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ARMSTRONG
LABORATORY

WASTEWATER CHARACTERIZATION SURVEY VANDENBERG AFB CA

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OCCUPATIONAL AND ENVIRONMENTAL
HEALTH DIRECTORATE
Brooks Air Force Base, Texas 78235-5000

March 1991

Final Technical Report for Period 25 September 1990 -- 5 October 1990

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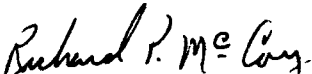
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13. ABSTRACT (Maximum 200 words) A wastewater characterization survey was conducted by members of the AFOEHL Occupational and Environmental Health Laboratory Water Quality Branch from 25 September to 5 October 1990 at Vandenberg AFB CA. The purpose of this survey was to respond to a Notice of Violation (NOV) concerning concentrations of benzene and toluene in the wastewater discharged from Vandenberg AFB and to characterize the general quality of the base's wastewater as a condition of a new wastewater discharge permit. Results of the sampling showed no detectable levels of benzene in any of the samples collected. Low concentrations of toluene were found in the wastewater exiting the base housing area (an average 9-day concentration of 10 ug/l) and in the influent the Lompoc POTW received from Vandenberg AFB (an average 9-day concentration of less than 1 ug/l). This would indicate the source of the toluene may be disposal of household hazardous waste or moonlighting activities in the housing area. Photoprocessing wastewater discharged from Bldg 9340 was found to exceed permit limits. The City of Lompoc was complying with requirements of the federal Pretreatment Standard. It was recommended the base develop a household hazardous waste management plan and that the discharge from Bldg 9340 be properly treated by a silver recovery unit prior to discharge into the sanitary sewer.				
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I. INTRODUCTION

A wastewater characterization survey was conducted at Vandenberg AFB CA from 24 Sep - 5 Oct 90 by personnel from the AFOEHL Water Quality Branch. The purpose of this survey was two-fold:

1. The City of Lompoc, which treats the wastewater from Vandenberg AFB, issued a Notice of Violation (NOV) concerning the emissions of benzene and toluene in the wastewater, and

2. The City has required the base to characterize the quality of its wastewater as a condition of its 26 March 1990 Wastewater Discharge Permit with the base.

A message was sent by 1 STRAD/ET (now SMC/ET) through HQ SAC/SGPB to AFOEHL requesting an industrial wastewater survey in June 1990 in response to the Discharge Permit condition (Appendix A).

Personnel from AFOEHL involved in the survey included: Capt Richard McCoy, 1Lt Darrin Curtis, TSgt Mary Fields, and Sgt Pete Davis. A1C Debra Fisher and A1C Christopher Zeuli of the Vandenberg AFB BEE Office assisted the team in collecting and processing samples. Base points of contact included:

Colonel Daryl G. Atwood, Director, Environmental Management
Colonel Joedale T. Reesing, Deputy Director, Environmental Management
Colonel Charles F. Barlow, Deputy Director, Environmental
Compliance and Engineering
Lt Col Roy M. Arnold, Hospital Commander
Lt Col John L. Sipos, Chief, Environmental Compliance
Capt Michael E. Chulik, Chief, Bioenvironmental Engineering
2nd Lt John M. Griffin, Environmental Management
Douglas C. Peterson, Utilities Systems Foreman

II. SAMPLING STRATEGY, METHODS, PROCEDURES, AND FLOW MEASUREMENTS

A sampling strategy was devised to isolate the branch of the sanitary sewer in the base cantonment area where the benzene and toluene was being emitted and to characterize the general quality of the wastewater with the EPA Pretreatment Standards in mind. This strategy was transmitted to the base Bioenvironmental Engineering and Environmental Management offices, as well as the Lompoc Publicly Owned Treatment Works (POTW) personnel prior to the survey and was approved by all parties. Once the survey team was on site, several changes to the original sampling strategy had to be made. The sampling strategy and necessary changes are contained in Appendix B. The reader is encouraged to review this appendix before reading the rest of this report.

Note: This report was accomplished by the Air Force Occupational and Environmental Health Laboratory (AFOEHL), which is now the Armstrong Laboratory, Occupational and Environmental Health Directorate.

All samples were collected, preserved and analyzed using EPA-approved procedures. Appendix B-9 lists the analyses performed and preservation methods used for the samples collected. All samples were analyzed within their respective maximum holding times.

Flow measurements were recorded at the Lompoc POTW. The measurements for the sampling period were obtained from the treatment facility and the daily flow of wastewater from Vandenberg AFB was calculated by adding the flows recorded each hour over an eight day period. The results are shown below. Each day's flow represents the period from 0800 of that day to 0700 the following day:

**TABLE 1: WASTEWATER FLOW MEASUREMENTS
RECORDED AT LOMPOC POTW**

Date	Flow (millions of gallons)
-----	-----
26 Sep	0.72
27 Sep	0.69
28 Sep	0.67
29 Sep	0.64
30 Sep	0.67
01 Oct	0.71
02 Oct	0.75
03 Oct	0.79

The average flow during the sampling period was 0.70 million gallons per day (MGD) with a standard deviation of 0.05 MGD.

III. RESULTS

A. Benzene and Toluene Concentrations: An interim report was sent to Vandenberg AFB personnel concerning the results of the benzene and toluene sampling (ref our Ltr, dtd 23 Nov 90, Benzene and Toluene Concentrations in Vandenberg AFB Wastewater Collection System - Interim Report). Appendix C contains the raw data concerning samples that were collected and analyzed for Volatile Organic Aromatics (EPA Method 602). This screening test measures benzene and toluene concentrations, as well as other aromatics.

1. Benzene Levels: As the results show, no benzene concentrations were detected in any of the samples collected during the survey.

2. Toluene Levels:

a. Sanitary Sewer Samples: Toluene was detected consistently at Site 2 (Lift Station on Oregon Avenue) and at Site 1 (Lompoc POTW). The concentrations found at Site 2 ranged from none detected (less than 0.3 ug/l) to 16.6 ug/l with an average 9-day reading of 10.2 ug/l (std. dev. = 4.9 ug/l). The range of toluene concentrations found at Site 1 ranged from none

detected to 2.9 ug/l. The average 9-day reading was 1.3 ug/l with a standard deviation of 0.9 ug/l. Three other detectable levels were found in the sanitary sewer. These were a level of 0.7 ug/l at Site 6 (manhole on Iceland Avenue near Bldg 8401), 0.8 ug/l at Site 4 (intersection of Washington Ave and California near Bldg 9340), and a concentration of 66.2 ug/l detected at the Site 7 (Flightline Lift Station) on 3 Oct. The abnormally high concentration found at Site 7 is questionable, since no detectable concentrations of toluene were found on Oct 2 or Oct 4 at Site 7, and no detectable toluene concentrations were found at Site 8 (downstream of Site 7) on 3 Oct. This would indicate either sampling or lab error was involved in the sample collected at Site 7 on 3 Oct, and that further sampling of Site 7 is needed.

b. AVS Sump and Oil/Water Separators: No detectable levels of toluene were found in the AVS Sump. Of the three separators where samples were analyzed, only one detectable level was found. This was a level of 5.3 ug/l at the Refueling Vehicle Maintenance separator.

B. Other Volatile Organic Aromatic (VOA) Results: The VOA screen performed also detects the dichlorobenzenes, ethyl benzene and chlorobenzene. Interfering peaks were encountered in many of the samples. These peaks were caused by some unknown chemicals which have spectral characteristics similar to the VOAs. This prevented the interpretation of several sample concentrations. The VOA concentrations were found to be sporadic at all sites except Site 2 and the Site 7. Concentrations reported were generally less than 10 ug/l.

C. Volatile Organic Hydrocarbon (VOH) Results: Volatile organic hydrocarbons are tabulated in Appendix D. The VOH screen measures the concentration of a number of volatile compounds. Specific organic compounds that are used in industrial activities include methylene chloride, tetrachloroethylene, 1,1,1- and 1,1,2-trichloroethane and trichloroethylene. These compounds were found intermittently in the samples collected during the survey. The concentrations were in trace amounts and indicate no indiscriminate dumping of these industrial chemicals into the sanitary sewer. In addition, disinfection by-products (chloroform, bromodichloromethane, chlorodibromomethane, and bromoform) were found which are normally expected in sanitary wastewaters. 1,4-Dichlorobenzene was also consistently found in samples from Sites 1 and 2. The average concentrations found were 2.9 ug/l (std. dev. = 2.0 ug/l) at Site 2 and 0.9 ug/l (std. dev. = 0.3 ug/l) at the Site 1.

