Sample Specific Notes:
37	QT2-5-SPME1-1	9/25/2014	1445	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (0-5 cm)
38	QT2-5-SPME1-3	9/25/2014	1445	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (10-15 cm)
39	QT2-5-SPME1-4	9/25/2014	1445	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (15-20 cm)
40	QT2-5-SPME1-6	9/25/2014	1445	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (25-30 cm)
41	QT2-5-SPME1-7	9/25/2014	1445	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (30-35 cm)
42	QT2-5-SPME1-8	9/25/2014	1445	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (35-40 cm)
43	QT2-5-SPME1-9	9/25/2014	1445	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (40-45 cm)
44	QT2-5-SPME1-11	9/25/2014	1445	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (50-55 cm)
45	QT2-5-SPME1-12	9/25/2014	1445	SPME PDMS Extract	Hexane	1	N	X	4.3 cm fiber segment (55-59.3 cm)
								HEX	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= DI H2O/MeOH; 7=ZnAc2,NaOH

Possible Hazard Identification
Non-Hazard *X Flammable* *Skin Irritant* *Poison B* *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client *Disposal By Lab* *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Courtney Thomas	Texas Tech University	10/1/2014 12:00 pm	[signature]		10/2/14 1600
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Chain of Custody Record

Shipped From	Project Manager: Gunther Rosen	Site Contact: Gunther Rosen	Date: 1-Oct-14	COC No:
Courtney Thomas/Danny D. Reible (Texas Tech University)	Tel/Fax: (619)890-9692	Lab Contact: Allyson Holman	Carrier: FedEx	1 of 1 CoCs
911 Boston Ave./Dept of Civil Engineering	Analysis Turnaround Time			Job No.
Lubbock, Tx 79409	Calendar (C) or Work Days (W)			
(713)408-6885 Mobile	TAT if different from Below standard			SDG No.
Fax	___ 2 weeks			
Project Name: SEA Ring - SPAWAR Systems Center Pacific	___ 1 week			
Site:	___ 2 days			
P O #	___ 1 day			

Task	Sample Identification	Sample Date	Sample Time	Sample Type	Solvent	# of Cont.	Filtered Sample	DDx	Sample Specific Notes:
46	QT2-5-SPME2-1	9/25/2014	1456	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (0-5 cm)
47	QT2-5-SPME2-3	9/25/2014	1456	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (10-15 cm)
48	QT2-5-SPME2-4	9/25/2014	1456	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (15-20 cm)
49	QT2-5-SPME2-6	9/25/2014	1456	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (25-30 cm)
50	QT2-5-SPME2-7	9/25/2014	1456	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (30-35 cm)
51	QT2-5-SPME2-8	9/25/2014	1456	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (35-40 cm)
52	QT2-5-SPME2-9	9/25/2014	1456	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (40-45 cm)
53	QT2-5-SPME2-11	9/25/2014	1456	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (50-55 cm)
54	QT2-5-SPME2-12	9/25/2014	1456	SPME PDMS Extract	Hexane	1	N	X	4.9 cm fiber segment (55-59.9 cm)
								HEX	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= DI H2O/MeOH; 7=ZnAc2,NaOH

Possible Hazard Identification
Non-Hazard *X Flammable* *Skin Irritant* *Poison B* *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client *Disposal By Lab* *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Courtney Thomas	Texas Tech University	10/1/2014 12:00 pm	Michael Curt		10/2/14 1600
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Chain of Custody Record

Shipped From	Project Manager: Gunther Rosen	Site Contact: Gunther Rosen	Date: 1-Oct-14	COC No:
Courtney Thomas/Danny D. Reible (Texas Tech University)	Tel/Fax: (619)890-9692	Lab Contact: Allyson Holman	Carrier: FedEx	1 of 1 CoCs
911 Boston Ave./Dept of Civil Engineering	Analysis Turnaround Time			Job No.
Lubbock, Tx 79409	Calendar (C) or Work Days (W) _____			
(713)408-6885 Mobile	TAT if different from Below standard			
Fax	___ 2 weeks			SDG No.
Project Name: SEA Ring - SPAWAR Systems Center Pacific	___ 1 week			
Site:	___ 2 days			
P O #	___ 1 day			

Task	Sample Identification	Sample Date	Sample Time	Sample Type	Solvent	# of Cont.	Filtered Sample	DDx	Sample Specific Notes:
55	QT2-1-SPME1-1	9/25/2014	1500	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (0-5 cm)
56	QT2-1-SPME1-3	9/25/2014	1500	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (10-15 cm)
57	QT2-1-SPME1-4	9/25/2014	1500	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (15-20 cm)
58	QT2-1-SPME1-6	9/25/2014	1500	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (25-30 cm)
59	QT2-1-SPME1-7	9/25/2014	1500	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (30-35 cm)
60	QT2-1-SPME1-8	9/25/2014	1500	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (35-40 cm)
61	QT2-1-SPME1-9	9/25/2014	1500	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (40-45 cm)
62	QT2-1-SPME1-11	9/25/2014	1500	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (50-55 cm)
63	QT2-1-SPME1-12	9/25/2014	1500	SPME PDMS Extract	Hexane	1	N	X	4.9 cm fiber segment (55-59.9 cm)
								HEX	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= DI H2O/MeOH; 7=ZnAc2,NaOH

Possible Hazard Identification
Non-Hazard *X Flammable* *Skin Irritant* *Poison B* *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client *Disposal By Lab* *Archive For _____ Months*

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Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Courtney Thomas	Texas Tech University	10/1/2014 12:00pm	Michael Cant		10/2/14 1600
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Chain of Custody Record

Shipped From	Project Manager: Gunther Rosen	Site Contact: Gunther Rosen	Date: 1-Oct-14	COC No:
Courtney Thomas/Danny D. Reible (Texas Tech University)	Tel/Fax: (619)890-9692	Lab Contact: Allyson Holman	Carrier: FedEx	1 of 1 CoCs
911 Boston Ave./Dept of Civil Engineering	Analysis Turnaround Time			Job No.
Lubbock, Tx 79409	Calendar (C) or Work Days (W) _____			
(713)408-6885 Mobile	TAT if different from Below standard			
Fax	___ 2 weeks			SDG No.
Project Name: SEA Ring - SPAWAR Systems Center Pacific	___ 1 week			
Site:	___ 2 days			
P O #	___ 1 day			

Task	Sample Identification	Sample Date	Sample Time	Sample Type	Solvent	# of Cont.	Filtered Sample	DDx	Sample Specific Notes:
64	QT2-1-SPME2-1	9/25/2014	1355	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (0-5 cm)
65	QT2-1-SPME2-3	9/25/2014	1355	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (10-15 cm)
66	QT2-1-SPME2-4	9/25/2014	1355	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (15-20 cm)
67	QT2-1-SPME2-6	9/25/2014	1355	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (25-30 cm)
68	QT2-1-SPME2-7	9/25/2014	1355	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (30-35 cm)
69	QT2-1-SPME2-8	9/25/2014	1355	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (35-40 cm)
70	QT2-1-SPME2-9	9/25/2014	1355	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (40-45 cm)
71	QT2-1-SPME2-11	9/25/2014	1355	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (50-55 cm)
72	QT2-1-SPME2-12	9/25/2014	1355	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (55-60 cm)
								HEX	

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= DI H_2O/MeOH; 7=ZnAc2,NaOH

Possible Hazard Identification
Non-Hazard *X Flammable* *Skin Irritant* *Poison B* *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client *Disposal By Lab* *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Courtney Thomas	Texas Tech University	10/1/2014 12:00 pm	Michael Cant		10/2/14 1600
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Chain of Custody Record

Shipped From	Project Manager: Gunther Rosen	Site Contact: Gunther Rosen	Date: 1-Oct-14	COC No:
Courtney Thomas/Danny D. Reible (Texas Tech University)	Tel/Fax: (619)890-9692	Lab Contact: Allyson Holman	Carrier: FedEx	1 of 1 CoCs
911 Boston Ave./Dept of Civil Engineering	Analysis Turnaround Time			Job No.
Lubbock, Tx 79409	Calendar (C) or Work Days (W) _____			
(713)408-6885 Mobile	TAT if different from Below standard			SDG No.
Fax	___ 2 weeks			
Project Name: SEA Ring - SPAWAR Systems Center Pacific	___ 1 week			
Site:	___ 2 days			
P O #	___ 1 day			

Task	Sample Identification	Sample Date	Sample Time	Sample Type	Solvent	# of Cont.	Filtered Sample		DDx															Sample Specific Notes:
73	QT2-2-SPME1-1	9/25/2014	1515	SPME PDMS Extract	Hexane	1	N		X															5 cm fiber segment (0-5 cm)
74	QT2-2-SPME1-3	9/25/2014	1515	SPME PDMS Extract	Hexane	1	N		X															5 cm fiber segment (10-15 cm)
75	QT2-2-SPME1-4	9/25/2014	1515	SPME PDMS Extract	Hexane	1	N		X															5 cm fiber segment (15-20 cm)
76	QT2-2-SPME1-6	9/25/2014	1515	SPME PDMS Extract	Hexane	1	N		X															5 cm fiber segment (25-30 cm)
77	QT2-2-SPME1-7	9/25/2014	1515	SPME PDMS Extract	Hexane	1	N		X															5 cm fiber segment (30-35 cm)
78	QT2-2-SPME1-8	9/25/2014	1515	SPME PDMS Extract	Hexane	1	N		X															5 cm fiber segment (35-40 cm)
79	QT2-2-SPME1-9	9/25/2014	1515	SPME PDMS Extract	Hexane	1	N		X															5 cm fiber segment (40-45 cm)
80	QT2-2-SPME1-11	9/25/2014	1515	SPME PDMS Extract	Hexane	1	N		X															5 cm fiber segment (50-55 cm)
81	QT2-2-SPME1-12	9/25/2014	1515	SPME PDMS Extract	Hexane	1	N		X															4.4 cm fiber segment (55-59.4 cm)
									HEX															

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= DI H2O/MeOH; 7=ZnAc2,NaOH

Possible Hazard Identification
Non-Hazard *X Flammable* *Skin Irritant* *Poison B* *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client *Disposal By Lab* *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Courtney Thomas	Texas Tech University	10/1/2014 1200 pm	Michael Craft		10/2/14 1600
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Chain of Custody Record

Shipped From	Project Manager: Gunther Rosen	Site Contact: Gunther Rosen	Date: 1-Oct-14	COC No:
Courtney Thomas/Danny D. Reible (Texas Tech University)	Tel/Fax: (619)890-9692	Lab Contact: Allyson Holman	Carrier: FedEx	1 of 1 CoCs
911 Boston Ave./Dept of Civil Engineering	Analysis Turnaround Time			Job No.
Lubbock, Tx 79409	Calendar (C) or Work Days (W)			
(713)408-6885 Mobile	TAT if different from Below standard			SDG No.
Fax	2 weeks			
Project Name: SEA Ring - SPAWAR Systems Center Pacific	1 week			
Site:	2 days			
P O #	1 day			

Task	Sample Identification	Sample Date	Sample Time	Sample Type	Solvent	# of Cont.	Filtered Sample	DDx	Sample Specific Notes:
82	QT2-2-SPME2-1	9/25/2014	1521	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (0-5 cm)
83	QT2-2-SPME2-3	9/25/2014	1521	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (10-15 cm)
84	QT2-2-SPME2-4	9/25/2014	1521	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (15-20 cm)
85	QT2-2-SPME2-6	9/25/2014	1521	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (25-30 cm)
86	QT2-2-SPME2-7	9/25/2014	1521	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (30-35 cm)
87	QT2-2-SPME2-8	9/25/2014	1521	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (35-40 cm)
88	QT2-2-SPME2-9	9/25/2014	1521	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (40-45 cm)
89	QT2-2-SPME2-11	9/25/2014	1521	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (50-55 cm)
90	QT2-2-SPME2-12	9/25/2014	1521	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (55-60 cm)
								HEX	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= DI H2O/MeOH; 7=ZnAc2,NaOH

Possible Hazard Identification
Non-Hazard *X Flammable* *Skin Irritant* *Poison B* *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client *Disposal By Lab* *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Courtney Thomas	Texas Tech University	10/1/2014 12:00 pm	Michael Cass		10/2/14 1600
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Chain of Custody Record

Shipped From	Project Manager: Gunther Rosen	Site Contact: Gunther Rosen	Date: 1-Oct-14	COC No:
Courtney Thomas/Danny D. Reible (Texas Tech University)	Tel/Fax: (619)890-9692	Lab Contact: Allyson Holman	Carrier: FedEx	1 of 1 CoCs
911 Boston Ave./Dept of Civil Engineering	Analysis Turnaround Time			Job No.
Lubbock, Tx 79409	Calendar (C) or Work Days (W) _____			
(713)408-6885 Mobile	TAT if different from Below standard			SDG No.
Fax	___ 2 weeks			
Project Name: SEA Ring - SPAWAR Systems Center Pacific	___ 1 week			
Site:	___ 2 days			
P O #	___ 1 day			

Task	Sample Identification	Sample Date	Sample Time	Sample Type	Solvent	# of Cont.	Filtered Sample	DDx	Sample Specific Notes:
91	QT2-4-SPME1-1	9/25/2014	1340	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (0-5 cm)
92	QT2-4-SPME1-3	9/25/2014	1340	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (10-15 cm)
93	QT2-4-SPME1-4	9/25/2014	1340	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (15-20 cm)
94	QT2-4-SPME1-6	9/25/2014	1340	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (25-30 cm)
95	QT2-4-SPME1-7	9/25/2014	1340	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (30-35 cm)
96	QT2-4-SPME1-8	9/25/2014	1340	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (35-40 cm)
97	QT2-4-SPME1-9	9/25/2014	1340	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (40-45 cm)
98	QT2-4-SPME1-11	9/25/2014	1340	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (50-55 cm)
99	QT2-4-SPME1-12	9/25/2014	1340	SPME PDMS Extract	Hexane	1	N	X	4 cm fiber segment (55-59 cm)
								HEX	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= DI H2O/MeOH; 7=ZnAc2,NaOH

Possible Hazard Identification
Non-Hazard *X Flammable* *Skin Irritant* *Poison B* *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client *Disposal By Lab* *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Courtney Thomas	Texas Tech University	10/1/2014 12:00 pm			10/2/14 1600
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Chain of Custody Record

Shipped From	Project Manager: Gunther Rosen	Site Contact: Gunther Rosen	Date: 1-Oct-14	COC No:
Courtney Thomas/Danny D. Reible (Texas Tech University)	Tel/Fax: (619)890-9692	Lab Contact: Allyson Holman	Carrier: FedEx	1 of 1 CoCs
911 Boston Ave./Dept of Civil Engineering	Analysis Turnaround Time			Job No.
Lubbock, Tx 79409	Calendar (C) or Work Days (W) _____			
(713)408-6885 Mobile	TAT if different from Below standard			
Fax	___ 2 weeks			SDG No.
Project Name: SEA Ring - SPAWAR Systems Center Pacific	___ 1 week			
Site:	___ 2 days			
P O #	___ 1 day			

Task	Sample Identification	Sample Date	Sample Time	Sample Type	Solvent	# of Cont.	Filtered Sample	DDx	Sample Specific Notes:
100	QT2-4-SPME2-1	9/25/2014	1530	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (0-5 cm)
101	QT2-4-SPME2-3	9/25/2014	1530	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (10-15 cm)
102	QT2-4-SPME2-4	9/25/2014	1530	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (15-20 cm)
103	QT2-4-SPME2-6	9/25/2014	1530	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (25-30 cm)
104	QT2-4-SPME2-7	9/25/2014	1530	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (30-35 cm)
105	QT2-4-SPME2-8	9/25/2014	1530	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (35-40 cm)
106	QT2-4-SPME2-9	9/25/2014	1530	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (40-45 cm)
107	QT2-4-SPME2-11	9/25/2014	1530	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (50-55 cm)
108	QT2-4-SPME2-12	9/25/2014	1530	SPME PDMS Extract	Hexane	1	N	X	4 cm fiber segment (55-59 cm)
								HEX	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= DI H2O/MeOH; 7=ZnAc2,NaOH

Possible Hazard Identification
Non-Hazard *X Flammable* *Skin Irritant* *Poison B* *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client *Disposal By Lab* *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Courtney Thomas	Texas Tech University	10/1/2014 12:00 pm	Michael Cass		10/2/14 1600
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Chain of Custody Record

Shipped From	Project Manager: Gunther Rosen	Site Contact: Gunther Rosen	Date: 1-Oct-14	COC No:
Courtney Thomas/Danny D. Reible (Texas Tech University)	Tel/Fax: (619)890-9692	Lab Contact: Allyson Holman	Carrier: FedEx	1 of 1 CoCs
911 Boston Ave./Dept of Civil Engineering	Analysis Turnaround Time			Job No.
Lubbock, Tx 79409	Calendar (C) or Work Days (W) _____			
(713)408-6885 Mobile	TAT if different from Below standard			SDG No.
Fax	___ 2 weeks			
Project Name: SEA Ring - SPAWAR Systems Center Pacific	___ 1 week			
Site:	___ 2 days			
P O #	___ 1 day			

Task	Sample Identification	Sample Date	Sample Time	Sample Type	Solvent	# of Cont.	Filtered Sample	DDx	Sample Specific Notes:
109	QT2-7-SPME1-1	9/25/2014	1544	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (0-5 cm)
110	QT2-7-SPME1-3	9/25/2014	1544	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (10-15 cm)
111	QT2-7-SPME1-4	9/25/2014	1544	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (15-20 cm)
112	QT2-7-SPME1-6	9/25/2014	1544	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (25-30 cm)
113	QT2-7-SPME1-7	9/25/2014	1544	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (30-35 cm)
114	QT2-7-SPME1-8	9/25/2014	1544	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (35-40 cm)
115	QT2-7-SPME1-9	9/25/2014	1544	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (40-45 cm)
116	QT2-7-SPME1-11	9/25/2014	1544	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (50-55 cm)
117	QT2-7-SPME1-12	9/25/2014	1544	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (55-60 cm)
								HEX	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= DI H2O/MeOH; 7=ZnAc2,NaOH

Possible Hazard Identification
Non-Hazard *X Flammable* *Skin Irritant* *Poison B* *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client *Disposal By Lab* *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Courtney Thomas	Texas Tech University	10/1/2014 12:00 pm	Michael Carr		10/2/14 1600
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Chain of Custody Record

Shipped From	Project Manager: Gunther Rosen	Site Contact: Gunther Rosen	Date: 1-Oct-14	COC No:
Courtney Thomas/Danny D. Reible (Texas Tech University)	Tel/Fax: (619)890-9692	Lab Contact: Allyson Holman	Carrier: FedEx	1 of 1 CoCs
911 Boston Ave./Dept of Civil Engineering	Analysis Turnaround Time			Job No.
Lubbock, Tx 79409	Calendar (C) or Work Days (W) _____			
(713)408-6885 Mobile	TAT if different from Below standard			
Fax	___ 2 weeks			SDG No.
Project Name: SEA Ring - SPAWAR Systems Center Pacific	___ 1 week			
Site:	___ 2 days			
P O #	___ 1 day			

Task	Sample Identification	Sample Date	Sample Time	Sample Type	Solvent	# of Cont.	Filtered Sample	DDx	Sample Specific Notes:
118	QT2-7-SPME2-1	9/25/2014	1555	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (0-5 cm)
119	QT2-7-SPME2-3	9/25/2014	1555	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (10-15 cm)
120	QT2-7-SPME2-4	9/25/2014	1555	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (15-20 cm)
121	QT2-7-SPME2-6	9/25/2014	1555	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (25-30 cm)
122	QT2-7-SPME2-7	9/25/2014	1555	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (30-35 cm)
123	QT2-7-SPME2-8	9/25/2014	1555	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (35-40 cm)
124	QT2-7-SPME2-9	9/25/2014	1555	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (40-45 cm)
125	QT2-7-SPME2-11	9/25/2014	1555	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (50-55 cm)
126	QT2-7-SPME2-12	9/25/2014	1555	SPME PDMS Extract	Hexane	1	N	X	5 cm fiber segment (55-60 cm)
								HEX	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= DI H2O/MeOH; 7=ZnAc2,NaOH

Possible Hazard Identification
Non-Hazard *X Flammable* *Skin Irritant* *Poison B* *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client *Disposal By Lab* *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Courtney Thomas	Texas Tech University	10/1/2014 12:00 pm	[signature]		10/2/14 1600
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

08 January 2016

Gunther Rosen
Navy -- SPAWAR
Environmental Science and Applied System Branch, 536(
San Diego, CA 92152

RE: Quantico

Enclosed are the results of analyses for samples received by the laboratory on 06-Oct-2015. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Dale Rosado, Ph. D.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
08-Jan-2016

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
Site 1 (0-5cm)	5100601-01	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 1 (10-15cm)	5100601-02	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 1 (15-20cm)	5100601-03	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 1 (20-25cm)	5100601-04	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 2 (0-5cm)	5100601-05	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 2 (10-15cm)	5100601-06	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 2 (15-20cm)	5100601-07	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 2 (20-25cm)	5100601-08	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 3 (0-5cm)	5100601-09	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 3 (20-25cm)	5100601-10	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 3 (25-30cm)	5100601-11	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 3 duo (30-35cm)	5100601-12	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 3 duo (0-5cm)	5100601-13	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 3 duo (20-25cm)	5100601-14	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 3 duo (25-30cm)	5100601-15	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 3 duo (31-36cm)	5100601-16	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 4 (0-5cm)	5100601-17	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 4 (36-41cm)	5100601-18	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 4 (41-46cm)	5100601-19	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 4 (46-54cm)	5100601-20	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 5 (0-5cm)	5100601-21	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 5 (37-42cm)	5100601-22	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 5 (42-47cm)	5100601-23	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 5 (47-52cm)-0.5ml	5100601-24	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 6 (0-10cm)-1ml	5100601-25	Passive Sampler	05-Oct-2015	06-Oct-2015
Site 7 (0-10cm)-1ml	5100601-26	Passive Sampler	05-Oct-2015	06-Oct-2015

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Case Narrative

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Notes and Definitions

U	Analyte included in the analysis, but not detected
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 1 (0-5cm)

5100601-01 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.06**	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	J
4,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**14.3**		*54.9 %*	*25-140*	*06-Jan-2016*	*06-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**17.9**		*68.9 %*	*45-135*	*06-Jan-2016*	*06-Jan-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 1 (10-15cm)

5100601-02 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
4,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
4,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**16.2**		*62.4 %*	*25-140*	*06-Jan-2016*	*06-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**19.7**		*75.6 %*	*45-135*	*06-Jan-2016*	*06-Jan-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 1 (15-20cm)

5100601-03 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
4,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
4,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**18.6**		*71.7 %*	*25-140*	*06-Jan-2016*	*06-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**23.3**		*89.6 %*	*45-135*	*06-Jan-2016*	*06-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 1 (20-25cm)

5100601-04 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.08**	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	J
4,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**17.6**		*67.5 %*	*25-140*	*06-Jan-2016*	*06-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**20.7**		*79.7 %*	*45-135*	*06-Jan-2016*	*06-Jan-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 2 (0-5cm)

5100601-05 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.06**	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	J
4,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**16.9**		*65.0 %*	*25-140*	*06-Jan-2016*	*06-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**21.0**		*80.8 %*	*45-135*	*06-Jan-2016*	*06-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 2 (10-15cm)

5100601-06 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.23**	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	
4,4´-DDE	**0.09**	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	J
4,4´-DDT	**0.15**	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**15.4**		*59.2 %*	*25-140*	*06-Jan-2016*	*06-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**20.4**		*78.3 %*	*45-135*	*06-Jan-2016*	*06-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 2 (15-20cm)

5100601-07 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.16**	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	
4,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	06-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**15.9**		*61.1 %*	*25-140*	*06-Jan-2016*	*06-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**19.8**		*76.1 %*	*45-135*	*06-Jan-2016*	*06-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 2 (20-25cm)

5100601-08 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.19**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	
4,4´-DDE	**0.06**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**18.9**		*72.6 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**25.8**		*99.0 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 3 (0-5cm)

5100601-09 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.26**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	
4,4´-DDE	**0.09**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**19.2**		*73.8 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**23.7**		*91.3 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 3 (20-25cm)

5100601-10 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.34**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	
4,4´-DDE	**0.09**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**18.9**		*72.6 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**23.5**		*90.5 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
08-Jan-2016

Site 3 (25-30cm)

5100601-11 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.11**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**19.1**		*73.5 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**21.2**		*81.5 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 3 duo (30-35cm)

5100601-12 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.11**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**19.2**		*73.8 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**22.4**		*86.3 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 3 duo (0-5cm)

5100601-13 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.16**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	
4,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**19.1**		*73.6 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**22.6**		*86.9 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
08-Jan-2016

Site 3 duo (20-25cm)

5100601-14 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.11**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**20.4**		*78.6 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**24.7**		*95.1 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
08-Jan-2016

Site 3 duo (25-30cm)

5100601-15 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.10**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**20.4**		*78.5 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**27.6**		*106 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
08-Jan-2016

Site 3 duo (31-36cm)

5100601-16 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.17**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	
4,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**17.6**		*67.8 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**25.0**		*96.0 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 4 (0-5cm)

5100601-17 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.13**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDE	**0.11**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**20.2**		*77.7 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**23.4**		*90.0 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 4 (36-41cm)

5100601-18 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.15**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**25.8**		*99.2 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**31.4**		*121 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 4 (41-46cm)

5100601-19 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.11**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDE	**0.07**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**28.2**		*108 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**34.0**		*131 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
08-Jan-2016

Site 4 (46-54cm)

5100601-20 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.09**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDE	**0.06**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**23.4**		*90.0 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**25.8**		*99.2 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 5 (0-5cm)

5100601-21 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.09**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDE	**0.07**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**26.9**		*103 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**30.4**		*117 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 5 (37-42cm)

5100601-22 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**24.3**		*93.3 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**27.6**		*106 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 5 (42-47cm)

5100601-23 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**24.6**		*94.7 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**26.3**		*101 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 5 (47-52cm)-0.5ml

5100601-24 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**27.5**		*106 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**31.0**		*119 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 6 (0-10cm)-1ml

5100601-25 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	**0.06**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDE	**0.07**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**20.6**		*79.4 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**24.3**		*93.4 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Site 7 (0-10cm)-1ml

5100601-26 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDE	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
2,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDD	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
4,4´-DDE	**0.06**	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	J
4,4´-DDT	ND	0.05	0.15	ng	06-Jan-2016	07-Jan-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**20.8**		*79.9 %*	*25-140*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**24.0**		*92.5 %*	*45-135*	*06-Jan-2016*	*07-Jan-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	08-Jan-2016

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B601017 - * DEFAULT PREP *** **											
Blank (B601017-BLK2)					Prepared: 06-Jan-2016 Analyzed: 07-Jan-2016						
2,4´-DDD	ND	0.05	0.15	ng							U
2,4´-DDE	ND	0.05	0.15	ng							U
2,4´-DDT	ND	0.05	0.15	ng							U
4,4´-DDD	ND	0.05	0.15	ng							U
4,4´-DDT	ND	0.05	0.15	ng							U
4,4'-DDE [2C]	ND	0.003	0.01	ng							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*17.9*			*ng*	*26.00*		*68.8*	*25-140*			
Surrogate: Decachlorobiphenyl	*24.4*			*ng*	*26.00*		*93.8*	*45-135*			
LCS (B601017-BS1)					Prepared: 06-Jan-2016 Analyzed: 07-Jan-2016						
2,4´-DDD	4.6	0.05	0.15	ng	5.625		82.1	50-125			
2,4´-DDE	4.6	0.05	0.15	ng	5.625		81.3	50-125			
2,4´-DDT	4.9	0.05	0.15	ng	5.625		86.7	50-125			
4,4´-DDD	4.6	0.05	0.15	ng	4.500		103	50-125			
4,4´-DDT	4.9	0.05	0.15	ng	4.500		108	50-125			
4,4'-DDE [2C]	ND	0.003	0.01	ng	4.500			50-125			U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*23.6*			*ng*	*26.00*		*90.8*	*50-125*			
Surrogate: Decachlorobiphenyl	*25.1*			*ng*	*26.00*		*96.5*	*50-125*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

passive samplers
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Dr Danny Reible

Chain of Custody Record

Shipped From: Texas Tech University, 10th and Akron, 79409, Lubbock, TX Mobile 806-451-2921 Fax	Project Manager: Dr Gunther Rosen Tel/Fax:	Site Contact: — Lab Contact: —	Date: — Carrier: FedEx —	COC No: 1 of 1 CoCs Job No.	
Project Name: Quantico Site: PO#	Analysis Turnaround Time Calendar (C) or Work Days (W) TAT if different from Below standard ___ 2 weeks ___ 1 week ___ 2 days ___ 1 day			SDG No.	

Task	Sample Identification	Sample Date	Sample Time	Sample Type	Solvent	# of Cont.	Filtered Sample	DDX	Sample Specific Notes: sample volume
1	Site 1 (0-5 cm) (STN1)	10/1/15		SPME extract	hexane	1		X	1 mL
2	Site 1 (10-15 cm)					1		X	1 mL
3	Site 1 (15-20 cm)					1		X	1 mL
4	Site 1 (20-25 cm)					1		X	1 mL
5	Site 2 (0-5 cm) (STN2)					1		X	1 mL
6	Site 2 (10-15 cm)					1		X	1 mL
7	Site 2 (15-20 cm)					1		X	1 mL
8	Site 2 (20-25 cm)					1		X	1 mL
9	Site 3 (0-5 cm) (STN3)					1		X	1 mL

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= DI H2O/MeOH; 7=ZnAc2,NaOH

Possible Hazard Identification
Non-Hazard *Flammable* *Skin Irritant* *Poison B* *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client *Disposal By Lab* *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by: Magdalena Rakowska	Company: ~~TTU~~ Texas Tech University	Date/Time: 10/5/15	Received by:	Company: 10/6/15	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Chain of Custody Record

Shipped From	Project Manager:	Site Contact:	Date:	COC No:
Mobile	Tel/Fax:	Lab Contact:	Carrier: FedEx	1 of 1 CoCs
Fax	Analysis Turnaround Time			Job No.
Project Name:	Calendar (C) or Work Days (W)			SDG No.
Site:	TAT if different from Below standard			
P O #	~~2 weeks~~ 1 week 2 days 1 day			

Task	Sample Identification	Sample Date	Sample Time	Sample Type	Solvent	# of Cont.	Filtered Sample	Sample Specific Notes:
10	site 3 (20-25)	10/1/15		SPME extract	Hexane	1	X	1 mL
11	site 3 (25-30					1	X	0,5 mL
12	site 3 (30-35)					1	X	1 mL
13	site 3 duo (0-5 cm) STN 3duo					1	X	0,5 mL *
14	site 3 duo (20-25 cm)					1	X	0,5 mL *
15	site 3 duo (25-30 cm)					1	X	0,5 mL *
16	site 3 duo (31-36 cm)					1	X	0,5 mL *
17	site 4 (0-5 cm) STN 4					1	X	1 mL
18	site 4 (36-41 cm)					1	X	1 mL

0,5 mL

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= DI H2O/MeOH; 7=ZnAc2,NaOH

Possible Hazard Identification
Non-Hazard *Flammable* *Skin Irritant* *Poison B* *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client *Disposal By Lab* *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Chain of Custody Record

Shipped From	Project Manager:	Site Contact:	Date:	COC No:
	Tel/Fax:	Lab Contact:	Carrier: FedEx	1 of 1 CoCs
Mobile	Analysis Turnaround Time			Job No.
Fax	Calendar (C) or Work Days (W) _____			SDG No.
Project Name:	TAT if different from Below standard			
Site:	___ 2 weeks			
P O #	___ 1 week			
	___ 2 days			
	___ 1 day			

Task	Sample Identification	Sample Date	Sample Time	Sample Type	Solvent	# of Cont.	Filtered Sample	DOX	Sample volume Sample Specific Notes:
19	site 4 (41-46 cm)	10/1/15		SDME extract	hexane	1			1 mL
20	site 4 (46-51 cm)					1			1 mL
21	site 5 (0-5 cm) STN 5					1			1 mL
22	site 5 (37-42 cm)					1			1 mL
23	site 5 (42-47 cm)					1			1 mL
24	site 5 (47-52 cm) - 0,5 mL					1			0,5 mL *
25 stn 6	site 6 (0-10 cm) - 1 mL					1			1 mL (4 to 1)
26 stn 7	site 7 (0-10 cm) - 1 mL					1			1 mL (4 to 1)

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= DI H_2O/MeOH; 7=$ZnAc_2$,NaOH

Possible Hazard Identification

Non-Hazard *Flammable* *Skin Irritant* *Poison B* *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client *Disposal By Lab* *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

02 December 2016

Bart Chadwick
Navy -- SPAWAR
Environmental Science and Applied System Branch, 536(
San Diego, CA 92152

RE: GEOSYNTEC Quantico

Enclosed are the results of analyses for samples received by the laboratory on 21-Sep-2016. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jenifer Milam For Allyson Holman
Biologist

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: GEOSYNTEC Quantico

Project Manager: Bart Chadwick

Reported:
02-Dec-2016

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
STN 1 1A+1B 5.5-10.5 cm	6092104-01	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 1 1A+1B 10.5-15.5 cm	6092104-02	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 1 1A+1B 15.5-20.5 cm	6092104-03	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 1 1A+1B 20.5-25.5 cm	6092104-04	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 2 2A+2B 0-5 cm	6092104-05	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 2 2A+2B 5-10 cm	6092104-06	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 2 2A+2B 10-15 cm	6092104-07	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 2 2A+2B 15-20 cm	6092104-08	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 2 2A+2B 20-25 cm	6092104-09	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 2 2A+2B 25-30 cm	6092104-10	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 2 2A+2B 30-35 cm	6092104-11	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 2 2A+2B 35-40 cm	6092104-12	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 2 2A+2B 40-45 cm	6092104-13	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 2 2A+2B 45-50 cm	6092104-14	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 2 2A+2B 50-55 cm	6092104-15	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 3 3B 0-5 cm	6092104-16	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 3 3A+3B 5-10 cm	6092104-17	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 3 3A+3B 10-15 cm	6092104-18	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 3 3A+3B 15-20 cm	6092104-19	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 3 3A+3B 20-25 cm	6092104-20	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 3 3A+3B 25-30 cm	6092104-21	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 3 3A+3B 30-35 cm	6092104-22	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 3 3A+3B 35-40 cm	6092104-23	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 3 3A+3B 40-45 cm	6092104-24	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 3 3A+3B 45-50 cm	6092104-25	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 3 3A+3B 50-55 cm	6092104-26	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 4 4A+4B 0-5 cm	6092104-27	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 4 4A+4B 5-10 cm	6092104-28	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 4 4A+4B 20-25 cm	6092104-29	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 4 4A+4B 25-30 cm	6092104-30	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 4 4A+4B 30-35 cm	6092104-31	Passive Sampler	20-Sep-2016	21-Sep-2016

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: GEOSYNTEC Quantico

Project Manager: Bart Chadwick

Reported:
02-Dec-2016

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
STN 5 5B 1-4 cm	6092104-32	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 5 5A+5B 4-9 cm	6092104-33	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 5 5A+5B 19-24 cm	6092104-34	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 5 5A+5B 29-34 cm	6092104-35	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 5 5A+5B 34-39 cm	6092104-36	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 5 5A+5B 39-44 cm	6092104-37	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 5 5A+5B 44-49 cm	6092104-38	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 6 6A+6B 0-5 cm	6092104-39	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 6 6A+6B 5-10 cm	6092104-40	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 7 7A+7B 4-9 cm	6092104-41	Passive Sampler	20-Sep-2016	21-Sep-2016
STN 7 7A+7B 9-14 cm	6092104-42	Passive Sampler	20-Sep-2016	21-Sep-2016

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

Case Narrative

No issues were experienced during the analysis of Work Order 6082609 unless specified below.