D. Metals:

1. The results of the analyses for heavy metals are included in Appendix E. Also included in the results are the permit standards for the metals that are regulated. Results listed in Table E-1 show that the wastewater received by the Lompoc POTW met the permit standards on seven of the nine days of sampling. Samples collected on 28 Sep were not analyzed by the lab. The concentrations of arsenic and cadmium at Site 1 were found to exceed the permit standards on 25 September, though samples taken on Vandenberg AFB that same day at Sites 2, 3, 4, 5, and 6 showed no detectable levels of cadmium or arsenic on that day. As stated in Appendix B, reproducibility of metals results was poor.

2. Concentrations of several pollutants were found to exceed the permit standard in several points of the sanitary sewer. These included copper and zinc near Bldg 7425 on 25 Sep, copper at Site 4 (manhole near Bldg 9340, AVS) on 27 Sep, and the concentration of zinc in the basement sump at the AVS building on 1 Oct. The concentration of lead measured on 25 Sep at Site 5 (Bldg 9325) was found to exceed the permit standard. All other samples analyzed for lead were well below the permit standard. Silver concentrations in the sanitary sewer were found to exceed the permit standard at the Bldg 9340 Basement Sump each of the three days sampled, and indicates the photochemical wastewater generated in the basement of the building is not being processed through a properly maintained silver recovery system.

E. Total Toxic Organics (TTOs): Total Toxic Organics were analyzed to determine if toxic pollutants were in the wastewater. The TTO test examines wastewater for the presence of up to 65 synthetic organic chemicals. The chemicals which must be analyzed for electroplating and metal finishing operations are listed in Appendix F. Instead of individual standards for each chemical, the test adds together the concentrations of the chemicals and reports the total concentration of detectable chemicals. The federal standard recommended for local POTWs to use is 2.13 mg/l. The results in Appendix F show that the wastewater received by the Lompoc POTW from Vandenberg AFB had a TTO concentration of 0.36 ug/l (due to 4,4-DDD) and the other two samples taken (at Sites 5 and 6) had no detectable levels of Toxic Organics. The small amount of 4,4-DDD was due to either lab error or residual runoff from past application of this pesticide. Not all compounds listed in the TTO test were analyzed by the contract lab. This was because the cost of each sample analyzed was \$800, and the compounds not analyzed for are not expected to be in the wastewater leaving Vandenberg AFB.

F. Miscellaneous Parameters: In addition to the above parameters, various other analyses were performed to characterize the wastewater. These include filterable residue, surfactants, oils and greases, total hydrocarbons, specific conductance, total cyanides, ammonia, total phosphorus, phenol, and chlorides. These results are tabulated in Appendix G. Discharge limits set by the Lompoc POTW are listed in Table G-1 for the sampling done at the POTW. The limits listed apply to either the two specific industrial users at Vandenberg AFB (ITT/FEC, Bldg 9320 and Martin-Marietta, Bldg 9325) or to "all dischargers of wastewater into the Vandenberg AFB sanitary sewer system" (ref Wastewater Discharge Permit Section I, paragraph A). As can be seen in Table G-1, all sample results found at the Lompoc POTW were within the permit limits, except for phenol on 30 Sep. In general, the results at locations in the Vandenberg AFB sewer system were within limits except for the following:

1. Four phenol levels measured at Site 2 on 28 and 29 Sep, and 1 and 2 Oct,
2. A cyanide concentration measured at the AVS basement sump on 1 Oct,
3. A phenol concentration at the AVS basement sump on 27 Sep, and,
4. Ammonia and chloride concentrations measured at the AVS Basement sump exceeded permitted levels every day of sampling.

G. Oil/Water Separators: Six oil/water separators that discharge into the sanitary sewer system were sampled during this survey at the request of Mr Peterson. The location of these separators is shown in Appendix B-8. Mr Peterson felt that these separators could be the source of toluene entering the sanitary sewer. Results of the VOA sampling showed that the separators were not the source of toluene. However, during the sampling of these separators, it was found that the following separators had an excessive oil layer in them: TRANS Motorpool, Auto Hobby Shop, and Det 8, APS Apron (Facility #1725).

IV. CONCLUSIONS

A. Notice of Violation: No benzene concentrations were found during the survey, suggesting the source of the benzene found on 26 April 1990 has been stopped. The detection of toluene in the wastewater exiting the base housing area indicates the consistent disposal of toluene in the domestic sewage from that area. The source of this toluene may be from a variety of household products or from moonlighting activities from within the confines of the housing area.

B. Basement Sump, Bldg 9340, AVS: The wastewater in the basement sump at Bldg 9340 consistently exceeded the permissible discharge levels established in the Wastewater Discharge Permit (Section IA) for silver, ammonia, and chloride. In addition, cyanide and phenol levels exceeded the wastewater discharge permit limits during one day of sampling. However, in our opinion, the quantity of ammonia and chloride discharged by the basement sump would not create an adverse impact on the POTW.

C. Pretreatment Program:

1. The base's effort to determine the number of categorical discharges on VAAB is laudable, and in our opinion, complete. The three categorical users identified in the discharge permit are being properly required to test and treat their waste prior to discharge to the sanitary sewer.

2. Though the EPA has established a pretreatment standard for photoprocessing facilities, the AVS function in Bldg 9340 does not process enough photo-sensitive material to fall under this category. In a discussion with Mr. Castellon, the Chief of Photoprocessing Control, the AVS develops approximately 265 square feet of photo-sensitive material per day (this data was from July 90, a typical workload month). In months when launches occur at the base, the amount of material processed would, at the most, double to 530 square feet per day. Pretreatment standards established by EPA for photoprocessing facilities apply only to those that process 1600 square feet per day or more of photo-sensitive material.

D. With only a few exceptions, the discharge from Vandenberg AFB meets the requirements of the permit with the City of Lompoc. These exceptions include an average discharge of less than 1 ug/l of toluene, and the questionable discharge of arsenic and cadmium in concentrations above the permit level found only at the POTW during one day of sampling. In our opinion, the City of Lompoc is complying with EPA Pretreatment guidance in

regards to their program with Vandenberg AFB, and no additional pretreatment conditions are required.

E. Three of the six oil/water separators were found to have an excessive layer of oil in them. This layer of oil impedes the efficiency of the separator.

V. RECOMMENDATIONS

A. Toluene Concentrations: The base should institute a household hazardous waste management program for the residents of Vandenberg AFB. This program may reduce or eliminate the emission of toluene into the sanitary sewer.

B. The wastewater discharged from the basement of Bldg 9340 exceeds permitted discharge levels and should be properly treated before it enters the sanitary sewer. A silver recovery system should be installed, or if one is in line with the basement sewer line, it should be inspected for proper operation.

C. The base Biocnvironmental Engineering Services should resample the wastewater at Site 7, Flightline Lift Station to determine conclusively if toluene is being emitted from that point. Samples should be collected over three to five consecutive days and analyzed for VOAs using EPA Method 602 as outlined in the AFOEHL Sampling Guide.

D. The three separators that were found to have an excessive layer of oil in them should have the oil layer removed by the contract service retained by the base.

APPENDIX A
LETTER OF REQUEST

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS STRATEGIC AIR COMMAND
OFFUTT AIR FORCE BASE, NEBRASKA 68113 5001



REPLY TO
ATTN OF

SGFD

20 June 1990

SUBJECT

Request for Waste Characteristic Survey

TO

OEHL/CC

1. We support the attached request for an on-site waste characteristic survey of the sanitary effluent going to the City of Lompoc's waste treatment plant. Major LaPoe is in the process of gathering preliminary discharge data from contractor personnel to help in the characterization study. The 1st Strategic Hospital Bioenvironmental Engineering Service has worked with the 1 STRAD/ET office to gather as much preliminary information as possible. We request your technical assistance in helping gather the necessary data.