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

Notes and Definitions

U	Analyte included in the analysis, but not detected
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate/s.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 1 1A+1B 5.5-10.5 cm

6092104-01 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.04**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.10**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.09**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.149**		*37.3 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.246**		*82.0 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: GEOSYNTEC Quantico
Project Manager: Bart Chadwick

Reported:
02-Dec-2016

STN 1 1A+1B 10.5-15.5 cm

6092104-02 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.04**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.10**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.13**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.186**		*46.5 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.248**		*82.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 1 1A+1B 15.5-20.5 cm

6092104-03 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.04**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.08**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.12**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.204**		*51.0 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.280**		*93.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 1 1A+1B 20.5-25.5 cm

6092104-04 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.05**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.12**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.15**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.225**		*56.2 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.278**		*92.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 2 2A+2B 0-5 cm

6092104-05 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.03**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.03**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.234**		*58.5 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.250**		*83.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 2 2A+2B 5-10 cm

6092104-06 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.03**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.213**		*53.2 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.254**		*84.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 2 2A+2B 10-15 cm

6092104-07 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.04**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.204**		*51.0 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.230**		*76.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 2 2A+2B 15-20 cm

6092104-08 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.12**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.07**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.03**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	**0.05**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.0480**		*12.0 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	*S-GC*
Surrogate: Decachlorobiphenyl	**0.267**		*89.0 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 2 2A+2B 20-25 cm

6092104-09 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.05**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.10**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.04**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	**0.04**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.236**		*58.9 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.278**		*92.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 2 2A+2B 25-30 cm

6092104-10 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.14**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.08**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.05**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	**0.04**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.204**		*51.0 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.246**		*82.0 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 2 2A+2B 30-35 cm

6092104-11 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.13**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.09**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.03**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	**0.03**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.150**		*37.5 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.246**		*82.0 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: GEOSYNTEC Quantico

Project Manager: Bart Chadwick

Reported:
02-Dec-2016

STN 2 2A+2B 35-40 cm

6092104-12 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.03**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.09**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.04**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	**0.05**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.238**		*59.6 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.290**		*96.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: GEOSYNTEC Quantico
Project Manager: Bart Chadwick

Reported:
02-Dec-2016

STN 2 2A+2B 40-45 cm

6092104-13 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.03**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.11**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.03**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	**0.05**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.240**		*60.0 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.296**		*98.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 2 2A+2B 45-50 cm

6092104-14 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.07**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.201**		*50.2 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.274**		*91.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 2 2A+2B 50-55 cm

6092104-15 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.03**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDE	**0.12**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.08**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDT	**0.04**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.171**		*42.8 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.266**		*88.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 3 3B 0-5 cm

6092104-16 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.05**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.04**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.15**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.220**		*55.1 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.273**		*91.0 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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3909 Halls Ferry Road
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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: GEOSYNTEC Quantico
Project Manager: Bart Chadwick

Reported:
02-Dec-2016

STN 3 3A+3B 5-10 cm

6092104-17 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.05**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.09**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.14**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.216**		*54.0 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.260**		*86.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: GEOSYNTEC Quantico

Project Manager: Bart Chadwick

Reported:
02-Dec-2016

STN 3 3A+3B 10-15 cm

6092104-18 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.06**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.11**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.17**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.268**		*67.1 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.322**		*108 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 3 3A+3B 15-20 cm

6092104-19 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.06**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.09**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.09**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.194**		*48.4 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.266**		*88.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 3 3A+3B 20-25 cm

6092104-20 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.07**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.12**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.14**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.225**		*56.2 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.266**		*88.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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3909 Halls Ferry Road
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Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 3 3A+3B 25-30 cm

6092104-21 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.04**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.12**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.11**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.246**		*61.5 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.258**		*86.0 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 3 3A+3B 30-35 cm

6092104-22 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.05**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.11**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.11**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.236**		*58.9 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.256**		*85.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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3909 Halls Ferry Road
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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: GEOSYNTEC Quantico

Project Manager: Bart Chadwick

Reported:
02-Dec-2016

STN 3 3A+3B 35-40 cm

6092104-23 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.06**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.10**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.10**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.212**		*52.9 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.252**		*84.0 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 3 3A+3B 40-45 cm

6092104-24 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.04**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.11**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.10**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.242**		*60.4 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.267**		*89.0 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 3 3A+3B 45-50 cm

6092104-25 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.05**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.12**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.11**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.218**		*54.4 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.254**		*84.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: GEOSYNTEC Quantico

Project Manager: Bart Chadwick

Reported:
02-Dec-2016

STN 3 3A+3B 50-55 cm

6092104-26 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	**0.04**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.09**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.12**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.246**		*61.5 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.258**		*86.0 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 4 4A+4B 0-5 cm

6092104-27 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.228**		*57.0 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.270**		*90.0 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 4 4A+4B 5-10 cm

6092104-28 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.231**		*57.8 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.272**		*90.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: GEOSYNTEC Quantico

Project Manager: Bart Chadwick

Reported:
02-Dec-2016

STN 4 4A+4B 20-25 cm

6092104-29 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDE	**0.04**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.196**		*49.1 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.237**		*79.0 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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3909 Halls Ferry Road
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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: GEOSYNTEC Quantico

Project Manager: Bart Chadwick

Reported:
02-Dec-2016

STN 4 4A+4B 25-30 cm

6092104-30 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDE	**0.04**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.210**		*52.5 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.256**		*85.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 4 4A+4B 30-35 cm

6092104-31 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDE	**0.05**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.236**		*58.9 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.262**		*87.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 5 5B 1-4 cm

6092104-32 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.278**		*69.4 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.291**		*97.0 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 5 5A+5B 4-9 cm

6092104-33 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.234**		*58.5 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.258**		*86.0 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 5 5A+5B 19-24 cm

6092104-34 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDE	**0.03**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.231**		*57.8 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.260**		*86.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 5 5A+5B 29-34 cm

6092104-35 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	**0.03**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDE	**0.03**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.226**		*56.6 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.256**		*85.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: GEOSYNTEC Quantico

Project Manager: Bart Chadwick

Reported:
02-Dec-2016

STN 5 5A+5B 34-39 cm

6092104-36 (Passive Sampler)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDE	**0.03**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.237**		*59.2 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.310**		*104 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: GEOSYNTEC Quantico

Project Manager: Bart Chadwick

Reported:
02-Dec-2016

STN 5 5A+5B 39-44 cm

6092104-37 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDE	**0.05**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.225**		*56.2 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.264**		*88.0 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 5 5A+5B 44-49 cm

6092104-38 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	**0.04**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDE	**0.05**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.249**		*62.2 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.274**		*91.5 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 6 6A+6B 0-5 cm

6092104-39 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDE	**0.04**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.214**		*53.6 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.267**		*89.0 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: GEOSYNTEC Quantico
Project Manager: Bart Chadwick

Reported:
02-Dec-2016

STN 6 6A+6B 5-10 cm

6092104-40 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDE	**0.04**	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	J
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.262**		*65.6 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.291**		*97.0 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: GEOSYNTEC Quantico

Project Manager: Bart Chadwick

Reported:
02-Dec-2016

STN 7 7A+7B 4-9 cm

6092104-41 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.200**		*49.9 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.243**		*81.0 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

STN 7 7A+7B 9-14 cm

6092104-42 (Passive Sampler)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
2,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDD	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDE	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
4,4´-DDT	ND	0.03	0.15	ng	20-Nov-2016	20-Nov-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.201**		*50.2 %*	*25-140*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**0.246**		*82.0 %*	*30-135*	*20-Nov-2016*	*20-Nov-2016*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B611202 - * DEFAULT PREP *** **											
Blank (B611202-BLK1)					Prepared & Analyzed: 20-Nov-2016						
2,4´-DDD	ND	0.03	0.15	ng							U
2,4´-DDE	ND	0.03	0.15	ng							U
2,4´-DDT	ND	0.03	0.15	ng							U
4,4´-DDD	ND	0.03	0.15	ng							U
4,4´-DDE	ND	0.03	0.15	ng							U
4,4´-DDT	ND	0.03	0.15	ng							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*0.230*			*ng*	*0.4000*		*57.4*	*25-140*			
Surrogate: Decachlorobiphenyl	*0.268*			*ng*	*0.3000*		*89.5*	*30-135*			
Blank (B611202-BLK2)					Prepared & Analyzed: 20-Nov-2016						
2,4´-DDD	ND	0.03	0.15	ng							U
2,4´-DDE	ND	0.03	0.15	ng							U
2,4´-DDT	ND	0.03	0.15	ng							U
4,4´-DDD	ND	0.03	0.15	ng							U
4,4´-DDE	ND	0.03	0.15	ng							U
4,4´-DDT	ND	0.03	0.15	ng							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*0.262*			*ng*	*0.4000*		*65.6*	*25-140*			
Surrogate: Decachlorobiphenyl	*0.322*			*ng*	*0.3000*		*108*	*30-135*			
LCS (B611202-BS1)					Prepared & Analyzed: 20-Nov-2016						
2,4´-DDD	0.2	0.03	0.15	ng	0.4000		62.2	50-125			
2,4´-DDE	0.2	0.03	0.15	ng	0.4000		61.1	50-125			
2,4´-DDT	0.3	0.03	0.15	ng	0.4000		70.5	50-125			
4,4´-DDD	0.3	0.03	0.15	ng	0.4000		64.5	25-150			
4,4´-DDE	0.3	0.03	0.15	ng	0.4000		69.8	35-140			
4,4´-DDT	0.3	0.03	0.15	ng	0.4000		83.6	45-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*0.272*			*ng*	*0.4000*		*67.9*	*25-140*			
Surrogate: Decachlorobiphenyl	*0.328*			*ng*	*0.3000*		*110*	*30-135*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: GEOSYNTEC Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Bart Chadwick	02-Dec-2016

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B611202 - * DEFAULT PREP *** **											
LCS (B611202-BS2)					Prepared & Analyzed: 20-Nov-2016						
2,4´-DDD	0.2	0.03	0.15	ng	0.4000		57.4	50-125			
2,4´-DDE	0.2	0.03	0.15	ng	0.4000		59.2	50-125			
2,4´-DDT	0.3	0.03	0.15	ng	0.4000		72.4	50-125			
4,4´-DDD	0.2	0.03	0.15	ng	0.4000		56.2	25-150			
4,4´-DDE	0.2	0.03	0.15	ng	0.4000		61.9	35-140			
4,4´-DDT	0.3	0.03	0.15	ng	0.4000		80.6	45-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*0.256*			*ng*	*0.4000*		*64.1*	*25-140*			
Surrogate: Decachlorobiphenyl	*0.282*			*ng*	*0.3000*		*94.0*	*30-135*			
LCS (B611202-BS3)					Prepared & Analyzed: 20-Nov-2016						
2,4´-DDD	0.3	0.03	0.15	ng	0.4000		69.8	50-125			
2,4´-DDE	0.3	0.03	0.15	ng	0.4000		71.2	50-125			
2,4´-DDT	0.3	0.03	0.15	ng	0.4000		85.9	50-125			
4,4´-DDD	0.3	0.03	0.15	ng	0.4000		67.9	25-150			
4,4´-DDE	0.3	0.03	0.15	ng	0.4000		84.8	35-140			
4,4´-DDT	0.4	0.03	0.15	ng	0.4000		102	45-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*0.280*			*ng*	*0.4000*		*70.1*	*25-140*			
Surrogate: Decachlorobiphenyl	*0.363*			*ng*	*0.3000*		*121*	*30-135*			
LCS (B611202-BS4)					Prepared & Analyzed: 20-Nov-2016						
2,4´-DDD	0.3	0.03	0.15	ng	0.4000		66.8	50-125			
2,4´-DDE	0.3	0.03	0.15	ng	0.4000		66.8	50-125			
2,4´-DDT	0.3	0.03	0.15	ng	0.4000		75.4	50-125			
4,4´-DDD	0.3	0.03	0.15	ng	0.4000		69.4	25-150			
4,4´-DDE	0.3	0.03	0.15	ng	0.4000		72.8	35-140			
4,4´-DDT	0.4	0.03	0.15	ng	0.4000		90.4	45-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*0.252*			*ng*	*0.4000*		*63.0*	*25-140*			
Surrogate: Decachlorobiphenyl	*0.324*			*ng*	*0.3000*		*108*	*30-135*			

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ERDC SAMPLE RECEIPT CHECKLIST

Client: Sparwar	Work Order: 609210 4
Project:	Date/Time Received 9/21 1/6 12:30
Shipping Company:	

Suspected Hazard Information	Yes	No	NA	Comments:
Shipped as DOT Hazardous?		✓		
Samples identified as Foreign Material?		✓		

Sample Receipt Criteria	Yes	No	NA	Comments:
1. Shipping containers received intact and sealed?	✓			
2. Chain of Custody documents included with shipment?	✓			
3. COC form is properly signed in relinquished/received sections?	✓			
4. Samples requiring chemical preservation at proper pH?	✓			
5. Samples requiring cold preservation within 0-5°C?		✓		7.5 °C
6. Samples IDs on COC match IDs on containers?			✓	Did Not open Box
7. Date and time of COC match date and time on containers?			✓	
8. Number of containers received match number indicated on COC?	✓			
9. Samples received within holding time?	✓			
10. Aqueous samples found to have visible solids?			✓	

Additional Comments:

Checklist preformed by: MG

Time/Date: 9/21 15:40

CHAIN OF CUSTODY RECORD

Sampling Company:	SPAWAR / GEOSYNTEC	Client:		Laboratory:	USACE ERDC-EP-C
POC:		POC:		POC:	Madeline Tarasar
Address:	Gunther Rosen	Address:		Address:	3909 Halls Ferry RD Bldg 3299
					Vicksburg, MS 39180
Email:	rosen@spawar.navy.mil	Email:		Email:	madeline.k.tarasar@usace.army.mil
Phone:	619 553 0886	Phone:		Phone:	601-634-3966

# of Sampling Sites	Sample ID: Dist	Project	Station	Date	Time	Depth	Matrix	# of Containers	Requested Analyses: ADX																	
1		Quantico	STN 1 1A+1B 5.5-10.5cm	9/20/2016		5.5-10.5cm	SPME	1	X																	
2			STN1 1A+1B 10.5-15.5	-11-		10.5-15.5cm	SPME	1	X																	
3			STN1 1A+1B 15.5-20.5	-11-		15.5-20.5cm	SPME	1	X																	
4			1A+1B 20.5-25.5	-11-		20.5 25.5cm	SPME	1	X																	
5			STN2 2A+2B 0-5	-11-		0-5 cm	SPME	1	X																	
6			2A+2B 5-10cm			5-10cm		1	X																	
7			2A+2B 10-15			10-15cm		1	X																	
8			2A+2B 15-20			15-20cm		1	X																	
9			2A+2B 20-25			20-25cm		1	X																	
10			2A+2B 25-30			25-30cm		1	X																	
11			2A+2B 30-35			30-35cm		1	X																	
12			2A+2B 35-40			35-40cm		1	X																	
Total									0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

all SPME samplers retrieved on August 26th and preserved in Hexane solvent

ORIGINAL SAMPLE volume = 1000 µL
95 µL taken for PRC analysis @ TTC

Please return coolers to :

1. I hereby transfer the sample containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.
   8 42 — Total # of Containers — Magdalyne Ramirez — 9/20/16 — Name / Date / Time
2. I accept these samples for transfer to ERDC:
   _____ — Total # of Containers — _____ — 9/21 — Name / Date / Time
3. Condition of samples upon arrival at ERDC:
4. Cooler temperature upon arrival at ERDC:

5. Additional Information:

N.P. = no preserved, HNO3 = preserved with nitric acid, H2SO4 = preserved with sulfuric acid

6. Send Copy of COC: USACE-ERDC-EP-C
   POC: Amber Russell, Madeline Tarasar and Jenifer Milam
   Email: amber.l.russell@usace.army.mil; madeline.k.tarasar@usace.army.mil; jenifer.milam@usace.army.mil
   Phone: 601-634-4302 & 601-634-7431

CHAIN OF CUSTODY RECORD

Sampling Company:	SPAWAR / GEOSYNTEC	Client:		Laboratory:	USACE ERDC-EP-C
POC:		POC:		POC:	Madeline Tarasar
Address:	Gunther Rosen	Address:		Address:	3909 Halls Ferry RD Bldg 3299
					Vicksburg, MS 39180
Email:		Email:		Email:	madeline..k.tarasar@usace.army.mil
Phone:		Phone:		Phone:	601-634-3966

# of Sampling Sites	Sample ID: Dist	Project	Station	Date	Time	Depth	Matrix	# of Containers	Requested Analyses: DDX																				
1		Quantico	2A + 2B 40-45	9/20/2016		40-45cm	SPME	1	X																				
2			2A + 2B 45-50			45-50cm		1	X																				
3			2A + 2B 50-55			50-55cm		1	X																				
4	*	STN	3 3B 0-5			0-5cm		1	X																				
5			3A + 3B 5-10			5-10cm		1	X																				
6			3A + 3B 10-15			10-15cm		1	X																				
7			3A + 3B 15-20 cm			15-20cm		1	X																				
8			3A + 3B 20-25 cm			20-25cm		1	X																				
9			3A + 3B 25-30			25-30cm		1	X																				
10			3A + 3B 30-35			30-35cm		1	X																				
11			3A + 3B 35-40 cm			35-40cm		1	X																				
12			3A + 3B 40-45			40-45cm		1	X																				
Total									0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

original sample vol = 1000 µL

* 400 µL sample original sample volume was 500 µL but 95 µL taken for PRC analysis @ TAL

Please return coolers to :

1. I hereby transfer the sample containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.
   Total # of Containers: 42 — Name: Rothwell — Date: 9/20/16 — Time:
2. I accept these samples for transfer to ERDC:
   Total # of Containers: — Name: — Date: 9/21 — Time:
3. Condition of samples upon arrival at ERDC:
4. Cooler temperature upon arrival at ERDC:

5. Additional Information:

N.P. = no preserved, HNO3 = preserved with nitric acid, H2SO4 = preserved with sulfuric acid

6. Send Copy of COC: USACE-ERDC-EP-C
   POC: Amber Russell, Madeline Tarasar and Jenifer Milam
   Email: amber.l.russell@usace.army.mil; madeline.k.tarasar@usace.army.mil; jenifer.milam@usace.army.mil
   Phone: 601-634-4302 & 601-634-7431

CHAIN OF CUSTODY RECORD

Sampling Company:	SAIC/WAR/GEOSYNTEC	Client:		Laboratory:	USACE ERDC-EP-C
POC:		POC:		POC:	Madeline Tarasar
Address:	Gunther ROSCH	Address:		Address:	3909 Halls Ferry RD Bldg 3299
					Vicksburg, MS 39180
Email:		Email:		Email:	madeline..k.tarasar@usace.army.mil
Phone:		Phone:		Phone:	601-634-3966

# of Sampling Sites	Sample ID: Dist	Project	Station	Date	Time	Depth	Matrix	# of Containers	Requested Analyses: PDX																		
1		Quantico	3A+3B 45-50	9/20/16		45-50cm	SPME	1	+																		
2			3A+3B 50-55			50-55cm			+																		
3			STN4 4A+4B 0-5			0-5cm			+																		
4			4A+4B 5-10 cm			5-10 cm			+																		
5			4A+4B 20-25			20-25cm			+																		
6			4A+4B 25-30			25-30cm			+																		
7			4A+4B 30-35			30-35cm			+																		
8			* STN5 5B 1-4 cm			1-4 cm			+																		
9			5A+5B 4-9			4-9 cm			+																		
10			5A+5B 19-24			19-24 cm			+																		
11			5A+5B 29-34			29-34 cm			+																		
12			5A+5B 34-39			34-39cm			+																		
Total									0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

original sample vol = 1000µL

*400 µL sample original was 500µL as described earlier

Please return coolers to :

1. I hereby transfer the sample containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.

Total # of Containers	Name	Date	Time
0 / 42	[illegible]	9/20/16	

2. I accept these samples for transfer to ERDC:

Total # of Containers	Name	Date	Time
	[illegible]	9/21	

3. Condition of samples upon arrival at ERDC:

4 Cooler temperature upon arrival at ERDC:

5. Additional Information:

N.P. = no preserved, HNO3 = preserved with nitric acid, H2SO4 = preserved with sulfuric acid

6. Send Copy of COC: USACE-ERDC-EP-C

POC: Amber Russell, Madeline Tarasar and Jenifer Milam

Email: amber.l.russell@usace.army.mil
madeline.k.tarasar@usace.army.mil
jenifer.milam@usace.army.mil

Phone: 601-634-4302 & 601-634-7431

CHAIN OF CUSTODY RECORD

Sampling Company:	SOUTHWAR [illegible] GEOSYNTEC	Client:		Laboratory:	USACE ERDC-EP-C
POC:		POC:		POC:	Madeline Tarasar
Address:	Gunther Rosen	Address:		Address:	3909 Halls Ferry RD Bldg 3299
					Vicksburg, MS 39180
Email:		Email:		Email:	madeline..k.tarasar@usace.army.mil
Phone:		Phone:		Phone:	601-634-3966

# of Sampling Sites	Sample ID: Dist	Project	Station	Date	Time	Depth	Matrix	# of Containers	Requested Analyses: DDX																		
1			5A+5B 39-44	9/20/16		39-44cm	SPME	1	X													original sample volume was = 1000µL					
2			5A+5B 44-49			44-49cm		1	X																		
3		STN 6	6A+6B 0-5			0-5cm		1	X																		
4			6A+6B 5-10			5-10cm		1	X																		
5		STN 7	7A+7B 4-9			4-9cm		1	X																		
6			7A+7B 9-14 cm			9-14cm		1	X																		
7																											
8																											
9																											
10																											
11																											
12																											
Total									0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Please return coolers to :

1. I hereby transfer the sample containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.
   8 42 — Total # of Containers
   MAGDALENA 9/20/16 11:00 — Name / Date / Time
2. I accept these samples for transfer to ERDC:
   — Total # of Containers
   [illegible] 9/21 — Name / Date / Time
3. Condition of samples upon arrival at ERDC:
4. Cooler temperature upon arrival at ERDC:

5. Additional Information:

N.P. = no preserved, HNO3 = preserved with nitric acid, H2SO4 = preserved with sulfuric acid

6. Send Copy of COC: USACE-ERDC-EP-C
   POC: Amber Russell, Madeline Tarasar and Jenifer Milam
   Email: amber.l.russell@usace.army.mil; madeline.k.tarasar@usace.army.mil; jenifer.milam@usace.army.mil
   Phone: 601-634-4302 & 601-634-7431

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception

Appendix E-7

In Situ Tissue Chemistry

Data Compilation and Laboratory Reports

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
BASELINE 2	CAP3	2	On Cap	B2-CAP3-LUMB	Sample	Composite	LV	2,4´-DDD	9.8		1048	0.93
BASELINE 2	CAP3	2	On Cap	B2-CAP3-LUMB	Sample	Composite	LV	2,4´-DDE	0.6		60	0.93
BASELINE 2	CAP3	2	On Cap	B2-CAP3-LUMB	Sample	Composite	LV	2,4´-DDT	ND	0.09	<9.68	0.93
BASELINE 2	CAP3	2	On Cap	B2-CAP3-LUMB	Sample	Composite	LV	4,4´-DDD	30.9		3322	0.93
BASELINE 2	CAP3	2	On Cap	B2-CAP3-LUMB	Sample	Composite	LV	4,4´-DDE	18.3		1970	0.93
BASELINE 2	CAP3	2	On Cap	B2-CAP3-LUMB	Sample	Composite	LV	4,4´-DDT	1.3		134	0.93
BASELINE 2	CAP3	2	On Cap	B2-CAP3-LUMB	Sample	Composite	LV	Total DDX	60.8		6534	0.93
BASELINE 2	CAP3	2	On Cap	B2-CAP3-PLGC	Sample	Composite	PELAGIC	2,4´-DDD	ND	0.05	<4.17	1.2
BASELINE 2	CAP3	2	On Cap	B2-CAP3-PLGC	Sample	Composite	PELAGIC	2,4´-DDE	ND	0.08	<6.67	1.2
BASELINE 2	CAP3	2	On Cap	B2-CAP3-PLGC	Sample	Composite	PELAGIC	2,4´-DDT	ND	0.09	<7.5	1.2
BASELINE 2	CAP3	2	On Cap	B2-CAP3-PLGC	Sample	Composite	PELAGIC	4,4´-DDD	4.4		364	1.2
BASELINE 2	CAP3	2	On Cap	B2-CAP3-PLGC	Sample	Composite	PELAGIC	4,4´-DDE	4.6		381	1.2
BASELINE 2	CAP3	2	On Cap	B2-CAP3-PLGC	Sample	Composite	PELAGIC	4,4´-DDT	ND	0.04	<3.33	1.2
BASELINE 2	CAP3	2	On Cap	B2-CAP3-PLGC	Sample	Composite	PELAGIC	Total DDX	8.9		745	1.2
BASELINE 2	CAP2	3	On Cap	B2-CAP2-LUMB	Sample	Composite	LV	2,4´-DDD	28.3		1379	2.05
BASELINE 2	CAP2	3	On Cap	B2-CAP2-LUMB	Sample	Composite	LV	2,4´-DDE	ND	0.08	<3.9	2.05
BASELINE 2	CAP2	3	On Cap	B2-CAP2-LUMB	Sample	Composite	LV	2,4´-DDT	ND	0.09	<4.39	2.05
BASELINE 2	CAP2	3	On Cap	B2-CAP2-LUMB	Sample	Composite	LV	4,4´-DDD	93.6		4566	2.05
BASELINE 2	CAP2	3	On Cap	B2-CAP2-LUMB	Sample	Composite	LV	4,4´-DDE	64.2		3131	2.05
BASELINE 2	CAP2	3	On Cap	B2-CAP2-LUMB	Sample	Composite	LV	4,4´-DDT	ND	0.04	<1.95	2.05
BASELINE 2	CAP2	3	On Cap	B2-CAP2-LUMB	Sample	Composite	LV	Total DDX	186.1		9076	2.05
BASELINE 2	CAP2	3	On Cap	B2-CAP2-PLGC	Sample	Composite	PELAGIC	2,4´-DDD	0.4		33	1.12
BASELINE 2	CAP2	3	On Cap	B2-CAP2-PLGC	Sample	Composite	PELAGIC	2,4´-DDE	ND	0.08	<7.14	1.12
BASELINE 2	CAP2	3	On Cap	B2-CAP2-PLGC	Sample	Composite	PELAGIC	2,4´-DDT	ND	0.09	<8.04	1.12
BASELINE 2	CAP2	3	On Cap	B2-CAP2-PLGC	Sample	Composite	PELAGIC	4,4´-DDD	4.4		395	1.12
BASELINE 2	CAP2	3	On Cap	B2-CAP2-PLGC	Sample	Composite	PELAGIC	4,4´-DDE	6.3		560	1.12
BASELINE 2	CAP2	3	On Cap	B2-CAP2-PLGC	Sample	Composite	PELAGIC	4,4´-DDT	ND	0.04	<3.57	1.12
BASELINE 2	CAP2	3	On Cap	B2-CAP2-PLGC	Sample	Composite	PELAGIC	Total DDX	11.1		988	1.12
BASELINE 2	CAP1	5	On Cap	B2-CAP1-LUMB	Primary	Composite	LV	2,4´-DDD	10.2		726	1.41
BASELINE 2	CAP1	5	On Cap	B2-CAP1-LUMB	Primary	Composite	LV	2,4´-DDE	1.0		69	1.41
BASELINE 2	CAP1	5	On Cap	B2-CAP1-LUMB	Primary	Composite	LV	2,4´-DDT	ND	0.09	<6.38	1.41
BASELINE 2	CAP1	5	On Cap	B2-CAP1-LUMB	Primary	Composite	LV	4,4´-DDD	29.5		2089	1.41
BASELINE 2	CAP1	5	On Cap	B2-CAP1-LUMB	Primary	Composite	LV	4,4´-DDE	29.2		2071	1.41
BASELINE 2	CAP1	5	On Cap	B2-CAP1-LUMB	Primary	Composite	LV	4,4´-DDT	ND	0.04	<2.84	1.41
BASELINE 2	CAP1	5	On Cap	B2-CAP1-LUMB	Primary	Composite	LV	Total DDX	69.9		4955	1.41
BASELINE 2	CAP1	5	On Cap	B2-CAP1-LUMB-Avg	Sample	Composite	LV	2,4´-DDD	11.9		732	1.62
BASELINE 2	CAP1	5	On Cap	B2-CAP1-LUMB-Avg	Sample	Composite	LV	2,4´-DDE	0.9		58	1.62
BASELINE 2	CAP1	5	On Cap	B2-CAP1-LUMB-Avg	Sample	Composite	LV	2,4´-DDT	ND	0.09	<6.38	1.62
BASELINE 2	CAP1	5	On Cap	B2-CAP1-LUMB-Avg	Sample	Composite	LV	4,4´-DDD	34.3		2116	1.62
BASELINE 2	CAP1	5	On Cap	B2-CAP1-LUMB-Avg	Sample	Composite	LV	4,4´-DDE	33.3		2059	1.62
BASELINE 2	CAP1	5	On Cap	B2-CAP1-LUMB-Avg	Sample	Composite	LV	4,4´-DDT	ND	0.04	<2.84	1.62
BASELINE 2	CAP1	5	On Cap	B2-CAP1-LUMB-Avg	Sample	Composite	LV	Total DDX	80.5		4965	1.62
BASELINE 2	CAP1	5	On Cap	B2-CAP1-PLGC	Primary	Composite	PELAGIC	2,4´-DDD	2.0		212	0.94
BASELINE 2	CAP1	5	On Cap	B2-CAP1-PLGC	Primary	Composite	PELAGIC	2,4´-DDE	ND	0.08	<8.51	0.94

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
BASELINE 2	CAP1	5	On Cap	B2-CAP1-PLGC	Primary	Composite	PELAGIC	2,4´-DDT	ND	0.09	<9.57	0.94
BASELINE 2	CAP1	5	On Cap	B2-CAP1-PLGC	Primary	Composite	PELAGIC	4,4´-DDD	10.0		1059	0.94
BASELINE 2	CAP1	5	On Cap	B2-CAP1-PLGC	Primary	Composite	PELAGIC	4,4´-DDE	14.1		1500	0.94
BASELINE 2	CAP1	5	On Cap	B2-CAP1-PLGC	Primary	Composite	PELAGIC	4,4´-DDT	ND	0.04	<4.26	0.94
BASELINE 2	CAP1	5	On Cap	B2-CAP1-PLGC	Primary	Composite	PELAGIC	Total DDX	26.0		2770	0.94
BASELINE 2	CAP1	5	On Cap	B2-CAP1-PLGC-Avg	Sample	Composite	PELAGIC	2,4´-DDD	1.4		149	1.07
BASELINE 2	CAP1	5	On Cap	B2-CAP1-PLGC-Avg	Sample	Composite	PELAGIC	2,4´-DDE	ND	0.08	<8.99	1.07
BASELINE 2	CAP1	5	On Cap	B2-CAP1-PLGC-Avg	Sample	Composite	PELAGIC	2,4´-DDT	ND	0.09	<10.11	1.07
BASELINE 2	CAP1	5	On Cap	B2-CAP1-PLGC-Avg	Sample	Composite	PELAGIC	4,4´-DDD	10.0		1095	1.07
BASELINE 2	CAP1	5	On Cap	B2-CAP1-PLGC-Avg	Sample	Composite	PELAGIC	4,4´-DDE	13.5		1470	1.07
BASELINE 2	CAP1	5	On Cap	B2-CAP1-PLGC-Avg	Sample	Composite	PELAGIC	4,4´-DDT	ND	0.04	<4.49	1.07
BASELINE 2	CAP1	5	On Cap	B2-CAP1-PLGC-Avg	Sample	Composite	PELAGIC	Total DDX	24.9		2714	1.07
BASELINE 2	CAP1	5	On Cap	B2-CAPX-LUMB	Duplicate	Composite	LV	2,4´-DDD	13.5		739	1.83
BASELINE 2	CAP1	5	On Cap	B2-CAPX-LUMB	Duplicate	Composite	LV	2,4´-DDE	0.9		47	1.83
BASELINE 2	CAP1	5	On Cap	B2-CAPX-LUMB	Duplicate	Composite	LV	2,4´-DDT	ND	0.09	<4.92	1.83
BASELINE 2	CAP1	5	On Cap	B2-CAPX-LUMB	Duplicate	Composite	LV	4,4´-DDD	39.2		2143	1.83
BASELINE 2	CAP1	5	On Cap	B2-CAPX-LUMB	Duplicate	Composite	LV	4,4´-DDE	37.5		2046	1.83
BASELINE 2	CAP1	5	On Cap	B2-CAPX-LUMB	Duplicate	Composite	LV	4,4´-DDT	ND	0.04	<2.19	1.83
BASELINE 2	CAP1	5	On Cap	B2-CAPX-LUMB	Duplicate	Composite	LV	Total DDX	91.0		4975	1.83
BASELINE 2	CAPX	5	On Cap	B2-CAPX-PLGC	Duplicate	Composite	PELAGIC	2,4´-DDD	0.8		87	0.89
BASELINE 2	CAPX	5	On Cap	B2-CAPX-PLGC	Duplicate	Composite	PELAGIC	2,4´-DDE	ND	0.08	<8.99	0.89
BASELINE 2	CAPX	5	On Cap	B2-CAPX-PLGC	Duplicate	Composite	PELAGIC	2,4´-DDT	ND	0.09	<10.11	0.89
BASELINE 2	CAPX	5	On Cap	B2-CAPX-PLGC	Duplicate	Composite	PELAGIC	4,4´-DDD	10.1		1131	0.89
BASELINE 2	CAPX	5	On Cap	B2-CAPX-PLGC	Duplicate	Composite	PELAGIC	4,4´-DDE	12.8		1440	0.89
BASELINE 2	CAPX	5	On Cap	B2-CAPX-PLGC	Duplicate	Composite	PELAGIC	4,4´-DDT	ND	0.04	<4.49	0.89
BASELINE 2	CAPX	5	On Cap	B2-CAPX-PLGC	Duplicate	Composite	PELAGIC	Total DDX	23.7		2658	0.89
BASELINE 2	OFF2	6	Off Cap	B2-OFF2-LUMB	Sample	Composite	LV	2,4´-DDD	1.0		88	1.1
BASELINE 2	OFF2	6	Off Cap	B2-OFF2-LUMB	Sample	Composite	LV	2,4´-DDE	ND	0.08	<7.27	1.1
BASELINE 2	OFF2	6	Off Cap	B2-OFF2-LUMB	Sample	Composite	LV	2,4´-DDT	ND	0.09	<8.18	1.1
BASELINE 2	OFF2	6	Off Cap	B2-OFF2-LUMB	Sample	Composite	LV	4,4´-DDD	6.7		613	1.1
BASELINE 2	OFF2	6	Off Cap	B2-OFF2-LUMB	Sample	Composite	LV	4,4´-DDE	7.5		684	1.1
BASELINE 2	OFF2	6	Off Cap	B2-OFF2-LUMB	Sample	Composite	LV	4,4´-DDT	ND	0.04	<3.64	1.1
BASELINE 2	OFF2	6	Off Cap	B2-OFF2-LUMB	Sample	Composite	LV	Total DDX	15.2		1385	1.1
BASELINE 2	OFF2	6	Off Cap	B2-OFF2-PLGC	Sample	Composite	PELAGIC	2,4´-DDD	ND	0.05	<4.95	1.01
BASELINE 2	OFF2	6	Off Cap	B2-OFF2-PLGC	Sample	Composite	PELAGIC	2,4´-DDE	ND	0.08	<7.92	1.01
BASELINE 2	OFF2	6	Off Cap	B2-OFF2-PLGC	Sample	Composite	PELAGIC	2,4´-DDT	ND	0.09	<8.91	1.01
BASELINE 2	OFF2	6	Off Cap	B2-OFF2-PLGC	Sample	Composite	PELAGIC	4,4´-DDD	1.2		120	1.01
BASELINE 2	OFF2	6	Off Cap	B2-OFF2-PLGC	Sample	Composite	PELAGIC	4,4´-DDE	3.7		370	1.01
BASELINE 2	OFF2	6	Off Cap	B2-OFF2-PLGC	Sample	Composite	PELAGIC	4,4´-DDT	ND	0.04	<3.96	1.01
BASELINE 2	OFF2	6	Off Cap	B2-OFF2-PLGC	Sample	Composite	PELAGIC	Total DDX	5.0		490	1.01
BASELINE 2	OFF1	7	Off Cap	B2-OFF1-PLGC	Sample	Composite	PELAGIC	2,4´-DDD	ND	0.05	<5.15	0.97
BASELINE 2	OFF1	7	Off Cap	B2-OFF1-PLGC	Sample	Composite	PELAGIC	2,4´-DDE	ND	0.08	<8.25	0.97
BASELINE 2	OFF1	7	Off Cap	B2-OFF1-PLGC	Sample	Composite	PELAGIC	2,4´-DDT	ND	0.09	<9.28	0.97
BASELINE 2	OFF1	7	Off Cap	B2-OFF1-PLGC	Sample	Composite	PELAGIC	4,4´-DDD	1.8		187	0.97

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
BASELINE 2	OFF1	7	Off Cap	B2-OFF1-PLGC	Sample	Composite	PELAGIC	4,4´-DDE	3.6		369	0.97
BASELINE 2	OFF1	7	Off Cap	B2-OFF1-PLGC	Sample	Composite	PELAGIC	4,4´-DDT	ND	0.04	<4.12	0.97
BASELINE 2	OFF1	7	Off Cap	B2-OFF1-PLGC	Sample	Composite	PELAGIC	Total DDX	5.4		556	0.97
BASELINE 3	1	1	On Cap	QB1-Cf-R10	Sample	Replicate	CF	4,4´-DDD	12.5		1389	0.9
BASELINE 3	1	1	On Cap	QB1-Cf-R10	Sample	Replicate	CF	4,4´-DDE	6.7		739	0.9
BASELINE 3	1	1	On Cap	QB1-Cf-R10	Sample	Replicate	CF	4,4´-DDT	1.1		120	0.9
BASELINE 3	1	1	On Cap	QB1-Cf-R10	Sample	Replicate	CF	Total DDX	20.2		2248	0.9
BASELINE 3	1	1	On Cap	QB1-Cf-R8	Sample	Replicate	CF	4,4´-DDD	14.6		2086	0.7
BASELINE 3	1	1	On Cap	QB1-Cf-R8	Sample	Replicate	CF	4,4´-DDE	7.3		1043	0.7
BASELINE 3	1	1	On Cap	QB1-Cf-R8	Sample	Replicate	CF	4,4´-DDT	1.6		224	0.7
BASELINE 3	1	1	On Cap	QB1-Cf-R8	Sample	Replicate	CF	Total DDX	23.5		3353	0.7
BASELINE 3	1	1	On Cap	QB1-Cf-R9	Sample	Replicate	CF	4,4´-DDD	11.4		1140	1.0
BASELINE 3	1	1	On Cap	QB1-Cf-R9	Sample	Replicate	CF	4,4´-DDE	5.9		590	1.0
BASELINE 3	1	1	On Cap	QB1-Cf-R9	Sample	Replicate	CF	4,4´-DDT	0.9		87	1.0
BASELINE 3	1	1	On Cap	QB1-Cf-R9	Sample	Replicate	CF	Total DDX	18.2		1817	1.0
BASELINE 3	1	1	On Cap	QB1-Lv-R2-4	Sample	Replicate	LV	4,4´-DDD	42.7		8540	0.5
BASELINE 3	1	1	On Cap	QB1-Lv-R2-4	Sample	Replicate	LV	4,4´-DDE	15.6		3120	0.5
BASELINE 3	1	1	On Cap	QB1-Lv-R2-4	Sample	Replicate	LV	4,4´-DDT	0.4		75	0.5
BASELINE 3	1	1	On Cap	QB1-Lv-R2-4	Sample	Replicate	LV	Total DDX	58.7		11735	0.5
BASELINE 3	1	1	On Cap	QB1-Lv-R4-4	Sample	Replicate	LV	4,4´-DDD	76.8		25600	0.3
BASELINE 3	1	1	On Cap	QB1-Lv-R4-4	Sample	Replicate	LV	4,4´-DDE	19.6		6533	0.3
BASELINE 3	1	1	On Cap	QB1-Lv-R4-4	Sample	Replicate	LV	4,4´-DDT	1.4		467	0.3
BASELINE 3	1	1	On Cap	QB1-Lv-R4-4	Sample	Replicate	LV	Total DDX	97.8		32600	0.3
BASELINE 3	1	1	On Cap	QB1-Lv-R2-4_R4-4-Avg	Sample	Composite	LV	4,4´-DDD	59.8		17070	0.4
BASELINE 3	1	1	On Cap	QB1-Lv-R2-4_R4-4-Avg	Sample	Composite	LV	4,4´-DDE	17.6		4827	0.4
BASELINE 3	1	1	On Cap	QB1-Lv-R2-4_R4-4-Avg	Sample	Composite	LV	4,4´-DDT	0.9		271	0.4
BASELINE 3	1	1	On Cap	QB1-Lv-R2-4_R4-4-Avg	Sample	Composite	LV	Total DDX	78.2		22168	0.4
BASELINE 3	1	1	On Cap	QB1-Cf-R8_R9_R10-Avg	Sample	Composite	CF	4,4´-DDD	12.8		1538	0.9
BASELINE 3	1	1	On Cap	QB1-Cf-R8_R9_R10-Avg	Sample	Composite	CF	4,4´-DDE	6.6		791	0.9
BASELINE 3	1	1	On Cap	QB1-Cf-R8_R9_R10-Avg	Sample	Composite	CF	4,4´-DDT	1.2		144	0.9
BASELINE 3	1	1	On Cap	QB1-Cf-R8_R9_R10-Avg	Sample	Composite	CF	Total DDX	20.6		2473	0.9
BASELINE 3	2	2	On Cap	QB2-Cf-C	Sample	Composite	CF	4,4´-DDD	16.5		1650	1.0
BASELINE 3	2	2	On Cap	QB2-Cf-C	Sample	Composite	CF	4,4´-DDE	11.6		1160	1.0
BASELINE 3	2	2	On Cap	QB2-Cf-C	Sample	Composite	CF	4,4´-DDT	2.3		225	1.0
BASELINE 3	2	2	On Cap	QB2-Cf-C	Sample	Composite	CF	Total DDX	30.4		3035	1.0
BASELINE 3	2	2	On Cap	QB2-Cf-R10	Sample	Replicate	CF	4,4´-DDD	14.1		1763	0.8
BASELINE 3	2	2	On Cap	QB2-Cf-R10	Sample	Replicate	CF	4,4´-DDE	10.4		1300	0.8
BASELINE 3	2	2	On Cap	QB2-Cf-R10	Sample	Replicate	CF	4,4´-DDT	1.6		196	0.8
BASELINE 3	2	2	On Cap	QB2-Cf-R10	Sample	Replicate	CF	Total DDX	26.1		3259	0.8
BASELINE 3	2	2	On Cap	QB2-Cf-R6	Sample	Replicate	CF	4,4´-DDD	14.3		1430	1.0
BASELINE 3	2	2	On Cap	QB2-Cf-R6	Sample	Replicate	CF	4,4´-DDE	10.3		1030	1.0
BASELINE 3	2	2	On Cap	QB2-Cf-R6	Sample	Replicate	CF	4,4´-DDT	2.4		243	1.0
BASELINE 3	2	2	On Cap	QB2-Cf-R6	Sample	Replicate	CF	Total DDX	27.0		2703	1.0
BASELINE 3	2	2	On Cap	QB2-Cf-R9	Sample	Replicate	CF	4,4´-DDD	18.3		2614	0.7

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
BASELINE 3	2	2	On Cap	QB2-Cf-R9	Sample	Replicate	CF	4,4´-DDE	13.3		1900	0.7
BASELINE 3	2	2	On Cap	QB2-Cf-R9	Sample	Replicate	CF	4,4´-DDT	2.1		303	0.7
BASELINE 3	2	2	On Cap	QB2-Cf-R9	Sample	Replicate	CF	Total DDX	33.7		4817	0.7
BASELINE 3	2	2	On Cap	QB2-Lv-C	Sample	Composite	LV	4,4´-DDD	20.0		2000	1.0
BASELINE 3	2	2	On Cap	QB2-Lv-C	Sample	Composite	LV	4,4´-DDE	10.5		1050	1.0
BASELINE 3	2	2	On Cap	QB2-Lv-C	Sample	Composite	LV	4,4´-DDT	ND	0.052	< 5.2	1.0
BASELINE 3	2	2	On Cap	QB2-Lv-C	Sample	Composite	LV	Total DDX	30.5		3050	1.0
BASELINE 3	2	2	On Cap	QB2-Lv-R1	Sample	Replicate	LV	4,4´-DDD	16.8		2400	0.7
BASELINE 3	2	2	On Cap	QB2-Lv-R1	Sample	Replicate	LV	4,4´-DDE	10.2		1457	0.7
BASELINE 3	2	2	On Cap	QB2-Lv-R1	Sample	Replicate	LV	4,4´-DDT	0.9		129	0.7
BASELINE 3	2	2	On Cap	QB2-Lv-R1	Sample	Replicate	LV	Total DDX	27.9		3986	0.7
BASELINE 3	2	2	On Cap	QB2-Lv-R2	Sample	Replicate	LV	4,4´-DDD	29.5		4917	0.6
BASELINE 3	2	2	On Cap	QB2-Lv-R2	Sample	Replicate	LV	4,4´-DDE	11.5		1917	0.6
BASELINE 3	2	2	On Cap	QB2-Lv-R2	Sample	Replicate	LV	4,4´-DDT	1.0		167	0.6
BASELINE 3	2	2	On Cap	QB2-Lv-R2	Sample	Replicate	LV	Total DDX	42.0		7000	0.6
BASELINE 3	2	2	On Cap	QB2-Lv-R4-5	Sample	Replicate	LV	4,4´-DDD	12.6		1260	1.0
BASELINE 3	2	2	On Cap	QB2-Lv-R4-5	Sample	Replicate	LV	4,4´-DDE	8.9		892	1.0
BASELINE 3	2	2	On Cap	QB2-Lv-R4-5	Sample	Replicate	LV	4,4´-DDT	ND	0.15	< 15	1.0
BASELINE 3	2	2	On Cap	QB2-Lv-R4-5	Sample	Replicate	LV	Total DDX	21.5		2152	1.0
BASELINE 3	3	3	On Cap	QB3-Cf-C3	Sample	Composite	CF	4,4´-DDD	7.6		761	1.0
BASELINE 3	3	3	On Cap	QB3-Cf-C3	Sample	Composite	CF	4,4´-DDE	5.0		498	1.0
BASELINE 3	3	3	On Cap	QB3-Cf-C3	Sample	Composite	CF	4,4´-DDT	0.7		73	1.0
BASELINE 3	3	3	On Cap	QB3-Cf-C3	Sample	Composite	CF	Total DDX	13.3		1332	1.0
BASELINE 3	3	3	On Cap	QB3-Cf-R10-3	Sample	Replicate	CF	4,4´-DDD	14.3		2043	0.7
BASELINE 3	3	3	On Cap	QB3-Cf-R10-3	Sample	Replicate	CF	4,4´-DDE	8.7		1239	0.7
BASELINE 3	3	3	On Cap	QB3-Cf-R10-3	Sample	Replicate	CF	4,4´-DDT	1.8		256	0.7
BASELINE 3	3	3	On Cap	QB3-Cf-R10-3	Sample	Replicate	CF	Total DDX	24.8		3537	0.7
BASELINE 3	3	3	On Cap	QB3-Cf-R1-3	Sample	Replicate	CF	4,4´-DDD	12.6		1400	0.9
BASELINE 3	3	3	On Cap	QB3-Cf-R1-3	Sample	Replicate	CF	4,4´-DDE	9.2		1017	0.9
BASELINE 3	3	3	On Cap	QB3-Cf-R1-3	Sample	Replicate	CF	4,4´-DDT	1.1		126	0.9
BASELINE 3	3	3	On Cap	QB3-Cf-R1-3	Sample	Replicate	CF	Total DDX	22.9		2542	0.9
BASELINE 3	3	3	On Cap	QB3-Cf-R5-3	Sample	Replicate	CF	4,4´-DDD	12.6		1575	0.8
BASELINE 3	3	3	On Cap	QB3-Cf-R5-3	Sample	Replicate	CF	4,4´-DDE	9.2		1153	0.8
BASELINE 3	3	3	On Cap	QB3-Cf-R5-3	Sample	Replicate	CF	4,4´-DDT	1.2		149	0.8
BASELINE 3	3	3	On Cap	QB3-Cf-R5-3	Sample	Replicate	CF	Total DDX	23.0		2876	0.8
BASELINE 3	3	3	On Cap	QB3-Lv-C3	Sample	Composite	LV	4,4´-DDD	45.3		5033	0.9
BASELINE 3	3	3	On Cap	QB3-Lv-C3	Sample	Composite	LV	4,4´-DDE	24.5		2722	0.9
BASELINE 3	3	3	On Cap	QB3-Lv-C3	Sample	Composite	LV	4,4´-DDT	0.9		103	0.9
BASELINE 3	3	3	On Cap	QB3-Lv-C3	Sample	Composite	LV	Total DDX	70.7		7858	0.9
BASELINE 3	3	3	On Cap	QB3-Lv-R2-3	Sample	Replicate	LV	4,4´-DDD	29.7		9900	0.3
BASELINE 3	3	3	On Cap	QB3-Lv-R2-3	Sample	Replicate	LV	4,4´-DDE	12.9		4300	0.3
BASELINE 3	3	3	On Cap	QB3-Lv-R2-3	Sample	Replicate	LV	4,4´-DDT	0.4		131	0.3
BASELINE 3	3	3	On Cap	QB3-Lv-R2-3	Sample	Replicate	LV	Total DDX	43.0		14331	0.3
BASELINE 3	3	3	On Cap	QB3-Lv-R3/4-3	Sample	Replicate	LV	4,4´-DDD	28.5		2850	1.0

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
BASELINE 3	3	3	On Cap	QB3-Lv-R3/4-3	Sample	Replicate	LV	4,4´-DDE	19.6		1960	1.0
BASELINE 3	3	3	On Cap	QB3-Lv-R3/4-3	Sample	Replicate	LV	4,4´-DDT	0.7		74	1.0
BASELINE 3	3	3	On Cap	QB3-Lv-R3/4-3	Sample	Replicate	LV	Total DDX	48.8		4884	1.0
BASELINE 3	3	3	On Cap	QB3-Lv-R8/9-3	Sample	Replicate	LV	4,4´-DDD	52.6		8767	0.6
BASELINE 3	3	3	On Cap	QB3-Lv-R8/9-3	Sample	Replicate	LV	4,4´-DDE	38.6		6433	0.6
BASELINE 3	3	3	On Cap	QB3-Lv-R8/9-3	Sample	Replicate	LV	4,4´-DDT	1.1		187	0.6
BASELINE 3	3	3	On Cap	QB3-Lv-R8/9-3	Sample	Replicate	LV	Total DDX	92.3		15387	0.6
BASELINE 3	4	4	On Cap	QB4-Cf-1	Sample	Replicate	CF	4,4´-DDD	7.2		802	0.9
BASELINE 3	4	4	On Cap	QB4-Cf-1	Sample	Replicate	CF	4,4´-DDE	7.0		773	0.9
BASELINE 3	4	4	On Cap	QB4-Cf-1	Sample	Replicate	CF	4,4´-DDT	1.0		106	0.9
BASELINE 3	4	4	On Cap	QB4-Cf-1	Sample	Replicate	CF	Total DDX	15.1		1682	0.9
BASELINE 3	4	4	On Cap	QB4-Cf-10	Sample	Replicate	CF	4,4´-DDD	8.6		1440	0.6
BASELINE 3	4	4	On Cap	QB4-Cf-10	Sample	Replicate	CF	4,4´-DDE	7.1		1187	0.6
BASELINE 3	4	4	On Cap	QB4-Cf-10	Sample	Replicate	CF	4,4´-DDT	1.2		207	0.6
BASELINE 3	4	4	On Cap	QB4-Cf-10	Sample	Replicate	CF	Total DDX	17.0		2833	0.6
BASELINE 3	4	4	On Cap	QB4-Cf-3	Sample	Replicate	CF	4,4´-DDD	4.7		581	0.8
BASELINE 3	4	4	On Cap	QB4-Cf-3	Sample	Replicate	CF	4,4´-DDE	4.3		534	0.8
BASELINE 3	4	4	On Cap	QB4-Cf-3	Sample	Replicate	CF	4,4´-DDT	3.5		435	0.8
BASELINE 3	4	4	On Cap	QB4-Cf-3	Sample	Replicate	CF	Total DDX	12.4		1550	0.8
BASELINE 3	4	4	On Cap	QB4-Cf-C	Sample	Composite	CF	4,4´-DDD	10.2		1133	0.9
BASELINE 3	4	4	On Cap	QB4-Cf-C	Sample	Composite	CF	4,4´-DDE	8.4		937	0.9
BASELINE 3	4	4	On Cap	QB4-Cf-C	Sample	Composite	CF	4,4´-DDT	1.2		137	0.9
BASELINE 3	4	4	On Cap	QB4-Cf-C	Sample	Composite	CF	Total DDX	19.9		2207	0.9
BASELINE 3	4	4	On Cap	QB4-Lv-C	Sample	Composite	LV	4,4´-DDD	13.9		1738	0.8
BASELINE 3	4	4	On Cap	QB4-Lv-C	Sample	Composite	LV	4,4´-DDE	16.8		2100	0.8
BASELINE 3	4	4	On Cap	QB4-Lv-C	Sample	Composite	LV	4,4´-DDT	0.4		55	0.8
BASELINE 3	4	4	On Cap	QB4-Lv-C	Sample	Composite	LV	Total DDX	31.1		3893	0.8
BASELINE 3	4	4	On Cap	QB4-Lv-R2	Sample	Replicate	LV	4,4´-DDD	14.2		1291	1.1
BASELINE 3	4	4	On Cap	QB4-Lv-R2	Sample	Replicate	LV	4,4´-DDE	17.5		1591	1.1
BASELINE 3	4	4	On Cap	QB4-Lv-R2	Sample	Replicate	LV	4,4´-DDT	0.6		57	1.1
BASELINE 3	4	4	On Cap	QB4-Lv-R2	Sample	Replicate	LV	Total DDX	32.3		2938	1.1
BASELINE 3	4	4	On Cap	QB4-Lv-R4	Sample	Replicate	LV	4,4´-DDD	9.7		974	1.0
BASELINE 3	4	4	On Cap	QB4-Lv-R4	Sample	Replicate	LV	4,4´-DDE	12.8		1280	1.0
BASELINE 3	4	4	On Cap	QB4-Lv-R4	Sample	Replicate	LV	4,4´-DDT	0.4		38	1.0
BASELINE 3	4	4	On Cap	QB4-Lv-R4	Sample	Replicate	LV	Total DDX	22.9		2292	1.0
BASELINE 3	4	4	On Cap	QB4-Lv-R5	Sample	Replicate	LV	4,4´-DDD	9.4		1175	0.8
BASELINE 3	4	4	On Cap	QB4-Lv-R5	Sample	Replicate	LV	4,4´-DDE	13.1		1638	0.8
BASELINE 3	4	4	On Cap	QB4-Lv-R5	Sample	Replicate	LV	4,4´-DDT	0.4		52	0.8
BASELINE 3	4	4	On Cap	QB4-Lv-R5	Sample	Replicate	LV	Total DDX	22.9		2864	0.8
BASELINE 3	5	5	On Cap	QB5-Cf-C2	Sample	Composite	CF	4,4´-DDD	17.9		1989	0.9
BASELINE 3	5	5	On Cap	QB5-Cf-C2	Sample	Composite	CF	4,4´-DDE	11.5		1278	0.9
BASELINE 3	5	5	On Cap	QB5-Cf-C2	Sample	Composite	CF	4,4´-DDT	1.9		213	0.9
BASELINE 3	5	5	On Cap	QB5-Cf-C2	Sample	Composite	CF	Total DDX	31.3		3480	0.9
BASELINE 3	5	5	On Cap	QB5-Cf-R1-2	Sample	Replicate	CF	4,4´-DDD	10.4		1040	1.0

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
BASELINE 3	5	5	On Cap	QB5-Cf-R1-2	Sample	Replicate	CF	4,4´-DDE	8.0		795	1.0
BASELINE 3	5	5	On Cap	QB5-Cf-R1-2	Sample	Replicate	CF	4,4´-DDT	1.7		169	1.0
BASELINE 3	5	5	On Cap	QB5-Cf-R1-2	Sample	Replicate	CF	Total DDX	20.0		2004	1.0
BASELINE 3	5	5	On Cap	QB5-Cf-R2-2	Sample	Replicate	CF	4,4´-DDD	6.9		576	1.2
BASELINE 3	5	5	On Cap	QB5-Cf-R2-2	Sample	Replicate	CF	4,4´-DDE	5.3		442	1.2
BASELINE 3	5	5	On Cap	QB5-Cf-R2-2	Sample	Replicate	CF	4,4´-DDT	0.8		66	1.2
BASELINE 3	5	5	On Cap	QB5-Cf-R2-2	Sample	Replicate	CF	Total DDX	13.0		1083	1.2
BASELINE 3	5	5	On Cap	QB5-Cf-R3-2	Sample	Replicate	CF	4,4´-DDD	14.7		1633	0.9
BASELINE 3	5	5	On Cap	QB5-Cf-R3-2	Sample	Replicate	CF	4,4´-DDE	11.1		1233	0.9
BASELINE 3	5	5	On Cap	QB5-Cf-R3-2	Sample	Replicate	CF	4,4´-DDT	2.1		229	0.9
BASELINE 3	5	5	On Cap	QB5-Cf-R3-2	Sample	Replicate	CF	Total DDX	27.9		3096	0.9
BASELINE 3	5	5	On Cap	QB5-Lv-C2	Sample	Composite	LV	4,4´-DDD	16.7		3340	0.5
BASELINE 3	5	5	On Cap	QB5-Lv-C2	Sample	Composite	LV	4,4´-DDE	14.9		2980	0.5
BASELINE 3	5	5	On Cap	QB5-Lv-C2	Sample	Composite	LV	4,4´-DDT	0.5		93	0.5
BASELINE 3	5	5	On Cap	QB5-Lv-C2	Sample	Composite	LV	Total DDX	32.1		6413	0.5
BASELINE 3	5	5	On Cap	QB5-Lv-R8-2	Sample	Replicate	LV	4,4´-DDD	23.2		2578	0.9
BASELINE 3	5	5	On Cap	QB5-Lv-R8-2	Sample	Replicate	LV	4,4´-DDE	20.1		2233	0.9
BASELINE 3	5	5	On Cap	QB5-Lv-R8-2	Sample	Replicate	LV	4,4´-DDT	0.9		99	0.9
BASELINE 3	5	5	On Cap	QB5-Lv-R8-2	Sample	Replicate	LV	Total DDX	44.2		4910	0.9
BASELINE 3	5	5	On Cap	QB5-Lv-R9-2	Sample	Replicate	LV	4,4´-DDD	10.1		2020	0.5
BASELINE 3	5	5	On Cap	QB5-Lv-R9-2	Sample	Replicate	LV	4,4´-DDE	9.2		1844	0.5
BASELINE 3	5	5	On Cap	QB5-Lv-R9-2	Sample	Replicate	LV	4,4´-DDT	0.3		60	0.5
BASELINE 3	5	5	On Cap	QB5-Lv-R9-2	Sample	Replicate	LV	Total DDX	19.6		3924	0.5
BASELINE 3	6	6	Off Cap	QB6-Cf-C	Sample	Composite	CF	4,4´-DDD	5.4		487	1.1
BASELINE 3	6	6	Off Cap	QB6-Cf-C	Sample	Composite	CF	4,4´-DDE	7.0		635	1.1
BASELINE 3	6	6	Off Cap	QB6-Cf-C	Sample	Composite	CF	4,4´-DDT	1.5		137	1.1
BASELINE 3	6	6	Off Cap	QB6-Cf-C	Sample	Composite	CF	Total DDX	13.9		1260	1.1
BASELINE 3	6	6	Off Cap	QB6-Cf-R10	Sample	Replicate	CF	4,4´-DDD	3.0		164	1.8
BASELINE 3	6	6	Off Cap	QB6-Cf-R10	Sample	Replicate	CF	4,4´-DDE	3.3		186	1.8
BASELINE 3	6	6	Off Cap	QB6-Cf-R10	Sample	Replicate	CF	4,4´-DDT	0.6		34	1.8
BASELINE 3	6	6	Off Cap	QB6-Cf-R10	Sample	Replicate	CF	Total DDX	6.9		384	1.8
BASELINE 3	6	6	Off Cap	QB6-Cf-R3	Sample	Replicate	CF	4,4´-DDD	5.5		609	0.9
BASELINE 3	6	6	Off Cap	QB6-Cf-R3	Sample	Replicate	CF	4,4´-DDE	7.2		798	0.9
BASELINE 3	6	6	Off Cap	QB6-Cf-R3	Sample	Replicate	CF	4,4´-DDT	1.5		162	0.9
BASELINE 3	6	6	Off Cap	QB6-Cf-R3	Sample	Replicate	CF	Total DDX	14.1		1569	0.9
BASELINE 3	6	6	Off Cap	QB6-Cf-R5	Sample	Replicate	CF	4,4´-DDD	3.7		372	1.0
BASELINE 3	6	6	Off Cap	QB6-Cf-R5	Sample	Replicate	CF	4,4´-DDE	4.9		491	1.0
BASELINE 3	6	6	Off Cap	QB6-Cf-R5	Sample	Replicate	CF	4,4´-DDT	1.1		109	1.0
BASELINE 3	6	6	Off Cap	QB6-Cf-R5	Sample	Replicate	CF	Total DDX	9.7		972	1.0
BASELINE 3	6	6	Off Cap	QB6-Lv-C	Sample	Composite	LV	4,4´-DDD	2.7		336	0.8
BASELINE 3	6	6	Off Cap	QB6-Lv-C	Sample	Composite	LV	4,4´-DDE	8.5		1068	0.8
BASELINE 3	6	6	Off Cap	QB6-Lv-C	Sample	Composite	LV	4,4´-DDT	0.5		56	0.8
BASELINE 3	6	6	Off Cap	QB6-Lv-C	Sample	Composite	LV	Total DDX	11.7		1460	0.8
BASELINE 3	T-0-1	T-0-1	NA	QB0-Cf-1	Sample	Time 0	CF	4,4´-DDD	22.3		4460	0.5

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
BASELINE 3	T-0-1	T-0-1	NA	QB0-Cf-1	Sample	Time 0	CF	4,4´-DDE	7.7		1544	0.5
BASELINE 3	T-0-1	T-0-1	NA	QB0-Cf-1	Sample	Time 0	CF	4,4´-DDT	0.7		141	0.5
BASELINE 3	T-0-1	T-0-1	NA	QB0-Cf-1	Sample	Time 0	CF	Total DDX	30.7		6145	0.5
BASELINE 3	T-0-1	T-0-1	NA	QB0-Lv-1	Sample	Time 0	LV	4,4´-DDD	35.0		2692	1.3
BASELINE 3	T-0-1	T-0-1	NA	QB0-Lv-1	Sample	Time 0	LV	4,4´-DDE	13.9		1069	1.3
BASELINE 3	T-0-1	T-0-1	NA	QB0-Lv-1	Sample	Time 0	LV	4,4´-DDT	1.7		128	1.3
BASELINE 3	T-0-1	T-0-1	NA	QB0-Lv-1	Sample	Time 0	LV	Total DDX	50.6		3889	1.3
BASELINE 3	T-0-2	T-0-2	NA	QB0-Cf-2	Sample	Time 0	CF	4,4´-DDD	9.5		2365	0.4
BASELINE 3	T-0-2	T-0-2	NA	QB0-Cf-2	Sample	Time 0	CF	4,4´-DDE	4.2		1050	0.4
BASELINE 3	T-0-2	T-0-2	NA	QB0-Cf-2	Sample	Time 0	CF	4,4´-DDT	0.7		174	0.4
BASELINE 3	T-0-2	T-0-2	NA	QB0-Cf-2	Sample	Time 0	CF	Total DDX	14.4		3589	0.4
BASELINE 3	T-0-2	T-0-2	NA	QB0-Lv-2	Sample	Time 0	LV	4,4´-DDD	8.0		443	1.8
BASELINE 3	T-0-2	T-0-2	NA	QB0-Lv-2	Sample	Time 0	LV	4,4´-DDE	5.1		284	1.8
BASELINE 3	T-0-2	T-0-2	NA	QB0-Lv-2	Sample	Time 0	LV	4,4´-DDT	0.2		10	1.8
BASELINE 3	T-0-2	T-0-2	NA	QB0-Lv-2	Sample	Time 0	LV	Total DDX	13.3		737	1.8
BASELINE 3	T-0-3	T-0-3	NA	QB0-Cf-3	Sample	Time 0	CF	4,4´-DDD	1.1		163	0.7
BASELINE 3	T-0-3	T-0-3	NA	QB0-Cf-3	Sample	Time 0	CF	4,4´-DDE	1.0		149	0.7
BASELINE 3	T-0-3	T-0-3	NA	QB0-Cf-3	Sample	Time 0	CF	4,4´-DDT	0.1		15	0.7
BASELINE 3	T-0-3	T-0-3	NA	QB0-Cf-3	Sample	Time 0	CF	Total DDX	2.3		326	0.7
BASELINE 3	T-0-3	T-0-3	NA	QB0-Lv-3	Sample	Time 0	LV	4,4´-DDD	13.1		1092	1.2
BASELINE 3	T-0-3	T-0-3	NA	QB0-Lv-3	Sample	Time 0	LV	4,4´-DDE	5.1		423	1.2
BASELINE 3	T-0-3	T-0-3	NA	QB0-Lv-3	Sample	Time 0	LV	4,4´-DDT	2.3		191	1.2
BASELINE 3	T-0-3	T-0-3	NA	QB0-Lv-3	Sample	Time 0	LV	Total DDX	20.5		1705	1.2
2-MONTH	1	1	On Cap	QT2-1-Cf-Cl	Sample	Composite	CF	2,4´-DDD	0.7	0.094	44	1.5
2-MONTH	1	1	On Cap	QT2-1-Cf-Cl	Sample	Composite	CF	2,4´-DDE	1.2	0.094	79	1.5
2-MONTH	1	1	On Cap	QT2-1-Cf-Cl	Sample	Composite	CF	2,4´-DDT	0.2	0.094	12	1.5
2-MONTH	1	1	On Cap	QT2-1-Cf-Cl	Sample	Composite	CF	4,4´-DDD	9.4	0.094	610	1.5
2-MONTH	1	1	On Cap	QT2-1-Cf-Cl	Sample	Composite	CF	4,4´-DDE	7.0	0.094	455	1.5
2-MONTH	1	1	On Cap	QT2-1-Cf-Cl	Sample	Composite	CF	4,4´-DDT	0.6	0.094	42	1.5
2-MONTH	1	1	On Cap	QT2-1-Cf-Cl	Sample	Composite	CF	Total DDX	19.1		1241	1.5
2-MONTH	1	1	On Cap	QT2-1-LV-Cl	Sample	Composite	LV	2,4´-DDD	1.6	0.094	53	2.9
2-MONTH	1	1	On Cap	QT2-1-LV-Cl	Sample	Composite	LV	2,4´-DDE	1.6	0.094	55	2.9
2-MONTH	1	1	On Cap	QT2-1-LV-Cl	Sample	Composite	LV	2,4´-DDT	0.3	0.094	11	2.9
2-MONTH	1	1	On Cap	QT2-1-LV-Cl	Sample	Composite	LV	4,4´-DDD	11.1	0.094	378	2.9
2-MONTH	1	1	On Cap	QT2-1-LV-Cl	Sample	Composite	LV	4,4´-DDE	8.0	0.094	272	2.9
2-MONTH	1	1	On Cap	QT2-1-LV-Cl	Sample	Composite	LV	4,4´-DDT	0.6	0.094	22	2.9
2-MONTH	1	1	On Cap	QT2-1-LV-Cl	Sample	Composite	LV	Total DDX	23.2		791	2.9
2-MONTH	2	2	On Cap	QT2-2-Cf-Cl	Sample	Composite	CF	2,4´-DDD	1.5	0.094	103	1.5
2-MONTH	2	2	On Cap	QT2-2-Cf-Cl	Sample	Composite	CF	2,4´-DDE	0.9	0.094	59	1.5
2-MONTH	2	2	On Cap	QT2-2-Cf-Cl	Sample	Composite	CF	2,4´-DDT	0.8	0.094	54	1.5
2-MONTH	2	2	On Cap	QT2-2-Cf-Cl	Sample	Composite	CF	4,4´-DDD	8.5	0.094	583	1.5
2-MONTH	2	2	On Cap	QT2-2-Cf-Cl	Sample	Composite	CF	4,4´-DDE	6.7	0.094	458	1.5
2-MONTH	2	2	On Cap	QT2-2-Cf-Cl	Sample	Composite	CF	4,4´-DDT	0.6	0.094	40	1.5
2-MONTH	2	2	On Cap	QT2-2-Cf-Cl	Sample	Composite	CF	Total DDX	18.9		1296	1.5

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
2-MONTH	2	2	On Cap	QT2-2-LV-Cl	Sample	Composite	LV	2,4´-DDD	1.6	0.094	59	2.7
2-MONTH	2	2	On Cap	QT2-2-LV-Cl	Sample	Composite	LV	2,4´-DDE	1.4	0.094	50	2.7
2-MONTH	2	2	On Cap	QT2-2-LV-Cl	Sample	Composite	LV	2,4´-DDT	ND	0.099	< 3.61	2.7
2-MONTH	2	2	On Cap	QT2-2-LV-Cl	Sample	Composite	LV	4,4´-DDD	13.7	0.094	500	2.7
2-MONTH	2	2	On Cap	QT2-2-LV-Cl	Sample	Composite	LV	4,4´-DDE	9.0	0.094	327	2.7
2-MONTH	2	2	On Cap	QT2-2-LV-Cl	Sample	Composite	LV	4,4´-DDT	1.1	0.094	41	2.7
2-MONTH	2	2	On Cap	QT2-2-LV-Cl	Sample	Composite	LV	Total DDX	26.8		978	2.7
2-MONTH	3	3	On Cap	QT2-3F-Cf-Cl	Sample	Composite	CF	2,4´-DDD	1.3	0.094	88	1.5
2-MONTH	3	3	On Cap	QT2-3F-Cf-Cl	Sample	Composite	CF	2,4´-DDE	ND	0.1	< 6.62	1.5
2-MONTH	3	3	On Cap	QT2-3F-Cf-Cl	Sample	Composite	CF	2,4´-DDT	0.7	0.094	43	1.5
2-MONTH	3	3	On Cap	QT2-3F-Cf-Cl	Sample	Composite	CF	4,4´-DDD	7.3	0.094	483	1.5
2-MONTH	3	3	On Cap	QT2-3F-Cf-Cl	Sample	Composite	CF	4,4´-DDE	5.2	0.094	344	1.5
2-MONTH	3	3	On Cap	QT2-3F-Cf-Cl	Sample	Composite	CF	4,4´-DDT	0.5	0.094	34	1.5
2-MONTH	3	3	On Cap	QT2-3F-Cf-Cl	Sample	Composite	CF	Total DDX	15.0		993	1.5
2-MONTH	4	4	On Cap	QT2-4-Cf-Cl	Sample	Composite	CF	2,4´-DDD	0.5	0.094	22	2.4
2-MONTH	4	4	On Cap	QT2-4-Cf-Cl	Sample	Composite	CF	2,4´-DDE	0.8	0.094	31	2.4
2-MONTH	4	4	On Cap	QT2-4-Cf-Cl	Sample	Composite	CF	2,4´-DDT	ND	0.096	< 3.95	2.4
2-MONTH	4	4	On Cap	QT2-4-Cf-Cl	Sample	Composite	CF	4,4´-DDD	6.7	0.094	277	2.4
2-MONTH	4	4	On Cap	QT2-4-Cf-Cl	Sample	Composite	CF	4,4´-DDE	6.1	0.094	252	2.4
2-MONTH	4	4	On Cap	QT2-4-Cf-Cl	Sample	Composite	CF	4,4´-DDT	0.4	0.094	18	2.4
2-MONTH	4	4	On Cap	QT2-4-Cf-Cl	Sample	Composite	CF	Total DDX	14.6		600	2.4
2-MONTH	4	4	On Cap	QT2-4-LV-Cl	Sample	Composite	LV	2,4´-DDD	1.3	0.094	55	2.4
2-MONTH	4	4	On Cap	QT2-4-LV-Cl	Sample	Composite	LV	2,4´-DDE	ND	0.097	< 4.13	2.4
2-MONTH	4	4	On Cap	QT2-4-LV-Cl	Sample	Composite	LV	2,4´-DDT	0.3	0.094	14	2.4
2-MONTH	4	4	On Cap	QT2-4-LV-Cl	Sample	Composite	LV	4,4´-DDD	8.9	0.094	377	2.4
2-MONTH	4	4	On Cap	QT2-4-LV-Cl	Sample	Composite	LV	4,4´-DDE	9.5	0.094	404	2.4
2-MONTH	4	4	On Cap	QT2-4-LV-Cl	Sample	Composite	LV	4,4´-DDT	0.5	0.094	21	2.4
2-MONTH	4	4	On Cap	QT2-4-LV-Cl	Sample	Composite	LV	Total DDX	20.5		871	2.4
2-MONTH	5	5	On Cap	QT2-5-Cf-Cl	Primary	Composite	CF	2,4´-DDD	0.6	0.094	42	1.4
2-MONTH	5	5	On Cap	QT2-5-Cf-Cl	Primary	Composite	CF	2,4´-DDE	0.3	0.094	19	1.4
2-MONTH	5	5	On Cap	QT2-5-Cf-Cl	Primary	Composite	CF	2,4´-DDT	ND	0.094	< 6.96	1.4
2-MONTH	5	5	On Cap	QT2-5-Cf-Cl	Primary	Composite	CF	4,4´-DDD	7.4	0.094	550	1.4
2-MONTH	5	5	On Cap	QT2-5-Cf-Cl	Primary	Composite	CF	4,4´-DDE	6.7	0.094	499	1.4
2-MONTH	5	5	On Cap	QT2-5-Cf-Cl	Primary	Composite	CF	4,4´-DDT	ND	0.094	< 6.96	1.4
2-MONTH	5	5	On Cap	QT2-5-Cf-Cl	Primary	Composite	CF	Total DDX	15.0		1110	1.4
2-MONTH	5	5	On Cap	QT2-5-Cf-Cl-Avg	Sample	Composite	CF	2,4´-DDD	0.6		36	1.6
2-MONTH	5	5	On Cap	QT2-5-Cf-Cl-Avg	Sample	Composite	CF	2,4´-DDE	0.4		23	1.6
2-MONTH	5	5	On Cap	QT2-5-Cf-Cl-Avg	Sample	Composite	CF	2,4´-DDT	ND	0.097	<6.96	1.6
2-MONTH	5	5	On Cap	QT2-5-Cf-Cl-Avg	Sample	Composite	CF	4,4´-DDD	7.9		496	1.6
2-MONTH	5	5	On Cap	QT2-5-Cf-Cl-Avg	Sample	Composite	CF	4,4´-DDE	6.8		433	1.6
2-MONTH	5	5	On Cap	QT2-5-Cf-Cl-Avg	Sample	Composite	CF	4,4´-DDT	0.3		14	1.6
2-MONTH	5	5	On Cap	QT2-5-Cf-Cl-Avg	Sample	Composite	CF	Total DDX	15.9		1002	1.6
2-MONTH	5DUP	5	On Cap	QT2-5dup-Cf-Cl	Duplicate	Composite	CF	2,4´-DDD	0.5	0.094	29	1.9
2-MONTH	5DUP	5	On Cap	QT2-5dup-Cf-Cl	Duplicate	Composite	CF	2,4´-DDE	0.5	0.094	28	1.9

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
2-MONTH	5DUP	5	On Cap	QT2-5dup-Cf-Cl	Duplicate	Composite	CF	2,4´-DDT	ND	0.097	< 5.16	1.9
2-MONTH	5DUP	5	On Cap	QT2-5dup-Cf-Cl	Duplicate	Composite	CF	4,4´-DDD	8.3	0.094	443	1.9
2-MONTH	5DUP	5	On Cap	QT2-5dup-Cf-Cl	Duplicate	Composite	CF	4,4´-DDE	6.9	0.094	366	1.9
2-MONTH	5DUP	5	On Cap	QT2-5dup-Cf-Cl	Duplicate	Composite	CF	4,4´-DDT	0.5	0.094	24	1.9
2-MONTH	5DUP	5	On Cap	QT2-5dup-Cf-Cl	Duplicate	Composite	CF	Total DDX	16.7		890	1.9
2-MONTH	5DUP	5	On Cap	QT2-5dup-LV-Cl	Duplicate	Composite	LV	2,4´-DDD	7.5	0.094	227	3.3
2-MONTH	5DUP	5	On Cap	QT2-5dup-LV-Cl	Duplicate	Composite	LV	2,4´-DDE	7.9	0.094	240	3.3
2-MONTH	5DUP	5	On Cap	QT2-5dup-LV-Cl	Duplicate	Composite	LV	2,4´-DDT	1.3	0.094	40	3.3
2-MONTH	5DUP	5	On Cap	QT2-5dup-LV-Cl	Duplicate	Composite	LV	4,4´-DDD	54.6	0.094	1660	3.3
2-MONTH	5DUP	5	On Cap	QT2-5dup-LV-Cl	Duplicate	Composite	LV	4,4´-DDE	40.0	0.094	1216	3.3
2-MONTH	5DUP	5	On Cap	QT2-5dup-LV-Cl	Duplicate	Composite	LV	4,4´-DDT	3.3	0.094	101	3.3
2-MONTH	5DUP	5	On Cap	QT2-5dup-LV-Cl	Duplicate	Composite	LV	Total DDX	114.6		3483	3.3
2-MONTH	5	5	On Cap	QT2-5-LV-Cl	Primary	Composite	LV	2,4´-DDD	8.8	0.094	249	3.5
2-MONTH	5	5	On Cap	QT2-5-LV-Cl	Primary	Composite	LV	2,4´-DDE	18.5	0.094	526	3.5
2-MONTH	5	5	On Cap	QT2-5-LV-Cl	Primary	Composite	LV	2,4´-DDT	3.8	0.094	109	3.5
2-MONTH	5	5	On Cap	QT2-5-LV-Cl	Primary	Composite	LV	4,4´-DDD	51.2	0.094	1455	3.5
2-MONTH	5	5	On Cap	QT2-5-LV-Cl	Primary	Composite	LV	4,4´-DDE	40.8	0.094	1159	3.5
2-MONTH	5	5	On Cap	QT2-5-LV-Cl	Primary	Composite	LV	4,4´-DDT	4.5	0.094	127	3.5
2-MONTH	5	5	On Cap	QT2-5-LV-Cl	Primary	Composite	LV	Total DDX	127.6		3624	3.5
2-MONTH	5	5	On Cap	QT2-5-LV-Cl-Avg	Sample	Composite	LV	2,4´-DDD	8.1		238	3.4
2-MONTH	5	5	On Cap	QT2-5-LV-Cl-Avg	Sample	Composite	LV	2,4´-DDE	13.2		383	3.4
2-MONTH	5	5	On Cap	QT2-5-LV-Cl-Avg	Sample	Composite	LV	2,4´-DDT	2.6		74	3.4
2-MONTH	5	5	On Cap	QT2-5-LV-Cl-Avg	Sample	Composite	LV	4,4´-DDD	52.9		1557	3.4
2-MONTH	5	5	On Cap	QT2-5-LV-Cl-Avg	Sample	Composite	LV	4,4´-DDE	40.4		1187	3.4
2-MONTH	5	5	On Cap	QT2-5-LV-Cl-Avg	Sample	Composite	LV	4,4´-DDT	3.9		114	3.4
2-MONTH	5	5	On Cap	QT2-5-LV-Cl-Avg	Sample	Composite	LV	Total DDX	121.1		3553	3.4
2-MONTH	6	6	Off Cap	QT2-6-Cf-Cl	Sample	Composite	CF	2,4´-DDD	ND	0.145	< 9.24	1.6
2-MONTH	6	6	Off Cap	QT2-6-Cf-Cl	Sample	Composite	CF	2,4´-DDE	0.3	0.094	22	1.6
2-MONTH	6	6	Off Cap	QT2-6-Cf-Cl	Sample	Composite	CF	2,4´-DDT	ND	0.145	< 9.24	1.6
2-MONTH	6	6	Off Cap	QT2-6-Cf-Cl	Sample	Composite	CF	4,4´-DDD	1.4	0.094	90	1.6
2-MONTH	6	6	Off Cap	QT2-6-Cf-Cl	Sample	Composite	CF	4,4´-DDE	1.5	0.094	92	1.6
2-MONTH	6	6	Off Cap	QT2-6-Cf-Cl	Sample	Composite	CF	4,4´-DDT	0.2	0.094	11	1.6
2-MONTH	6	6	Off Cap	QT2-6-Cf-Cl	Sample	Composite	CF	Total DDX	3.4		215	1.6
2-MONTH	6	6	Off Cap	QT2-6-LV-Cl	Sample	Composite	LV	2,4´-DDD	1.6	0.094	63	2.6
2-MONTH	6	6	Off Cap	QT2-6-LV-Cl	Sample	Composite	LV	2,4´-DDE	2.7	0.094	102	2.6
2-MONTH	6	6	Off Cap	QT2-6-LV-Cl	Sample	Composite	LV	2,4´-DDT	0.8	0.094	30	2.6
2-MONTH	6	6	Off Cap	QT2-6-LV-Cl	Sample	Composite	LV	4,4´-DDD	8.8	0.094	337	2.6
2-MONTH	6	6	Off Cap	QT2-6-LV-Cl	Sample	Composite	LV	4,4´-DDE	10.4	0.094	397	2.6
2-MONTH	6	6	Off Cap	QT2-6-LV-Cl	Sample	Composite	LV	4,4´-DDT	1.8	0.094	68	2.6
2-MONTH	6	6	Off Cap	QT2-6-LV-Cl	Sample	Composite	LV	Total DDX	26.1		996	2.6
2-MONTH	7	7	Off Cap	QT2-7-Cf-Cl	Sample	Composite	CF	2,4´-DDD	ND	0.1	< 6.94	1.4
2-MONTH	7	7	Off Cap	QT2-7-Cf-Cl	Sample	Composite	CF	2,4´-DDE	0.6	0.094	38	1.4
2-MONTH	7	7	Off Cap	QT2-7-Cf-Cl	Sample	Composite	CF	2,4´-DDT	ND	0.1	< 6.94	1.4
2-MONTH	7	7	Off Cap	QT2-7-Cf-Cl	Sample	Composite	CF	4,4´-DDD	2.6	0.094	181	1.4