2. We request the survey in the September 1990 timeframe, if not earlier. Please respond directly to Major LaPoe with information copies to HQ SAC/SGPB/DEV and the 1 Strategic Hospital/SGB.

Ronald L. Schiller

RONALD L. SCHILLER, Colonel, USAF, BSC
Chief, Bioenvironmental Engineering Division
Office of the Surgeon

1 Atch

1 STRAD/ET Msg, 182300Z JUN 80

cc: HQ SAC/DEV w/Atch

1 Strat Hosp/SGB w/Atch

1 STRAD/ET w/o Atch

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UNCLAS

SUBJECT INDUSTRIAL WASTEWATER SURVEY

1 VANDENBERG AFB WAS RECENTLY PLACED UNDER A NEW WASTEWATER DISCHARGE PERMIT FROM THE CITY OF LOMPOC (TWO COPIES OF THE PERMIT ARE BEING SENT TO YOU UNDER SEPARATE COVER). A COMPLIANCE PROVISION (SEE PAGE 8 OF PERMIT, PARA B 1) OF THIS PERMIT REQUIRES US TO PERFORM A SURVEY OF ALL INDUSTRIAL USERS WHO MAY BE SUBJECT TO THE EPA'S OR THE CITY'S PRETREATMENT PROGRAM. THE SURVEY MUST ALSO DETERMINE THE CHARACTER AND VOLUME OF POLLUTANTS CONTRIBUTED TO THE LOMPOC PUBLICLY OWNED TREATMENT WORKS BY THESE INDUSTRIAL USERS. THE LOMPOC WASTEWATER SUPERVISOR IS PARTICULARLY INTERESTED IN HAVING AN INVENTORY OF THE SPECIFIC CHEMICALS ENTERING THE SEWER SYSTEM AND THEIR QUANTITIES. THE COMPLIANCE DEADLINE FOR COMPLETING THIS SURVEY IS 1 OCT 90. HOWEVER, IF WE CAN DEMONSTRATE GOOD FAITH PROGRESS IN OUR EFFORTS, THE CITY OF LOMPOC HAS TOLD US THEY WOULD CONSIDER EXTENDING THIS DEADLINE.

2 WITH OVER 70 AEROSPACE CONTRACTORS DOING WORK HERE ON VANDENBERG, NEITHER OUR OFFICE NOR 1 STRAT HOSPITAL SGB HAVE THE MANNING AND RESOURCES TO CONDUCT SUCH A SURVEY. PLEASE ADVISE AS TO WHETHER OR NOT THE OCCUPATIONAL ENVIRONMENTAL HEALTH LABORATORY WOULD BE ABLE TO ACCOMPLISH THIS SURVEY.

3 OUR POC IS MAJOR ROBERT LA POE, AV 276-5724

BT

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APPENDIX B
SAMPLING STRATEGY

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VANDENBERG AFB WASTEWATER CHARACTERIZATION SAMPLING STRATEGY

1. Notice of Violation:

a. One of the driving factors for performing this survey was a Notice of Violation (NOV) issued to Vandenberg AFB on 15 June 1990 (see Appendix B-1). This NOV was issued after discovery of benzene and toluene in the wastewater discharged from the base on 26 April 1990. The concentrations of 350 micrograms per liter (ug/l) benzene and 230 ug/l toluene were in excess of allowable limits, though these allowable limits were not reported in the NOV. The NOV cited the general (qualitative) prohibition of pollutants that could cause a fire or explosion hazard in the treatment plant works. This prohibition is contained in the discharge permit with the base (see Appendix B-2) and in the Federal Pretreatment Standard [40 CFR 403.5 (b)(1)].

b. Though the City is correct in stating the discharge of benzene and toluene is in violation of the permit, one item in the NOV should be clarified. In the third paragraph under "HISTORY" it is stated that "Since both Benzene and Toluene are less dense than water, it can be assumed that these compounds were floating in the sewage line." This is not true. The solubility at 20C of benzene in water is 1780 mg/l and the solubility of toluene in water is 515 mg/l (ref. Verschueren, K., Handbook of Environmental Data on Organic Chemicals, 2nd Ed., 1983, Van Nostrand Reinhold, Reading, MA.). Since the concentrations of benzene and toluene measured were in the ug/l range, the saturated solubility of these compounds had not been reached, and therefore, a floating layer of these compounds would not exist.

2. Wastewater Discharge Permit: A new Wastewater Discharge Permit was granted to Vandenberg AFB on 26 March 1990. Section II B.1. of the Permit requires the base to "identify and locate all possible industrial users which might be subject to the pretreatment program..." and to "identify the character and volume of pollutants contributed to the Lompoc POTW....The final compliance date for the requirements of this Section is October 1, 1990." The wastewater characterization survey we performed was in response to the latter tasking. A listing of industrial hygiene surveys performed by the base Bioenvironmental Engineering Office satisfied the former tasking.

3. EPA Pretreatment Standards:

a. General Prohibitions: 40 CFR 403.5 describes the prohibited discharges to Publicly Owned Treatment Works (POTWs). These prohibited discharges include any pollutants which cause (a) fire or explosion hazard, (b) corrosive structural damage, (c) obstruction of flow, or (d) inhibition of the biological treatment process at the POTW.

b. Categorical Industrial Users: In addition to the general prohibitions, certain categorical industrial users are automatically regulated under the Federal law. Those categorical users that may be found at Air Force installations include electroplating, metal finishing, photographic processing, and hospitals. The three industrial users which perform electroplating and/or metal finishing already have individual pretreatment permits with the POTW. These users are ITT-FEC (Bldg 9320), Martin Marietta (Bldg 9325), and U-Tech Services (Bldg 8430).

4. Potential Discharges of Hazardous Wastes from Vandenberg AFB: To determine what hazardous wastes could potentially be discharged into the Vandenberg AFB sewer system, several sources of information concerning industrial users and point sources were reviewed.

a. Vandenberg AFB Hazardous Waste Stream Inventory: Volume VI of the Vandenberg AFB Hazardous Waste Inventory, September 1986, was reviewed. This volume contains the complete hazardous waste stream inventory of the base and was prepared by Martin Marietta Environmental Systems. This listing provides the most up-to-date information available on hazardous wastes. Those wastes which could potentially be disposed of in the sanitary sewer were compiled into a list and are contained in Appendix B-3.

b. BEE Office Industrial Hygiene Master Shop Survey Schedule: This listing of shops surveyed by the BEE Office is contained in Appendix B-4.

c. Oil/Water Separators: Base personnel were concerned that the oil/water separators that are tied in to the sanitary sewer system could be the source of benzene and toluene. A listing of these separators was obtained and is contained in Appendix B-5.

d. Wastewater Discharge Permit Limitations: The effluent discharge limitations cited in Sections I A, B, C, D, and E of the Wastewater Discharge Permit (Appendix B-2) were also considered in the sampling strategy.

5. Proposed Sampling Strategy: After considering the information listed above, a proposed sampling strategy was devised and coordinated with personnel at Vandenberg AFB and the City of Lompoc. This strategy is shown in Appendix B-6. This strategy was approved by all concerned parties.

6. Changes to Sampling Strategy:

a. After the sampling strategy had been approved, a decision was made to include the three contractor operations that had discharge limitations established for them in the Permit. Thus sample sites at Bldgs 8430, 9320, and 9325 were added. Also, instead of sampling the manhole near Bldg 9340 daily, it was decided that daily sampling of the sewage lift station on Oregon Avenue would be more appropriate. Samples collected at the lift station would provide a background concentration of pollutants discharged from the residential area of the base. Therefore, the manhole near Bldg 9340 was sampled for three days and the lift station was sampled daily.

b. Since a presurvey was not deemed necessary for this study, we discovered upon inspection of the sampling sites the need to revise our strategy. The changes we made prior to conducting the sampling included:

(1) Outfall to Lompoc POTW (near Bldg 6814): In the original sampling strategy, the combined effluent from the base was to be sampled near Bldg 6814. However, at a meeting held with personnel from the base Environmental Management Office and officials from the City of Lompoc, the city officials offered the use of the sampling station on Pine Canyon Road near the POTW. This point was used since it is the site where the city collects its samples of the base's effluent.