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
2-MONTH	7	7	Off Cap	QT2-7-Cf-Cl	Sample	Composite	CF	4,4´-DDE	3.2	0.094	219	1.4
2-MONTH	7	7	Off Cap	QT2-7-Cf-Cl	Sample	Composite	CF	4,4´-DDT	ND	0.1	< 6.94	1.4
2-MONTH	7	7	Off Cap	QT2-7-Cf-Cl	Sample	Composite	CF	Total DDX	6.3		439	1.4
2-MONTH	7	7	Off Cap	QT2-7-LV-Cl	Sample	Composite	LV	2,4´-DDD	1.0	0.094	42	2.3
2-MONTH	7	7	Off Cap	QT2-7-LV-Cl	Sample	Composite	LV	2,4´-DDE	1.8	0.094	75	2.3
2-MONTH	7	7	Off Cap	QT2-7-LV-Cl	Sample	Composite	LV	2,4´-DDT	0.4	0.094	18	2.3
2-MONTH	7	7	Off Cap	QT2-7-LV-Cl	Sample	Composite	LV	4,4´-DDD	6.5	0.094	278	2.3
2-MONTH	7	7	Off Cap	QT2-7-LV-Cl	Sample	Composite	LV	4,4´-DDE	8.9	0.094	382	2.3
2-MONTH	7	7	Off Cap	QT2-7-LV-Cl	Sample	Composite	LV	4,4´-DDT	0.6	0.094	24	2.3
2-MONTH	7	7	Off Cap	QT2-7-LV-Cl	Sample	Composite	LV	Total DDX	19.2		819	2.3
2-MONTH	T0-A-1	T0-A-1	NA	Corbicula Batch 1 T0 A	Sample	Time 0	CF	2,4´-DDD	0.3	0.095	14	2.1
2-MONTH	T0-A-1	T0-A-1	NA	Corbicula Batch 1 T0 A	Sample	Time 0	CF	2,4´-DDE	0.3	0.095	15	2.1
2-MONTH	T0-A-1	T0-A-1	NA	Corbicula Batch 1 T0 A	Sample	Time 0	CF	2,4´-DDT	ND	0.148	< 7.22	2.1
2-MONTH	T0-A-1	T0-A-1	NA	Corbicula Batch 1 T0 A	Sample	Time 0	CF	4,4´-DDD	0.3	0.095	16	2.1
2-MONTH	T0-A-1	T0-A-1	NA	Corbicula Batch 1 T0 A	Sample	Time 0	CF	4,4´-DDE	0.2	0.095	11	2.1
2-MONTH	T0-A-1	T0-A-1	NA	Corbicula Batch 1 T0 A	Sample	Time 0	CF	4,4´-DDT	0.4	0.095	18	2.1
2-MONTH	T0-A-1	T0-A-1	NA	Corbicula Batch 1 T0 A	Sample	Time 0	CF	Total DDX	1.5		74	2.1
2-MONTH	T0-A-1	T0-A-1	NA	Lumbriculus Batch 1 T0 A	Sample	Time 0	LV	2,4´-DDD	ND	0.096	< 1.78	5.4
2-MONTH	T0-A-1	T0-A-1	NA	Lumbriculus Batch 1 T0 A	Sample	Time 0	LV	2,4´-DDE	0.4	0.094	8	5.4
2-MONTH	T0-A-1	T0-A-1	NA	Lumbriculus Batch 1 T0 A	Sample	Time 0	LV	2,4´-DDT	ND	0.096	< 1.78	5.4
2-MONTH	T0-A-1	T0-A-1	NA	Lumbriculus Batch 1 T0 A	Sample	Time 0	LV	4,4´-DDD	0.2	0.094	3	5.4
2-MONTH	T0-A-1	T0-A-1	NA	Lumbriculus Batch 1 T0 A	Sample	Time 0	LV	4,4´-DDE	0.5	0.094	9	5.4
2-MONTH	T0-A-1	T0-A-1	NA	Lumbriculus Batch 1 T0 A	Sample	Time 0	LV	4,4´-DDT	ND	0.096	< 1.78	5.4
2-MONTH	T0-A-1	T0-A-1	NA	Lumbriculus Batch 1 T0 A	Sample	Time 0	LV	Total DDX	1.1		20	5.4
2-MONTH	T0-A-2	T0-A-2	NA	Corbicula Batch 2 T0 A	Sample	Time 0	CF	2,4´-DDD	0.2	0.095	11	1.5
2-MONTH	T0-A-2	T0-A-2	NA	Corbicula Batch 2 T0 A	Sample	Time 0	CF	2,4´-DDE	0.3	0.095	23	1.5
2-MONTH	T0-A-2	T0-A-2	NA	Corbicula Batch 2 T0 A	Sample	Time 0	CF	2,4´-DDT	ND	0.157	< 10.83	1.5
2-MONTH	T0-A-2	T0-A-2	NA	Corbicula Batch 2 T0 A	Sample	Time 0	CF	4,4´-DDD	0.2	0.095	11	1.5
2-MONTH	T0-A-2	T0-A-2	NA	Corbicula Batch 2 T0 A	Sample	Time 0	CF	4,4´-DDE	0.4	0.095	27	1.5
2-MONTH	T0-A-2	T0-A-2	NA	Corbicula Batch 2 T0 A	Sample	Time 0	CF	4,4´-DDT	0.2	0.095	13	1.5
2-MONTH	T0-A-2	T0-A-2	NA	Corbicula Batch 2 T0 A	Sample	Time 0	CF	Total DDX	1.2		86	1.5
2-MONTH	T0-A-2	T0-A-2	NA	Lumbriculus Batch 2 T0 A	Sample	Time 0	LV	2,4´-DDD	0.1	0.094	1	7.2
2-MONTH	T0-A-2	T0-A-2	NA	Lumbriculus Batch 2 T0 A	Sample	Time 0	LV	2,4´-DDE	0.2	0.094	2	7.2
2-MONTH	T0-A-2	T0-A-2	NA	Lumbriculus Batch 2 T0 A	Sample	Time 0	LV	2,4´-DDT	ND	0.095	< 1.32	7.2
2-MONTH	T0-A-2	T0-A-2	NA	Lumbriculus Batch 2 T0 A	Sample	Time 0	LV	4,4´-DDD	0.2	0.094	3	7.2
2-MONTH	T0-A-2	T0-A-2	NA	Lumbriculus Batch 2 T0 A	Sample	Time 0	LV	4,4´-DDE	1.2	0.094	17	7.2
2-MONTH	T0-A-2	T0-A-2	NA	Lumbriculus Batch 2 T0 A	Sample	Time 0	LV	4,4´-DDT	ND	0.095	< 1.32	7.2
2-MONTH	T0-A-2	T0-A-2	NA	Lumbriculus Batch 2 T0 A	Sample	Time 0	LV	Total DDX	1.7		24	7.2
2-MONTH	T0-B-1	T0-B-1	NA	Corbicula Batch 1 T0 B	Sample	Time 0	CF	2,4´-DDD	0.3	0.095	14	2.1
2-MONTH	T0-B-1	T0-B-1	NA	Corbicula Batch 1 T0 B	Sample	Time 0	CF	2,4´-DDE	0.7	0.095	34	2.1
2-MONTH	T0-B-1	T0-B-1	NA	Corbicula Batch 1 T0 B	Sample	Time 0	CF	2,4´-DDT	ND	0.16	< 7.73	2.1
2-MONTH	T0-B-1	T0-B-1	NA	Corbicula Batch 1 T0 B	Sample	Time 0	CF	4,4´-DDD	0.3	0.095	16	2.1
2-MONTH	T0-B-1	T0-B-1	NA	Corbicula Batch 1 T0 B	Sample	Time 0	CF	4,4´-DDE	0.3	0.095	13	2.1
2-MONTH	T0-B-1	T0-B-1	NA	Corbicula Batch 1 T0 B	Sample	Time 0	CF	4,4´-DDT	0.2	0.095	9	2.1

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
2-MONTH	T0-B-1	T0-B-1	NA	Corbicula Batch 1 T0 B	Sample	Time 0	CF	Total DDX	1.8		87	2.1
2-MONTH	T0-B-1	T0-B-1	NA	Lumbriculus Batch 1 T0 B	Sample	Time 0	LV	2,4´-DDD	0.1	0.094	4	3.8
2-MONTH	T0-B-1	T0-B-1	NA	Lumbriculus Batch 1 T0 B	Sample	Time 0	LV	2,4´-DDE	0.4	0.094	10	3.8
2-MONTH	T0-B-1	T0-B-1	NA	Lumbriculus Batch 1 T0 B	Sample	Time 0	LV	2,4´-DDT	0.1	0.094	3	3.8
2-MONTH	T0-B-1	T0-B-1	NA	Lumbriculus Batch 1 T0 B	Sample	Time 0	LV	4,4´-DDD	0.1	0.094	4	3.8
2-MONTH	T0-B-1	T0-B-1	NA	Lumbriculus Batch 1 T0 B	Sample	Time 0	LV	4,4´-DDE	0.6	0.094	15	3.8
2-MONTH	T0-B-1	T0-B-1	NA	Lumbriculus Batch 1 T0 B	Sample	Time 0	LV	4,4´-DDT	0.3	0.094	7	3.8
2-MONTH	T0-B-1	T0-B-1	NA	Lumbriculus Batch 1 T0 B	Sample	Time 0	LV	Total DDX	1.6		42	3.8
2-MONTH	T0-B-2	T0-B-2	NA	Corbicula Batch 2 T0 B	Sample	Time 0	CF	2,4´-DDD	ND	0.145	< 9.93	1.5
2-MONTH	T0-B-2	T0-B-2	NA	Corbicula Batch 2 T0 B	Sample	Time 0	CF	2,4´-DDE	0.3	0.095	21	1.5
2-MONTH	T0-B-2	T0-B-2	NA	Corbicula Batch 2 T0 B	Sample	Time 0	CF	2,4´-DDT	ND	0.145	< 9.93	1.5
2-MONTH	T0-B-2	T0-B-2	NA	Corbicula Batch 2 T0 B	Sample	Time 0	CF	4,4´-DDD	0.2	0.095	14	1.5
2-MONTH	T0-B-2	T0-B-2	NA	Corbicula Batch 2 T0 B	Sample	Time 0	CF	4,4´-DDE	0.3	0.095	23	1.5
2-MONTH	T0-B-2	T0-B-2	NA	Corbicula Batch 2 T0 B	Sample	Time 0	CF	4,4´-DDT	0.2	0.095	15	1.5
2-MONTH	T0-B-2	T0-B-2	NA	Corbicula Batch 2 T0 B	Sample	Time 0	CF	Total DDX	1.1		74	1.5
2-MONTH	T0-B-2	T0-B-2	NA	Lumbriculus Batch 2 T0 B	Sample	Time 0	LV	2,4´-DDD	ND	0.098	< 1.7	5.8
2-MONTH	T0-B-2	T0-B-2	NA	Lumbriculus Batch 2 T0 B	Sample	Time 0	LV	2,4´-DDE	0.1	0.094	2	5.8
2-MONTH	T0-B-2	T0-B-2	NA	Lumbriculus Batch 2 T0 B	Sample	Time 0	LV	2,4´-DDT	ND	0.098	< 1.7	5.8
2-MONTH	T0-B-2	T0-B-2	NA	Lumbriculus Batch 2 T0 B	Sample	Time 0	LV	4,4´-DDD	0.2	0.094	3	5.8
2-MONTH	T0-B-2	T0-B-2	NA	Lumbriculus Batch 2 T0 B	Sample	Time 0	LV	4,4´-DDE	0.9	0.094	16	5.8
2-MONTH	T0-B-2	T0-B-2	NA	Lumbriculus Batch 2 T0 B	Sample	Time 0	LV	4,4´-DDT	ND	0.098	< 1.7	5.8
2-MONTH	T0-B-2	T0-B-2	NA	Lumbriculus Batch 2 T0 B	Sample	Time 0	LV	Total DDX	1.2		21	5.8
2-MONTH	T0-C-1	T0-C-1	NA	Corbicula Batch 1 T0 C	Sample	Time 0	CF	2,4´-DDD	ND	0.151	< 8.12	1.9
2-MONTH	T0-C-1	T0-C-1	NA	Corbicula Batch 1 T0 C	Sample	Time 0	CF	2,4´-DDE	0.4	0.095	20	1.9
2-MONTH	T0-C-1	T0-C-1	NA	Corbicula Batch 1 T0 C	Sample	Time 0	CF	2,4´-DDT	ND	0.151	< 8.12	1.9
2-MONTH	T0-C-1	T0-C-1	NA	Corbicula Batch 1 T0 C	Sample	Time 0	CF	4,4´-DDD	0.2	0.095	10	1.9
2-MONTH	T0-C-1	T0-C-1	NA	Corbicula Batch 1 T0 C	Sample	Time 0	CF	4,4´-DDE	0.3	0.095	18	1.9
2-MONTH	T0-C-1	T0-C-1	NA	Corbicula Batch 1 T0 C	Sample	Time 0	CF	4,4´-DDT	0.4	0.095	21	1.9
2-MONTH	T0-C-1	T0-C-1	NA	Corbicula Batch 1 T0 C	Sample	Time 0	CF	Total DDX	1.3		69	1.9
2-MONTH	T0-C-1	T0-C-1	NA	Lumbriculus Batch 1 T0 C	Sample	Time 0	LV	2,4´-DDD	ND	0.098	< 3.48	2.8
2-MONTH	T0-C-1	T0-C-1	NA	Lumbriculus Batch 1 T0 C	Sample	Time 0	LV	2,4´-DDE	0.1	0.094	5	2.8
2-MONTH	T0-C-1	T0-C-1	NA	Lumbriculus Batch 1 T0 C	Sample	Time 0	LV	2,4´-DDT	0.2	0.094	7	2.8
2-MONTH	T0-C-1	T0-C-1	NA	Lumbriculus Batch 1 T0 C	Sample	Time 0	LV	4,4´-DDD	0.2	0.094	8	2.8
2-MONTH	T0-C-1	T0-C-1	NA	Lumbriculus Batch 1 T0 C	Sample	Time 0	LV	4,4´-DDE	0.9	0.094	30	2.8
2-MONTH	T0-C-1	T0-C-1	NA	Lumbriculus Batch 1 T0 C	Sample	Time 0	LV	4,4´-DDT	ND	0.098	< 3.48	2.8
2-MONTH	T0-C-1	T0-C-1	NA	Lumbriculus Batch 1 T0 C	Sample	Time 0	LV	Total DDX	1.4		50	2.8
2-MONTH	T0-C-2	T0-C-2	NA	Corbicula Batch 2 T0 C	Sample	Time 0	CF	2,4´-DDD	0.2	0.095	13	1.8
2-MONTH	T0-C-2	T0-C-2	NA	Corbicula Batch 2 T0 C	Sample	Time 0	CF	2,4´-DDE	0.4	0.095	23	1.8
2-MONTH	T0-C-2	T0-C-2	NA	Corbicula Batch 2 T0 C	Sample	Time 0	CF	2,4´-DDT	ND	0.157	< 8.82	1.8
2-MONTH	T0-C-2	T0-C-2	NA	Corbicula Batch 2 T0 C	Sample	Time 0	CF	4,4´-DDD	0.2	0.095	10	1.8
2-MONTH	T0-C-2	T0-C-2	NA	Corbicula Batch 2 T0 C	Sample	Time 0	CF	4,4´-DDE	0.3	0.095	17	1.8
2-MONTH	T0-C-2	T0-C-2	NA	Corbicula Batch 2 T0 C	Sample	Time 0	CF	4,4´-DDT	ND	0.157	< 8.82	1.8
2-MONTH	T0-C-2	T0-C-2	NA	Corbicula Batch 2 T0 C	Sample	Time 0	CF	Total DDX	1.1		63	1.8
2-MONTH	T0-C-2	T0-C-2	NA	Lumbriculus Batch 2 T0 C	Sample	Time 0	LV	2,4´-DDD	ND	0.1	< 1.73	5.8

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
2-MONTH	T0-C-2	T0-C-2	NA	Lumbriculus Batch 2 T0 C	Sample	Time 0	LV	2,4´-DDE	0.1	0.094	3	5.8
2-MONTH	T0-C-2	T0-C-2	NA	Lumbriculus Batch 2 T0 C	Sample	Time 0	LV	2,4´-DDT	ND	0.1	< 1.73	5.8
2-MONTH	T0-C-2	T0-C-2	NA	Lumbriculus Batch 2 T0 C	Sample	Time 0	LV	4,4´-DDD	ND	0.1	< 1.73	5.8
2-MONTH	T0-C-2	T0-C-2	NA	Lumbriculus Batch 2 T0 C	Sample	Time 0	LV	4,4´-DDE	0.2	0.094	3	5.8
2-MONTH	T0-C-2	T0-C-2	NA	Lumbriculus Batch 2 T0 C	Sample	Time 0	LV	4,4´-DDT	0.1	0.094	2	5.8
2-MONTH	T0-C-2	T0-C-2	NA	Lumbriculus Batch 2 T0 C	Sample	Time 0	LV	Total DDX	0.5		8	5.8
14-MONTH	1	1	On Cap	QT12-1-CF	Sample	Composite	CF	2,4´-DDD	ND	0.213	< 8.42	2.5
14-MONTH	1	1	On Cap	QT12-1-CF	Sample	Composite	CF	2,4´-DDE	ND	0.213	< 8.42	2.5
14-MONTH	1	1	On Cap	QT12-1-CF	Sample	Composite	CF	2,4´-DDT	ND	0.213	< 8.42	2.5
14-MONTH	1	1	On Cap	QT12-1-CF	Sample	Composite	CF	4,4´-DDD	29.3	0.213	1158	2.5
14-MONTH	1	1	On Cap	QT12-1-CF	Sample	Composite	CF	4,4´-DDE	23.1	0.213	913	2.5
14-MONTH	1	1	On Cap	QT12-1-CF	Sample	Composite	CF	4,4´-DDT	7.5	0.213	295	2.5
14-MONTH	1	1	On Cap	QT12-1-CF	Sample	Composite	CF	Total DDX	59.9		2366	2.5
14-MONTH	1	1	On Cap	QT12-1-LV	Sample	Composite	LV	2,4´-DDD	ND	0.341	< 19.6	1.7
14-MONTH	1	1	On Cap	QT12-1-LV	Sample	Composite	LV	2,4´-DDE	ND	0.341	< 19.6	1.7
14-MONTH	1	1	On Cap	QT12-1-LV	Sample	Composite	LV	2,4´-DDT	ND	0.341	< 19.6	1.7
14-MONTH	1	1	On Cap	QT12-1-LV	Sample	Composite	LV	4,4´-DDD	10.3	0.341	592	1.7
14-MONTH	1	1	On Cap	QT12-1-LV	Sample	Composite	LV	4,4´-DDE	19.1	0.341	1098	1.7
14-MONTH	1	1	On Cap	QT12-1-LV	Sample	Composite	LV	4,4´-DDT	ND	0.341	< 19.6	1.7
14-MONTH	1	1	On Cap	QT12-1-LV	Sample	Composite	LV	Total DDX	29.4		1690	1.7
14-MONTH	2	2	On Cap	QT12-2-CF	Sample	Composite	CF	2,4´-DDD	ND	0.195	< 5.91	3.3
14-MONTH	2	2	On Cap	QT12-2-CF	Sample	Composite	CF	2,4´-DDE	ND	0.195	< 5.91	3.3
14-MONTH	2	2	On Cap	QT12-2-CF	Sample	Composite	CF	2,4´-DDT	ND	0.195	< 5.91	3.3
14-MONTH	2	2	On Cap	QT12-2-CF	Sample	Composite	CF	4,4´-DDD	6.3	0.195	190	3.3
14-MONTH	2	2	On Cap	QT12-2-CF	Sample	Composite	CF	4,4´-DDE	7.8	0.195	235	3.3
14-MONTH	2	2	On Cap	QT12-2-CF	Sample	Composite	CF	4,4´-DDT	1.8	0.195	55	3.3
14-MONTH	2	2	On Cap	QT12-2-CF	Sample	Composite	CF	Total DDX	15.8		480	3.3
14-MONTH	2	2	On Cap	QT12-2-LV	Sample	Composite	LV	2,4´-DDD	ND	0.374	< 26.15	1.4
14-MONTH	2	2	On Cap	QT12-2-LV	Sample	Composite	LV	2,4´-DDE	ND	0.374	< 26.15	1.4
14-MONTH	2	2	On Cap	QT12-2-LV	Sample	Composite	LV	2,4´-DDT	ND	0.374	< 26.15	1.4
14-MONTH	2	2	On Cap	QT12-2-LV	Sample	Composite	LV	4,4´-DDD	10.2	0.374	713	1.4
14-MONTH	2	2	On Cap	QT12-2-LV	Sample	Composite	LV	4,4´-DDE	9.2	0.374	643	1.4
14-MONTH	2	2	On Cap	QT12-2-LV	Sample	Composite	LV	4,4´-DDT	ND	0.374	< 26.15	1.4
14-MONTH	2	2	On Cap	QT12-2-LV	Sample	Composite	LV	Total DDX	19.4		1357	1.4
14-MONTH	3	3	On Cap	QT12-3-CF	Primary	Composite	CF	2,4´-DDD	ND	0.208	< 7.07	2.9
14-MONTH	3	3	On Cap	QT12-3-CF	Primary	Composite	CF	2,4´-DDE	ND	0.208	< 7.07	2.9
14-MONTH	3	3	On Cap	QT12-3-CF	Primary	Composite	CF	2,4´-DDT	ND	0.208	< 7.07	2.9
14-MONTH	3	3	On Cap	QT12-3-CF	Primary	Composite	CF	4,4´-DDD	38.4	0.208	1306	2.9
14-MONTH	3	3	On Cap	QT12-3-CF	Primary	Composite	CF	4,4´-DDE	18.9	0.208	643	2.9
14-MONTH	3	3	On Cap	QT12-3-CF	Primary	Composite	CF	4,4´-DDT	9.6	0.208	326	2.9
14-MONTH	3	3	On Cap	QT12-3-CF	Primary	Composite	CF	Total DDX	66.9		2274	2.9
14-MONTH	3	3	On Cap	QT12-3-CF-Avg	Sample	Composite	CF	2,4´-DDD	ND	0.208	<7.41	2.9
14-MONTH	3	3	On Cap	QT12-3-CF-Avg	Sample	Composite	CF	2,4´-DDE	ND	0.208	<7.41	2.9
14-MONTH	3	3	On Cap	QT12-3-CF-Avg	Sample	Composite	CF	2,4´-DDT	ND	0.208	<7.41	2.9

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
14-MONTH	3	3	On Cap	QT12-3-CF-Avg	Sample	Composite	CF	4,4´-DDD	36.4		1270	2.9
14-MONTH	3	3	On Cap	QT12-3-CF-Avg	Sample	Composite	CF	4,4´-DDE	20.7		724	2.9
14-MONTH	3	3	On Cap	QT12-3-CF-Avg	Sample	Composite	CF	4,4´-DDT	9.1		319	2.9
14-MONTH	3	3	On Cap	QT12-3-CF-Avg	Sample	Composite	CF	Total DDX	66.1		2313	2.9
14-MONTH	3DUP	3	On Cap	QT12-3DUP-CF	Duplicate	Composite	CF	2,4´-DDD	ND	0.206	< 7.41	2.8
14-MONTH	3DUP	3	On Cap	QT12-3DUP-CF	Duplicate	Composite	CF	2,4´-DDE	ND	0.206	< 7.41	2.8
14-MONTH	3DUP	3	On Cap	QT12-3DUP-CF	Duplicate	Composite	CF	2,4´-DDT	ND	0.206	< 7.41	2.8
14-MONTH	3DUP	3	On Cap	QT12-3DUP-CF	Duplicate	Composite	CF	4,4´-DDD	34.3	0.206	1234	2.8
14-MONTH	3DUP	3	On Cap	QT12-3DUP-CF	Duplicate	Composite	CF	4,4´-DDE	22.4	0.206	806	2.8
14-MONTH	3DUP	3	On Cap	QT12-3DUP-CF	Duplicate	Composite	CF	4,4´-DDT	8.7	0.206	312	2.8
14-MONTH	3DUP	3	On Cap	QT12-3DUP-CF	Duplicate	Composite	CF	Total DDX	65.4		2352	2.8
14-MONTH	3DUP	3	On Cap	QT12-3DUP-LV	Duplicate	Composite	LV	2,4´-DDD	ND	0.226	< 20.36	1.1
14-MONTH	3DUP	3	On Cap	QT12-3DUP-LV	Duplicate	Composite	LV	2,4´-DDE	ND	0.226	< 20.36	1.1
14-MONTH	3DUP	3	On Cap	QT12-3DUP-LV	Duplicate	Composite	LV	2,4´-DDT	ND	0.226	< 20.36	1.1
14-MONTH	3DUP	3	On Cap	QT12-3DUP-LV	Duplicate	Composite	LV	4,4´-DDD	38.1	0.226	3432	1.1
14-MONTH	3DUP	3	On Cap	QT12-3DUP-LV	Duplicate	Composite	LV	4,4´-DDE	17.1	0.226	1541	1.1
14-MONTH	3DUP	3	On Cap	QT12-3DUP-LV	Duplicate	Composite	LV	4,4´-DDT	ND	0.226	< 20.36	1.1
14-MONTH	3DUP	3	On Cap	QT12-3DUP-LV	Duplicate	Composite	LV	Total DDX	55.2		4973	1.1
14-MONTH	3	3	On Cap	QT12-3-LV	Primary	Composite	LV	2,4´-DDD	ND	0.224	< 8.55	2.6
14-MONTH	3	3	On Cap	QT12-3-LV	Primary	Composite	LV	2,4´-DDE	ND	0.224	< 8.55	2.6
14-MONTH	3	3	On Cap	QT12-3-LV	Primary	Composite	LV	2,4´-DDT	ND	0.224	< 8.55	2.6
14-MONTH	3	3	On Cap	QT12-3-LV	Primary	Composite	LV	4,4´-DDD	24.6	0.224	939	2.6
14-MONTH	3	3	On Cap	QT12-3-LV	Primary	Composite	LV	4,4´-DDE	14.1	0.224	538	2.6
14-MONTH	3	3	On Cap	QT12-3-LV	Primary	Composite	LV	4,4´-DDT	ND	0.224	< 8.55	2.6
14-MONTH	3	3	On Cap	QT12-3-LV	Primary	Composite	LV	Total DDX	38.7		1477	2.6
14-MONTH	3	3	On Cap	QT12-3-LV-Avg	Sample	Composite	LV	2,4´-DDD	ND	0.226	<20.36	1.9
14-MONTH	3	3	On Cap	QT12-3-LV-Avg	Sample	Composite	LV	4,4´-DDE	15.6		1039	1.9
14-MONTH	3	3	On Cap	QT12-3-LV-Avg	Sample	Composite	LV	4,4´-DDT	ND	0.226	<20.36	1.9
14-MONTH	3	3	On Cap	QT12-3-LV-Avg	Sample	Composite	LV	Total DDX	47.0		3225	1.9
14-MONTH	4	4	On Cap	QT12-4-CF	Sample	Composite	CF	2,4´-DDD	ND	0.215	< 8.17	2.6
14-MONTH	4	4	On Cap	QT12-4-CF	Sample	Composite	CF	2,4´-DDE	ND	0.215	< 8.17	2.6
14-MONTH	4	4	On Cap	QT12-4-CF	Sample	Composite	CF	2,4´-DDT	ND	0.215	< 8.17	2.6
14-MONTH	4	4	On Cap	QT12-4-CF	Sample	Composite	CF	4,4´-DDD	11.3	0.215	430	2.6
14-MONTH	4	4	On Cap	QT12-4-CF	Sample	Composite	CF	4,4´-DDE	8.7	0.215	331	2.6
14-MONTH	4	4	On Cap	QT12-4-CF	Sample	Composite	CF	4,4´-DDT	ND	0.215	< 8.17	2.6
14-MONTH	4	4	On Cap	QT12-4-CF	Sample	Composite	CF	Total DDX	20.0		761	2.6
14-MONTH	4	4	On Cap	QT12-4-LV	Sample	Composite	LV	2,4´-DDD	ND	0.221	< 10.73	2.1
14-MONTH	4	4	On Cap	QT12-4-LV	Sample	Composite	LV	2,4´-DDE	ND	0.221	< 10.73	2.1
14-MONTH	4	4	On Cap	QT12-4-LV	Sample	Composite	LV	2,4´-DDT	ND	0.221	< 10.73	2.1
14-MONTH	4	4	On Cap	QT12-4-LV	Sample	Composite	LV	4,4´-DDD	21.3	0.221	1034	2.1
14-MONTH	4	4	On Cap	QT12-4-LV	Sample	Composite	LV	4,4´-DDE	12.6	0.221	612	2.1
14-MONTH	4	4	On Cap	QT12-4-LV	Sample	Composite	LV	4,4´-DDT	ND	0.221	< 10.73	2.1
14-MONTH	4	4	On Cap	QT12-4-LV	Sample	Composite	LV	Total DDX	33.9		1646	2.1
14-MONTH	5	5	On Cap	QT12-5-CF	Sample	Composite	CF	2,4´-DDD	ND	0.21	< 7.17	2.9

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
14-MONTH	5	5	On Cap	QT12-5-CF	Sample	Composite	CF	2,4´-DDE	ND	0.21	< 7.17	2.9
14-MONTH	5	5	On Cap	QT12-5-CF	Sample	Composite	CF	2,4´-DDT	ND	0.21	< 7.17	2.9
14-MONTH	5	5	On Cap	QT12-5-CF	Sample	Composite	CF	4,4´-DDD	29.8	0.21	1017	2.9
14-MONTH	5	5	On Cap	QT12-5-CF	Sample	Composite	CF	4,4´-DDE	24.1	0.21	823	2.9
14-MONTH	5	5	On Cap	QT12-5-CF	Sample	Composite	CF	4,4´-DDT	5.0	0.21	171	2.9
14-MONTH	5	5	On Cap	QT12-5-CF	Sample	Composite	CF	Total DDX	58.9		2010	2.9
14-MONTH	5	5	On Cap	QT12-5-LV	Sample	Composite	LV	2,4´-DDD	ND	0.225	< 11.42	2.0
14-MONTH	5	5	On Cap	QT12-5-LV	Sample	Composite	LV	2,4´-DDE	ND	0.225	< 11.42	2.0
14-MONTH	5	5	On Cap	QT12-5-LV	Sample	Composite	LV	2,4´-DDT	ND	0.225	< 11.42	2.0
14-MONTH	5	5	On Cap	QT12-5-LV	Sample	Composite	LV	4,4´-DDD	23.0	0.225	1168	2.0
14-MONTH	5	5	On Cap	QT12-5-LV	Sample	Composite	LV	4,4´-DDE	14.5	0.225	736	2.0
14-MONTH	5	5	On Cap	QT12-5-LV	Sample	Composite	LV	4,4´-DDT	ND	0.225	< 11.42	2.0
14-MONTH	5	5	On Cap	QT12-5-LV	Sample	Composite	LV	Total DDX	37.5		1904	2.0
14-MONTH	6	6	Off Cap	QT12-6-CF	Sample	Composite	CF	2,4´-DDD	ND	0.214	< 8.99	2.4
14-MONTH	6	6	Off Cap	QT12-6-CF	Sample	Composite	CF	2,4´-DDE	ND	0.214	< 8.99	2.4
14-MONTH	6	6	Off Cap	QT12-6-CF	Sample	Composite	CF	2,4´-DDT	ND	0.214	< 8.99	2.4
14-MONTH	6	6	Off Cap	QT12-6-CF	Sample	Composite	CF	4,4´-DDD	12.1	0.214	508	2.4
14-MONTH	6	6	Off Cap	QT12-6-CF	Sample	Composite	CF	4,4´-DDE	20.2	0.214	849	2.4
14-MONTH	6	6	Off Cap	QT12-6-CF	Sample	Composite	CF	4,4´-DDT	ND	0.214	< 8.99	2.4
14-MONTH	6	6	Off Cap	QT12-6-CF	Sample	Composite	CF	Total DDX	32.3		1357	2.4
14-MONTH	6	6	Off Cap	QT12-6-LV	Sample	Composite	LV	2,4´-DDD	ND	0.192	< 10.27	1.9
14-MONTH	6	6	Off Cap	QT12-6-LV	Sample	Composite	LV	2,4´-DDE	ND	0.192	< 10.27	1.9
14-MONTH	6	6	Off Cap	QT12-6-LV	Sample	Composite	LV	2,4´-DDT	ND	0.192	< 10.27	1.9
14-MONTH	6	6	Off Cap	QT12-6-LV	Sample	Composite	LV	4,4´-DDD	6.6	0.192	350	1.9
14-MONTH	6	6	Off Cap	QT12-6-LV	Sample	Composite	LV	4,4´-DDE	9.6	0.192	514	1.9
14-MONTH	6	6	Off Cap	QT12-6-LV	Sample	Composite	LV	4,4´-DDT	ND	0.192	< 10.27	1.9
14-MONTH	6	6	Off Cap	QT12-6-LV	Sample	Composite	LV	Total DDX	16.2		865	1.9
14-MONTH	7	7	Off Cap	QT12-7-CF	Sample	Composite	CF	2,4´-DDD	ND	0.206	< 7.63	2.7
14-MONTH	7	7	Off Cap	QT12-7-CF	Sample	Composite	CF	2,4´-DDE	ND	0.206	< 7.63	2.7
14-MONTH	7	7	Off Cap	QT12-7-CF	Sample	Composite	CF	2,4´-DDT	ND	0.206	< 7.63	2.7
14-MONTH	7	7	Off Cap	QT12-7-CF	Sample	Composite	CF	4,4´-DDD	12.7	0.206	470	2.7
14-MONTH	7	7	Off Cap	QT12-7-CF	Sample	Composite	CF	4,4´-DDE	13.5	0.206	500	2.7
14-MONTH	7	7	Off Cap	QT12-7-CF	Sample	Composite	CF	4,4´-DDT	ND	0.206	< 7.63	2.7
14-MONTH	7	7	Off Cap	QT12-7-CF	Sample	Composite	CF	Total DDX	26.2		970	2.7
14-MONTH	7	7	Off Cap	QT12-7-LV	Sample	Composite	LV	2,4´-DDD	ND	0.221	< 22.32	1.0
14-MONTH	7	7	Off Cap	QT12-7-LV	Sample	Composite	LV	2,4´-DDE	ND	0.221	< 22.32	1.0
14-MONTH	7	7	Off Cap	QT12-7-LV	Sample	Composite	LV	2,4´-DDT	ND	0.221	< 22.32	1.0
14-MONTH	7	7	Off Cap	QT12-7-LV	Sample	Composite	LV	4,4´-DDD	2.6	0.221	262	1.0
14-MONTH	7	7	Off Cap	QT12-7-LV	Sample	Composite	LV	4,4´-DDE	6.9	0.221	693	1.0
14-MONTH	7	7	Off Cap	QT12-7-LV	Sample	Composite	LV	4,4´-DDT	ND	0.221	< 22.32	1.0
14-MONTH	7	7	Off Cap	QT12-7-LV	Sample	Composite	LV	Total DDX	9.5		955	1.0
14-MONTH	T0-A	T0-A	NA	QT12-T0-A-CF	Sample	Time 0	CF	2,4´-DDD	ND	0.221	< 23.02	1.0
14-MONTH	T0-A	T0-A	NA	QT12-T0-A-CF	Sample	Time 0	CF	2,4´-DDE	ND	0.221	< 23.02	1.0
14-MONTH	T0-A	T0-A	NA	QT12-T0-A-CF	Sample	Time 0	CF	2,4´-DDT	ND	0.221	< 23.02	1.0

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
14-MONTH	T0-A	T0-A	NA	QT12-T0-A-CF	Sample	Time 0	CF	4,4´-DDD	ND	0.221	< 23.02	1.0
14-MONTH	T0-A	T0-A	NA	QT12-T0-A-CF	Sample	Time 0	CF	4,4´-DDE	5.3	0.221	553	1.0
14-MONTH	T0-A	T0-A	NA	QT12-T0-A-CF	Sample	Time 0	CF	4,4´-DDT	ND	0.221	< 23.02	1.0
14-MONTH	T0-A	T0-A	NA	QT12-T0-A-CF	Sample	Time 0	CF	Total DDX	5.3	0.221	553	1.0
14-MONTH	T0-A	T0-A	NA	QT12-T0-A-LV	Sample	Time 0	LV	2,4´-DDD	ND	0.225	< 5.42	4.2
14-MONTH	T0-A	T0-A	NA	QT12-T0-A-LV	Sample	Time 0	LV	2,4´-DDE	ND	0.225	< 5.42	4.2
14-MONTH	T0-A	T0-A	NA	QT12-T0-A-LV	Sample	Time 0	LV	2,4´-DDT	ND	0.225	< 5.42	4.2
14-MONTH	T0-A	T0-A	NA	QT12-T0-A-LV	Sample	Time 0	LV	4,4´-DDD	ND	0.225	< 5.42	4.2
14-MONTH	T0-A	T0-A	NA	QT12-T0-A-LV	Sample	Time 0	LV	4,4´-DDE	ND	0.225	< 5.42	4.2
14-MONTH	T0-A	T0-A	NA	QT12-T0-A-LV	Sample	Time 0	LV	4,4´-DDT	ND	0.225	< 5.42	4.2
14-MONTH	T0-A	T0-A	NA	QT12-T0-A-LV	Sample	Time 0	LV	Total DDX	ND	0.225	< 5.42	4.2
14-MONTH	T0-B	T0-B	NA	QT12-T0-B-CF	Sample	Time 0	CF	2,4´-DDD	ND	0.184	< 19.17	1.0
14-MONTH	T0-B	T0-B	NA	QT12-T0-B-CF	Sample	Time 0	CF	2,4´-DDE	ND	0.184	< 19.17	1.0
14-MONTH	T0-B	T0-B	NA	QT12-T0-B-CF	Sample	Time 0	CF	2,4´-DDT	ND	0.184	< 19.17	1.0
14-MONTH	T0-B	T0-B	NA	QT12-T0-B-CF	Sample	Time 0	CF	4,4´-DDD	ND	0.184	< 19.17	1.0
14-MONTH	T0-B	T0-B	NA	QT12-T0-B-CF	Sample	Time 0	CF	4,4´-DDE	ND	0.184	< 19.17	1.0
14-MONTH	T0-B	T0-B	NA	QT12-T0-B-CF	Sample	Time 0	CF	4,4´-DDT	ND	0.184	< 19.17	1.0
14-MONTH	T0-B	T0-B	NA	QT12-T0-B-CF	Sample	Time 0	CF	Total DDX	ND	0.184	< 19.17	1.0
14-MONTH	T0-B	T0-B	NA	QT12-T0-B-LV	Sample	Time 0	LV	2,4´-DDD	ND	0.213	< 5.18	4.1
14-MONTH	T0-B	T0-B	NA	QT12-T0-B-LV	Sample	Time 0	LV	2,4´-DDE	ND	0.213	< 5.18	4.1
14-MONTH	T0-B	T0-B	NA	QT12-T0-B-LV	Sample	Time 0	LV	2,4´-DDT	ND	0.213	< 5.18	4.1
14-MONTH	T0-B	T0-B	NA	QT12-T0-B-LV	Sample	Time 0	LV	4,4´-DDD	ND	0.213	< 5.18	4.1
14-MONTH	T0-B	T0-B	NA	QT12-T0-B-LV	Sample	Time 0	LV	4,4´-DDE	ND	0.213	< 5.18	4.1
14-MONTH	T0-B	T0-B	NA	QT12-T0-B-LV	Sample	Time 0	LV	4,4´-DDT	ND	0.213	< 5.18	4.1
14-MONTH	T0-B	T0-B	NA	QT12-T0-B-LV	Sample	Time 0	LV	Total DDX	ND	0.213	< 5.18	4.1
14-MONTH	T0-C	T0-C	NA	QT12-T0-C-CF	Sample	Time 0	CF	2,4´-DDD	ND	0.188	< 19.58	1.0
14-MONTH	T0-C	T0-C	NA	QT12-T0-C-CF	Sample	Time 0	CF	2,4´-DDE	ND	0.188	< 19.58	1.0
14-MONTH	T0-C	T0-C	NA	QT12-T0-C-CF	Sample	Time 0	CF	2,4´-DDT	ND	0.188	< 19.58	1.0
14-MONTH	T0-C	T0-C	NA	QT12-T0-C-CF	Sample	Time 0	CF	4,4´-DDD	ND	0.188	< 19.58	1.0
14-MONTH	T0-C	T0-C	NA	QT12-T0-C-CF	Sample	Time 0	CF	4,4´-DDE	ND	0.188	< 19.58	1.0
14-MONTH	T0-C	T0-C	NA	QT12-T0-C-CF	Sample	Time 0	CF	4,4´-DDT	ND	0.188	< 19.58	1.0
14-MONTH	T0-C	T0-C	NA	QT12-T0-C-CF	Sample	Time 0	CF	Total DDX	ND	0.188	< 19.58	1.0
14-MONTH	T0-C	T0-C	NA	QT12-T0-C-LV	Sample	Time 0	LV	2,4´-DDD	ND	0.22	< 5.61	3.9
14-MONTH	T0-C	T0-C	NA	QT12-T0-C-LV	Sample	Time 0	LV	2,4´-DDE	ND	0.22	< 5.61	3.9
14-MONTH	T0-C	T0-C	NA	QT12-T0-C-LV	Sample	Time 0	LV	2,4´-DDT	ND	0.22	< 5.61	3.9
14-MONTH	T0-C	T0-C	NA	QT12-T0-C-LV	Sample	Time 0	LV	4,4´-DDD	ND	0.22	< 5.61	3.9
14-MONTH	T0-C	T0-C	NA	QT12-T0-C-LV	Sample	Time 0	LV	4,4´-DDE	ND	0.22	< 5.61	3.9
14-MONTH	T0-C	T0-C	NA	QT12-T0-C-LV	Sample	Time 0	LV	4,4´-DDT	ND	0.22	< 5.61	3.9
14-MONTH	T0-C	T0-C	NA	QT12-T0-C-LV	Sample	Time 0	LV	Total DDX	ND	0.22	< 5.61	3.9
25-MONTH	1	1	On Cap	QT24-1-C-CF	Sample	Composite	CF	2,4´-DDD	3.1	0.15	136	2.3
25-MONTH	1	1	On Cap	QT24-1-C-CF	Sample	Composite	CF	2,4´-DDE	1.9	0.15	82	2.3
25-MONTH	1	1	On Cap	QT24-1-C-CF	Sample	Composite	CF	2,4´-DDT	ND	0.15	< 6.58	2.3
25-MONTH	1	1	On Cap	QT24-1-C-CF	Sample	Composite	CF	4,4´-DDD	16.3	0.15	715	2.3
25-MONTH	1	1	On Cap	QT24-1-C-CF	Sample	Composite	CF	4,4´-DDE	12.8	0.15	561	2.3

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
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Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
25-MONTH	1	1	On Cap	QT24-1-C-CF	Sample	Composite	CF	4,4´-DDT	6.9	0.15	301	2.3
25-MONTH	1	1	On Cap	QT24-1-C-CF	Sample	Composite	CF	Total DDX	40.9	0.15	1795	2.3
25-MONTH	1	1	On Cap	QT24-1-C-LV	Sample	Composite	LV	2,4´-DDD	3.4	0.149	161	2.1
25-MONTH	1	1	On Cap	QT24-1-C-LV	Sample	Composite	LV	2,4´-DDE	2.5	0.149	118	2.1
25-MONTH	1	1	On Cap	QT24-1-C-LV	Sample	Composite	LV	2,4´-DDT	ND	0.149	< 7	2.1
25-MONTH	1	1	On Cap	QT24-1-C-LV	Sample	Composite	LV	4,4´-DDD	24.4	0.149	1146	2.1
25-MONTH	1	1	On Cap	QT24-1-C-LV	Sample	Composite	LV	4,4´-DDE	21.0	0.149	986	2.1
25-MONTH	1	1	On Cap	QT24-1-C-LV	Sample	Composite	LV	4,4´-DDT	2.8	0.149	131	2.1
25-MONTH	1	1	On Cap	QT24-1-C-LV	Sample	Composite	LV	Total DDX	54.1	0.149	2541	2.1
25-MONTH	2	2	On Cap	QT24-2-C-CF	Sample	Composite	CF	2,4´-DDD	1.9	0.149	91	2.1
25-MONTH	2	2	On Cap	QT24-2-C-CF	Sample	Composite	CF	2,4´-DDE	1.3	0.149	60	2.1
25-MONTH	2	2	On Cap	QT24-2-C-CF	Sample	Composite	CF	2,4´-DDT	ND	0.149	< 7	2.1
25-MONTH	2	2	On Cap	QT24-2-C-CF	Sample	Composite	CF	4,4´-DDD	10.0	0.149	469	2.1
25-MONTH	2	2	On Cap	QT24-2-C-CF	Sample	Composite	CF	4,4´-DDE	1.2	0.149	58	2.1
25-MONTH	2	2	On Cap	QT24-2-C-CF	Sample	Composite	CF	4,4´-DDT	5.3	0.149	246	2.1
25-MONTH	2	2	On Cap	QT24-2-C-CF	Sample	Composite	CF	Total DDX	19.7	0.149	924	2.1
25-MONTH	3	3	On Cap	QT24-3-C-CF	Primary	Composite	CF	2,4´-DDD	2.2	0.153	119	1.8
25-MONTH	3	3	On Cap	QT24-3-C-CF	Primary	Composite	CF	2,4´-DDE	1.5	0.153	83	1.8
25-MONTH	3	3	On Cap	QT24-3-C-CF	Primary	Composite	CF	2,4´-DDT	ND	0.153	< 8.45	1.8
25-MONTH	3	3	On Cap	QT24-3-C-CF	Primary	Composite	CF	4,4´-DDD	12.0	0.153	663	1.8
25-MONTH	3	3	On Cap	QT24-3-C-CF	Primary	Composite	CF	4,4´-DDE	11.9	0.153	657	1.8
25-MONTH	3	3	On Cap	QT24-3-C-CF	Primary	Composite	CF	4,4´-DDT	8.5	0.153	471	1.8
25-MONTH	3	3	On Cap	QT24-3-C-CF	Primary	Composite	CF	Total DDX	36.1	0.153	1994	1.8
25-MONTH	3	3	On Cap	QT24-3-C-CF-Avg	Sample	Composite	CF	2,4´-DDD	2.2	0.153	127	1.7
25-MONTH	3	3	On Cap	QT24-3-C-CF-Avg	Sample	Composite	CF	2,4´-DDE	1.6	0.153	95	1.7
25-MONTH	3	3	On Cap	QT24-3-C-CF-Avg	Sample	Composite	CF	2,4´-DDT	ND	0.153	<9.43	1.7
25-MONTH	3	3	On Cap	QT24-3-C-CF-Avg	Sample	Composite	CF	4,4´-DDD	11.9	0.153	699	1.7
25-MONTH	3	3	On Cap	QT24-3-C-CF-Avg	Sample	Composite	CF	4,4´-DDE	12.2	0.153	719	1.7
25-MONTH	3	3	On Cap	QT24-3-C-CF-Avg	Sample	Composite	CF	4,4´-DDT	7.6	0.153	444	1.7
25-MONTH	3	3	On Cap	QT24-3-C-CF-Avg	Sample	Composite	CF	Total DDX	35.3	0.153	2085	1.7
25-MONTH	3	3	On Cap	QT24-3-C-LV	Primary	Composite	LV	2,4´-DDD	2.4	0.15	79	3.0
25-MONTH	3	3	On Cap	QT24-3-C-LV	Primary	Composite	LV	2,4´-DDE	1.6	0.15	52	3.0
25-MONTH	3	3	On Cap	QT24-3-C-LV	Primary	Composite	LV	2,4´-DDT	ND	0.15	< 4.98	3.0
25-MONTH	3	3	On Cap	QT24-3-C-LV	Primary	Composite	LV	4,4´-DDD	13.9	0.15	462	3.0
25-MONTH	3	3	On Cap	QT24-3-C-LV	Primary	Composite	LV	4,4´-DDE	13.1	0.15	435	3.0
25-MONTH	3	3	On Cap	QT24-3-C-LV	Primary	Composite	LV	4,4´-DDT	2.0	0.15	66	3.0
25-MONTH	3	3	On Cap	QT24-3-C-LV	Primary	Composite	LV	Total DDX	32.9	0.15	1094	3.0
25-MONTH	3	3	On Cap	QT24-3-C-LV-Avg	Sample	Composite	LV	2,4´-DDD	2.7	0.152	103	2.7
25-MONTH	3	3	On Cap	QT24-3-C-LV-Avg	Sample	Composite	LV	2,4´-DDE	1.8	0.152	68	2.7
25-MONTH	3	3	On Cap	QT24-3-C-LV-Avg	Sample	Composite	LV	2,4´-DDT	ND	0.152	<6.41	2.7
25-MONTH	3	3	On Cap	QT24-3-C-LV-Avg	Sample	Composite	LV	4,4´-DDD	15.0	0.152	568	2.7
25-MONTH	3	3	On Cap	QT24-3-C-LV-Avg	Sample	Composite	LV	4,4´-DDE	15.2	0.152	583	2.7
25-MONTH	3	3	On Cap	QT24-3-C-LV-Avg	Sample	Composite	LV	4,4´-DDT	2.1	0.152	78	2.7
25-MONTH	3	3	On Cap	QT24-3-C-LV-Avg	Sample	Composite	LV	Total DDX	36.7	0.152	1399	2.7

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
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Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
25-MONTH	3DUP	3	On Cap	QT24-3DUP-C-CF	Duplicate	Composite	CF	2,4´-DDD	2.2	0.15	136	1.6
25-MONTH	3DUP	3	On Cap	QT24-3DUP-C-CF	Duplicate	Composite	CF	2,4´-DDE	1.7	0.15	107	1.6
25-MONTH	3DUP	3	On Cap	QT24-3DUP-C-CF	Duplicate	Composite	CF	2,4´-DDT	ND	0.15	< 9.43	1.6
25-MONTH	3DUP	3	On Cap	QT24-3DUP-C-CF	Duplicate	Composite	CF	4,4´-DDD	11.7	0.15	736	1.6
25-MONTH	3DUP	3	On Cap	QT24-3DUP-C-CF	Duplicate	Composite	CF	4,4´-DDE	12.4	0.15	780	1.6
25-MONTH	3DUP	3	On Cap	QT24-3DUP-C-CF	Duplicate	Composite	CF	4,4´-DDT	6.6	0.15	418	1.6
25-MONTH	3DUP	3	On Cap	QT24-3DUP-C-CF	Duplicate	Composite	CF	Total DDX	34.6	0.15	2176	1.6
25-MONTH	3DUP	3	On Cap	QT24-3DUP-C-LV	Duplicate	Composite	LV	2,4´-DDD	3.0	0.152	126	2.4
25-MONTH	3DUP	3	On Cap	QT24-3DUP-C-LV	Duplicate	Composite	LV	2,4´-DDE	2.0	0.152	84	2.4
25-MONTH	3DUP	3	On Cap	QT24-3DUP-C-LV	Duplicate	Composite	LV	2,4´-DDT	ND	0.152	< 6.41	2.4
25-MONTH	3DUP	3	On Cap	QT24-3DUP-C-LV	Duplicate	Composite	LV	4,4´-DDD	16.0	0.152	675	2.4
25-MONTH	3DUP	3	On Cap	QT24-3DUP-C-LV	Duplicate	Composite	LV	4,4´-DDE	17.3	0.152	730	2.4
25-MONTH	3DUP	3	On Cap	QT24-3DUP-C-LV	Duplicate	Composite	LV	4,4´-DDT	2.1	0.152	89	2.4
25-MONTH	3DUP	3	On Cap	QT24-3DUP-C-LV	Duplicate	Composite	LV	Total DDX	40.4	0.152	1704	2.4
25-MONTH	4	4	On Cap	QT24-4-C-CF	Sample	Composite	CF	2,4´-DDD	1.2	0.153	54	2.1
25-MONTH	4	4	On Cap	QT24-4-C-CF	Sample	Composite	CF	2,4´-DDE	1.2	0.153	55	2.1
25-MONTH	4	4	On Cap	QT24-4-C-CF	Sample	Composite	CF	2,4´-DDT	ND	0.153	< 7.22	2.1
25-MONTH	4	4	On Cap	QT24-4-C-CF	Sample	Composite	CF	4,4´-DDD	6.5	0.153	308	2.1
25-MONTH	4	4	On Cap	QT24-4-C-CF	Sample	Composite	CF	4,4´-DDE	6.7	0.153	316	2.1
25-MONTH	4	4	On Cap	QT24-4-C-CF	Sample	Composite	CF	4,4´-DDT	3.5	0.153	163	2.1
25-MONTH	4	4	On Cap	QT24-4-C-CF	Sample	Composite	CF	Total DDX	19.0	0.153	895	2.1
25-MONTH	4	4	On Cap	QT24-4-C-LV	Sample	Composite	LV	2,4´-DDD	0.8	0.15	26	3.1
25-MONTH	4	4	On Cap	QT24-4-C-LV	Sample	Composite	LV	2,4´-DDE	1.3	0.15	41	3.1
25-MONTH	4	4	On Cap	QT24-4-C-LV	Sample	Composite	LV	2,4´-DDT	ND	0.15	< 4.82	3.1
25-MONTH	4	4	On Cap	QT24-4-C-LV	Sample	Composite	LV	4,4´-DDD	5.0	0.15	162	3.1
25-MONTH	4	4	On Cap	QT24-4-C-LV	Sample	Composite	LV	4,4´-DDE	6.2	0.15	199	3.1
25-MONTH	4	4	On Cap	QT24-4-C-LV	Sample	Composite	LV	4,4´-DDT	0.7	0.15	22	3.1
25-MONTH	4	4	On Cap	QT24-4-C-LV	Sample	Composite	LV	Total DDX	14.0	0.15	450	3.1
25-MONTH	5	5	On Cap	QT24-5-C-CF	Sample	Composite	CF	2,4´-DDD	1.9	0.147	86	2.2
25-MONTH	5	5	On Cap	QT24-5-C-CF	Sample	Composite	CF	2,4´-DDE	1.5	0.147	68	2.2
25-MONTH	5	5	On Cap	QT24-5-C-CF	Sample	Composite	CF	2,4´-DDT	ND	0.147	< 6.62	2.2
25-MONTH	5	5	On Cap	QT24-5-C-CF	Sample	Composite	CF	4,4´-DDD	9.5	0.147	428	2.2
25-MONTH	5	5	On Cap	QT24-5-C-CF	Sample	Composite	CF	4,4´-DDE	8.9	0.147	402	2.2
25-MONTH	5	5	On Cap	QT24-5-C-CF	Sample	Composite	CF	4,4´-DDT	3.8	0.147	173	2.2
25-MONTH	5	5	On Cap	QT24-5-C-CF	Sample	Composite	CF	Total DDX	25.7	0.147	1156	2.2
25-MONTH	6	6	Off Cap	QT24-6-C-CF	Sample	Composite	CF	2,4´-DDD	0.4	0.153	24	1.7
25-MONTH	6	6	Off Cap	QT24-6-C-CF	Sample	Composite	CF	2,4´-DDE	0.9	0.153	51	1.7
25-MONTH	6	6	Off Cap	QT24-6-C-CF	Sample	Composite	CF	2,4´-DDT	ND	0.153	< 9	1.7
25-MONTH	6	6	Off Cap	QT24-6-C-CF	Sample	Composite	CF	4,4´-DDD	2.8	0.153	166	1.7
25-MONTH	6	6	Off Cap	QT24-6-C-CF	Sample	Composite	CF	4,4´-DDE	3.8	0.153	222	1.7
25-MONTH	6	6	Off Cap	QT24-6-C-CF	Sample	Composite	CF	4,4´-DDT	1.1	0.153	65	1.7
25-MONTH	6	6	Off Cap	QT24-6-C-CF	Sample	Composite	CF	Total DDX	9.0	0.153	529	1.7
25-MONTH	6	6	Off Cap	QT24-6-C-LV	Sample	Composite	LV	2,4´-DDD	0.3	0.149	14	2.3
25-MONTH	6	6	Off Cap	QT24-6-C-LV	Sample	Composite	LV	2,4´-DDE	0.8	0.149	35	2.3

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
25-MONTH	6	6	Off Cap	QT24-6-C-LV	Sample	Composite	LV	2,4´-DDT	ND	0.149	< 6.54	2.3
25-MONTH	6	6	Off Cap	QT24-6-C-LV	Sample	Composite	LV	4,4´-DDD	3.0	0.149	132	2.3
25-MONTH	6	6	Off Cap	QT24-6-C-LV	Sample	Composite	LV	4,4´-DDE	4.9	0.149	215	2.3
25-MONTH	6	6	Off Cap	QT24-6-C-LV	Sample	Composite	LV	4,4´-DDT	0.8	0.149	33	2.3
25-MONTH	6	6	Off Cap	QT24-6-C-LV	Sample	Composite	LV	Total DDX	9.8	0.149	429	2.3
25-MONTH	7	7	Off Cap	QT24-7-C-CF	Sample	Composite	CF	2,4´-DDD	0.5	0.152	29	1.7
25-MONTH	7	7	Off Cap	QT24-7-C-CF	Sample	Composite	CF	2,4´-DDE	1.0	0.152	59	1.7
25-MONTH	7	7	Off Cap	QT24-7-C-CF	Sample	Composite	CF	2,4´-DDT	ND	0.152	< 8.89	1.7
25-MONTH	7	7	Off Cap	QT24-7-C-CF	Sample	Composite	CF	4,4´-DDD	3.5	0.152	202	1.7
25-MONTH	7	7	Off Cap	QT24-7-C-CF	Sample	Composite	CF	4,4´-DDE	5.5	0.152	323	1.7
25-MONTH	7	7	Off Cap	QT24-7-C-CF	Sample	Composite	CF	4,4´-DDT	1.5	0.152	87	1.7
25-MONTH	7	7	Off Cap	QT24-7-C-CF	Sample	Composite	CF	Total DDX	12.0	0.152	701	1.7
25-MONTH	7	7	Off Cap	QT24-7-C-LV	Sample	Composite	LV	2,4´-DDD	ND	0.152	< 7.72	2.0
25-MONTH	7	7	Off Cap	QT24-7-C-LV	Sample	Composite	LV	2,4´-DDE	0.8	0.152	43	2.0
25-MONTH	7	7	Off Cap	QT24-7-C-LV	Sample	Composite	LV	2,4´-DDT	ND	0.152	< 7.72	2.0
25-MONTH	7	7	Off Cap	QT24-7-C-LV	Sample	Composite	LV	4,4´-DDD	2.3	0.152	116	2.0
25-MONTH	7	7	Off Cap	QT24-7-C-LV	Sample	Composite	LV	4,4´-DDE	5.0	0.152	252	2.0
25-MONTH	7	7	Off Cap	QT24-7-C-LV	Sample	Composite	LV	4,4´-DDT	0.7	0.152	38	2.0
25-MONTH	7	7	Off Cap	QT24-7-C-LV	Sample	Composite	LV	Total DDX	8.8	0.152	449	2.0
25-MONTH	T0-A	T0-A	NA	QT24-T0-CF-A Rep	Sample	Time 0	CF	2,4´-DDD	ND	0.152	< 19	0.8
25-MONTH	T0-A	T0-A	NA	QT24-T0-CF-A Rep	Sample	Time 0	CF	2,4´-DDE	ND	0.152	< 19	0.8
25-MONTH	T0-A	T0-A	NA	QT24-T0-CF-A Rep	Sample	Time 0	CF	2,4´-DDT	ND	0.152	< 19	0.8
25-MONTH	T0-A	T0-A	NA	QT24-T0-CF-A Rep	Sample	Time 0	CF	4,4´-DDD	ND	0.152	< 19	0.8
25-MONTH	T0-A	T0-A	NA	QT24-T0-CF-A Rep	Sample	Time 0	CF	4,4´-DDE	ND	0.152	< 19	0.8
25-MONTH	T0-A	T0-A	NA	QT24-T0-CF-A Rep	Sample	Time 0	CF	4,4´-DDT	ND	0.152	< 19	0.8
25-MONTH	T0-A	T0-A	NA	QT24-T0-CF-A Rep	Sample	Time 0	CF	Total DDX	ND	0.152	< 19	0.8
25-MONTH	T0-A	T0-A	NA	QT24-T0-LV-A Rep	Sample	Time 0	LV	2,4´-DDD	ND	0.153	< 4.31	3.6
25-MONTH	T0-A	T0-A	NA	QT24-T0-LV-A Rep	Sample	Time 0	LV	2,4´-DDE	0.6	0.153	18	3.6
25-MONTH	T0-A	T0-A	NA	QT24-T0-LV-A Rep	Sample	Time 0	LV	2,4´-DDT	ND	0.153	< 4.31	3.6
25-MONTH	T0-A	T0-A	NA	QT24-T0-LV-A Rep	Sample	Time 0	LV	4,4´-DDD	0.7	0.153	19	3.6
25-MONTH	T0-A	T0-A	NA	QT24-T0-LV-A Rep	Sample	Time 0	LV	4,4´-DDE	3.3	0.153	92	3.6
25-MONTH	T0-A	T0-A	NA	QT24-T0-LV-A Rep	Sample	Time 0	LV	4,4´-DDT	ND	0.153	< 4.31	3.6
25-MONTH	T0-A	T0-A	NA	QT24-T0-LV-A Rep	Sample	Time 0	LV	Total DDX	4.5	0.153	128	3.6
25-MONTH	T0-B	T0-B	NA	QT24-T0-CF-B Rep	Sample	Time 0	CF	2,4´-DDD	ND	0.156	< 20	0.8
25-MONTH	T0-B	T0-B	NA	QT24-T0-CF-B Rep	Sample	Time 0	CF	2,4´-DDE	ND	0.156	< 20	0.8
25-MONTH	T0-B	T0-B	NA	QT24-T0-CF-B Rep	Sample	Time 0	CF	2,4´-DDT	ND	0.156	< 20	0.8
25-MONTH	T0-B	T0-B	NA	QT24-T0-CF-B Rep	Sample	Time 0	CF	4,4´-DDD	ND	0.156	< 20	0.8
25-MONTH	T0-B	T0-B	NA	QT24-T0-CF-B Rep	Sample	Time 0	CF	4,4´-DDE	ND	0.156	< 20	0.8
25-MONTH	T0-B	T0-B	NA	QT24-T0-CF-B Rep	Sample	Time 0	CF	4,4´-DDT	ND	0.156	< 20	0.8
25-MONTH	T0-B	T0-B	NA	QT24-T0-CF-B Rep	Sample	Time 0	CF	Total DDX	ND	0.156	< 20	0.8
25-MONTH	T0-B	T0-B	NA	QT24-T0-LV-B Rep	Sample	Time 0	LV	2,4´-DDD	ND	0.153	< 4.1	3.7
25-MONTH	T0-B	T0-B	NA	QT24-T0-LV-B Rep	Sample	Time 0	LV	2,4´-DDE	0.8	0.153	20	3.7
25-MONTH	T0-B	T0-B	NA	QT24-T0-LV-B Rep	Sample	Time 0	LV	2,4´-DDT	ND	0.153	< 4.1	3.7
25-MONTH	T0-B	T0-B	NA	QT24-T0-LV-B Rep	Sample	Time 0	LV	4,4´-DDD	0.6	0.153	16	3.7

Table 1. Compilation of Organism Tissue DDX Results for all Monitoring Events
SSC Pacific
Quantico, Virginia

Event[1]	Station ID	Comparison Station ID[2]	On Cap Footprint?	Sample ID[3]	Sample Type	Sample Description[4]	Species[5]	Analyte[6]	Result (µg/kg ww)	Detection Limit (µg/kg ww)	Result (µg/kg Lw)[7]	Lipids (% by weight)
25-MONTH	T0-B	T0-B	NA	QT24-T0-LV-B Rep	Sample	Time 0	LV	4,4´-DDE	3.4	0.153	91	3.7
25-MONTH	T0-B	T0-B	NA	QT24-T0-LV-B Rep	Sample	Time 0	LV	4,4´-DDT	ND	0.153	< 4.1	3.7
25-MONTH	T0-B	T0-B	NA	QT24-T0-LV-B Rep	Sample	Time 0	LV	Total DDX	4.7	0.153	127	3.7
25-MONTH	T0-C	T0-C	NA	QT24-T0-CF-C Rep	Sample	Time 0	CF	2,4´-DDD	ND	0.153	< 18.89	0.8
25-MONTH	T0-C	T0-C	NA	QT24-T0-CF-C Rep	Sample	Time 0	CF	2,4´-DDE	ND	0.153	< 18.89	0.8
25-MONTH	T0-C	T0-C	NA	QT24-T0-CF-C Rep	Sample	Time 0	CF	2,4´-DDT	ND	0.153	< 18.89	0.8
25-MONTH	T0-C	T0-C	NA	QT24-T0-CF-C Rep	Sample	Time 0	CF	4,4´-DDD	ND	0.153	< 18.89	0.8
25-MONTH	T0-C	T0-C	NA	QT24-T0-CF-C Rep	Sample	Time 0	CF	4,4´-DDE	ND	0.153	< 18.89	0.8
25-MONTH	T0-C	T0-C	NA	QT24-T0-CF-C Rep	Sample	Time 0	CF	4,4´-DDT	ND	0.153	< 18.89	0.8
25-MONTH	T0-C	T0-C	NA	QT24-T0-CF-C Rep	Sample	Time 0	CF	Total DDX	ND	0.153	< 18.89	0.8
25-MONTH	T0-C	T0-C	NA	QT24-T0-LV-C Rep	Sample	Time 0	LV	2,4´-DDD	ND	0.153	< 3.06	5.0
25-MONTH	T0-C	T0-C	NA	QT24-T0-LV-C Rep	Sample	Time 0	LV	2,4´-DDE	ND	0.153	< 3.06	5.0
25-MONTH	T0-C	T0-C	NA	QT24-T0-LV-C Rep	Sample	Time 0	LV	2,4´-DDT	ND	0.153	< 3.06	5.0
25-MONTH	T0-C	T0-C	NA	QT24-T0-LV-C Rep	Sample	Time 0	LV	4,4´-DDD	0.6	0.153	12	5.0
25-MONTH	T0-C	T0-C	NA	QT24-T0-LV-C Rep	Sample	Time 0	LV	4,4´-DDE	3.6	0.153	72	5.0
25-MONTH	T0-C	T0-C	NA	QT24-T0-LV-C Rep	Sample	Time 0	LV	4,4´-DDT	ND	0.153	< 3.06	5.0
25-MONTH	T0-C	T0-C	NA	QT24-T0-LV-C Rep	Sample	Time 0	LV	Total DDX	4.2	0.153	84	5.0

Footnotes:

1. Sample collections dates: Baseline 2 (May, 2009), Baseline 3 (October, 2012), 2-Month (September, 2014), 14-Month (September, 2015) and 25-Month (August, 2016).
2. Comparison Station IDs align Baseline 2 IDs with subsequent events for analysis purposes. Samples identified as T0 are composites of non-field deployed organisms.
3. Sample ID's with -Avg suffix represented an average of primary and duplicate samples, or average of individual replicate chambers (QB1-Lv-R2-4_R4-4-Avg and QB1-Cf-R8_R9_R10-Avg). No Sample recovery for LV at Station 3 (2-Month) and Stations 2 and 5 (25 Month).
4. During baseline 3 event, replicate organisms from individual SEARing chambers as well as a composite of all chambers were analyzed for DDX. Composite samples used for data analysis.
5. *Lumbriculus variegatus* (LV) and *Corbicula fluminea* deployed *in situ* via SEA Ring technology. Samples identified as pelagic were native organisms collected during baseline 2.
6. Total DDX represents the sum of detected congeners. During Baseline 3 event, only 4,4´-substituted congeners analyzed.
7. If DDX is ND, lipid weight basis is reported as < DL divided by fraction of lipids.

Abbreviations:

CF: *Corbicula fluminea*
DL: detection limit
LV: *Lumbriculus variegatus*
Lw: lipid weight
NA: not applicable
ND: not detected
µg/kg: microgram(s) per kilogram
ww: wet weight

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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - Pelagic Invertebrate and Lumbriculus Samples
Project Number: CG898574-0001

Client ID	Procedural Blank
Battelle ID	BN373PB-P
Sample Type	PB
Collection Date	10/09/2009
Extraction Date	10/09/2009
Analysis Date	10/19/2009
Analytical Instrument	MS
% Moisture	0.00
% Lipid	NA
Matrix	TISSUE
Sample Size	10.19
Size Unit-Basis	G_WET
Units	NG/G_WET

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2,4'-DDE	0.08 U
4,4'-DDE	0.09 U
2,4'-DDD	0.05 U
4,4'-DDD	0.06 U
2,4'-DDT	0.09 U
4,4'-DDT	0.04 U
Surrogate Recoveries (%)	
Cl3(34)	59
Cl6(152)	78

Not Surrogate Corrected

Analyzed By Thorn, Jonathan
11/9/2009

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Project Number: CG898574-0001

Client ID	Laboratory Control Sample		
Battelle ID	BN374LCS-P		
Sample Type	LCS		
Collection Date	10/09/2009		
Extraction Date	10/09/2009		
Analysis Date	10/19/2009		
Analytical Instrument	MS		
% Moisture	0.00		
% Lipid	NA		
Matrix	TISSUE		
Sample Size	10.01		
Size Unit-Basis	G_WET		
Units	NG/G_WET	**Target**	**% REC** **Qual**
2,4'-DDE	2.35	2.51	94
4,4'-DDE	2.24	2.50	90
2,4'-DDD	2.25	2.50	90
4,4'-DDD	2.48	2.50	99
2,4'-DDT	2.39	2.51	95
4,4'-DDT	2.43	2.50	97
Surrogate Recoveries (%)			
Cl3(34)	76		
Cl6(152)	82		

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Project Number: CG898574-0001

Client ID	B2-CAP3-LUMB	B2-CAP3-LUMB		
Battelle ID	Q8210-P	Q8210DUP-P		
Sample Type	SA	QADU		
Collection Date	09/25/2009	09/25/2009		
Extraction Date	10/09/2009	10/09/2009		
Analysis Date	10/20/2009	10/20/2009		
Analytical Instrument	MS	MS		
% Moisture	0.00	0.00		
% Lipid	0.93	0.85		
Matrix	LUMBRICULUS	LUMBRICULUS		
Sample Size	10.08	10.17		
Size Unit-Basis	G_WET	G_WET		
Units	NG/G_WET	NG/G_WET	**RPD**	**Qual**
2,4'-DDE	0.56	2.44	125.3	N
4,4'-DDE	18.32 D	22.67	21.2	
2,4'-DDD	9.75	12.37	23.7	
4,4'-DDD	30.89 D	32.87 D	6.2	
2,4'-DDT	0.09 U	0.09 U		
4,4'-DDT	1.25	18.19	174.3	N
Surrogate Recoveries (%)				
CI3(34)	94	84		
CI6(152)	108	100		

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Project Number: CG898574-0001

Client ID	B2-OFF2-LUMB	B2-OFF2-LUMB			
Battelle ID	Q8206-P	Q8206MS-P			
Sample Type	SA	MS			
Collection Date	09/25/2009	09/25/2009			
Extraction Date	10/09/2009	10/09/2009			
Analysis Date	10/19/2009	10/19/2009			
Analytical Instrument	MS	MS			
% Moisture	0.00	0.00			
% Lipid	1.10	1.19			
Matrix	LUMBRICULUS	LUMBRICULUS			
Sample Size	5.68	2.03			
Size Unit-Basis	G_WET	G_WET			
Units	NG/G_WET	NG/G_WET	**Target**	**% REC**	**Qual**
2,4'-DDE	0.08 U	13.53	12.37	109	
4,4'-DDE	7.52	20.10	12.32	102	
2,4'-DDD	0.97	13.56	12.34	102	
4,4'-DDD	6.74	20.29	12.33	110	
2,4'-DDT	0.09 U	13.31	12.37	108	
4,4'-DDT	0.04 U	13.61	12.32	110	
Surrogate Recoveries (%)					
Cl3(34)	103	102			
Cl6(152)	100	96			

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Not Surrogate Corrected

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11/9/2009

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Project Name: SPAWAR Quantico Embayment EMNR - Pelagic Invertebrate and Lumbriculus Samples
Project Number: CG898574-0001

Client ID	B2-CAP1-PLGC	B2-CAP2-PLGC	B2-CAP3-PLGC	B2-OFF1-PLGC
Battelle ID	Q8005-P	Q8006-P	Q8007-P	Q8008-P
Sample Type	SA	SA	SA	SA
Collection Date	09/10/2009	09/10/2009	09/10/2009	09/10/2009
Extraction Date	10/09/2009	10/09/2009	10/09/2009	10/09/2009
Analysis Date	10/19/2009	10/19/2009	10/19/2009	10/19/2009
Analytical Instrument	MS	MS	MS	MS
% Moisture	0.00	0.00	0.00	0.00
% Lipid	0.94	1.12	1.20	0.97
Matrix	TISSUE	TISSUE	TISSUE	TISSUE
Sample Size	1.51	3.54	1.50	2.44
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	NG/G_WET	NG/G_WET	NG/G_WET	NG/G_WET
2,4'-DDE	0.08 U	0.08 U	0.08 U	0.08 U
4,4'-DDE	14.10	6.27	4.57	3.58
2,4'-DDD	1.99	0.37	0.05 U	0.05 U
4,4'-DDD	9.95	4.42	4.37	1.81
2,4'-DDT	0.09 U	0.09 U	0.09 U	0.09 U
4,4'-DDT	0.04 U	0.04 U	0.04 U	0.04 U
Surrogate Recoveries (%)				
Cl3(34)	99	94	89	89
Cl6(152)	95	92	91	92

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Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - Pelagic Invertebrate and Lumbriculus Samples
Project Number: CG898574-0001

Client ID	B2-OFF2-PLGC	B2-GAPX-PLGC	B2-OFF2-LUMB	B2-CAP1-LUMB
Battelle ID	Q8009-P	Q8010-P	Q8206-P	Q8207-P
Sample Type	SA	SA	SA	SA
Collection Date	09/10/2009	09/10/2009	09/25/2009	09/25/2009
Extraction Date	10/09/2009	10/09/2009	10/09/2009	10/09/2009
Analysis Date	10/19/2009	10/19/2009	10/19/2009	10/20/2009
Analytical Instrument	MS	MS	MS	MS
% Moisture	0.00	0.00	0.00	0.00
% Lipid	1.01	0.89	1.10	1.41
Matrix	TISSUE	TISSUE	LUMBRICULUS	LUMBRICULUS
Sample Size	2.89	1.51	5.68	1.62
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	NG/G_WET	NG/G_WET	NG/G_WET	NG/G_WET
2,4'-DDE	0.08 U	0.08 U	0.08 U	0.97
4,4'-DDE	3.74	12.82	7.52	29.20
2,4'-DDD	0.05 U	0.77 J	0.97	10.23
4,4'-DDD	1.21	10.07	6.74	29.46
2,4'-DDT	0.09 U	0.09 U	0.09 U	0.09 U
4,4'-DDT	0.04 U	0.04 U	0.04 U	0.04 U
Surrogate Recoveries (%)				
CI3(34)	98	94	103	98
CI6(152)	96	88	100	98

Analyzed By Thorn, Jonathan
11/9/2009

Not Surrogate Corrected

Battelle
The Business of Innovation

DRAFT

Project Client: NAVY SPACE + NAVAL WARFARE SYSTS COMMAND
Project Name: SPAWAR Quantico Embayment EMNR - Pelagic Invertebrate and Lumbriculus Samples
Project Number: CG898574-0001

Client ID	B2-CAPX-LUMB		B2-CAP2-LUMB		B2-CAP3-LUMB	
Battelle ID	Q8208-P		Q8209-P		Q8210-P	
Sample Type	SA		SA		SA	
Collection Date	09/25/2009		09/25/2009		09/25/2009	
Extraction Date	10/09/2009		10/09/2009		10/09/2009	
Analysis Date	10/20/2009		10/20/2009		10/20/2009	
Analytical Instrument	MS		MS		MS	
% Moisture	0.00		0.00		0.00	
% Lipid	1.83		2.05		0.93	
Matrix	LUMBRICULUS		LUMBRICULUS		LUMBRICULUS	
Sample Size	1.15		0.40		10.08	
Size Unit-Basis	G_WET		G_WET		G_WET	
Units	NG/G_WET		NG/G_WET		NG/G_WET	
2,4'-DDE	0.86	J	0.08	U	0.56	
4,4'-DDE	37.45		64.19		18.32	D
2,4'-DDD	13.52		28.26		9.75	
4,4'-DDD	39.21		93.61		30.89	D
2,4'-DDT	0.09	U	0.09	U	0.09	U
4,4'-DDT	0.04	U	0.04	U	1.25	
Surrogate Recoveries (%)						
Cl3(34)	101		89		94	
Cl6(152)	103		90		108	

Not Surrogate Corrected

Analyzed By Thorn, Jonathan
11/9/2009

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ossary of Data Qualifiers

Flag:	Application:
B	Analyte concentration found in the sample at a concentration <5x the level found in the procedural blank.
D	Dilution Run. Initial run outside linear range of instrument.
E	Estimate, result is greater than the highest concentration level in the calibration.
H	Surrogate diluted out. Used when surrogate recovery is affected by excessive dilution of the sample extract.
J	Analyte detected below the sample-specific Reporting Limit (RL).
m	Confirmation column manually over-ridden by analyst, dual column quantitative analysis only.
ME	Significant Matrix Interference - Estimated value.
MI	Significant Matrix Interference - value could not be determined or estimated.
n	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO), but meets the contingency criteria.
N	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not applicable
p	Dual column value exceeds RPD criteria, dual column quantitative analysis only.
T	Holding Time (HT) exceeded.
U	Analyte not detected at 3:1 signal:noise ratio.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

10 January 2013

Gunther Rosen
Navy -- SPAWAR
Environmental Science and Applied System Branch, 536
San Diego, CA 92152

RE: Quantico

Enclosed are the results of analyses for samples received by the laboratory on 12-Oct-2012. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Patty Tuminello
Project Coordinator

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
QB1	2101204-01	Soil/Sediment	10-Oct-2012	12-Oct-2012
QB2	2101204-02	Soil/Sediment	11-Oct-2012	12-Oct-2012
QB3	2101204-03	Soil/Sediment	10-Oct-2012	12-Oct-2012
QB4	2101204-04	Soil/Sediment	10-Oct-2012	12-Oct-2012
QB5	2101204-05	Soil/Sediment	10-Oct-2012	12-Oct-2012
QB6	2101204-06	Soil/Sediment	11-Oct-2012	12-Oct-2012
QB0-Lv-1	2101204-07	Tissue	11-Oct-2012	12-Oct-2012
QB0-Lv-2	2101204-08	Tissue	11-Oct-2012	12-Oct-2012
QB0-Lv-3	2101204-09	Tissue	11-Oct-2012	12-Oct-2012
QB0-Cf-1	2101204-10	Tissue	11-Oct-2012	12-Oct-2012
QB0-Cf-2	2101204-11	Tissue	11-Oct-2012	12-Oct-2012
QB0-Cf-3	2101204-12	Tissue	11-Oct-2012	12-Oct-2012

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB1

2101204-01 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**527**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDD [2C]	**487**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDE	**27.0**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDE [2C]	**30.6**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDT	**9.44**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDT [2C]	**27.8**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*67.5 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*55.5 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*86.0 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*95.0 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Naphthalene	**10.2**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
2-Methylnaphthalene	**11.9**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
1-Methylnaphthalene	**8.52**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Acenaphthylene	**1.70**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Acenaphthene	**3.41**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Fluorene	**5.11**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Phenanthrene	**15.3**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Anthracene	**3.41**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Fluoranthene	**56.2**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Pyrene	**47.7**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) anthracene	**32.4**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB1

2101204-01 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Chrysene	**42.6**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (b) fluoranthene	**20.4**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (k) fluoranthene	**30.7**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) pyrene	**27.3**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Indeno (1,2,3-cd) pyrene	**18.7**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Dibenz (a,h) anthracene	**3.41**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Benzo (g,h,i) perylene	**17.0**	4.34	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Surrogate: 2-Fluorobiphenyl		*55.0 %*	*45-105*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	
Surrogate: Terphenyl-dl4		*81.0 %*	*30-145*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	
Classical Chemistry Parameters								
% Solids	**75.7**	0.100	% Solids	1	27-Nov-2012	27-Nov-2012	% Calculation	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB2