(2) Manhole at U-Tech Services Corporation Component Cleaning Facility (CCF), Bldg 8340: The sampling site at the CCF was dropped because the shop was no longer operational and may be closed indefinitely. The sampling location was changed to a site near Bldg 7501 off Iceland Avenue, Manhole E38-112.

(3) Sampling at Bldg 8310 was canceled when it was discovered that this building houses Base Supply. From the Hazardous Waste Stream Inventory this building appeared to be a large user of hazardous chemicals, but in fact, only stores these chemicals for distribution to shops on the base. This sampling site was switched to Bldg 9325, Audiovisual Services, Manhole 67-A-7, at the request of the BEE. Also, Mr Peterson, the Utilities Systems Foreman for Vandenberg AFB told us of a basement sump in this building that receives wastewater from several photoprocessing workstations. This sump was sampled several times during the survey.

c. The final sampling locations used during this survey are contained in Appendix B-7. Also included in Appendix B-7 is a map of the base showing the general flow patterns of the sanitary wastewater. The locations of the oil/water separators are depicted in Appendix B-8. A summary of the sampling analyses and preservation methods used in this survey are contained in Appendix B-9.

7. Sampling Methods: Sanitary sewer samples were typically collected over a 24-hour period as time-proportional composite samples (i.e., a composite of 24 samples collected at 1-hour increments). The composite sampler contains a 3-gallon glass jar to receive the sample. This jar was packed in ice before each day of sampling. Samples collected for volatile organic analyses were taken as grab samples. Grab samples were also collected at the AVS basement sump and at the oil/water separators. Since there were generally no flows occurring when the oil/water separators were sampled, the samples collected there were taken from the "oil-free" side of the separator.

8. Sampling Procedures

a. Composite samples were poured directly from the sampler's 3 gallon glass collection jar into sample containers in the field. Samples were then preserved upon returning to the on-site laboratory set up in Bldg 13221.

b. Grab samples were collected with dippers or by pumping a sample into a dipper from inaccessible areas using the composite sampler. The samples were carefully poured into the 40-ml vials to insure no headspace. The samples were then placed in an iced cooler for shipment back to the on-site laboratory.

c. Once all samples were at the on-site lab, they were segregated by analysis method for preservation. Sample preservation was in accordance with the AFOEHL Sampling Guide. Samples were refrigerated at 4°C until being shipped to the AFOEHL Analytical Services Division at Brooks AFB TX for analysis. Samples requiring preservation at 4°C were transported to Brooks by being placed in coolers that were iced down using ice packs. It should be noted that the AFOEHL Analytical Services Division is not certified by the State of California for analysis of wastewaters in Category 16, Inorganic Chemistry, Nutrients, and Demand, and Category 17, Toxic Chemicals.

9. Quality Assurance/Quality Control (QA/QC): An informal QA/QC program was used during this survey to verify the accuracy and reproducibility of laboratory results. Errors in the reporting of analytical data can result from many causes, including equipment malfunctions and operator error, both on the sampling end and the analysis end. Sample contamination is a common source of error and may result from residue in sampling containers, preservation, handling, storage, or transport to the laboratory. The elements and results of the QA/QC plan used during this survey are discussed below:

a. Field Blanks: Field blank samples are generally aliquots of distilled water that are as free of contaminants as possible and are transferred to a sample container at the sampling site and preserved with the appropriate reagents. Blanks serve as a check on purity of the preservatives and possible influences from field contamination of samples. Results of the analyses of the blank samples showed no evidence of outside contamination of the samples. The results are tabulated in Table E-13 for metals, and Table G-14 for miscellaneous analyses. Blanks were not prepared for volatile organics since no preservatives are used other than refrigeration.

b. Duplicate Samples: Duplicate samples are two discrete samples taken from the same source and analyzed independently. They serve as a measure of precision, which is the agreement between a set of replicate measurements without assumption or knowledge of the true value. Duplicate samples were collected at two sites, the manhole on 10th Street near Bldg 7425 and at the manhole near Bldg 9340, AVS.

(1) VOA Results: Duplicate samples were collected at the manhole near Bldg 9340 on 26 and 27 Sep (Table C-6). In the samples collected on 26 Sep, one had a toluene concentration of 2.3 ug/l and the other had <0.3 ug/l. All other sample results for both days showed no detectable levels of other VOAs.

(2) VOH Results: Duplicates were collected for VOHs on 26 Sep at the manhole on 10th Street and on 27 Sep at the manhole near Bldg 9340. These results are tabulated in Tables D-3 and D-6, respectively. Both sets showed good agreement, however, no detectable levels of VOHs were found.

(3) Metals: Duplicates were also collected for metals on 26 and 27 Sep at the manhole on 10th Street and the manhole near Bldg 9340, respectively. Comparison of the results of the duplicates showed poor agreement between results for calcium, copper, iron, manganese, zinc, and aluminum at 10th Street. The results also showed poor reproducibility at Bldg 9340 for zinc and iron. The lack of reproducibility may be due to incomplete mixing of the 3 gallon collection jar prior to pouring the aliquots into the sample containers. The metals may have been adsorbed onto suspended solids in the sample and may have settled during sample preparation.

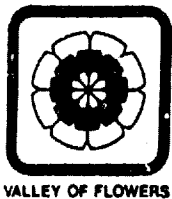
(4) Miscellaneous Results: Duplicates were taken for cyanide samples at 10th Street on 25 Sep (Table G-3), Bldg 9340 on 26 Sep (Table G-6), and at the manhole in front of the Rec Center (Motorpool) on 1 Oct (Table G-8). All sets of duplicates showed good agreement, indicating good reproducibility with the cyanide test and procedures.

c. Collection of Volatile Organic Samples: A test was performed during this survey to determine if volatile organics are lost when an ISCO sampler pump is used to collect a sample from a deep manhole. On 27 Sep, two volatile samples were collected at the 10th Street Manhole. One sample was collected by pumping to the surface from a depth of approximately 20 feet and the other was dipped out of the manhole. The replicate samples were in good agreement when analyzed for VOAs (Table C-3) and VOHs (Table D-30), however, both sets of duplicates showed no detectable levels of volatile organics. Therefore, the difference in collection methods could not be quantified by this test.

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Appendix B-1

City of Lompoc, Notice of Violation and Enforcement Order



CITY OF LOMPOC

June 15, 1990

Colonel Orville Robertson
1STRAD/ET
Vandenberg AFB, CA 93437

SUBJECT: Notice of Violation and Enforcement Order

Dear Colonel Robertson:

On April 26, 1990 at 0840 a grab sample was taken at the Vandenberg AFB manhole on Floradale Avenue. This sample was analyzed by Coast-to-Coast Analytical Services, Inc., for Chlorinated and Aromatic Volatiles. The lab tested this sample on April 28, 1990. Two compounds were in excess of allowable limits:

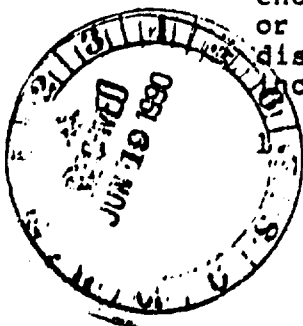
Benzene at 350 µg/L; and
Toluene at 230 µg/L (see Attachment A)

On June 8, 1990 Catherine Prater, Water Resources Protection Technician, called and spoke with Lt. Griffin of 1STRAD/ET. She reported the aforementioned results to him.

VIOLATIONS:

I. Toluene and Benzene are prohibited discharges in Section IV, 1 of your permit.

A. Fire, explosion or environmental hazards. Any solids, liquids, or gases which "... May cause fire or explosion hazards, or in any way create imminent endangerment to wastewater personnel, the environment or public health shall not be caused or allowed to be discharged to a City sewer..." Prohibited materials include benzene, toluene...



Benzene is extremely flammable; toluene is highly flammable (see Attachment B & C). This is also a violation of 40 CFR 403.5 (b)(1).

Letter - Colonel Robertson
June 15, 1990
Page 2

2. Toluene is moderately explosive when exposed to flame or reacted with (H₂SO₄ + HNO₃), N₂O₂, AgClO₄, BrF₃, UF₆ (see Attachment C).
 3. Benzene is a human carcinogen (see Attachment B).
- B. Toxic Waste - 40 CFR 403.15 lists toxic pollutants of which Benzene is No. 8 and Toluene is No. 61.