2101204-02 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**122**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDD [2C]	**114**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDE	**22.9**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDE [2C]	**25.0**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDT	**8.40**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**23.8**	0.22	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*65.5 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*62.0 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*94.5 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*95.5 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Naphthalene	**10.5**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
2-Methylnaphthalene	**12.3**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
1-Methylnaphthalene	**8.78**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Acenaphthylene	**1.76**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Acenaphthene	**3.51**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Fluorene	**5.27**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Phenanthrene	**19.3**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Anthracene	**3.51**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Fluoranthene	**49.2**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Pyrene	**35.1**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) anthracene	**24.6**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	

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Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB2

2101204-02 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Chrysene	**33.4**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (b) fluoranthene	**17.6**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (k) fluoranthene	**24.6**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) pyrene	**17.6**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Indeno (1,2,3-cd) pyrene	**14.0**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Dibenz (a,h) anthracene	**1.76**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Benzo (g,h,i) perylene	**14.0**	4.48	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Surrogate: 2-Fluorobiphenyl		*54.0 %*	*45-105*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	
Surrogate: Terphenyl-dl4		*71.5 %*	*30-145*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	
Classical Chemistry Parameters								
% Solids	**74.1**	0.100	% Solids	1	27-Nov-2012	27-Nov-2012	% Calculation	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB3

2101204-03 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**216**	0.24	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDD [2C]	**212**	0.24	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDE	**48.3**	0.24	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDE [2C]	**58.4**	0.24	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDT	**6.45**	0.24	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**22.8**	0.24	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*105 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*62.5 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*93.0 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*99.0 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Naphthalene	**16.3**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
2-Methylnaphthalene	**25.3**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
1-Methylnaphthalene	**12.6**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Acenaphthylene	**1.81**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Acenaphthene	**5.42**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Fluorene	**10.8**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Phenanthrene	**56.0**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Anthracene	**16.3**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Fluoranthene	**444**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Pyrene	**247**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) anthracene	**199**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB3

2101204-03 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Chrysene	**191**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (b) fluoranthene	**99.4**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (k) fluoranthene	**139**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) pyrene	**123**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Indeno (1,2,3-cd) pyrene	**81.3**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Dibenz (a,h) anthracene	**10.8**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (g,h,i) perylene	**56.0**	4.61	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Surrogate: 2-Fluorobiphenyl		*41.0 %*	*45-105*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	*S-GC*
Surrogate: Terphenyl-dl4		*90.0 %*	*30-145*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	
Classical Chemistry Parameters								
% Solids	**69.5**	0.100	% Solids	1	27-Nov-2012	27-Nov-2012	% Calculation	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB4

2101204-04 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**134**	0.41	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDD [2C]	**131**	0.41	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDE	**30.1**	0.41	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDE [2C]	**35.4**	0.41	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDT	**3.57**	0.41	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**12.9**	0.41	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*48.4 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*47.6 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*86.0 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*92.5 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Naphthalene	**9.48**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
2-Methylnaphthalene	**12.6**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
1-Methylnaphthalene	**6.32**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Acenaphthylene	ND	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	U
Acenaphthene	**3.16**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Fluorene	**9.48**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Phenanthrene	**28.4**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Anthracene	**6.32**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Fluoranthene	**123**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Pyrene	**85.3**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) anthracene	**34.7**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	

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Navy -- SPAWAR	Project: Quantico	
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San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB4

2101204-04 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Chrysene	**44.2**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (b) fluoranthene	**25.3**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (k) fluoranthene	**31.6**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) pyrene	**19.0**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Indeno (1,2,3-cd) pyrene	**19.0**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Dibenz (a,h) anthracene	**3.16**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Benzo (g,h,i) perylene	**15.8**	8.05	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Surrogate: 2-Fluorobiphenyl		*35.5 %*	*45-105*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	*S-GC*
Surrogate: Terphenyl-dl4		*67.5 %*	*30-145*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	
Classical Chemistry Parameters								
% Solids	**41.0**	0.100	% Solids	1	27-Nov-2012	27-Nov-2012	% Calculation	

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San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB5

2101204-05 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**124**	0.43	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDD [2C]	**122**	0.43	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDE	**37.3**	0.43	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDE [2C]	**43.4**	0.43	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDT	**4.38**	0.43	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**19.1**	0.43	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*46.0 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*48.3 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*91.0 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*117 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Naphthalene	**17.3**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
2-Methylnaphthalene	**24.2**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
1-Methylnaphthalene	**13.9**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Acenaphthylene	ND	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	U
Acenaphthene	**20.8**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Fluorene	**27.7**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Phenanthrene	**249**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Anthracene	**86.6**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Fluoranthene	**596**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Pyrene	**409**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) anthracene	**242**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	

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QB5

2101204-05 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Chrysene	**253**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (b) fluoranthene	**83.1**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (k) fluoranthene	**135**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) pyrene	**100**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Indeno (1,2,3-cd) pyrene	**48.5**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Dibenz (a,h) anthracene	**6.93**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Benzo (g,h,i) perylene	**38.1**	8.83	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Surrogate: 2-Fluorobiphenyl		*42.0 %*	*45-105*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	*S-GC*
Surrogate: Terphenyl-dl4		*86.0 %*	*30-145*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	
Classical Chemistry Parameters								
% Solids	**38.4**	0.100	% Solids	1	27-Nov-2012	27-Nov-2012	% Calculation	

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2101204-06 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**9.81**	0.33	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDD [2C]	**9.81**	0.33	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDE	**3.09**	0.33	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4'-DDE [2C]	**3.83**	0.33	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
4,4´-DDT	**0.90**	0.33	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**1.85**	0.33	ug/kg dry	1	24-Oct-2012	29-Oct-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*60.0 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*53.5 %*	*40-125*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*77.0 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*86.0 %*	*40-130*		*24-Oct-2012*	*29-Oct-2012*	*EPA 8081A*	
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Naphthalene	**2.57**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
2-Methylnaphthalene	**5.14**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
1-Methylnaphthalene	**2.57**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Acenaphthylene	ND	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	U
Acenaphthene	**2.57**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Fluorene	**5.14**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Phenanthrene	**12.9**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Anthracene	**5.14**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Fluoranthene	**79.7**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Pyrene	**56.6**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) anthracene	**18.0**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	

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2101204-06 (Soil/Sediment)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Chrysene	**28.3**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (b) fluoranthene	**18.0**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (k) fluoranthene	**20.6**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Benzo (a) pyrene	**20.6**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Indeno (1,2,3-cd) pyrene	**12.9**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Dibenz (a,h) anthracene	**2.57**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	J
Benzo (g,h,i) perylene	**10.3**	6.56	ug/kg dry	1	19-Nov-2012	04-Dec-2012	EPA 8270C	
Surrogate: 2-Fluorobiphenyl		*43.5 %*	*45-105*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	*S-GC*
Surrogate: Terphenyl-dl4		*108 %*	*30-145*		*19-Nov-2012*	*04-Dec-2012*	*EPA 8270C*	
Classical Chemistry Parameters								
% Solids	**50.4**	0.100	% Solids	1	27-Nov-2012	27-Nov-2012	% Calculation	

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QB0-Lv-1

2101204-07 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**35.0**	0.274	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**33.1**	0.274	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**13.9**	0.274	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**15.0**	0.274	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**1.66**	0.274	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**5.35**	0.274	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*50.2 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*77.5 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*102 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*104 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.30**		% by Weight	1	17-Dec-2012	19-Dec-2012	Gravimetric Determination	

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QB0-Lv-2

2101204-08 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**7.98**	0.255	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**7.51**	0.255	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**5.12**	0.255	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**4.29**	0.255	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**0.174**	0.255	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	J
4,4'-DDT [2C]	**0.822**	0.255	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*45.3 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*46.0 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*84.2 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*78.5 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.80**		% by Weight	1	17-Dec-2012	19-Dec-2012	Gravimetric Determination	

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QB0-Lv-3

2101204-09 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**13.1**	0.229	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**11.3**	0.229	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**5.07**	0.229	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**5.18**	0.229	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**2.29**	0.229	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDT [2C]	**2.89**	0.229	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*57.2 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*80.2 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*105 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*96.0 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.20**		% by Weight	1	17-Dec-2012	19-Dec-2012	Gravimetric Determination	

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QB0-Cf-1

2101204-10 (Tissue)

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**22.3**	0.201	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**19.9**	0.201	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**7.72**	0.201	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**7.50**	0.201	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**0.705**	0.201	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDT [2C]	**2.23**	0.201	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*46.8 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*60.3 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*90.5 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*93.5 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.500**		% by Weight	1	17-Dec-2012	19-Dec-2012	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB0-Cf-2

2101204-11 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**9.46**	0.214	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**8.76**	0.214	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**4.20**	0.214	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**3.72**	0.214	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**0.694**	0.214	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDT [2C]	**1.35**	0.214	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*30.5 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*41.8 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*43.2 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*47.3 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.400**		% by Weight	1	17-Dec-2012	19-Dec-2012	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB0-Cf-3

2101204-12 (Tissue)

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**1.14**	0.233	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**0.973**	0.233	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**1.04**	0.233	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**0.973**	0.233	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**0.103**	0.233	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	J
4,4'-DDT [2C]	**0.290**	0.233	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*5.75 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*10.5 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*12.3 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*13.4 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.700**		% by Weight	1	17-Dec-2012	19-Dec-2012	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B210094 - EPA 3545										
Blank (B210094-BLK1)				Prepared: 24-Oct-2012 Analyzed: 29-Oct-2012						
4,4´-DDD	ND	0.17	ug/kg wet							U
4,4'-DDD [2C]	ND	0.17	ug/kg wet							U
4,4´-DDE	ND	0.17	ug/kg wet							U
4,4'-DDE [2C]	ND	0.17	ug/kg wet							U
4,4´-DDT	ND	0.17	ug/kg wet							QR-05, U
4,4'-DDT [2C]	ND	0.17	ug/kg wet							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.23*		*ug/kg wet*	*2.667*		*83.5*	*40-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*2.27*		*ug/kg wet*	*2.667*		*85.0*	*40-125*			
Surrogate: Decachlorobiphenyl	*3.08*		*ug/kg wet*	*2.667*		*116*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*3.24*		*ug/kg wet*	*2.667*		*122*	*40-130*			
LCS (B210094-BS1)				Prepared: 24-Oct-2012 Analyzed: 29-Oct-2012						
4,4´-DDD	1.6	0.17	ug/kg wet	2.667		61.5	30-135			
4,4'-DDD [2C]	1.7	0.17	ug/kg wet	2.667		65.0	30-135			
4,4´-DDE	2.2	0.17	ug/kg wet	2.667		81.0	70-125			
4,4'-DDE [2C]	2.3	0.17	ug/kg wet	2.667		84.5	70-125			
4,4´-DDT	1.5	0.17	ug/kg wet	2.667		54.5	45-140			QR-05
4,4'-DDT [2C]	1.8	0.17	ug/kg wet	2.667		67.0	45-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.85*		*ug/kg wet*	*2.667*		*69.5*	*40-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*1.96*		*ug/kg wet*	*2.667*		*73.5*	*40-125*			
Surrogate: Decachlorobiphenyl	*2.80*		*ug/kg wet*	*2.667*		*105*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*2.81*		*ug/kg wet*	*2.667*		*106*	*40-130*			
Duplicate (B210094-DUP1)	**Source: 2101204-03**			Prepared: 24-Oct-2012 Analyzed: 29-Oct-2012						
4,4´-DDD	274	0.24	ug/kg dry		216			23.8	30	
4,4'-DDD [2C]	261	0.24	ug/kg dry		212			20.7	30	
4,4´-DDE	55.6	0.24	ug/kg dry		48.3			14.0	30	
4,4'-DDE [2C]	70.1	0.24	ug/kg dry		58.4			18.2	30	
4,4´-DDT	3.48	0.24	ug/kg dry		6.45			59.8	30	QR-05
4,4'-DDT [2C]	16.6	0.24	ug/kg dry		22.8			31.2	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.07*		*ug/kg dry*	*3.760*		*55.0*	*40-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*2.12*		*ug/kg dry*	*3.760*		*56.5*	*40-125*			
Surrogate: Decachlorobiphenyl	*3.33*		*ug/kg dry*	*3.760*		*88.5*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*3.18*		*ug/kg dry*	*3.760*		*84.5*	*40-130*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B210094 - EPA 3545										
Matrix Spike (B210094-MS1)	**Source: 2101204-02**			Prepared: 24-Oct-2012 Analyzed: 29-Oct-2012						
4,4´-DDD	ND	0.22	ug/kg dry	3.488	122	NR	30-135			QM-02, U
4,4'-DDD [2C]	ND	0.22	ug/kg dry	3.488	114	NR	30-135			QM-02, U
4,4´-DDE	ND	0.22	ug/kg dry	3.488	22.9	NR	70-125			QM-02, U
4,4'-DDE [2C]	ND	0.22	ug/kg dry	3.488	25.0	NR	70-125			QM-02, U
4,4´-DDT	ND	0.22	ug/kg dry	3.488	8.4	NR	45-140			QM-02, U
4,4'-DDT [2C]	ND	0.22	ug/kg dry	3.488	23.8	NR	45-140			QM-02, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.90*		*ug/kg dry*	*3.488*		*54.5*	*40-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*1.88*		*ug/kg dry*	*3.488*		*54.0*	*40-125*			
Surrogate: Decachlorobiphenyl	*1.90*		*ug/kg dry*	*3.488*		*54.5*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*1.88*		*ug/kg dry*	*3.488*		*54.0*	*40-130*			
Matrix Spike Dup (B210094-MSD1)	**Source: 2101204-02**			Prepared: 24-Oct-2012 Analyzed: 29-Oct-2012						
4,4´-DDD	ND	0.23	ug/kg dry	3.575	122	NR	30-135		30	QM-02, U
4,4'-DDD [2C]	ND	0.23	ug/kg dry	3.575	114	NR	30-135		30	QM-02, U
4,4´-DDE	ND	0.23	ug/kg dry	3.575	22.9	NR	70-125		30	QM-02, U
4,4'-DDE [2C]	ND	0.23	ug/kg dry	3.575	25.0	NR	70-125		30	QM-02, U
4,4´-DDT	ND	0.23	ug/kg dry	3.575	8.4	NR	45-140		30	QM-02, U
4,4'-DDT [2C]	ND	0.23	ug/kg dry	3.575	23.8	NR	45-140		30	QM-02, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.11*		*ug/kg dry*	*3.575*		*59.0*	*40-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*2.11*		*ug/kg dry*	*3.575*		*59.0*	*40-125*			
Surrogate: Decachlorobiphenyl	*2.57*		*ug/kg dry*	*3.575*		*72.0*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*2.75*		*ug/kg dry*	*3.575*		*77.0*	*40-130*			
Batch B211024 - Sonication (probe or bath)										
Blank (B211024-BLK1)				Prepared: 02-Nov-2012 Analyzed: 14-Nov-2012						
4,4´-DDD	ND	0.250	ug/kg							U
4,4'-DDD [2C]	ND	0.250	ug/kg							U
4,4´-DDE	ND	0.250	ug/kg							U
4,4'-DDE [2C]	ND	0.250	ug/kg							U
4,4´-DDT	ND	0.250	ug/kg							U
4,4'-DDT [2C]	ND	0.250	ug/kg							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.70*		*ug/kg*	*8.000*		*46.2*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*3.92*		*ug/kg*	*8.000*		*49.0*	*35-125*			
Surrogate: Decachlorobiphenyl	*6.18*		*ug/kg*	*8.000*		*77.2*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*6.02*		*ug/kg*	*8.000*		*75.2*	*40-130*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B211024 - Sonication (probe or bath)										
LCS (B211024-BS1)				Prepared: 02-Nov-2012 Analyzed: 14-Nov-2012						
4,4´-DDD	4.42	0.250	ug/kg	8.000		55.2	30-135			
4,4'-DDD [2C]	4.24	0.250	ug/kg	8.000		53.0	30-135			
4,4´-DDE	5.64	0.250	ug/kg	8.000		70.5	50-125			
4,4'-DDE [2C]	5.56	0.250	ug/kg	8.000		69.5	50-125			
4,4´-DDT	4.02	0.250	ug/kg	8.000		50.2	40-140			
4,4'-DDT [2C]	3.34	0.250	ug/kg	8.000		41.8	40-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.54*		*ug/kg*	*8.000*		*44.2*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*3.70*		*ug/kg*	*8.000*		*46.2*	*35-125*			
Surrogate: Decachlorobiphenyl	*5.64*		*ug/kg*	*8.000*		*70.5*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*5.60*		*ug/kg*	*8.000*		*70.0*	*40-130*			
LCS Dup (B211024-BSD1)				Prepared: 02-Nov-2012 Analyzed: 14-Nov-2012						
4,4´-DDD	4.36	0.250	ug/kg	8.000		54.5	30-135	1.37	30	
4,4'-DDD [2C]	3.56	0.250	ug/kg	8.000		44.5	30-135	17.4	30	
4,4´-DDE	5.38	0.250	ug/kg	8.000		67.2	50-125	4.72	30	
4,4'-DDE [2C]	5.02	0.250	ug/kg	8.000		62.8	50-125	10.2	30	
4,4´-DDT	3.98	0.250	ug/kg	8.000		49.8	40-140	1.00	30	
4,4'-DDT [2C]	3.58	0.250	ug/kg	8.000		44.8	40-140	6.94	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.20*		*ug/kg*	*8.000*		*40.0*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*5.70*		*ug/kg*	*8.000*		*71.2*	*35-125*			
Surrogate: Decachlorobiphenyl	*5.70*		*ug/kg*	*8.000*		*71.2*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*5.42*		*ug/kg*	*8.000*		*67.8*	*40-130*			
Matrix Spike (B211024-MS1)	**Source: 2102602-04**			Prepared: 02-Nov-2012 Analyzed: 14-Nov-2012						
4,4´-DDD	27.5	0.543	ug/kg	17.39		158	30-135			
4,4'-DDD [2C]	25.5	0.543	ug/kg	17.39		146	30-135			
4,4´-DDE	24.0	0.543	ug/kg	17.39		138	60-125			
4,4'-DDE [2C]	25.3	0.543	ug/kg	17.39		146	60-125			
4,4´-DDT	11.5	0.543	ug/kg	17.39		66.0	40-140			
4,4'-DDT [2C]	12.6	0.543	ug/kg	17.39		72.3	40-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*9.57*		*ug/kg*	*17.39*		*55.0*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*11.0*		*ug/kg*	*17.39*		*63.5*	*35-125*			
Surrogate: Decachlorobiphenyl	*17.1*		*ug/kg*	*17.39*		*98.5*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*16.8*		*ug/kg*	*17.39*		*96.8*	*40-130*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B211024 - Sonication (probe or bath)										
Matrix Spike Dup (B211024-MSD1)	**Source: 2102602-04**			Prepared: 02-Nov-2012 Analyzed: 14-Nov-2012						
4,4´-DDD	31.8	0.594	ug/kg	19.02		167	30-135	14.5	30	
4,4'-DDD [2C]	27.7	0.594	ug/kg	19.02		146	30-135	8.26	30	
4,4´-DDE	26.6	0.594	ug/kg	19.02		140	60-125	10.2	30	
4,4'-DDE [2C]	28.6	0.594	ug/kg	19.02		150	60-125	12.3	30	
4,4´-DDT	11.9	0.594	ug/kg	19.02		62.5	40-140	3.51	30	
4,4'-DDT [2C]	12.3	0.594	ug/kg	19.02		64.7	40-140	2.01	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*9.42*		*ug/kg*	*19.02*		*49.5*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*11.2*		*ug/kg*	*19.02*		*59.0*	*35-125*			
Surrogate: Decachlorobiphenyl	*16.5*		*ug/kg*	*19.02*		*86.8*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*17.0*		*ug/kg*	*19.02*		*89.5*	*40-130*			

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B211083 - EPA 3545										
Blank (B211083-BLK1)				Prepared: 19-Nov-2012 Analyzed: 04-Dec-2012						
Naphthalene	ND	3.40	ug/kg wet							U
2-Methylnaphthalene	ND	3.40	ug/kg wet							U
1-Methylnaphthalene	ND	3.40	ug/kg wet							U
Acenaphthylene	ND	3.40	ug/kg wet							U
Acenaphthene	ND	3.40	ug/kg wet							U
Fluorene	ND	3.40	ug/kg wet							U
Phenanthrene	ND	3.40	ug/kg wet							U
Anthracene	ND	3.40	ug/kg wet							U
Fluoranthene	ND	3.40	ug/kg wet							U
Pyrene	1.33	3.40	ug/kg wet							J
Benzo (a) anthracene	1.33	3.40	ug/kg wet							J
Chrysene	1.33	3.40	ug/kg wet							J
Benzo (b) fluoranthene	ND	3.40	ug/kg wet							U
Benzo (k) fluoranthene	ND	3.40	ug/kg wet							U
Benzo (a) pyrene	ND	3.40	ug/kg wet							U
Indeno (1,2,3-cd) pyrene	ND	3.40	ug/kg wet							U
Dibenz (a,h) anthracene	ND	3.40	ug/kg wet							U
Benzo (g,h,i) perylene	ND	3.40	ug/kg wet							U
Surrogate: 2-Fluorobiphenyl	*200*		*ug/kg wet*	*266.7*		*75.0*	*45-105*			
Surrogate: Terphenyl-dl4	*260*		*ug/kg wet*	*266.7*		*96.5*	*30-145*			
LCS (B211083-BS1)				Prepared: 19-Nov-2012 Analyzed: 04-Dec-2012						
Naphthalene	212	3.40	ug/kg wet	266.7		79.5	40-105			
2-Methylnaphthalene	219	3.40	ug/kg wet	266.7		82.0	0-200			
1-Methylnaphthalene	219	3.40	ug/kg wet	266.7		82.0	0-200			
Acenaphthylene	212	3.40	ug/kg wet	266.7		79.5	45-105			
Acenaphthene	231	3.40	ug/kg wet	266.7		86.5	45-110			
Fluorene	261	3.40	ug/kg wet	266.7		98.0	50-110			
Phenanthrene	248	3.40	ug/kg wet	266.7		93.0	50-110			
Anthracene	268	3.40	ug/kg wet	266.7		100	55-105			
Fluoranthene	172	3.40	ug/kg wet	266.7		64.5	55-120			
Pyrene	164	3.40	ug/kg wet	266.7		61.5	45-125			
Benzo (a) anthracene	240	3.40	ug/kg wet	266.7		90.0	50-120			
Chrysene	324	3.40	ug/kg wet	266.7		122	55-120			
Benzo (b) fluoranthene	279	3.40	ug/kg wet	266.7		104	45-115			
Benzo (k) fluoranthene	409	3.40	ug/kg wet	266.7		154	45-125			
Benzo (a) pyrene	288	3.40	ug/kg wet	266.7		108	50-110			
Indeno (1,2,3-cd) pyrene	287	3.40	ug/kg wet	266.7		108	40-120			
Dibenz (a,h) anthracene	323	3.40	ug/kg wet	266.7		121	40-125			
Benzo (g,h,i) perylene	289	3.40	ug/kg wet	266.7		108	40-125			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B211083 - EPA 3545										
LCS (B211083-BS1)				Prepared: 19-Nov-2012 Analyzed: 04-Dec-2012						
Surrogate: 2-Fluorobiphenyl	*220*		*ug/kg wet*	*266.7*		*82.5*	*45-105*			
Surrogate: Terphenyl-dl4	*190*		*ug/kg wet*	*266.7*		*72.5*	*30-145*			
Duplicate (B211083-DUP1)	**Source: 2101204-03**			Prepared: 19-Nov-2012 Analyzed: 04-Dec-2012						
Naphthalene	17.0	4.82	ug/kg dry		16.3			4.63	40	
2-Methylnaphthalene	20.8	4.82	ug/kg dry		25.3			19.4	40	
1-Methylnaphthalene	13.2	4.82	ug/kg dry		12.6			4.63	40	
Acenaphthylene	1.89	4.82	ug/kg dry		1.81			4.63	40	J
Acenaphthene	7.57	4.82	ug/kg dry		5.42			33.1	40	
Fluorene	13.2	4.82	ug/kg dry		10.8			20.0	40	
Phenanthrene	39.7	4.82	ug/kg dry		56.0			34.0	40	
Anthracene	9.46	4.82	ug/kg dry		16.3			52.9	40	
Fluoranthene	191	4.82	ug/kg dry		444			79.7	40	
Pyrene	127	4.82	ug/kg dry		247			64.5	40	
Benzo (a) anthracene	54.9	4.82	ug/kg dry		199			113	40	
Chrysene	66.2	4.82	ug/kg dry		191			97.2	40	
Benzo (b) fluoranthene	32.2	4.82	ug/kg dry		99.4			102	40	
Benzo (k) fluoranthene	49.2	4.82	ug/kg dry		139			95.5	40	
Benzo (a) pyrene	37.8	4.82	ug/kg dry		123			106	40	
Indeno (1,2,3-cd) pyrene	32.2	4.82	ug/kg dry		81.3			86.6	40	
Dibenz (a,h) anthracene	3.78	4.82	ug/kg dry		10.8			96.5	40	J
Benzo (g,h,i) perylene	26.5	4.82	ug/kg dry		56.0			71.6	40	
Surrogate: 2-Fluorobiphenyl	*180*		*ug/kg dry*	*378.4*		*48.0*	*45-105*			
Surrogate: Terphenyl-dl4	*290*		*ug/kg dry*	*378.4*		*77.0*	*30-145*			
Matrix Spike (B211083-MS1)	**Source: 2101204-02**			Prepared: 19-Nov-2012 Analyzed: 04-Dec-2012						
Naphthalene	194	4.46	ug/kg dry	349.4	10.5	52.5	40-105			
2-Methylnaphthalene	259	4.46	ug/kg dry	349.4	12.3	70.5	0-200			
1-Methylnaphthalene	266	4.46	ug/kg dry	349.4	8.78	73.5	0-200			
Acenaphthylene	171	4.46	ug/kg dry	349.4	1.76	48.5	45-105			
Acenaphthene	222	4.46	ug/kg dry	349.4	3.51	62.5	45-110			
Fluorene	278	4.46	ug/kg dry	349.4	5.27	78.0	50-110			
Phenanthrene	267	4.46	ug/kg dry	349.4	19.3	71.0	50-110			
Anthracene	262	4.46	ug/kg dry	349.4	3.51	74.0	55-105			
Fluoranthene	639	4.46	ug/kg dry	349.4	49.2	169	55-120			QM-07
Pyrene	423	4.46	ug/kg dry	349.4	35.1	111	45-125			
Benzo (a) anthracene	274	4.46	ug/kg dry	349.4	24.6	71.5	50-120			
Chrysene	267	4.46	ug/kg dry	349.4	33.4	67.0	55-120			
Benzo (b) fluoranthene	185	4.46	ug/kg dry	349.4	17.6	48.0	45-115			
Benzo (k) fluoranthene	257	4.46	ug/kg dry	349.4	24.6	66.5	45-125			
Benzo (a) pyrene	192	4.46	ug/kg dry	349.4	17.6	50.0	50-110			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B211083 - EPA 3545										
Matrix Spike (B211083-MS1)	**Source: 2101204-02**			Prepared: 19-Nov-2012 Analyzed: 04-Dec-2012						
Indeno (1,2,3-cd) pyrene	133	4.46	ug/kg dry	349.4	14.0	34.0	40-120			QM-07
Dibenz (a,h) anthracene	114	4.46	ug/kg dry	349.4	1.76	32.0	40-125			QM-07
Benzo (g,h,i) perylene	180	4.46	ug/kg dry	349.4	14.0	47.5	40-125			
Surrogate: 2-Fluorobiphenyl	*200*		*ug/kg dry*	*349.4*		*58.0*	*45-105*			
Surrogate: Terphenyl-dl4	*320*		*ug/kg dry*	*349.4*		*91.0*	*30-145*			
Matrix Spike Dup (B211083-MSD1)	**Source: 2101204-02**			Prepared: 19-Nov-2012 Analyzed: 04-Dec-2012						
Naphthalene	152	4.52	ug/kg dry	354.2	10.5	40.0	40-105	24.0	30	
2-Methylnaphthalene	181	4.52	ug/kg dry	354.2	12.3	47.5	0-200	35.5	200	
1-Methylnaphthalene	168	4.52	ug/kg dry	354.2	8.78	45.0	0-200	44.9	200	
Acenaphthylene	147	4.52	ug/kg dry	354.2	1.76	41.0	45-105	15.2	30	QM-07
Acenaphthene	182	4.52	ug/kg dry	354.2	3.51	50.5	45-110	19.5	30	
Fluorene	255	4.52	ug/kg dry	354.2	5.27	70.5	50-110	8.53	30	
Phenanthrene	237	4.52	ug/kg dry	354.2	19.3	61.5	50-110	11.9	30	
Anthracene	239	4.52	ug/kg dry	354.2	3.51	66.5	55-105	9.16	30	
Fluoranthene	475	4.52	ug/kg dry	354.2	49.2	120	55-120	29.6	30	
Pyrene	344	4.52	ug/kg dry	354.2	35.1	87.1	45-125	20.7	30	
Benzo (a) anthracene	264	4.52	ug/kg dry	354.2	24.6	67.6	50-120	3.86	30	
Chrysene	223	4.52	ug/kg dry	354.2	33.4	53.6	55-120	18.0	30	QM-07
Benzo (b) fluoranthene	151	4.52	ug/kg dry	354.2	17.6	37.5	45-115	20.6	30	QM-07
Benzo (k) fluoranthene	174	4.52	ug/kg dry	354.2	24.6	42.1	45-125	38.7	30	QM-07
Benzo (a) pyrene	142	4.52	ug/kg dry	354.2	17.6	35.0	50-110	30.2	30	QM-07
Indeno (1,2,3-cd) pyrene	86.8	4.52	ug/kg dry	354.2	14.0	20.5	40-120	41.9	30	QM-07
Dibenz (a,h) anthracene	72.6	4.52	ug/kg dry	354.2	1.76	20.0	40-125	44.0	30	QM-07
Benzo (g,h,i) perylene	122	4.52	ug/kg dry	354.2	14.0	30.5	40-125	38.2	30	QM-07
Surrogate: 2-Fluorobiphenyl	*340*		*ug/kg dry*	*354.2*		*95.5*	*45-105*			
Surrogate: Terphenyl-dl4	*500*		*ug/kg dry*	*354.2*		*141*	*30-145*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Classical Chemistry Parameters - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B211105 - % Solids										
Duplicate (B211105-DUP1)		**Source: 2102604-06**		Prepared & Analyzed: 27-Nov-2012						
% Solids	37.4	0.100	% Solids		39.2			4.86	20	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Notes and Definitions

U	Analyte included in the analysis, but not detected
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
QR-05	RPD between primary and confirmation column values >40%.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM-02	The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

10 January 2013

Gunther Rosen
Navy -- SPAWAR
Environmental Science and Applied System Branch, 536
San Diego, CA 92152

RE: Quantico

Enclosed are the results of analyses for samples received by the laboratory on 26-Oct-2012. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Patty Tuminello
Project Coordinator

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360:
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
10-Jan-2013

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
QB1-Cf-R8	2102602-01	Tissue	25-Oct-2012	26-Oct-2012
QB1-Cf-R9	2102602-02	Tissue	25-Oct-2012	26-Oct-2012
QB1-Cf-R10	2102602-03	Tissue	25-Oct-2012	26-Oct-2012
QB1-Cf-C	2102602-04	Tissue	25-Oct-2012	26-Oct-2012
QB1-Lv-R2-4	2102602-05	Tissue	25-Oct-2012	26-Oct-2012
QB1-Lv-R4-4	2102602-06	Tissue	25-Oct-2012	26-Oct-2012
QB1-Lv-C-4	2102602-07	Tissue	25-Oct-2010	26-Oct-2012
QB1-Lv-R5-7	2102602-08	Tissue	25-Oct-2010	26-Oct-2012
QB1-Lv-R8-7	2102602-09	Tissue	25-Oct-2010	26-Oct-2012
QB1-Lv-R9-7	2102602-10	Tissue	25-Oct-2010	26-Oct-2012
QB1-Lv-C-7	2102602-11	Tissue	25-Oct-2010	26-Oct-2012
QB4-Cf-1	2102602-12	Tissue	25-Oct-2010	26-Oct-2012
QB4-Cf-3	2102602-13	Tissue	25-Oct-2010	26-Oct-2012
QB4-Cf-10	2102602-14	Tissue	25-Oct-2010	26-Oct-2012
QB4-Cf-C	2102602-15	Tissue	25-Oct-2010	26-Oct-2012
QB3-Cf-R1-3	2102602-16	Tissue	25-Oct-2010	26-Oct-2012
QB3-Cf-R5-3	2102602-17	Tissue	25-Oct-2010	26-Oct-2012
QB3-Cf-R10-3	2102602-18	Tissue	25-Oct-2010	26-Oct-2012
QB4-Lv-R2	2102602-19	Tissue	25-Oct-2010	26-Oct-2012
QB4-Lv-R4	2102602-20	Tissue	25-Oct-2010	26-Oct-2012
QB4-Lv-R5	2102602-21	Tissue	25-Oct-2010	26-Oct-2012
QB4-Lv-C	2102602-22	Tissue	25-Oct-2010	26-Oct-2012
QB3-Cf-C3	2102602-23	Tissue	25-Oct-2010	26-Oct-2012
QB5-Lv-C2	2102602-24	Tissue	25-Oct-2010	26-Oct-2012
QB5-Lv-R8-2	2102602-25	Tissue	25-Oct-2010	26-Oct-2012
QB5-Lv-R9-2	2102602-26	Tissue	25-Oct-2010	26-Oct-2012
QB5-Cf-R1-2	2102602-27	Tissue	25-Oct-2010	26-Oct-2012
QB5-Cf-R2-2	2102602-28	Tissue	25-Oct-2010	26-Oct-2012
QB5-Cf-R3-2	2102602-29	Tissue	25-Oct-2010	26-Oct-2012
QB5-Cf-C2	2102602-30	Tissue	25-Oct-2010	26-Oct-2012
QB2-Lv-R1	2102602-31	Tissue	25-Oct-2010	26-Oct-2012

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
QB2-Lv-R2	2102602-32	Tissue	25-Oct-2010	26-Oct-2012
QB2-Lv-R4-5	2102602-33	Tissue	25-Oct-2010	26-Oct-2012
QB2-Lv-C	2102602-34	Tissue	25-Oct-2010	26-Oct-2012
QB2-Cf-R6	2102602-35	Tissue	25-Oct-2010	26-Oct-2012
QB2-Cf-R9	2102602-36	Tissue	25-Oct-2010	26-Oct-2012
QB2-Cf-R10	2102602-37	Tissue	25-Oct-2010	26-Oct-2012
QB2-Cf-C	2102602-38	Tissue	25-Oct-2010	26-Oct-2012
QB6-Lv-C	2102602-39	Tissue	25-Oct-2010	26-Oct-2012
QB3-Lv-R2-3	2102602-40	Tissue	25-Oct-2010	26-Oct-2012
QB3-Lv-R3/4-3	2102602-41	Tissue	25-Oct-2010	26-Oct-2012
QB3-Lv-R8/9-3	2102602-42	Tissue	25-Oct-2010	26-Oct-2012
QB3-Lv-C3	2102602-43	Tissue	25-Oct-2010	26-Oct-2012
QB6-Cf-R3	2102602-44	Tissue	25-Oct-2010	26-Oct-2012
QB6-Cf-R5	2102602-45	Tissue	25-Oct-2010	26-Oct-2012
QB6-Cf-R10	2102602-46	Tissue	25-Oct-2010	26-Oct-2012
QB6-Cf-C	2102602-47	Tissue	25-Oct-2010	26-Oct-2012

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB1-Cf-R8

2102602-01 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**14.6**	0.237	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**13.3**	0.237	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**7.30**	0.237	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**7.25**	0.237	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**1.57**	0.237	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDT [2C]	**2.96**	0.237	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*44.5 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*61.0 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*87.0 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*82.5 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.700**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB1-Cf-R9

2102602-02 (Tissue)

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**11.4**	0.229	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**10.9**	0.229	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**5.90**	0.229	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**5.71**	0.229	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**0.872**	0.229	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDT [2C]	**2.01**	0.229	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*43.5 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*56.8 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*85.0 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*75.8 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.00**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB1-Cf-R10

2102602-03 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**12.5**	0.246	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**11.2**	0.246	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**6.65**	0.246	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**6.59**	0.246	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**1.08**	0.246	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDT [2C]	**2.30**	0.246	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*44.0 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*59.8 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*93.8 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*85.5 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.900**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB1-Cf-C

2102602-04 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Classical Chemistry Parameters								
% Lipids	**0.700**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB1-Lv-R2-4

2102602-05 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**42.7**	0.842	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**37.8**	0.842	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**15.6**	0.842	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**14.4**	0.842	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**0.375**	0.842	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	J
4,4'-DDT [2C]	**4.58**	0.842	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*49.7 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*70.2 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*91.5 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*87.7 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.500**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB1-Lv-R4-4

2102602-06 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**76.8**	1.03	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**70.9**	1.03	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**19.6**	1.03	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**18.4**	1.03	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**1.40**	1.03	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDT [2C]	**5.09**	1.03	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*51.5 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*81.2 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*96.2 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*93.3 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.300**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB1-Lv-C-4

2102602-07 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**0.584**	0.437	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**0.531**	0.437	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**2.25**	0.437	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**1.93**	0.437	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	ND	0.437	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	U
4,4'-DDT [2C]	ND	0.437	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*49.7 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*48.0 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*81.5 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*80.7 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.600**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB1-Lv-R5-7

2102602-08 (Tissue)

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**0.509**	0.648	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	J
4,4'-DDD [2C]	**0.213**	0.648	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	J
4,4´-DDE	**2.69**	0.648	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**2.56**	0.648	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	ND	0.648	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	U
4,4'-DDT [2C]	ND	0.648	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*45.2 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*44.8 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*79.7 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*78.0 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.00**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB1-Lv-R8-7

2102602-09 (Tissue)

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**0.752**	1.18	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	J
4,4'-DDD [2C]	**0.339**	1.18	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	J
4,4´-DDE	**3.80**	1.18	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**3.33**	1.18	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	ND	1.18	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	U
4,4'-DDT [2C]	ND	1.18	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*37.7 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*39.7 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*60.0 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*61.5 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.400**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
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Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB1-Lv-R9-7

2102602-10 (Tissue)

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**0.541**	0.564	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	QR-05, J
4,4'-DDD [2C]	**0.281**	0.564	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	J
4,4´-DDE	**1.10**	0.564	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**0.920**	0.564	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**0.382**	0.564	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	QR-05, J
4,4'-DDT [2C]	**0.857**	0.564	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*51.5 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*57.5 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*84.0 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*81.7 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.600**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB1-Lv-C-7

2102602-11 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**0.243**	0.298	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	QR-05, J
4,4'-DDD [2C]	**0.142**	0.298	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	J
4,4´-DDE	**0.868**	0.298	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**0.911**	0.298	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**0.198**	0.298	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	QR-05, J
4,4'-DDT [2C]	**0.606**	0.298	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*52.0 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*62.8 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*87.5 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*83.5 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.700**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB4-Cf-1

2102602-12 (Tissue)

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**7.22**	0.211	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**6.28**	0.211	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**6.96**	0.211	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**6.53**	0.211	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**0.955**	0.211	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**2.00**	0.211	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*46.2 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*71.8 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*81.0 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*73.5 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.900**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB4-Cf-3

2102602-13 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**4.65**	0.200	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	QR-05
4,4'-DDD [2C]	**8.02**	0.200	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**4.27**	0.200	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**4.01**	0.200	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**3.48**	0.200	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**1.90**	0.200	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*56.5 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*39.0 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*63.5 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*68.8 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.800**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB4-Cf-10

2102602-14 (Tissue)

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**8.64**	0.234	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**7.69**	0.234	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDE	**7.12**	0.234	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**7.26**	0.234	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
4,4´-DDT	**1.24**	0.234	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**3.45**	0.234	ug/kg	1	02-Nov-2012	14-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*55.0 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*68.2 %*	*35-125*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*97.2 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*93.2 %*	*40-130*		*02-Nov-2012*	*14-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.600**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB4-Cf-C

2102602-15 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**10.2**	0.234	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**9.97**	0.234	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**8.43**	0.234	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**9.79**	0.234	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	**1.23**	0.234	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**2.73**	0.234	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*48.4 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*57.0 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*81.1 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*84.9 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.900**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB3-Cf-R1-3

2102602-16 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**12.6**	0.211	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**12.2**	0.211	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**9.15**	0.211	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**10.4**	0.211	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	**1.13**	0.211	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**2.74**	0.211	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*46.9 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*52.5 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*76.4 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*81.0 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.900**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB3-Cf-R5-3

2102602-17 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**12.6**	0.234	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**12.4**	0.234	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**9.22**	0.234	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**10.7**	0.234	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	**1.19**	0.234	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**2.77**	0.234	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*42.2 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*49.3 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*76.2 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*81.0 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.800**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB3-Cf-R10-3

2102602-18 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**14.3**	0.246	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**14.1**	0.246	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**8.67**	0.246	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**9.75**	0.246	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	**1.79**	0.246	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**3.44**	0.246	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*47.5 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*52.2 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*75.5 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*78.7 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.700**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB4-Lv-R2

2102602-19 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**14.2**	0.602	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**15.5**	0.602	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**17.5**	0.602	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**17.6**	0.602	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	**0.623**	0.602	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**2.14**	0.602	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*41.4 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*49.2 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*73.6 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*71.5 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.10**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB4-Lv-R4

2102602-20 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**9.74**	0.594	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**9.98**	0.594	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**12.8**	0.594	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**13.0**	0.594	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	**0.380**	0.594	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	QR-05, J
4,4'-DDT [2C]	**1.45**	0.594	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*42.8 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*47.1 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*69.3 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*72.8 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.00**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB4-Lv-R5

2102602-21 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**9.40**	0.618	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**10.1**	0.618	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**13.1**	0.618	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**13.7**	0.618	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	**0.415**	0.618	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	QR-05, J
4,4'-DDT [2C]	**1.34**	0.618	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*42.5 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*47.1 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*78.3 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*83.4 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.800**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB4-Lv-C

2102602-22 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**13.9**	0.248	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**14.2**	0.248	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**16.8**	0.248	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**18.5**	0.248	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	**0.440**	0.248	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**1.68**	0.248	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*45.3 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*45.0 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*79.5 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*84.6 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.800**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB3-Cf-C3

2102602-23 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**7.61**	0.249	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**7.29**	0.249	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**4.98**	0.249	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**5.40**	0.249	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	**0.731**	0.249	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**1.63**	0.249	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*38.5 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*48.9 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*89.8 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*77.3 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.00**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB5-Lv-C2

2102602-24 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**16.7**	0.380	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**16.6**	0.380	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**14.9**	0.380	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**15.8**	0.380	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	**0.466**	0.380	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**1.87**	0.380	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*37.9 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*45.3 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*67.8 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*71.3 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.500**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB5-Lv-R8-2

2102602-25 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**23.2**	0.882	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**23.4**	0.882	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**20.1**	0.882	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**21.4**	0.882	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	**0.893**	0.882	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**3.07**	0.882	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*48.3 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*51.0 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*76.2 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*79.6 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.900**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB5-Lv-R9-2

2102602-26 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**10.1**	1.02	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**10.6**	1.02	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**9.22**	1.02	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**9.86**	1.02	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	**0.301**	1.02	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	QR-05, J
4,4'-DDT [2C]	**1.37**	1.02	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*41.8 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*48.6 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*72.8 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*77.3 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.500**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB5-Cf-R1-2

2102602-27 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**10.4**	0.364	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**10.1**	0.364	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**7.95**	0.364	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**10.0**	0.364	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	**1.69**	0.364	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**6.56**	0.364	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*36.8 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*45.7 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*76.9 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*71.4 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.00**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB5-Cf-R2-2

2102602-28 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**6.91**	0.217	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**6.75**	0.217	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**5.30**	0.217	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**6.02**	0.217	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	**0.786**	0.217	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**1.61**	0.217	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*22.4 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	*S-GC*
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*28.4 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*40.2 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*39.6 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.20**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB5-Cf-R3-2

2102602-29 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**14.7**	0.233	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**14.6**	0.233	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**11.1**	0.233	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**11.8**	0.233	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	**2.06**	0.233	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**3.69**	0.233	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*56.4 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*56.9 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*109 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*96.1 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.900**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB5-Cf-C2

2102602-30 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**17.9**	0.220	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**17.0**	0.220	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**11.5**	0.220	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**11.9**	0.220	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	**1.92**	0.220	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**3.69**	0.220	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*65.1 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*54.8 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*116 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*104 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.900**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB2-Lv-R1

2102602-31 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**16.8**	0.802	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**17.1**	0.802	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**10.2**	0.802	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**10.7**	0.802	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	**0.905**	0.802	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**2.83**	0.802	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*39.1 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*38.5 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*76.4 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*68.9 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.700**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB2-Lv-R2

2102602-32 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**29.5**	1.26	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**29.4**	1.26	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**11.5**	1.26	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**13.0**	1.26	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	**0.999**	1.26	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	QR-05, J
4,4'-DDT [2C]	**5.01**	1.26	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*35.4 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*40.2 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*80.6 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*75.0 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.600**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB2-Lv-R4-5

2102602-33 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**12.6**	1.64	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**13.4**	1.64	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**8.92**	1.64	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**9.69**	1.64	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	ND	1.64	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	U
4,4'-DDT [2C]	ND	1.64	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*34.6 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*40.6 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*66.1 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*71.5 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.00**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB2-Lv-C

2102602-34 (Tissue)

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**20.0**	0.569	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**20.7**	0.569	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDE	**10.5**	0.569	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**11.4**	0.569	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	
4,4´-DDT	ND	0.569	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	U
4,4'-DDT [2C]	ND	0.569	ug/kg	1	02-Nov-2012	19-Nov-2012	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*42.6 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*43.1 %*	*35-125*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*71.7 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*77.8 %*	*40-130*		*02-Nov-2012*	*19-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.00**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB2-Cf-R6

2102602-35 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**14.3**	0.246	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**11.8**	0.246	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDE	**10.3**	0.246	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**10.1**	0.246	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDT	**2.43**	0.246	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**4.75**	0.246	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*51.6 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*58.5 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*73.4 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*74.0 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.00**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB2-Cf-R9

2102602-36 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**18.3**	0.233	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**16.1**	0.233	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDE	**13.3**	0.233	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**13.2**	0.233	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDT	**2.12**	0.233	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**4.34**	0.233	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*64.0 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*80.2 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*100 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*87.2 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.700**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB2-Cf-R10

2102602-37 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**14.1**	0.224	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**12.4**	0.224	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDE	**10.4**	0.224	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**10.3**	0.224	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDT	**1.57**	0.224	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**3.67**	0.224	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*57.2 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*64.8 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*104 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*87.0 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.800**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB2-Cf-C

2102602-38 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**16.5**	0.213	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**14.6**	0.213	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDE	**11.6**	0.213	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**11.9**	0.213	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDT	**2.25**	0.213	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**4.44**	0.213	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*63.4 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*62.0 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*118 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*104 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.00**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB6-Lv-C

2102602-39 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**2.69**	0.596	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**2.49**	0.596	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDE	**8.54**	0.596	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**7.69**	0.596	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDT	**0.450**	0.596	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	QR-05, J
4,4'-DDT [2C]	**0.852**	0.596	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*56.2 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*57.5 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*89.6 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*101 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.800**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB3-Lv-R2-3

2102602-40 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**29.7**	0.566	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**26.2**	0.566	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDE	**12.9**	0.566	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**13.7**	0.566	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDT	**0.394**	0.566	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	QR-05, J
4,4'-DDT [2C]	**2.12**	0.566	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*47.2 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*51.8 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*102 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*86.5 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.300**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB3-Lv-R3/4-3

2102602-41 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**28.5**	1.00	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**25.5**	1.00	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDE	**19.6**	1.00	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**19.2**	1.00	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDT	**0.735**	1.00	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	QR-05, J
4,4'-DDT [2C]	**2.89**	1.00	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*42.7 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*49.2 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*80.3 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*89.2 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.00**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB3-Lv-R8/9-3

2102602-42 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**52.6**	0.833	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**48.1**	0.833	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDE	**38.6**	0.833	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**40.2**	0.833	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDT	**1.12**	0.833	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**5.69**	0.833	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*55.7 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*66.7 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*97.2 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*105 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.600**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

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2102602-43 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**45.3**	0.245	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**42.1**	0.245	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDE	**24.5**	0.245	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**26.1**	0.245	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDT	**0.923**	0.245	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**3.52**	0.245	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*39.7 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*44.5 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*96.8 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*87.5 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.900**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB6-Cf-R3

2102602-44 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**5.48**	0.198	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**5.20**	0.198	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDE	**7.18**	0.198	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**7.47**	0.198	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDT	**1.46**	0.198	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**2.89**	0.198	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*58.2 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*64.0 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*97.6 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*95.5 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**0.900**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB6-Cf-R5

2102602-45 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**3.72**	0.219	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**4.00**	0.219	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDE	**4.91**	0.219	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**5.20**	0.219	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDT	**1.09**	0.219	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**2.11**	0.219	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*42.9 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*52.3 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*60.8 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*92.7 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.00**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

QB6-Cf-R10

2102602-46 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**2.95**	0.217	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**2.63**	0.217	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDE	**3.34**	0.217	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**3.55**	0.217	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDT	**0.613**	0.217	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	QR-05
4,4'-DDT [2C]	**1.32**	0.217	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*38.8 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*49.5 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*95.3 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*71.0 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.80**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

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2102602-47 (Tissue)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
ERDC- EL-EP-C (Environmental Chemistry Branch)								
Organochlorine Pesticides by EPA Method 8081A								
4,4´-DDD	**5.36**	0.224	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDD [2C]	**4.91**	0.224	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDE	**6.99**	0.224	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDE [2C]	**5.96**	0.224	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4´-DDT	**1.51**	0.224	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
4,4'-DDT [2C]	**2.34**	0.224	ug/kg	1	06-Nov-2012	21-Nov-2012	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*%*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	*S-02, U*
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]		*47.5 %*	*35-125*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl		*94.6 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Surrogate: Decachorobiphenyl [2C]		*91.7 %*	*40-130*		*06-Nov-2012*	*21-Nov-2012*	*EPA 8081A*	
Classical Chemistry Parameters								
% Lipids	**1.10**		% by Weight	1	17-Dec-2012	10-Jan-2013	Gravimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B211024 - Sonication (probe or bath)										
Blank (B211024-BLK1)				Prepared: 02-Nov-2012 Analyzed: 14-Nov-2012						
4,4´-DDD	ND	0.250	ug/kg							U
4,4'-DDD [2C]	ND	0.250	ug/kg							U
4,4´-DDE	ND	0.250	ug/kg							U
4,4'-DDE [2C]	ND	0.250	ug/kg							U
4,4´-DDT	ND	0.250	ug/kg							U
4,4'-DDT [2C]	ND	0.250	ug/kg							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.70*		*ug/kg*	*8.000*		*46.2*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*3.92*		*ug/kg*	*8.000*		*49.0*	*35-125*			
Surrogate: Decachlorobiphenyl	*6.18*		*ug/kg*	*8.000*		*77.2*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*6.02*		*ug/kg*	*8.000*		*75.2*	*40-130*			
LCS (B211024-BS1)				Prepared: 02-Nov-2012 Analyzed: 14-Nov-2012						
4,4´-DDD	4.42	0.250	ug/kg	8.000		55.2	30-135			
4,4'-DDD [2C]	4.24	0.250	ug/kg	8.000		53.0	30-135			
4,4´-DDE	5.64	0.250	ug/kg	8.000		70.5	50-125			
4,4'-DDE [2C]	5.56	0.250	ug/kg	8.000		69.5	50-125			
4,4´-DDT	4.02	0.250	ug/kg	8.000		50.2	40-140			
4,4'-DDT [2C]	3.34	0.250	ug/kg	8.000		41.8	40-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.54*		*ug/kg*	*8.000*		*44.2*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*3.70*		*ug/kg*	*8.000*		*46.2*	*35-125*			
Surrogate: Decachlorobiphenyl	*5.64*		*ug/kg*	*8.000*		*70.5*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*5.60*		*ug/kg*	*8.000*		*70.0*	*40-130*			
LCS Dup (B211024-BSD1)				Prepared: 02-Nov-2012 Analyzed: 14-Nov-2012						
4,4´-DDD	4.36	0.250	ug/kg	8.000		54.5	30-135	1.37	30	
4,4'-DDD [2C]	3.56	0.250	ug/kg	8.000		44.5	30-135	17.4	30	
4,4´-DDE	5.38	0.250	ug/kg	8.000		67.2	50-125	4.72	30	
4,4'-DDE [2C]	5.02	0.250	ug/kg	8.000		62.8	50-125	10.2	30	
4,4´-DDT	3.98	0.250	ug/kg	8.000		49.8	40-140	1.00	30	
4,4'-DDT [2C]	3.58	0.250	ug/kg	8.000		44.8	40-140	6.94	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.20*		*ug/kg*	*8.000*		*40.0*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*5.70*		*ug/kg*	*8.000*		*71.2*	*35-125*			
Surrogate: Decachlorobiphenyl	*5.70*		*ug/kg*	*8.000*		*71.2*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*5.42*		*ug/kg*	*8.000*		*67.8*	*40-130*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B211024 - Sonication (probe or bath)										
Matrix Spike (B211024-MS1)	**Source: 2102602-04**			Prepared: 02-Nov-2012 Analyzed: 14-Nov-2012						
4,4´-DDD	27.5	0.543	ug/kg	17.39		158	30-135			
4,4'-DDD [2C]	25.5	0.543	ug/kg	17.39		146	30-135			
4,4´-DDE	24.0	0.543	ug/kg	17.39		138	60-125			
4,4'-DDE [2C]	25.3	0.543	ug/kg	17.39		146	60-125			
4,4´-DDT	11.5	0.543	ug/kg	17.39		66.0	40-140			
4,4'-DDT [2C]	12.6	0.543	ug/kg	17.39		72.3	40-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*9.57*		*ug/kg*	*17.39*		*55.0*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*11.0*		*ug/kg*	*17.39*		*63.5*	*35-125*			
Surrogate: Decachlorobiphenyl	*17.1*		*ug/kg*	*17.39*		*98.5*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*16.8*		*ug/kg*	*17.39*		*96.8*	*40-130*			
Matrix Spike Dup (B211024-MSD1)	**Source: 2102602-04**			Prepared: 02-Nov-2012 Analyzed: 14-Nov-2012						
4,4´-DDD	31.8	0.594	ug/kg	19.02		167	30-135	14.5	30	
4,4'-DDD [2C]	27.7	0.594	ug/kg	19.02		146	30-135	8.26	30	
4,4´-DDE	26.6	0.594	ug/kg	19.02		140	60-125	10.2	30	
4,4'-DDE [2C]	28.6	0.594	ug/kg	19.02		150	60-125	12.3	30	
4,4´-DDT	11.9	0.594	ug/kg	19.02		62.5	40-140	3.51	30	
4,4'-DDT [2C]	12.3	0.594	ug/kg	19.02		64.7	40-140	2.01	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*9.42*		*ug/kg*	*19.02*		*49.5*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*11.2*		*ug/kg*	*19.02*		*59.0*	*35-125*			
Surrogate: Decachlorobiphenyl	*16.5*		*ug/kg*	*19.02*		*86.8*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*17.0*		*ug/kg*	*19.02*		*89.5*	*40-130*			
Batch B211031 - Sonication (probe or bath)										
Blank (B211031-BLK1)				Prepared: 02-Nov-2012 Analyzed: 19-Nov-2012						
4,4´-DDD	ND	0.250	ug/kg							U
4,4'-DDD [2C]	ND	0.250	ug/kg							U
4,4´-DDE	ND	0.250	ug/kg							U
4,4'-DDE [2C]	ND	0.250	ug/kg							U
4,4´-DDT	ND	0.250	ug/kg							U
4,4'-DDT [2C]	ND	0.250	ug/kg							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.95*		*ug/kg*	*8.000*		*36.8*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*3.29*		*ug/kg*	*8.000*		*41.1*	*35-125*			
Surrogate: Decachlorobiphenyl	*6.71*		*ug/kg*	*8.000*		*83.9*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*6.23*		*ug/kg*	*8.000*		*77.9*	*40-130*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B211031 - Sonication (probe or bath)										
LCS (B211031-BS1)				Prepared: 02-Nov-2012 Analyzed: 19-Nov-2012						
4,4´-DDD	3.95	0.250	ug/kg	8.000		49.4	30-135			
4,4'-DDD [2C]	3.98	0.250	ug/kg	8.000		49.8	30-135			
4,4´-DDE	5.16	0.250	ug/kg	8.000		64.5	50-125			
4,4'-DDE [2C]	5.80	0.250	ug/kg	8.000		72.6	50-125			
4,4´-DDT	3.59	0.250	ug/kg	8.000		44.9	40-140			
4,4'-DDT [2C]	3.44	0.250	ug/kg	8.000		43.0	40-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*2.88*		*ug/kg*	*8.000*		*36.1*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*3.33*		*ug/kg*	*8.000*		*41.7*	*35-125*			
Surrogate: Decachlorobiphenyl	*6.27*		*ug/kg*	*8.000*		*78.4*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*6.54*		*ug/kg*	*8.000*		*81.8*	*40-130*			
LCS Dup (B211031-BSD1)				Prepared: 02-Nov-2012 Analyzed: 19-Nov-2012						
4,4´-DDD	3.89	0.250	ug/kg	8.000		48.6	30-135	1.61	30	
4,4'-DDD [2C]	4.02	0.250	ug/kg	8.000		50.2	30-135	0.880	30	
4,4´-DDE	5.09	0.250	ug/kg	8.000		63.7	50-125	1.25	30	
4,4'-DDE [2C]	5.77	0.250	ug/kg	8.000		72.2	50-125	0.532	30	
4,4´-DDT	3.49	0.250	ug/kg	8.000		43.6	40-140	2.91	30	
4,4'-DDT [2C]	3.41	0.250	ug/kg	8.000		42.6	40-140	0.748	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.19*		*ug/kg*	*8.000*		*39.8*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*3.66*		*ug/kg*	*8.000*		*45.7*	*35-125*			
Surrogate: Decachlorobiphenyl	*5.79*		*ug/kg*	*8.000*		*72.4*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*5.99*		*ug/kg*	*8.000*		*74.8*	*40-130*			
Batch B211032 - Sonication (probe or bath)										
Blank (B211032-BLK1)				Prepared: 06-Nov-2012 Analyzed: 21-Nov-2012						
4,4´-DDD	ND	0.250	ug/kg							U
4,4'-DDD [2C]	ND	0.250	ug/kg							U
4,4´-DDE	ND	0.250	ug/kg							U
4,4'-DDE [2C]	ND	0.250	ug/kg							U
4,4´-DDT	ND	0.250	ug/kg							U
4,4'-DDT [2C]	ND	0.250	ug/kg							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*1.51*		*ug/kg*	*8.000*		*18.9*	*35-125*			*S-GC*
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*1.61*		*ug/kg*	*8.000*		*20.1*	*35-125*			*S-GC*
Surrogate: Decachlorobiphenyl	*6.68*		*ug/kg*	*8.000*		*83.5*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*5.47*		*ug/kg*	*8.000*		*68.4*	*40-130*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C (Environmental Chemistry Branch)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B211032 - Sonication (probe or bath)										
LCS (B211032-BS1)				Prepared: 06-Nov-2012 Analyzed: 21-Nov-2012						
4,4´-DDD	4.57	0.250	ug/kg	8.000		57.1	30-135			
4,4'-DDD [2C]	4.55	0.250	ug/kg	8.000		56.8	30-135			
4,4´-DDE	4.39	0.250	ug/kg	8.000		54.8	50-125			
4,4'-DDE [2C]	4.46	0.250	ug/kg	8.000		55.8	50-125			
4,4´-DDT	4.20	0.250	ug/kg	8.000		52.5	45-140			
4,4'-DDT [2C]	4.50	0.250	ug/kg	8.000		56.3	45-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*4.02*		*ug/kg*	*8.000*		*50.2*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*4.24*		*ug/kg*	*8.000*		*53.0*	*35-125*			
Surrogate: Decachlorobiphenyl	*5.87*		*ug/kg*	*8.000*		*73.3*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*5.85*		*ug/kg*	*8.000*		*73.1*	*40-130*			
LCS Dup (B211032-BSD1)				Prepared: 06-Nov-2012 Analyzed: 21-Nov-2012						
4,4´-DDD	4.80	0.250	ug/kg	8.000		60.0	30-135	4.93	30	
4,4'-DDD [2C]	3.79	0.250	ug/kg	8.000		47.4	30-135	18.1	30	
4,4´-DDE	4.44	0.250	ug/kg	8.000		55.4	50-125	1.12	30	
4,4'-DDE [2C]	4.18	0.250	ug/kg	8.000		52.3	50-125	6.50	30	
4,4´-DDT	4.97	0.250	ug/kg	8.000		62.1	45-140	16.7	30	
4,4'-DDT [2C]	4.62	0.250	ug/kg	8.000		57.7	45-140	2.54	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.60*		*ug/kg*	*8.000*		*45.0*	*35-125*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene [2C]	*3.83*		*ug/kg*	*8.000*		*47.9*	*35-125*			
Surrogate: Decachlorobiphenyl	*5.91*		*ug/kg*	*8.000*		*73.9*	*40-130*			
Surrogate: Decachorobiphenyl [2C]	*5.85*		*ug/kg*	*8.000*		*73.2*	*40-130*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360:		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	10-Jan-2013

Notes and Definitions

U	Analyte included in the analysis, but not detected
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
QR-05	RPD between primary and confirmation column values >40%.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

16 December 2014

Gunther Rosen
Navy -- SPAWAR
Environmental Science and Applied System Branch, 536(
San Diego, CA 92152

RE: Quantico

Enclosed are the results of analyses for samples received by the laboratory on 11-Sep-2014. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Michael Catt For Allyson Holman
Biologist

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
16-Dec-2014

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
Corbicula Batch 1 T0 A	4091101-01	Tissue	09-Sep-2014	11-Sep-2014
Corbicula Batch 1 T0 B	4091101-02	Tissue	09-Sep-2014	11-Sep-2014
Corbicula Batch 1 T0 C	4091101-03	Tissue	09-Sep-2014	11-Sep-2014
Corbicula Batch 2 T0 A	4091101-04	Tissue	09-Sep-2014	11-Sep-2014
Corbicula Batch 2 T0 B	4091101-05	Tissue	09-Sep-2014	11-Sep-2014
Corbicula Batch 2 T0 C	4091101-06	Tissue	09-Sep-2014	11-Sep-2014
Lumbriculus Batch 1 T0 A	4091101-07	Tissue	09-Sep-2014	11-Sep-2014
Lumbriculus Batch 1 T0 B	4091101-08	Tissue	09-Sep-2014	11-Sep-2014
Lumbriculus Batch 1 T0 C	4091101-09	Tissue	09-Sep-2014	11-Sep-2014
Lumbriculus Batch 2 T0 A	4091101-10	Tissue	09-Sep-2014	11-Sep-2014
Lumbriculus Batch 2 T0 B	4091101-11	Tissue	09-Sep-2014	11-Sep-2014
Lumbriculus Batch 2 T0 C	4091101-12	Tissue	09-Sep-2014	11-Sep-2014

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	16-Dec-2014

Case Narrative

No issues were experienced during the analysis of Work Order 4091101 unless specified below.

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	16-Dec-2014

Notes and Definitions

U	Analyte included in the analysis, but not detected
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
RPD-04	RPD between primary and confirmation column values >40%. Per SW846 8000C, the lower result has been reported.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	16-Dec-2014

Corbicula Batch 1 T0 A

4091101-01 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**2.05**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**0.337**	0.148	0.463	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
4,4´-DDE	**0.227**	0.148	0.463	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
4,4´-DDT	**0.374**	0.148	0.463	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
2,4´-DDT	ND	0.148	0.463	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
2,4´-DDE	**0.298**	0.148	0.463	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
2,4´-DDD	**0.291**	0.148	0.463	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**9.59**		*64.8 %*		*35-125*	*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**13.9**		*93.8 %*		*40-130*	*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	16-Dec-2014

Corbicula Batch 1 T0 B

4091101-02 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**2.07**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**0.335**	0.160	0.500	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
4,4´-DDE	**0.278**	0.160	0.500	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
4,4´-DDT	**0.176**	0.160	0.500	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
2,4´-DDT	ND	0.160	0.500	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
2,4´-DDE	**0.712**	0.160	0.500	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	
2,4´-DDD	**0.297**	0.160	0.500	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**5.68**		*71.0 %*	*35-125*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**8.76**		*110 %*	*40-130*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	16-Dec-2014

Corbicula Batch 1 T0 C

4091101-03 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**1.86**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**0.182**	0.151	0.472	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
4,4´-DDE	**0.338**	0.151	0.472	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
4,4´-DDT	**0.385**	0.151	0.472	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
2,4´-DDT	ND	0.151	0.472	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
2,4´-DDE	**0.381**	0.151	0.472	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
2,4´-DDD	ND	0.151	0.472	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	RPD-04, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**5.62**		*74.5 %*	*35-125*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**8.26**		*110 %*	*40-130*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	16-Dec-2014

Corbicula Batch 2 T0 A

4091101-04 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**1.45**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**0.165**	0.157	0.490	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
4,4´-DDE	**0.390**	0.157	0.490	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
4,4´-DDT	**0.195**	0.157	0.490	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
2,4´-DDT	ND	0.157	0.490	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
2,4´-DDE	**0.330**	0.157	0.490	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
2,4´-DDD	**0.160**	0.157	0.490	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**6.31**		*80.5 %*	*35-125*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**9.25**		*118 %*	*40-130*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	16-Dec-2014

Corbicula Batch 2 T0 B

4091101-05 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**1.46**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**0.202**	0.145	0.455	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
4,4´-DDE	**0.340**	0.145	0.455	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
4,4´-DDT	**0.220**	0.145	0.455	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
2,4´-DDT	ND	0.145	0.455	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
2,4´-DDE	**0.313**	0.145	0.455	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
2,4´-DDD	ND	0.145	0.455	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**5.78**		*79.5 %*	*35-125*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**8.73**		*120 %*	*40-130*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	16-Dec-2014

Corbicula Batch 2 T0 C

4091101-06 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**1.78**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**0.170**	0.157	0.490	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
4,4´-DDE	**0.307**	0.157	0.490	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
4,4´-DDT	ND	0.157	0.490	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
2,4´-DDT	ND	0.157	0.490	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
2,4´-DDE	**0.415**	0.157	0.490	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
2,4´-DDD	**0.224**	0.157	0.490	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**6.43**		*82.0 %*	*35-125*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**9.22**		*118 %*	*40-130*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	

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Lumbriculus Batch 1 T0 A

4091101-07 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**5.38**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**0.172**	0.096	0.300	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
4,4´-DDE	**0.466**	0.096	0.300	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	
4,4´-DDT	ND	0.096	0.300	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	RPD-04, U
2,4´-DDT	ND	0.096	0.300	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
2,4´-DDE	**0.438**	0.096	0.300	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	
2,4´-DDD	ND	0.096	0.300	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.618**		*32.1 %*	*35-125*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	*S-GC*
Surrogate: Decachlorobiphenyl	**0.853**		*44.4 %*	*40-130*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	16-Dec-2014

Lumbriculus Batch 1 T0 B

4091101-08 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**37900**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**0.136**	0.100	0.311	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
4,4´-DDE	**0.580**	0.100	0.311	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	
4,4´-DDT	**0.259**	0.100	0.311	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
2,4´-DDT	**0.128**	0.100	0.311	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
2,4´-DDE	**0.363**	0.100	0.311	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	
2,4´-DDD	**0.139**	0.100	0.311	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.617**		*31.0 %*	*35-125*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	*S-GC*
Surrogate: Decachlorobiphenyl	**1.08**		*54.1 %*	*40-130*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	

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Lumbriculus Batch 1 T0 C

4091101-09 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**2.82**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**0.217**	0.098	0.306	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
4,4´-DDE	**0.860**	0.098	0.306	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	
4,4´-DDT	ND	0.098	0.306	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
2,4´-DDT	**0.184**	0.098	0.306	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
2,4´-DDE	**0.145**	0.098	0.306	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
2,4´-DDD	ND	0.098	0.306	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**0.934**		*47.6 %*	*35-125*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.29**		*65.9 %*	*40-130*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	

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Lumbriculus Batch 2 T0 A

4091101-10 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**7.18**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**0.239**	0.095	0.296	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
4,4´-DDE	**1.20**	0.095	0.296	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	
4,4´-DDT	ND	0.095	0.296	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
2,4´-DDT	ND	0.095	0.296	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
2,4´-DDE	**0.150**	0.095	0.296	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
2,4´-DDD	**0.103**	0.095	0.296	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.36**		*71.9 %*	*35-125*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.66**		*87.5 %*	*40-130*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	

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Lumbriculus Batch 2 T0 B

4091101-11 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**5.78**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**0.165**	0.098	0.306	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
4,4´-DDE	**0.904**	0.098	0.306	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	
4,4´-DDT	ND	0.098	0.306	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
2,4´-DDT	ND	0.098	0.306	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
2,4´-DDE	**0.142**	0.098	0.306	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
2,4´-DDD	ND	0.098	0.306	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.07**		*54.6 %*	*35-125*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.52**		*77.6 %*	*40-130*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	

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Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
16-Dec-2014

Lumbriculus Batch 2 T0 C

4091101-12 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**5.79**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	ND	0.100	0.311	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
4,4´-DDE	**0.202**	0.100	0.311	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
4,4´-DDT	**0.105**	0.100	0.311	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
2,4´-DDT	ND	0.100	0.311	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
2,4´-DDE	**0.145**	0.100	0.311	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	J
2,4´-DDD	ND	0.100	0.311	ug/kg		09-Oct-2014	18-Nov-2014	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**1.65**		*83.0 %*	*35-125*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**1.73**		*87.1 %*	*40-130*		*09-Oct-2014*	*18-Nov-2014*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	16-Dec-2014

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B410123 - Sonication (probe or bath)											
Blank (B410123-BLK1)					Prepared: 09-Oct-2014 Analyzed: 18-Nov-2014						
4,4´-DDD	ND	0.160	0.500	ug/kg							U
4,4´-DDE	ND	0.160	0.500	ug/kg							U
4,4´-DDT	ND	0.160	0.500	ug/kg							U
2,4´-DDT	ND	0.160	0.500	ug/kg							U
2,4´-DDE	ND	0.160	0.500	ug/kg							U
2,4´-DDD	ND	0.160	0.500	ug/kg							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*4.48*			*ug/kg*	*8.000*		*56.0*	*35-125*			
Surrogate: Decachlorobiphenyl	*4.96*			*ug/kg*	*8.000*		*62.0*	*40-130*			
LCS (B410123-BS1)					Prepared: 09-Oct-2014 Analyzed: 18-Nov-2014						
4,4´-DDD	5.20	0.160	0.500	ug/kg	8.000		65.0	30-135			
4,4´-DDE	4.85	0.160	0.500	ug/kg	8.000		60.6	50-125			
4,4´-DDT	5.12	0.160	0.500	ug/kg	8.000		64.0	40-140			
2,4´-DDT	6.16	0.160	0.500	ug/kg	10.00		61.6	50-110			
2,4´-DDE	6.04	0.160	0.500	ug/kg	10.00		60.4	50-110			
2,4´-DDD	5.16	0.160	0.500	ug/kg	10.00		51.6	50-110			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*4.08*			*ug/kg*	*8.000*		*51.0*	*35-125*			
Surrogate: Decachlorobiphenyl	*5.16*			*ug/kg*	*8.000*		*64.5*	*40-130*			
Matrix Spike (B410123-MS1)		**Source: 4091101-08**			Prepared: 09-Oct-2014 Analyzed: 18-Nov-2014						
4,4´-DDD	6.53	0.163	0.510	ug/kg	8.163	0.136	80.0	30-135			
4,4´-DDE	8.78	0.163	0.510	ug/kg	8.163	0.580	100	50-125			
4,4´-DDT	6.65	0.163	0.510	ug/kg	8.163	0.259	78.3	40-140			
2,4´-DDT	7.88	0.163	0.510	ug/kg	10.20	0.128	77.2	40-110			
2,4´-DDE	8.16	0.163	0.510	ug/kg	10.20	0.363	76.4	40-110			
2,4´-DDD	8.57	0.163	0.510	ug/kg	10.20	0.139	84.0	40-110			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*4.45*			*ug/kg*	*8.163*		*54.5*	*35-125*			
Surrogate: Decachlorobiphenyl	*7.47*			*ug/kg*	*8.163*		*91.5*	*40-130*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	16-Dec-2014

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B410123 - Sonication (probe or bath)											
Matrix Spike Dup (B410123-MSD1)	**Source: 4091101-08**				Prepared: 09-Oct-2014 Analyzed: 18-Nov-2014						
4,4´-DDD	5.23	0.140	0.439	ug/kg	7.018	0.136	74.5	30-135	22.2	30	
4,4´-DDE	7.19	0.140	0.439	ug/kg	7.018	0.580	94.2	50-125	19.8	30	
4,4´-DDT	5.30	0.140	0.439	ug/kg	7.018	0.259	71.8	40-140	22.7	30	
2,4´-DDT	6.18	0.140	0.439	ug/kg	8.772	0.128	70.4	40-110	24.2	30	
2,4´-DDE	6.32	0.140	0.439	ug/kg	8.772	0.363	67.9	40-110	25.5	30	
2,4´-DDD	6.77	0.140	0.439	ug/kg	8.772	0.139	77.2	40-110	23.5	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.34*			*ug/kg*	*7.018*		*47.6*	*35-125*			
Surrogate: Decachlorobiphenyl	*5.65*			*ug/kg*	*7.018*		*80.5*	*40-130*			

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Chain of Custody

Date: 9/10/2014 1 of 1

Project Manager:	Gunther Rosen	office: (619) 553-0886	cell: (619) 890-9692
Company Name:	SPAWAR Systems Center Pacific	email: gunther.rosen@navy.mil	
Project Name:	SEA Ring		
Sampler's Name(s):	Gunther Rosen		

Bill To:	Gunther Rosen	Report To:	Gunther Rosen
Company:	SPAWAR Systems Center Pacific	Company:	SPAWAR
Address:	53475 Strothe Rd., Bldg. 111 San Diego, CA 92152	Address:	Same (electronic copies only)

QC Level: Standard | TAT: Standard

Preservatives: 4°C

Sample Data						Matrix			Analyses			Comments
Sample ID	Sample Description	Date Collected	Time Collected	Container Type	No. Containers	Soil/Sediment	Seawater	Tissue	AAX	Lipid		weight (g)
Corbicula Batch 1 T0 A	Clam tissue	9/9/14	07:00	Scint vial	1			X	X	X		1,4
Corbicula Batch 1 T0 B	Clam tissue	9/9/14	07:00	"	1			X	X	X		2.5
Corbicula Batch 1 T0 C	Clam tissue	9/9/14	07:00	"	1			X	X	X		2.1
Corbicula Batch 2 T0 A	Clam tissue	9/9/14	18:00	"	1			X	X	X		4.3
Corbicula Batch 2 T0 B	Clam tissue	9/9/14	18:00	"	1			X	X	X		3.6
Corbicula Batch 2 T0 C	Clam tissue	9/9/14	18:00	"	1			X	X	X		3.1
Lumbriculus Batch 1 T0 A	Worm tissue	9/9/14	07:00	Ziploc	1			X	X	X		13.3
Lumbriculus Batch 1 T0 B	Worm tissue	9/9/14	07:00	"	1			X	X	X		29.5
Lumbriculus Batch 1 T0 C	Worm tissue	9/9/14	07:00	"	1			X	X	X		25.0
Lumbriculus Batch 2 T0 A	Worm tissue	9/9/14	18:00	"	1			X	X	X		13.1
Lumbriculus Batch 2 T0 B	Worm tissue	9/9/14	18:00	"	1			X	X	X		13.3
Lumbriculus Batch 2 T0 C	Worm tissue	9/9/14	18:00	"	1			X	X	X		14.8

Submitted to (Laboratory Name):	ERDC-EL		
Relinquished By: Gunther Rosen	Date 9/10/14	Time 1600HR	
Received By:	Date	Time	
Relinquished By:	Date	Time	
Received By (LAB):	Date 9-11-14	Time 11:30a	

For Lab Use

Does COC match samples: Y or N
Broken container: Y or N
Received within holding time: Y or N
COC seal intact: Y or N
Any other problems: Y or N
If problems, AMEC contacted: Y or N
Date contacted: ___/___/___
Temperature (°C): _____

Comments

Shipped Fedex priority overnight to ERDC-EL Lab. 3909 Halls Ferry Rd., Bldg. 3299. Vicksburg, MS 39180, Attn: Allyson Holman 601-634-4296

T0 = time zero. Batch 1 organimsms received 9/5/14; Batch 2 organimsms received 9/9/14.