HISTORY

There have been two prior Influent Priority Pollutant Scans 1984 and 1989. In 1984, 8 µg/L of Toluene was found in the plant influent. In 1989 there was no detectable amount.

Sludge results indicate this is not an isolated incident. A sludge sample that was taken from a depth of four (4) feet contained 10 µg/l of Benzene and 4 µg/l of Toluene. The presence of Benzene and Toluene at that depth indicates that this discharge is not an isolated incident. Discharges probably have been occurring over a period of months or years.

The flow from V.A.F.B. at 0840 was .28 MGD (according to the flow meter at the sample station). Using this flow measurement the lbs/day of Benzene was 0.82 (or 350 µg/l); and the lbs/day of Toluene was 0.54 (or 230 µg/l). Since both Benzene & Toluene are less dense than water, it can be assumed that these compounds were floating in the sewage line. The actual amount of Benzene and Toluene that was discharged may be considerably more since evaporation and entrapment in siphons is a strong possibility. The presence of this amount of Benzene and Toluene could cause an explosion near the point of discharge.

CORRECTIVE ACTIONS REQUIRED

1. VAFB must find the source of discharge.
2. VAFB must eliminate the discharge.

These actions by VAFB shall be taken by July 2, 1990. A written report of actions taken shall be sent by July 16, 1990 to the City of Lompoc.

Letter - Colonel Robertson
June 15, 1990
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Any questions regarding this Enforcement Order can be directed to:

Dale Ducharme or
Wastewater Superintendent
100 Civic Center Plaza
P.O. Box 8001
Lompoc, CA 93438-8001
Telephone 736-5083 or 736-7449

Catherine Prater
Water Resources
Protection Technician

Sincerely,



Lawrence McPherson
Director of Public Works

LM:CP:lc

ATTACHMENTS

C: Dale Ducharme, Wastewater Superintendent
Gary P Keefe, Water Resources Manager
David Hirsh, City Attorney
William Leonard, CRWQCB
Scott McFarland, SWRCB
Frank Laguna, EPA

Appendix B-2
City of Lompoc, Wastewater Discharge Permit



VALLEY OF FLOWERS

CITY OF LOMPOC

CITY OF LOMPOC
PUBLIC WORKS DEPARTMENT
Wastewater Division

W A S T E W A T E R D I S C H A R G E P E R M I T

This permit to discharge is granted in accordance with Article II of Chapter 29 of Lompoc City Code and may be suspended or revoked by the Director of Public Works for cause.

- Permit Number: I-004
- Name of Outlying Jurisdiction: Vandenberg Air Force Base
Site Address: 1STRAD/ET
Vandenberg AFB, CA 93437
- Type of Business: Outlying Jurisdiction/Federal Military Installation
- Effective Date: March 26, 1990 Expiration Date: March 25, 1995
- Authorized Representative of Outlying Jurisdiction: *Orville Robertson*
Colonel Orville Robertson, USAF
Director of Environmental Management
- Authorized Representative of City of Lompoc: *Dale Ducharme*
Dale Ducharme
Wastewater Superintendent
- Telephone: 736-5083
- Standard Conditions Only
Additional Special Conditions X
- This permit is not transferrable and must be posted in a conspicuous location.

IN CONSIDERATION OF THE GRANTING OF THIS PERMIT, Vandenberg AFB agrees:

1. To furnish any additional information on industrial wastewater discharges as required by the Director,
2. To accept and abide by applicable provisions of the Sewer System Ordinance of the City of Lompoc,
3. To operate and maintain any required pretreatment devices in a satisfactory approved manner,
4. To cooperate with City of Lompoc personnel, or their representatives, in the inspection and sampling of industrial facilities and discharge,
5. To notify the wastewater treatment plant (736-5083) immediately in the event of any accident, negligence, or other occurrence that results in discharge to the sewer of any material whose nature and quantity might be reasonably judged to constitute a hazard to City personnel, the wastewater system, or the environment,
6. To pay to the City of Lompoc the required surcharge or user charge fees for wastewater treatment,
7. To submit, as required by the Director, accurate data on industrial wastewater discharge flows and constituents,
8. To accept and abide by the terms and conditions of the Permit as specified herein.

VAFB WASTEWATER DISCHARGE PERMIT

Section I - Wastewater Discharge Limitations

- A. Except as authorized in this Section, no user within Vandenberg AFB boundaries shall discharge wastewater containing constituents in excess of the quantities specified below:

<u>Constituent</u>	<u>Concentration*</u>
Cadmium	0.4
Chromium	2.0
Copper	1.0
Cyanide (Total)	2.0
Lead	1.0
Mercury	0.02
Nickel	2.0
Silver	1.0
Zinc	1.0
Phenol	50.0
Arsenic	2.0
Beryllium	3.0
Selenium	0.6
Total Dissolved	
Solids	1100
Sodium	270
Chloride	250
Oil and Grease	100
Ammonia	50

- * All concentrations are in mg/L, determined in accordance with analytical procedures specified by 40 CFR Part 136

Industrial wastewater from non-categorical users which has been tested and certified as non-hazardous, and which meets the standards specified above (example: sump water from a car wash), may be discharged upon written approval of the Director.

Section I - Wastewater Discharge Limitations

B. 1STRAD/ET
Vandenberg AFB, CA 93437

Vandenberg AFB Combined Discharge Limitations

<u>Pollutant</u>	<u>Daily Maximum (mg/L)</u>	<u>Maximum Monthly Average (mg/L)</u>
Sulfide	0.1	
Total Dissolved Solids	---	1100
Sodium	---	270
Chloride	---	250

See also Section III for monitoring, reporting requirements

* All concentrations are in mg/L determined in accordance with procedures specified in 40 CFR 136.

Flow - Average Daily Flow (ADF) shall not exceed 1.3 MGD
Peak Wet Weather Flow (PWWF) shall not exceed 3.4 MGD

Section I - Wastewater Discharge Limitations

C. ITT/Federal Electric Corporation
P.O. Box 5728
Vandenberg AFB, CA 93437

Location of Discharge: Bldg. 9320

<u>Pollutant</u>	<u>Daily Maximum (mg/L)</u>	<u>Maximum Monthly Average (mg/L)</u>
Cadmium (T)	0.69	0.26
Chromium (T)	2.77	1.71
Copper (T)	3.38	2.07
Lead (T)	0.69	0.43
Nickel (T)	3.98	2.35
Silver (T)	0.43	0.24
Zinc (T)	2.61	1.00
Cyanide, Total	1.20	0.65
Total Toxic Organics (final)	2.13	----

(T) = Total

See also Section III for monitoring, reporting requirements

* All concentrations are in mg/L determined in accordance with procedures specified in 40 CFR 136.

Section I - Wastewater Discharge Limitations

D. Martin-Marietta Vandenberg Operations
Contractor Maintenance Area (CMA)
P.O. Box 1681
Vandenberg AFB, CA 93437

Location of Discharge: Bldg. 9325

<u>Pollutant</u>	<u>Daily Maximum (mg/L)</u>	<u>Maximum Monthly Average (mg/L)</u>
Cadmium (T)	0.69	0.26
Chromium (T)	2.77	1.71
Copper (T)	3.38	2.07
Lead (T)	0.69	0.43
Nickel (T)	3.98	2.38
Silver (T)	0.43	0.24
Zinc (T)	2.61	1.00
Cyanide, Total	1.20	0.65
Total Toxic Organics (final)	2.13	----

(T) = Total

See also Section III for monitoring, reporting requirements

* All concentrations are in mg/L determined in accordance with procedures specified in 40 CFR 136.

Section I - Wastewater Discharge Limitations

E. U-Tech Services Corporation
Component Cleaning Facility
Bldg. 8430
Vandenberg AFB, CA 93437

Location of Discharge: Bldg. 8430

<u>Pollutant</u>	<u>Daily Maximum (mg/L)</u>	<u>Maximum Monthly Average (mg/L)</u>
Cadmium (T)	0.69	0.26
Chromium (T)	2.77	1.71
Copper (T)	3.38	2.07
Lead (T)	0.69	0.43
Nickel (T)	3.98	2.38
Silver (T)	0.43	0.24
Zinc (T)	2.61	1.00
Cyanide, Total	1.20	0.65
Total Toxic Organics (final)	2.13	----

(T) = Total

See also Section III for monitoring, reporting requirements

* All concentrations are in mg/L determined in accordance with procedures specified in 40 CFR 136.

Section II - Special Conditions/Compliance Schedules

A. (Reserved)

B. ISTRAD/ET
Vandenberg AFB, CA 93437

1. Vandenberg AFB shall identify and locate all possible industrial users which might be subject to the pretreatment program. Any compilation, index or inventory of industrial users made under this paragraph shall be made available to the Director upon request.

Vandenberg AFB shall identify the character and volume of pollutants contributed to the Lompoc POTW by the industrial users identified under this Section. This information shall be made available to the Director upon request [40 CFR 403.8 (f)(2)(i and ii)].

The final compliance date for the requirements of this Section is October 1, 1990.

2. ISTRAD/ET shall notify affected users of applicable Pretreatment Standards and any applicable requirements under Sections 204 (b) and 405 of the Clean Water Act, Subtitles Condition D of the Resource Conservation and Recovery Act, the Sewer System Ordinance of the City of Lompoc, and this Permit [40 CFR 403.8 (f)(2)(iii)].
3. ISTRAD/ET shall receive and analyze self-monitoring reports and other notices submitted by users in accordance with the self-monitoring requirements of Section III, and shall submit this information to the Wastewater Division [40 CFR 403.8 (f)(2)(iv)].
4. ISTRAD/ET shall obtain remedies for noncompliance by any user within Vandenberg AFB boundaries with any Pretreatment Standard or Requirement [40 CFR 403.8 (f)(2)(vi)].

5. ISTRAD/ET shall participate in Pretreatment Compliance Inspections and Audits and shall comply with all applicable requirements specified by regulatory agencies pursuant to these regulatory reviews.
6. Vandenberg AFB shall comply with all provisions of Article II, Chapter 29 of the Lompoc City Code except as follows:
 - a. 29-23.3 Connection to Public Sewer Required-
Not applicable
 - b. 29-23.7 Right of Discharge Limited - Not applicable
 - c. 29-23.55 Charges and Fees - Not applicable
(Fees are addressed in Contract #FO4684 78 D008)

Appendix B-3
Vandenberg Hazardous Waste Inventory

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VANDENBERG HAZARDOUS WASTE INVENTORY

BLDG #	SHOP	WASTES
-----	-----	-----
535	CES/DEMLM	Ethylene Glycol, Lube Oil Paint
584	ILTV	Alodine
738	MMC	Ethylene Glycol, Oils, Paints
831	BAMSI	Oils, Paints, Alcohols
839	Cable Maint.	Alcohols, Acetone
840	NASA/BAMSI	Developer
860	FEC	Pen Cleaner, Developer, Fixer, Photoflo
871	ILC	Hydrazine
886	CE Zone 6	
1050	394 TMS/MBARR	Paints
1123	Packing & Crating	
1200	Water Plants	Ammonium Molybdate, Sodium Arsenate, H2SO4
1317	4392 AEROSG	Diesel Fuel, Methylene Chloride, Lube Oil, Paints
1546	Re-Entry Systems Maint.	1,1,1-Trich, Freon, Lube Oil, Paints, Adhesives, Alcohols, Toluene
1615	MDAC	Magnaflux Developer, Paint, Kerosene
1706	4392 AEROSG	Ethylene Glycol, Fuels, Oils, Paints, Xylene
1735	Det 8, 37 ARRS	Boric Acid, Cleaning Cmpd, Ethylene Cmpd, KOH, MEK, Oils, Paints, PD-680
1737	Bionetics (PMEL)	Cleaner (w/HCl), Floor Stripper, Indication Fluid, Paints

1740	CES/DEF	Alcohols, Oils, Paints
1783	Power Prod.	Lube Oil
1785	CE Zone 1	
1795	GTE	De-Solv-It
1800	MMC	MEK, Oils, Paints, Xylene, 1,1,1-Trich
1810	CES/DEF	KOH Battery Electrolyte, Lube Oils, Paints
1856	CES/DEMLM2	Ethylene Glycol, Lube Oils, Paints, Solvents
1871	ATT Tech	1,1,1-Trich, Paints
1930	Refurbishment	Oils, Paints, Cleaning Compounds, MEK, PD-680, Paint Stripper
1965	BAC	Ethylene Glycol, Oils
1971	BAC	Alodine, Oils, MEK
1976	394 TMS/MBARR	Naphtha, Oils, Paints
1977	BAC	HCl, MEK, Oils, Paints
1986	BAC	1,1,1-Trich, Alodine, Cadmium Solution, MEK, Oils, Paints,
1987	BAC	Alodine, MEK, Perchloroethylene
3000	LSOC	Water w/nitrate
6206	1835 EIS	Paints, Solvents, Oils
6420	FEC	Developer, Freon, Stop Bath
6436	Training Aids	
6437	Auto Hobby Shop	Antifreeze, Lube Oils, Paints,
6438	Wood Hobby Shop	Varnishes, Paint
6440	Arts & Crafts Ceramic Hobby	

6441	Antenna Maint.	
6510	Radio, Radar, Antenna, Weather Maint., Outside Plant	
6523	BAC	Ethylene Glycol, Freon, Oil, Paints
6601	Mechanical Sect., Power/Refrig., EOD, Pneudraulics, Electronics Lab	Lube/Hydraulic Oil, PD-680,
6606	TMS/MBAFD	Lube Oil, Paint, PD-680 1,1,1-Trich
6609	TMS/MBAVE	Cleaning Compound Floor Stripper
6612	TMS/MBAFM/P	Freon, Oils, Paints, Battery Acid Electrolyte, Ethylene Glycol
6817	Destruct Ord.	Paints
7000	FEC	Clearing Bath (Kodak), Defoamer, Conditioner, Developer, Etaflex Activation, Fixer, Reversal Bath, Stabilizer, Stop Bath
7015	WSMC/GP	Activator, Fixer
7307	CE Zone 4	Lube Oils, Paint
7403	4315 CCTS/CMB	1,1,1-Trich, Lube Oil, Paint, Paint Thinner, Freon
7422	Aerospace Fuels Lab	Acids, Bases, H2O2, Lube and Hydraulic Oils
7425	Printing Plant, Electromech., Missile Handling, Missile Maint., Field Maint.	Acetic Acid, Deglazer Developer, Electrostatic Solution, Kodalith A&B, Blankrola Solvent, Sodium Chromate, Lube Oils, Cleaning Compounds, Fixer, Inks
7437	LMSC	1,1,1-Trich, Paint
7525	GDC AVCO	Fixer Bath, Stop Bath, 1,1,1- Trich, Paint, Oil

8114	ASCO	Corrosion Inhib.
8119	AVS	Developer, Fixer, H2SO4 Sodium Dichromate, 1,1,1- Trich, Paint
8150	CCTS/CMB	Oil (20W), 1,1,1-Trich, Paints
8305	MMC	Developer
8314	AVS	
8310	LMSC	Blanket Cleaner, Developer, Etching Rinse, Floor Stripper, HCl, Hypoclearing Agent, Iridite, Photo-Flo, NaOH, Stop Bath Solution, Stripping Solution, 1,1,1- Trich, Ink, Oils, Paints
8401	MMC	Tray Cleaner, Developer, Fixer, Film Hardener, Omni Etch, Ply-Tex Etch, Kodak Activator, Oils, Paints
8415	AVCO	Oils, Paints, Alcohols
8425	Field Power	KOH Battery Electrolyte 1,1,1-Trich, Ethylene Glycol, Diesel Fuel, Oils, Solvents
8430	Bionetics	Cleaning Solution (alkali), HCl, HF, Inhibition Acid, HNO3, H3PO4, NaOH, H2SO4
9320	FEC	Accelerator, Acetic Acid, Plate Cleaner, Tray Cleaner, Developer, Dyes, Fixer, Formaldehyde, Mannitol, Murexide, Potassium Chromate, Resorcinol, Silver Nitrate, Solder, H2SO4, Tin/Lead Fluobarate.
9320	Welding Shop, Machine & Metal	
9325	MMC	Contaminated Water, H3PO4, 1,1,1-Trich, Freon, Oils, Paints
9327	Ordinance Equip.	1,1,1-Trich, Alcohols, Oils,

Paints, PD-680

9340	Lab Maint, Still Color Lab, Motion Picture Lab, B&W Lab, Range Maint.	Acetic Acid, Acetone, Benzyl Alcohol, NH ₄ OH, NH ₄ NO ₃ , Ammonium Thiosulfate, Barium Diphenylamine Sulfonate, Benzotrizole, Bleach, Boric Acid, Cadmium Nitrate, Ceric Ammonium Nitrate, Cetyltrimethyl/Ammonium Bromide, Citrazinic Acid, Citric Acid, d-Mannitol, Developer, Disodium EDTA, Ethyl Acetate, Ethylene Dinitrilotetraacetic, Ethylene Diamine, Ferrous phenanthroline, Fixer, Florosil, Formaldehyde, Hardener, HCl, Hydroquinone, Neutralizer, HNO ₃ , Oxalic Acid, Phenidone, H ₃ PO ₄ , Potassium Acid Phthalate, KCl, Potassium Chromate, Potassium Dichromate, Quadrafos, Reversal Agent, Silver Nitrate, Sodium Acetate, NaOH, Stabilizer, Stop Bath, H ₂ SO ₄ , Thiourea, Xylene Cyanole, Zinc Sulfate.
10366	Bowling Alley	
10525	Inside Plant	
10660	Fire Ext. Maint.	
10713	Special Purp. Shop	Floor Cleaner, Ethylene Glycol, Oils, Paints, PD-680
10715	Horizontal Construction	Lube Oil, Paint
10726	Minor Maint., Gen. Purp., Allied Trades	Motor Cleaner, Battery Electrolyte, Floor Cleaner, Floor Stripper, Ethylene Glycol, Oils, Paints, PD-680
11345	Entomology	
11352	CE Liq. Fuels Maint., Zones 2, 3, & 5	Methanol, Ethylene Glycol, Oils, Paints, Perchloroethylene

11434	Exterior Elect.	
11439	CE Woodcraft/ Vertical Const, Basewide Supp., Asbestos Abate. Protective Coat, Machine & Metal.	Paints, Varnish
13017	CES/DEF	Isopropanol, Lube & Hydraulic Oil, Paints, Freon
13516	Combat Arms	
13850	Dental/Medical X-Ray, Sterile Supply, Dental/ Medical Labs, Med. Maint, BEE	Developer Replenisher, Fixer/Replenisher, KCN, NaOH, NADH, Developer, Hydrazine, HCl
14300	Commissary	
21110	394 TMS/MBAWC	Freon, Alcohol, Lube Oil, Paints, Ethylene Glycol, Lube Hydraulic Oils, Paints
E1154	DRMO	

Appendix B-4
Master Shop Survey Schedule

1990

Page No. 1
89.12.13

*** MASTER SHOP SURVEY SCHEDULE ***

***** MASTER SHOP SURVEY SCHEDULE *****

ID CODE	Office Symbol	Shop Name	Bldg	Supervisor	Phone	Shop Cat	Annual Date	Survey OFR
** MONTH DUE - 00								
* Shop Category - C								
CEPL-023A	4392CES	DEMSH	BASEWIDE SUPPORT	11439	Mr. OAKS	6-5885	C	89.03.31 SOTO
* Shop Category - PH								
BACH-044A	4392ASM	SSRA	CERAMIC HOBBY SHOP	6440	Mrs. FLOWERS	6-5209	PH	. . SCHULTZ
** MONTH DUE - 01								
* Shop Category - C								
MIRH-004B	394TMS	MBAF	FIELD MAINTENANCE TEAM	7425	TSgt LEE MATHEWS	6-8551	C	89.03.09 ROBERTS
MIRH-004C	394TMS	MBAFM/PR	POWER/REFRIG (PREL)	6601	MSgt NEWMAN	6-7393	C	89.05.03 RENEAU
MICC-008B	394TMS	MBAF	REFURBISHMENT	1930	MSgt McCleary	6-0236	C	89.04.04 SCHULTZ
MIED-011A	394TMS	MBAWE	EOB	6601	SSgt KOLLO	5-1376	C	89.04.05 SCHULTZ
XXSR-056A	AFLC	MA	MACHINE AND METAL	9320	MR DART	6-4989	C	89.03.20 FISCHER
* Shop Category - PH								
MIXX-005A	394TMS	MBAFD	DESTRUCT ORDNANCE	6817	MSgt LEWIS	6-8237	PH	89.03.29 RENEAU
MIPN-014A	394TMS	MBAFF	PNEUDRAULICS	6601	TSgt HAROLD VEGA	6-5648	PH	89.03.24 FISHER
MIXX-007A	394TMS	MBAFM	ELECTRONICS LAB	6601	Tsgt. Anderson	6-7040	PH	89.03.23 SOTO
MIPN-001A	394TMS	MEADM	MISSILE MAINTENANCE TEAM	7425	MSgt MURRAY	6-7946	PH	89.03.31 ROBERTS
** MONTH DUE - 02								
* Shop Category - C								
MIEM-002A	394TMS	MBA	ELECTRO MECHANICAL TEAM	7425	TSgt HOWELL	6-5354	C	89.04.03 ROBERTS
MICC-008C	394TMS	MBAFE	CORROSION CONTROL				C	. . SCHULTZ
CEXX-084A	4392CES		ASBESTOS ABATEMENT TEAM	41439	MR PARRA	6-5161	C	. . SCHULTZ
XXCC-054A	AFLC	MA	PAINT SHOP		MR. MARSHALL	6-4989	C	. . RENEAU
XXWE-055A	AFLC	MA	WELDING SHOP	9320	MR DART	6-4989	C	89.03.29 FISCHER
* Shop Category - PH								
MIMC-006A	394TMS	MBAFM	MECHANICAL SECTION	6601	MSgt HUMES	6-9122	PH	89.04.05 RENEAU
MIMH-003A	394TMS	MBAOH	MISSILE HANDLING TEAM	7425	MSgt MORRIS	6-7505	PH	89.03.31 ROBERTS
MIRV-010A	394TMS	MBAWR	RE-ENTRY SYSTEMS MAINTENANCE	7546	MSgt GUMBEL	6-3937	PH	89.06.01 SCHULTZ
** MONTH DUE - 03								
* Shop Category - C								
JC-022A	4392CES	DEMSC	PROTECTIVE COATINGS	11439	Mr. LANGLEY	6-6045	C	89.06.01 SCHULTZ
CEME-024A	4392CES	DEMSH	MACHINE AND METAL	11439	Sgt NARASAWA	6-1620	C	88.06.13 SCHULTZ
XXMC-124A	AFLC	MA	ORDNANCE EQUIPMENT MECHANIC	9327	Mr. MARSHALL	6-4989	C	89.05.05 MITCHELL
* Shop Category - PH								
BAPP-075A	1369AVS	DOLM	MOTION PICTURE PROCESSING LAB	9340	Mr. BEARD	6-9340	PH	85.08.09 ROBERTS

age No. 2
92.12.13

*** MASTER SHOP SURVEY SCHEDULE ***

***** MASTER SHOP SURVEY SCHEDULE *****

ID CODE	Office Symbol	Shop Name	Bldg	Supervisor	Phone	Shop Cat	Annual Date	Survey OPR
COTE-065A	392CG LGPW	OUTSIDE PLANT	✓6510	MSGT HEARD	6-5887	PH	89.04.05	MITCHELL
BACA-088A	4392ASW AFCON	AF COMMISSARY SERVICE	✓14300	Mr. WHITE	5-8806	PH	89.05.16	ROBERTS
CEFE-033A	4392CES DEFSS	FIRE EXTINGUISHER MAINTENANCE	✓10660	MSGT MCGREEVY	6-3273	PH	.	MITCHELL
CEPX-123A	4392CES DEMPE	HORIZONTAL CONSTRUCTION	✓10715	Mr. CARMICHAEL	6-6802	PH	89.05.15	SCHULTZ
CECA-021A	4392CES DEMSS	WOODCRAFT/VERTICAL CONSTRUCTION	✓11439	MR PACO/TSBT LAWFRANC	6-8202	PH	89.02.24	ROBERTS
** MONTH DUE - 04								
* Shop Category -- C								
BAPP-049A	1369AVS DOLD	MOTION PICTURE QC LAB	✓9340	MR. CASTELLON	6-9342	C	89.05.24	MITCHELL
HODX-079A	SGD	DENTAL X-RAY/CLINIC	✓13850	MSGT DESROCHES	6-1846	C	89.06.21	SCHULTZ
HOSY-074B	SGHSGC	CENTRAL STERILE SUPPLY	✓13850	Ssgt EVANS	6-3361	C	89.06.20	SCHULTZ
* Shop Category -- PH								
CORR-067A	392CG LGFF	NAVIGATIONAL AIDS	✓6510	SGT HANSEN	6-7925	PH	89.04.27	MITCHELL
COTE-066A	392CG LGFF	RADAR MAINTENANCE	✓6510	Ssgt STERN	6-5736	PH	.	SCHULTZ
COTE-064A	392CG LGPI	INSIDE PLANT	✓10525	MSGT ROSE	6-5770	PH	89.05.30	ROBERTS
COCM-070A	392CG LGPK	CABLE MAINTENANCE	✓839	MSGT ACKERMAN	5-3742	PH	89.05.03	ROBERTS
✓EX-029B	4392CES DEMEE	EXTERIOR ELECTRIC	✓11434	Mr. INGRAM	6-6434	PH	89.06.16	ROBERTS
✓JOL-071A	SGDL	DENTAL LAB	✓13850	Ssgt JACCHICO	6-8869	PH	89.06.13	ROBERTS
✓HOL-072B	SGHL	MEDICAL LAB	✓13850	SGT LAPP	6-8475	PH	87.12.31	MITCHELL
** MONTH DUE - 05								
* Shop Category -- C								
BAGC-086A	4392ASW SSRG	GOLF COURSE MAINTENANCE	N/A	Mr. EDWARDS	6-6205	C	88.06.27	SCHULTZ
CELF-026A	4392CES DEMUA	LIQUID FUELS MAINTENANCE	✓11352	Mr. CLOUD	6-8503	C	87.08.17	MITCHELL
CEEN-032A	4392CES DEMUG	ENTOMOLOGY	✓11345	SSGT K. MOORE	6-1727	C	87.08.07	ROBERTS
XXFU-053A	AFLC SFTLE	AEROSPACE FUELS LAB	✓7422	MIKE PARRENT	6-6263	C	89.07.16	ROBERTS
* Shop Category -- PH								
COCM-081A	392CG LGPA	ANTENNA MAINTENANCE	✓6441	TSgt GRANVILLE	6-4257	PH	89.06.28	MITCHELL
BACH-042A	4392ASW SSRA	ARTS AND CRAFTS	✓6440	Mrs. Smith	6-6438	PH	87.09.11	SCHULTZ
TRVM-036A	4392TRANS LGTM	GENERAL PURPOSE SHOP	✓10726	Mr. HARDISTY	6-8209	PH	89.03.14	MITCHELL
TRVM-077A	4392TRANS LGTM	SPECIAL PURPOSE SHOP	✓10713	TSgt DOUGLAS	6-6504	PH	88.03.03	ROBERTS
TRPC-039A	4392TRANS LGTT	PACKING AND CRATING	✓1123	SSgt Jackson	6-3374	PH	89.07.25	SCHULTZ
DPHS-085A	DLA-SYT	DRMO	✓11154	Mr. WILKINSON	6-9851	PH	88.04.06	SCHULTZ
** MONTH DUE - 06								
* Shop Category -- C								
✓TRAT-035A	4392TRANS LGTM	ALLIED TRADES	✓10726	SSGT BRITO	6-5527	C	88.09.13	MITCHELL
* Shop Category -- PH								
BAPP-050A	1369AVS DOLS	BLACK AND WHITE LAB	✓9340	MSGT GRUBEN	6-7902	PH	89.08.01	ROBERTS
BAXX-052A	1369AVS LGMR	RANGE MAINTENANCE	✓9340	Mr. Gibson	6-5266	PH	89.08.04	MITCHELL
CORD-069A	392CG LGFG	RADIO MAINTENANCE	✓6510	TSgt MANN	6-4043	PH	88.07.11	SCHULTZ

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09.12.13

*** MASTER SHOP SURVEY SCHEDULE ***

***** MASTER SHOP SURVEY SCHEDULE *****

ID CODE	Office Symbol	Shop Name	Bldg	Supervisor	Phone	Shop Annual Cat	Survey Date	OPR
BAWH-043A	4392ASW SSR	AUTO HOBBY SHOP	✓6437	Mr. NEAL	6-6014	PH	89.07.31	ROBERTS
BAWH-045A	4392ASW SSRA	WOOD HOBBY SHOP	✓6438	MR. SPRADLEY	6-4567	PH	88.08.20	MITCHELL
TRVM-040A	4392TRANS LBTM	MINOR MAINTENANCE	✓10726	MSgt Hutchings	6-6774	PH	88.05.26	SCHULTZ

** MONTH DUE - 07

* Shop Category -- C

CEWT-030B	4392CES DEMHW	WATER PLANTS	✓1200	Mr. GRIGG	6-5317	C	88.09.26	SCHULTZ
HOMM-073F	SGALE	BIOMEDICAL EQUIP REPAIR	✓13850	SSgt DILLON	6-9348	C	88.09.15	ROBERTS
HOMX-080A	SGHR	MEDICAL X-RAY	✓13850	SSgt Hansberry	6-8938	C	88.09.01	SCHULTZ

* Shop Category -- PH

BAPP-051A	1369AVS DOLS	STILL COLOR LAB	✓9340	TSgt PARKER	6-6321	PH	88.06.10	MITCHELL
COMN-068A	392CS LGFF	WEATHER MAINTENANCE	✓6510	MSgt BRADLEY	6-4284	PH	89.09.13	ROBERTS
BARE-041C	4392ASW DAR	PRINTING PLANT	✓7425	SMSgt HOLTZ	6-7738	PH	88.09.27	ROBERTS
BAXX-125A	4392ASW SSRB	BOWLING ALLEY	✓10366	SANDARA HUDSON	6-3209	PH	.	SCHULTZ
CEPW-015C	4392CES DEML	POWER PRODUCTION	✓1783	Mr. LENNINGER	6-2114	PH	87.11.30	MITCHELL
CEPW-015B	4392CES DEMLM	FIELD POWER	✓8425	Mr. GUGGENMOS	6-3367	PH	88.10.06	MITCHELL

-- MONTH DUE - 08

* Shop Category -- PH

BAXX-052B	1369AVS LGML	LABORATORY MAINTENANCE	✓9340	TSgt Adams	6-5266	PH	88.06.07	SCHULTZ
CEXX-116A	4392CES DEMHA	ZONE 1	✓1785	Mr. BURT	6-4547	PH	.	ROBERTS
CEXX-117A	4392CES DEMHB	ZONE 2	✓11352	Mr. O'RILEY	6-0010	PH	.	MITCHELL
CEXX-118A	4392CES DEMHC	ZONE 3	✓11352	Mr. Mick	5-0910	PH	.	SCHULTZ
CEXX-119A	4392CES DEMHD	ZONE 4	✓7307	SSgt SOUTHWALL	6-0491	PH	.	SCHULTZ
CEXX-120A	4392CES DEMHE	ZONE 5	✓11352	TSgt LOUSER	6-3761	PH	.	MITCHELL
CEXX-121C	4392CES DEMHF	ZONE 6	✓886	Mr. SCHNEIDER	5-3073	PH	.	ROBERTS
XXFO-047A	4392SP SPC	COMBAT ARMS TRAINING AND MAINT	✓13516	MSgt QUINN	6-6130	PH	89.09.05	ROBERTS

** MONTH DUE - 09

* Shop Category -- C

BAXX-048A	1STRAD TOTX	TRAINING AIDS	✓6436	MSgt HOLCOMB	6-6803	C	87.07.08	MITCHELL
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* Shop Category -- PH

HOBE-081A	SGB	BIOENVIRONMENTAL ENGR SERVICES	✓