Discuss with G. Rosen Before Analyzing

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

15 December 2014

Gunther Rosen
Navy -- SPAWAR
Environmental Science and Applied System Branch, 536(
San Diego, CA 92152

RE: Quantico

Enclosed are the results of analyses for samples received by the laboratory on 25-Sep-2014. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Michael Catt For Allyson Holman
Biologist

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
15-Dec-2014

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
QT2-1-LV-Cl	4101002-01	Tissue	24-Sep-2014	25-Sep-2014
QT2-2-LV-Cl	4101002-02	Tissue	24-Sep-2014	25-Sep-2014
QT2-4-LV-Cl	4101002-03	Tissue	24-Sep-2014	25-Sep-2014
QT2-5-LV-Cl	4101002-04	Tissue	24-Sep-2014	25-Sep-2014
QT2-5dup-LV-Cl	4101002-05	Tissue	24-Sep-2014	25-Sep-2014
QT2-6-LV-Cl	4101002-06	Tissue	24-Sep-2014	25-Sep-2014
QT2-7-LV-Cl	4101002-07	Tissue	24-Sep-2014	25-Sep-2014
QT2-1-Cf-Cl	4101002-08	Tissue	24-Sep-2014	25-Sep-2014
QT2-2-Cf-Cl	4101002-09	Tissue	24-Sep-2014	25-Sep-2014
QT2-3F-Cf-Cl	4101002-10	Tissue	24-Sep-2014	25-Sep-2014
QT2-4-Cf-Cl	4101002-11	Tissue	24-Sep-2014	25-Sep-2014
QT2-5-Cf-Cl	4101002-12	Tissue	24-Sep-2014	25-Sep-2014
QT2-5dup-Cf-Cl	4101002-13	Tissue	24-Sep-2014	25-Sep-2014
QT2-6-Cf-Cl	4101002-14	Tissue	24-Sep-2014	25-Sep-2014
QT2-7-Cf-Cl	4101002-15	Tissue	24-Sep-2014	25-Sep-2014

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

Case Narrative

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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

Notes and Definitions

U	Analyte included in the analysis, but not detected
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

QT2-1-LV-Cl

4101002-01 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**2.94**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**11.1**	0.096	0.299	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDE	**8.01**	0.096	0.299	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDT	**0.648**	0.096	0.299	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDT	**0.316**	0.096	0.299	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDE	**1.61**	0.096	0.299	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDD	**1.56**	0.096	0.299	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.47**		*72.5 %*	*35-125*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.44**		*51.0 %*	*40-130*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

QT2-2-LV-Cl

4101002-02 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**2.74**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**13.7**	0.099	0.309	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDE	**8.96**	0.099	0.309	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDT	**1.13**	0.099	0.309	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDT	ND	0.099	0.309	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	U
2,4´-DDE	**1.38**	0.099	0.309	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDD	**1.62**	0.099	0.309	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.72**		*55.0 %*	*35-125*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.70**		*54.5 %*	*40-130*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

QT2-4-LV-Cl

4101002-03 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**2.35**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**8.86**	0.097	0.302	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDE	**9.49**	0.097	0.302	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDT	**0.488**	0.097	0.302	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDT	**0.336**	0.097	0.302	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDE	ND	0.097	0.302	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	U
2,4´-DDD	**1.29**	0.097	0.302	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.61**		*54.0 %*	*35-125*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.46**		*51.0 %*	*40-130*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

QT2-5-LV-Cl

4101002-04 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**3.52**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**51.2**	0.160	0.500	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDE	**40.8**	0.160	0.500	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDT	**4.48**	0.160	0.500	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDT	**3.82**	0.160	0.500	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDE	**18.5**	0.160	0.500	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDD	**8.76**	0.160	0.500	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**5.16**		*64.5 %*	*35-125*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**8.52**		*106 %*	*40-130*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

QT2-5dup-LV-Cl

4101002-05 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**3.29**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**54.6**	0.154	0.481	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDE	**40.0**	0.154	0.481	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDT	**3.33**	0.154	0.481	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDT	**1.32**	0.154	0.481	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDE	**7.88**	0.154	0.481	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDD	**7.46**	0.154	0.481	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**6.65**		*86.5 %*	*35-125*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**7.38**		*96.0 %*	*40-130*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	

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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

QT2-6-LV-Cl

4101002-06 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**2.62**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**8.82**	0.143	0.446	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDE	**10.4**	0.143	0.446	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDT	**1.78**	0.143	0.446	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDT	**0.789**	0.143	0.446	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDE	**2.67**	0.143	0.446	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDD	**1.64**	0.143	0.446	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**7.04**		*98.5 %*	*35-125*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**7.11**		*99.5 %*	*40-130*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

QT2-7-LV-Cl

4101002-07 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**2.34**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**6.51**	0.157	0.490	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDE	**8.94**	0.157	0.490	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDT	**0.553**	0.157	0.490	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDT	**0.420**	0.157	0.490	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	J
2,4´-DDE	**1.76**	0.157	0.490	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDD	**0.976**	0.157	0.490	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**5.80**		*74.0 %*	*35-125*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**6.55**		*83.5 %*	*40-130*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

QT2-1-Cf-Cl

4101002-08 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**1.54**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**9.39**	0.098	0.305	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDE	**7.00**	0.098	0.305	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDT	**0.646**	0.098	0.305	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDT	**0.183**	0.098	0.305	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	J
2,4´-DDE	**1.22**	0.098	0.305	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDD	**0.673**	0.098	0.305	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.95**		*81.0 %*	*35-125*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**4.15**		*85.0 %*	*40-130*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
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San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

QT2-2-Cf-Cl

4101002-09 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**1.46**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**8.51**	0.095	0.296	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDE	**6.68**	0.095	0.296	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDT	**0.578**	0.095	0.296	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDT	**0.789**	0.095	0.296	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDE	**0.867**	0.095	0.296	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDD	**1.50**	0.095	0.296	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.22**		*68.0 %*	*35-125*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.96**		*83.5 %*	*40-130*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

QT2-3F-Cf-Cl

4101002-10 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**1.51**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**7.30**	0.100	0.312	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDE	**5.20**	0.100	0.312	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDT	**0.512**	0.100	0.312	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDT	**0.655**	0.100	0.312	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDE	ND	0.100	0.312	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	U
2,4´-DDD	**1.33**	0.100	0.312	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.40**		*68.0 %*	*35-125*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.82**		*76.5 %*	*40-130*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

QT2-4-Cf-Cl

4101002-11 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**2.43**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**6.73**	0.096	0.300	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDE	**6.13**	0.096	0.300	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDT	**0.435**	0.096	0.300	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDT	ND	0.096	0.300	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	U
2,4´-DDE	**0.750**	0.096	0.300	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDD	**0.526**	0.096	0.300	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.20**		*66.5 %*	*35-125*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.37**		*70.0 %*	*40-130*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

QT2-5-Cf-Cl

4101002-12 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**1.35**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**7.42**	0.094	0.293	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDE	**6.74**	0.094	0.293	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDT	ND	0.094	0.293	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	U
2,4´-DDT	ND	0.094	0.293	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	U
2,4´-DDE	**0.254**	0.094	0.293	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	J
2,4´-DDD	**0.570**	0.094	0.293	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**2.82**		*60.0 %*	*35-125*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**2.93**		*62.5 %*	*40-130*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

QT2-5dup-Cf-Cl

4101002-13 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**1.88**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**8.33**	0.097	0.302	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDE	**6.88**	0.097	0.302	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDT	**0.454**	0.097	0.302	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDT	ND	0.097	0.302	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	U
2,4´-DDE	**0.517**	0.097	0.302	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDD	**0.546**	0.097	0.302	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.04**		*63.0 %*	*35-125*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.82**		*79.0 %*	*40-130*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

QT2-6-Cf-Cl

4101002-14 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**1.57**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**1.41**	0.145	0.455	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDE	**1.45**	0.145	0.455	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDT	**0.167**	0.145	0.455	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	J
2,4´-DDT	ND	0.145	0.455	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	U
2,4´-DDE	**0.342**	0.145	0.455	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	J
2,4´-DDD	ND	0.145	0.455	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**4.00**		*55.0 %*	*35-125*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.67**		*50.5 %*	*40-130*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

QT2-7-Cf-Cl

4101002-15 (Tissue)

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters									
% Lipids	**1.44**			% by Weight		12-Dec-2014	12-Dec-2014	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A									
4,4´-DDD	**2.61**	0.100	0.311	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDE	**3.16**	0.100	0.311	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
4,4´-DDT	ND	0.100	0.311	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	U
2,4´-DDT	ND	0.100	0.311	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	U
2,4´-DDE	**0.552**	0.100	0.311	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	
2,4´-DDD	ND	0.100	0.311	ug/kg		20-Oct-2014	03-Dec-2014	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**3.08**		*62.0 %*	*35-125*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**4.00**		*80.5 %*	*40-130*		*20-Oct-2014*	*03-Dec-2014*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B410182 - Sonication (probe or bath)											
Blank (B410182-BLK1)					Prepared: 20-Oct-2014 Analyzed: 03-Dec-2014						
4,4´-DDD	ND	0.160	0.500	ug/kg							U
4,4´-DDE	ND	0.160	0.500	ug/kg							U
4,4´-DDT	ND	0.160	0.500	ug/kg							U
2,4´-DDT	ND	0.160	0.500	ug/kg							U
2,4´-DDE	ND	0.160	0.500	ug/kg							U
2,4´-DDD	ND	0.160	0.500	ug/kg							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*4.76*			*ug/kg*	*8.000*		*59.5*	*35-125*			
Surrogate: Decachlorobiphenyl	*5.32*			*ug/kg*	*8.000*		*66.5*	*40-130*			
LCS (B410182-BS1)					Prepared: 20-Oct-2014 Analyzed: 03-Dec-2014						
4,4´-DDD	7.32	0.160	0.500	ug/kg	8.000		91.5	30-135			
4,4´-DDE	6.52	0.160	0.500	ug/kg	8.000		81.5	50-125			
4,4´-DDT	7.00	0.160	0.500	ug/kg	8.000		87.5	40-140			
2,4´-DDT	8.48	0.160	0.500	ug/kg	10.00		84.8	50-110			
2,4´-DDE	7.60	0.160	0.500	ug/kg	10.00		76.0	50-110			
2,4´-DDD	8.04	0.160	0.500	ug/kg	10.00		80.4	50-110			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*5.24*			*ug/kg*	*8.000*		*65.5*	*35-125*			
Surrogate: Decachlorobiphenyl	*5.64*			*ug/kg*	*8.000*		*70.5*	*40-130*			
Matrix Spike (B410182-MS1)		**Source: 4101002-01**			Prepared: 20-Oct-2014 Analyzed: 03-Dec-2014						
4,4´-DDD	35.2	0.145	0.455	ug/kg	18.18	11.1	132	30-135			
4,4´-DDE	24.9	0.145	0.455	ug/kg	18.18	8.01	92.9	50-125			
4,4´-DDT	10.4	0.145	0.455	ug/kg	18.18	0.648	53.6	40-140			
2,4´-DDT	12.8	0.145	0.455	ug/kg	22.73	0.316	54.9	40-110			
2,4´-DDE	13.7	0.145	0.455	ug/kg	22.73	1.61	53.4	40-110			
2,4´-DDD	14.1	0.145	0.455	ug/kg	22.73	1.56	55.0	40-110			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*39.6*			*ug/kg*	*7.273*		*545*	*35-125*			*S-GC*
Surrogate: Decachlorobiphenyl	*6.80*			*ug/kg*	*7.273*		*93.5*	*40-130*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC- EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B410182 - Sonication (probe or bath)											
Matrix Spike Dup (B410182-MSD1)	**Source: 4101002-01**				Prepared: 20-Oct-2014 Analyzed: 03-Dec-2014						
4,4´-DDD	33.4	0.143	0.446	ug/kg	17.86	11.1	125	30-135	5.17	30	
4,4´-DDE	24.7	0.143	0.446	ug/kg	17.86	8.01	93.5	50-125	0.785	30	
4,4´-DDT	10.3	0.143	0.446	ug/kg	17.86	0.648	54.0	40-140	1.11	30	
2,4´-DDT	13.9	0.143	0.446	ug/kg	22.32	0.316	60.8	40-110	8.19	30	
2,4´-DDE	15.9	0.143	0.446	ug/kg	22.32	1.61	63.8	40-110	14.3	30	
2,4´-DDD	15.8	0.143	0.446	ug/kg	22.32	1.56	63.9	40-110	11.7	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*7.00*			*ug/kg*	*7.143*		*98.0*	*35-125*			
Surrogate: Decachlorobiphenyl	*6.96*			*ug/kg*	*7.143*		*97.5*	*40-130*			

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	15-Dec-2014

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

14 January 2016

Gunther Rosen
Navy -- SPAWAR
Environmental Science and Applied System Branch, 536(
San Diego, CA 92152

RE: Quantico

Enclosed are the results of analyses for samples received by the laboratory on 14-Sep-2015. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Dale Rosado, Ph. D.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
14-Jan-2016

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
QT12-T0-A-LV	5091401-01	Tissue	10-Sep-2015	14-Sep-2015
QT12-T0-B-LV	5091401-02	Tissue	10-Sep-2015	14-Sep-2015
QT12-T0-C-LV	5091401-03	Tissue	10-Sep-2015	14-Sep-2015
QT12-1-LV	5091401-04	Tissue	10-Sep-2015	14-Sep-2015
QT12-2-LV	5091401-05	Tissue	10-Sep-2015	14-Sep-2015
QT12-3-LV	5091401-06	Tissue	10-Sep-2015	14-Sep-2015
QT12-3DUP-LV	5091401-07	Tissue	10-Sep-2015	14-Sep-2015
QT12-4-LV	5091401-08	Tissue	10-Sep-2015	14-Sep-2015
QT12-5-LV	5091401-09	Tissue	10-Sep-2015	14-Sep-2015
QT12-6-LV	5091401-10	Tissue	10-Sep-2015	14-Sep-2015
QT12-7-LV	5091401-11	Tissue	10-Sep-2015	14-Sep-2015
QT12-T0-A-CF	5091401-12	Tissue	10-Sep-2015	14-Sep-2015
QT12-T0-B-CF	5091401-13	Tissue	10-Sep-2015	14-Sep-2015
QT12-T0-C-CF	5091401-14	Tissue	10-Sep-2015	14-Sep-2015
QT12-1-CF	5091401-15	Tissue	10-Sep-2015	14-Sep-2015
QT12-2-CF	5091401-16	Tissue	10-Sep-2015	14-Sep-2015
QT12-3-CF	5091401-17	Tissue	10-Sep-2015	14-Sep-2015
QT12-3DUP-CF	5091401-18	Tissue	10-Sep-2015	14-Sep-2015
QT12-4-CF	5091401-19	Tissue	10-Sep-2015	14-Sep-2015
QT12-5-CF	5091401-20	Tissue	10-Sep-2015	14-Sep-2015
QT12-6-CF	5091401-21	Tissue	10-Sep-2015	14-Sep-2015
QT12-7-CF	5091401-22	Tissue	10-Sep-2015	14-Sep-2015

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	14-Jan-2016

Case Narrative

Early eluting interfering peaks in several samples resulted in high recoveries of the 2,4,5,6-TCMX surrogate.

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	14-Jan-2016

Notes and Definitions

U	Analyte included in the analysis, but not detected
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate/s.
RPD-04	RPD between primary and confirmation column values >40%. Per SW846 8000C, the lower result has been reported.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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USACE ERDC-EP-C
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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	14-Jan-2016

QT12-T0-A-LV

5091401-01 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**4.15**			% by Weight	11-Nov-2015	11-Nov-2015	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.225	0.702	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.225	0.702	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.225	0.702	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	ND	0.225	0.702	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDE	ND	0.225	0.702	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDT	ND	0.225	0.702	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**5.94**		*60.3 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**7.31**		*74.2 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	14-Jan-2016

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5091401-02 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**4.11**			% by Weight	11-Nov-2015	11-Nov-2015	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.213	0.666	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.213	0.666	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.213	0.666	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	ND	0.213	0.666	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDE	ND	0.213	0.666	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDT	ND	0.213	0.666	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**9.38**		*100 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**8.31**		*88.9 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	14-Jan-2016

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5091401-03 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**3.92**			% by Weight	11-Nov-2015	11-Nov-2015	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.220	0.688	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.220	0.688	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.220	0.688	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	ND	0.220	0.688	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDE	ND	0.220	0.688	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDT	ND	0.220	0.688	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**5.84**		*60.4 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**7.71**		*79.8 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	14-Jan-2016

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5091401-04 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**1.74**			% by Weight	11-Nov-2015	11-Nov-2015	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.341	1.07	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.341	1.07	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.341	1.07	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	**10.3**	0.341	1.07	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDE	**19.1**	0.341	1.07	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDT	ND	0.341	1.07	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**7.79**		*52.1 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**8.25**		*55.2 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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5091401-05 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**1.43**			% by Weight	11-Nov-2015	11-Nov-2015	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.374	1.17	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.374	1.17	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.374	1.17	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	**10.2**	0.374	1.17	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDE	**9.20**	0.374	1.17	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	RPD-04
4,4´-DDT	ND	0.374	1.17	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**10.6**		*65.0 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**7.44**		*45.4 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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5091401-06 (Tissue)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.224	0.699	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.224	0.699	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.224	0.699	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	**24.6**	0.224	0.699	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDE	**14.1**	0.224	0.699	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDT	ND	0.224	0.699	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**7.67**		*78.2 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**7.59**		*77.4 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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5091401-07 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.226	0.705	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.226	0.705	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.226	0.705	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	**38.1**	0.226	0.705	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDE	**17.1**	0.226	0.705	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDT	ND	0.226	0.705	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**8.11**		*81.9 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**7.63**		*77.0 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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5091401-08 (Tissue)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.221	0.692	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.221	0.692	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.221	0.692	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	**21.3**	0.221	0.692	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDE	**12.6**	0.221	0.692	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDT	ND	0.221	0.692	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**6.46**		*66.5 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**7.20**		*74.2 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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5091401-09 (Tissue)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.225	0.702	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.225	0.702	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.225	0.702	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	**23.0**	0.225	0.702	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDE	**14.5**	0.225	0.702	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDT	ND	0.225	0.702	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**6.48**		*65.7 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**7.23**		*73.4 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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5091401-10 (Tissue)

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Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.192	0.599	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.192	0.599	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.192	0.599	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	**6.55**	0.192	0.599	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDE	**9.62**	0.192	0.599	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDT	ND	0.192	0.599	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**4.66**		*55.5 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**5.50**		*65.4 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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5091401-11 (Tissue)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.221	0.692	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.221	0.692	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.221	0.692	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	**2.59**	0.221	0.692	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDE	**6.86**	0.221	0.692	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDT	ND	0.221	0.692	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**5.39**		*55.5 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**3.66**		*37.7 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	*S-GC*

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Project Manager: Gunther Rosen

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5091401-12 (Tissue)

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Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.221	0.692	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.221	0.692	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.221	0.692	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	ND	0.221	0.692	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDE	**5.31**	0.221	0.692	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDT	ND	0.221	0.692	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**30.6**		*315 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**5.46**		*56.2 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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5091401-13 (Tissue)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.184	0.575	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.184	0.575	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.184	0.575	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	ND	0.184	0.575	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDE	ND	0.184	0.575	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDT	ND	0.184	0.575	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**7.44**		*92.3 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**5.07**		*62.9 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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5091401-14 (Tissue)

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Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.188	0.589	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.188	0.589	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.188	0.589	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	ND	0.188	0.589	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDE	ND	0.188	0.589	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDT	ND	0.188	0.589	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**14.8**		*179 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**5.13**		*62.0 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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5091401-15 (Tissue)

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Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.213	0.666	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.213	0.666	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.213	0.666	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	**29.3**	0.213	0.666	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDE	**23.1**	0.213	0.666	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDT	**7.47**	0.213	0.666	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**16.1**		*172 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**12.6**		*135 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
14-Jan-2016

QT12-2-CF

5091401-16 (Tissue)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.195	0.609	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.195	0.609	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.195	0.609	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	**6.26**	0.195	0.609	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDE	**7.75**	0.195	0.609	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDT	**1.82**	0.195	0.609	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**4.97**		*58.1 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**4.14**		*48.4 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	14-Jan-2016

QT12-3-CF

5091401-17 (Tissue)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.208	0.651	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.208	0.651	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.208	0.651	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	**38.4**	0.208	0.651	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDE	**18.9**	0.208	0.651	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDT	**9.57**	0.208	0.651	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**13.3**		*146 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**8.55**		*93.6 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	14-Jan-2016

QT12-3DUP-CF

5091401-18 (Tissue)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.206	0.645	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.206	0.645	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.206	0.645	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	**34.3**	0.206	0.645	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDE	**22.4**	0.206	0.645	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDT	**8.68**	0.206	0.645	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**10.4**		*115 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**9.13**		*101 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	14-Jan-2016

QT12-4-CF

5091401-19 (Tissue)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.215	0.672	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.215	0.672	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.215	0.672	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	**11.3**	0.215	0.672	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDE	**8.71**	0.215	0.672	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDT	ND	0.215	0.672	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**6.29**		*66.7 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**7.26**		*77.0 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	14-Jan-2016

QT12-5-CF

5091401-20 (Tissue)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.210	0.657	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.210	0.657	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.210	0.657	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	**29.8**	0.210	0.657	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDE	**24.1**	0.210	0.657	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDT	**5.00**	0.210	0.657	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**9.40**		*102 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**10.3**		*112 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	14-Jan-2016

QT12-6-CF

5091401-21 (Tissue)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.214	0.669	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.214	0.669	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.214	0.669	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	**12.1**	0.214	0.669	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDE	**20.2**	0.214	0.669	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDT	ND	0.214	0.669	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**10.6**		*113 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**10.9**		*116 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	14-Jan-2016

QT12-7-CF

5091401-22 (Tissue)

ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
2,4´-DDD	ND	0.206	0.645	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDE	ND	0.206	0.645	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
2,4´-DDT	ND	0.206	0.645	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
4,4´-DDD	**12.7**	0.206	0.645	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDE	**13.5**	0.206	0.645	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	
4,4´-DDT	ND	0.206	0.645	ug/kg	19-Oct-2015	04-Dec-2015	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**13.1**		*144 %*	*35-125*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**11.0**		*122 %*	*40-130*	*19-Oct-2015*	*04-Dec-2015*	*EPA 8081A*	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	14-Jan-2016

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B510181 - Sonication (probe or bath)											
Blank (B510181-BLK1)					Prepared: 19-Oct-2015 Analyzed: 04-Dec-2015						
2,4´-DDD	ND	0.228	0.712	ug/kg							U
2,4´-DDE	ND	0.228	0.712	ug/kg							U
2,4´-DDT	ND	0.228	0.712	ug/kg							U
4,4´-DDD	ND	0.228	0.712	ug/kg							U
4,4´-DDE	ND	0.228	0.712	ug/kg							U
4,4´-DDT	ND	0.228	0.712	ug/kg							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*4.45*			*ug/kg*	*10.00*		*44.5*	*35-125*			
Surrogate: Decachlorobiphenyl	*5.79*			*ug/kg*	*10.00*		*57.9*	*40-130*			
LCS (B510181-BS1)					Prepared: 19-Oct-2015 Analyzed: 04-Dec-2015						
2,4´-DDD	18.7	0.228	0.712	ug/kg	18.75		99.7	50-125			
2,4´-DDE	17.9	0.228	0.712	ug/kg	18.75		95.5	50-125			
2,4´-DDT	18.3	0.228	0.712	ug/kg	18.75		97.6	50-125			
4,4´-DDD	18.8	0.228	0.712	ug/kg	15.00		125	30-135			
4,4´-DDE	18.6	0.228	0.712	ug/kg	15.00		124	50-125			
4,4´-DDT	19.7	0.228	0.712	ug/kg	15.00		131	40-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*3.90*			*ug/kg*	*10.00*		*39.0*	*35-125*			
Surrogate: Decachlorobiphenyl	*5.72*			*ug/kg*	*10.00*		*57.2*	*40-130*			
LCS Dup (B510181-BSD1)					Prepared: 19-Oct-2015 Analyzed: 04-Dec-2015						
2,4´-DDD	18.0	0.228	0.712	ug/kg	18.75		96.1	50-125	3.73	30	
2,4´-DDE	16.9	0.228	0.712	ug/kg	18.75		90.3	50-125	5.56	30	
2,4´-DDT	18.2	0.228	0.712	ug/kg	18.75		97.3	50-125	0.312	30	
4,4´-DDD	18.3	0.228	0.712	ug/kg	15.00		122	30-135	2.78	30	
4,4´-DDE	18.2	0.228	0.712	ug/kg	15.00		121	50-125	2.17	30	
4,4´-DDT	19.3	0.228	0.712	ug/kg	15.00		129	40-140	2.12	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*4.12*			*ug/kg*	*10.00*		*41.2*	*35-125*			
Surrogate: Decachlorobiphenyl	*5.53*			*ug/kg*	*10.00*		*55.3*	*40-130*			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	14-Jan-2016

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B510181 - Sonication (probe or bath)											
Duplicate (B510181-DUP1)	**Source: 5091401-15**				Prepared: 19-Oct-2015 Analyzed: 04-Dec-2015						
2,4´-DDD	ND	0.222	0.695	ug/kg		ND				30	U
2,4´-DDE	ND	0.222	0.695	ug/kg		ND				30	U
2,4´-DDT	ND	0.222	0.695	ug/kg		ND				30	U
4,4´-DDD	32.5	0.222	0.695	ug/kg		29.3			10.1	30	
4,4´-DDE	27.8	0.222	0.695	ug/kg		23.1			18.4	30	
4,4´-DDT	8.01	0.222	0.695	ug/kg		7.47			6.95	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*13.0*			*ug/kg*	*9.756*		*133*	*35-125*			
Surrogate: Decachlorobiphenyl	*12.7*			*ug/kg*	*9.756*		*130*	*40-130*			
Matrix Spike (B510181-MS1)	**Source: 5091401-18**				Prepared: 19-Oct-2015 Analyzed: 04-Dec-2015						
2,4´-DDD	12.4	0.207	0.648	ug/kg	17.05	ND	72.7	40-110			
2,4´-DDE	8.71	0.207	0.648	ug/kg	17.05	ND	51.1	40-110			
2,4´-DDT	12.9	0.207	0.648	ug/kg	17.05	ND	75.4	40-110			
4,4´-DDD	43.7	0.207	0.648	ug/kg	13.64	34.3	68.9	30-135			
4,4´-DDE	32.5	0.207	0.648	ug/kg	13.64	22.4	74.2	50-125			
4,4´-DDT	18.2	0.207	0.648	ug/kg	13.64	8.68	69.6	40-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*10.8*			*ug/kg*	*9.091*		*119*	*35-125*			
Surrogate: Decachlorobiphenyl	*7.36*			*ug/kg*	*9.091*		*81.0*	*40-130*			
Matrix Spike Dup (B510181-MSD1)	**Source: 5091401-18**				Prepared: 19-Oct-2015 Analyzed: 04-Dec-2015						
2,4´-DDD	10.6	0.214	0.669	ug/kg	17.61	ND	60.2	40-110	15.6	30	
2,4´-DDE	9.79	0.214	0.669	ug/kg	17.61	ND	55.6	40-110	11.8	30	
2,4´-DDT	10.9	0.214	0.669	ug/kg	17.61	ND	61.7	40-110	16.7	30	
4,4´-DDD	43.3	0.214	0.669	ug/kg	14.08	34.3	64.0	30-135	0.883	30	
4,4´-DDE	31.2	0.214	0.669	ug/kg	14.08	22.4	62.6	50-125	4.11	30	
4,4´-DDT	16.1	0.214	0.669	ug/kg	14.08	8.68	52.4	40-140	12.3	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*29.8*			*ug/kg*	*9.390*		*317*	*35-125*			
Surrogate: Decachlorobiphenyl	*6.15*			*ug/kg*	*9.390*		*65.6*	*40-130*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

SPAWAR
Systems Center San Diego

ENVIRONMENTAL SCIENCES AND APPLIED SYSTEMS BRANCH, CODE 71760
53475 Strothe Rd
SAN DIEGO, CA 92152

Chain of Custody Record

Date: 9/10/2015
Page: 1 of 1

Project Title/Project Number:	ER-201368 EMNR Monitoring Demonstration/Validation Project QT12	**Project Leader:**	Gunther Rosen
Remarks/Air Bill:		**Contact Tel:**	(619)553-0886
Sampler(s):	Molly, Adrienne, Gunther	**email:**	gunther.rosen@navy.mil
Tel: (619)553-0886	**Fax:**	**Email:**	gunther.rosen@navy.mil

Special Instructions: Additionally: Sample QT12-7-Cf weight = ~~4.33~~ 18.15

**Please discuss w/ G. Rosen prior to subsampling/analysis

Sample ID	Date	Time	Matrix	Container Type	# of Containers	Total Wet Weight (g)	Requested Analyses: ADX	UPD								
QT12-TΦ-A-LV	9/10/2015		TIS	20z. jar	1	6.4	X	X								
QT12-TΦ-B-LV					1	6.9	X	X								
QT12-TΦ-C-LV					1	6.9	X	X								
QT12-1-LV					1	1.0	X	X								
QT12-2-LV					1	1.8	X	X								
QT12-3-LV					1	9.7	X									
QT12-3DUP-LV					1	~~6.5~~ 9.5 mL	X									
QT12-4-LV					1	~~9.7~~ 6.5 mL	X									
QT12-5-LV					1	9.7	X									
QT12-6-LV					1	13.6	X									
QT12-7-LV					1	4.3	X									
QT12-TΦ-A-Cf					1	2.6	X									
QT12-TΦ-B-Cf					1	2.9	X									
QT12-TΦ-C-Cf					1	3.0	X									
QT12-1-Cf					1	20.0	X									
QT12-2-Cf					1	17.0	X									
QT12-3-Cf					1	17.7	X									
QT12-3DUP-Cf					1	11.2 ~~15.8~~ mL	X									
QT12-4-Cf					1	15.8	X									
QT12-5-Cf					1	17.3	X									
QT12-6-Cf					1	17.8	X									

Relinquished by: (Signature)	**Received by: (Signature)**	**Date:** 9/10/2015	**Time:**
Relinquished by: (Signature)	**Received by: (Signature)**	**Date:**	**Time:**

* See inst. For add'n sample

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

12 December 2016

Gunther Rosen
Navy -- SPAWAR
Environmental Science and Applied System Branch, 536(
San Diego, CA 92152

RE: Quantico

Enclosed are the results of analyses for samples received by the laboratory on 26-Aug-2016. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jenifer Milam For Dale Rosado, Ph. D.
Chemist

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Navy -- SPAWAR
Environmental Science and Applied System Branch, 5360
San Diego CA, 92152

Project: Quantico

Project Manager: Gunther Rosen

Reported:
12-Dec-2016

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
QT24-T0-LV-A Rep	6082603-01	Tissue	25-Aug-2016	26-Aug-2016
QT24-T0-LV-B Rep	6082603-02	Tissue	25-Aug-2016	26-Aug-2016
QT24-T0-LV-C Rep	6082603-03	Tissue	25-Aug-2016	26-Aug-2016
QT24-1-C-LV	6082603-04	Tissue	25-Aug-2016	26-Aug-2016
QT24-3-C-LV	6082603-05	Tissue	25-Aug-2016	26-Aug-2016
QT24-3DUP-C-LV	6082603-06	Tissue	25-Aug-2016	26-Aug-2016
QT24-4-C-LV	6082603-07	Tissue	25-Aug-2016	26-Aug-2016
QT24-6-C-LV	6082603-08	Tissue	25-Aug-2016	26-Aug-2016
QT24-7-C-LV	6082603-09	Tissue	25-Aug-2016	26-Aug-2016
QT24-T0-CF-A Rep	6082603-10	Tissue	25-Aug-2016	26-Aug-2016
QT24-T0-CF-B Rep	6082603-11	Tissue	25-Aug-2016	26-Aug-2016
QT24-T0-CF-C Rep	6082603-12	Tissue	25-Aug-2016	26-Aug-2016
QT24-1-C-CF	6082603-13	Tissue	25-Aug-2016	26-Aug-2016
QT24-2-C-CF	6082603-14	Tissue	25-Aug-2016	26-Aug-2016
QT24-3-C-CF	6082603-15	Tissue	25-Aug-2016	26-Aug-2016
QT24-3DUP-C-CF	6082603-16	Tissue	25-Aug-2016	26-Aug-2016
QT24-4-C-CF	6082603-17	Tissue	25-Aug-2016	26-Aug-2016
QT24-5-C-CF	6082603-18	Tissue	25-Aug-2016	26-Aug-2016
QT24-6-C-CF	6082603-19	Tissue	25-Aug-2016	26-Aug-2016
QT24-7-C-CF	6082603-20	Tissue	25-Aug-2016	26-Aug-2016

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	12-Dec-2016

Case Narrative

No issues were experienced during the analysis of Work Order 6082603 unless specified below.

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	12-Dec-2016

Notes and Definitions

U	Analyte included in the analysis, but not detected
RPD-04	RPD between primary and confirmation column values >40%. Per SW846 8000C, the lower result has been reported.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	12-Dec-2016

QT24-T0-LV-A Rep

6082603-01 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**3.55**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
2,4´-DDE	**0.622**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDT	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	**0.675**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDE	**3.25**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDT	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**8.43**		*41.3 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**11.1**		*54.3 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	12-Dec-2016

QT24-T0-LV-B Rep

6082603-02 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**3.73**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
2,4´-DDE	**0.750**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDT	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	**0.589**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	RPD-04
4,4´-DDE	**3.41**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDT	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**8.62**		*42.2 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**11.5**		*56.3 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	12-Dec-2016

QT24-T0-LV-C Rep

6082603-03 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**5.00**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
2,4´-DDE	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
2,4´-DDT	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	**0.575**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	RPD-04
4,4´-DDE	**3.61**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDT	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**9.67**		*47.4 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**12.6**		*61.7 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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6082603-04 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**2.13**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**3.42**	0.149	0.495	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDE	**2.51**	0.149	0.495	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDT	ND	0.149	0.495	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	**24.4**	0.149	0.495	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDE	**21.0**	0.149	0.495	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDT	**2.80**	0.149	0.495	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**8.96**		*45.2 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**11.9**		*60.2 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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6082603-05 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**3.01**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**2.38**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDE	**1.57**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDT	ND	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	**13.9**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDE	**13.1**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDT	**1.99**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**9.13**		*45.7 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**11.9**		*59.3 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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QT24-3DUP-C-LV

6082603-06 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**2.37**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**2.99**	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDE	**1.98**	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDT	ND	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	**16.0**	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDE	**17.3**	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDT	**2.12**	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**8.94**		*44.2 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**11.8**		*58.2 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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6082603-07 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**3.11**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.822**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDE	**1.28**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDT	ND	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	**5.03**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDE	**6.18**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDT	**0.695**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**9.46**		*47.3 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**12.0**		*60.1 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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6082603-08 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**2.28**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.309**	0.149	0.495	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	J
2,4´-DDE	**0.792**	0.149	0.495	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDT	ND	0.149	0.495	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	**3.02**	0.149	0.495	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDE	**4.91**	0.149	0.495	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDT	**0.753**	0.149	0.495	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**8.79**		*44.4 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**11.2**		*56.3 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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QT24-7-C-LV

6082603-09 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**1.97**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
2,4´-DDE	**0.838**	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDT	ND	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	**2.29**	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDE	**4.97**	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDT	**0.748**	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**9.33**		*46.2 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**12.8**		*63.2 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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QT24-T0-CF-A Rep

6082603-10 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**0.800**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
2,4´-DDE	ND	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
2,4´-DDT	ND	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	ND	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDE	ND	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDT	ND	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**7.53**		*37.3 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**11.2**		*55.5 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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QT24-T0-CF-B Rep

6082603-11 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**0.780**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.156	0.521	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
2,4´-DDE	ND	0.156	0.521	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
2,4´-DDT	ND	0.156	0.521	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	ND	0.156	0.521	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDE	ND	0.156	0.521	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDT	ND	0.156	0.521	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**9.11**		*43.7 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**12.8**		*61.5 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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6082603-12 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**0.810**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
2,4´-DDE	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
2,4´-DDT	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDE	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDT	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**8.42**		*41.3 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**11.8**		*57.9 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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Navy -- SPAWAR	Project: Quantico	
Environmental Science and Applied System Branch, 5360		**Reported:**
San Diego CA, 92152	Project Manager: Gunther Rosen	12-Dec-2016

QT24-1-C-CF

6082603-13 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**2.28**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**3.09**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDE	**1.88**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDT	ND	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	**16.3**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDE	**12.8**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDT	**6.86**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**9.64**		*48.2 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**11.7**		*58.5 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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6082603-14 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**2.13**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**1.93**	0.149	0.495	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDE	**1.28**	0.149	0.495	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDT	ND	0.149	0.495	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	**10.0**	0.149	0.495	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDE	**1.23**	0.149	0.495	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDT	**5.25**	0.149	0.495	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**9.45**		*47.7 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**11.7**		*58.9 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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6082603-15 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**1.81**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**2.15**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDE	**1.51**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDT	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	**12.0**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDE	**11.9**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDT	**8.53**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**9.64**		*47.2 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**12.1**		*59.5 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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6082603-16 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**1.59**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**2.16**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDE	**1.70**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDT	ND	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	**11.7**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDE	**12.4**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDT	**6.64**	0.150	0.500	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**9.60**		*48.0 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**12.8**		*64.0 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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6082603-17 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**2.12**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**1.15**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDE	**1.16**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDT	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	**6.52**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDE	**6.69**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDT	**3.45**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**8.61**		*42.2 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**11.0**		*53.8 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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6082603-18 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**2.22**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**1.90**	0.147	0.490	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDE	**1.50**	0.147	0.490	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDT	ND	0.147	0.490	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	**9.51**	0.147	0.490	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDE	**8.92**	0.147	0.490	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDT	**3.84**	0.147	0.490	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**8.15**		*41.6 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**11.0**		*55.9 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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6082603-19 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**1.70**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.414**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	J
2,4´-DDE	**0.867**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDT	ND	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	**2.83**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDE	**3.78**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDT	**1.10**	0.153	0.510	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	RPD-04
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**9.04**		*44.3 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**12.0**		*58.7 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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6082603-20 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**1.71**			% by Weight	31-Aug-2016	21-Nov-2016	Lipid Content by Gravimetric Determination	
Organochlorine Pesticides by EPA Method 8081A								
2,4´-DDD	**0.500**	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	J
2,4´-DDE	**1.01**	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
2,4´-DDT	ND	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	U
4,4´-DDD	**3.46**	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDE	**5.53**	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
4,4´-DDT	**1.48**	0.152	0.505	ug/kg	31-Aug-2016	05-Dec-2016	EPA 8081A	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	**9.48**		*46.9 %*	*35-125*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	
Surrogate: Decachlorobiphenyl	**13.2**		*65.3 %*	*40-130*	*31-Aug-2016*	*05-Dec-2016*	*EPA 8081A*	

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San Diego CA, 92152	Project Manager: Gunther Rosen	12-Dec-2016

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B611043 - Sonication (probe or bath)											
Blank (B611043-BLK1)					Prepared: 31-Aug-2016 Analyzed: 05-Dec-2016						
2,4´-DDD	ND	0.150	0.500	ug/kg							U
2,4´-DDE	ND	0.150	0.500	ug/kg							U
2,4´-DDT	ND	0.150	0.500	ug/kg							U
4,4´-DDD	ND	0.150	0.500	ug/kg							U
4,4´-DDE	ND	0.150	0.500	ug/kg							U
4,4´-DDT	ND	0.150	0.500	ug/kg							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*9.67*			*ug/kg*	*20.00*		*48.3*	*35-125*			
Surrogate: Decachlorobiphenyl	*13.0*			*ug/kg*	*20.00*		*65.1*	*40-130*			
LCS (B611043-BS1)					Prepared: 31-Aug-2016 Analyzed: 05-Dec-2016						
2,4´-DDD	11.2	0.150	0.500	ug/kg	20.00		56.2	50-125			
2,4´-DDE	10.3	0.150	0.500	ug/kg	20.00		51.4	50-125			
2,4´-DDT	11.5	0.150	0.500	ug/kg	20.00		57.6	50-125			
4,4´-DDD	11.6	0.150	0.500	ug/kg	20.00		58.1	30-135			
4,4´-DDE	11.7	0.150	0.500	ug/kg	20.00		58.3	50-125			
4,4´-DDT	13.6	0.150	0.500	ug/kg	20.00		68.2	40-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*9.91*			*ug/kg*	*20.00*		*49.5*	*35-125*			
Surrogate: Decachlorobiphenyl	*12.4*			*ug/kg*	*20.00*		*62.2*	*40-130*			
LCS Dup (B611043-BSD1)					Prepared: 31-Aug-2016 Analyzed: 05-Dec-2016						
2,4´-DDD	10.4	0.150	0.500	ug/kg	20.00		52.0	50-125	7.75	30	
2,4´-DDE	10.2	0.150	0.500	ug/kg	20.00		50.8	50-125	1.24	30	
2,4´-DDT	11.0	0.150	0.500	ug/kg	20.00		54.8	50-125	5.13	30	
4,4´-DDD	8.97	0.150	0.500	ug/kg	20.00		44.9	30-135	25.7	30	
4,4´-DDE	10.3	0.150	0.500	ug/kg	20.00		51.5	50-125	12.5	30	
4,4´-DDT	10.3	0.150	0.500	ug/kg	20.00		51.6	40-140	27.7	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*8.56*			*ug/kg*	*20.00*		*42.8*	*35-125*			
Surrogate: Decachlorobiphenyl	*10.5*			*ug/kg*	*20.00*		*52.4*	*40-130*			

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San Diego CA, 92152	Project Manager: Gunther Rosen	12-Dec-2016

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B611043 - Sonication (probe or bath)											
Matrix Spike (B611043-MS1)	**Source: 6082603-09**				Prepared: 31-Aug-2016 Analyzed: 05-Dec-2016						
2,4´-DDD	10.1	0.149	0.495	ug/kg	19.80	ND	50.9	40-110			
2,4´-DDE	11.6	0.149	0.495	ug/kg	19.80	0.838	54.3	40-110			
2,4´-DDT	10.6	0.149	0.495	ug/kg	19.80	ND	53.7	40-110			
4,4´-DDD	12.3	0.149	0.495	ug/kg	19.80	2.29	50.4	30-135			
4,4´-DDE	15.8	0.149	0.495	ug/kg	19.80	4.97	54.5	50-125			
4,4´-DDT	13.9	0.149	0.495	ug/kg	19.80	0.748	66.3	40-140			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*8.79*			*ug/kg*	*19.80*		*44.4*	*35-125*			
Surrogate: Decachlorobiphenyl	*11.2*			*ug/kg*	*19.80*		*56.4*	*40-130*			

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San Diego CA, 92152	Project Manager: Gunther Rosen	12-Dec-2016

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Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception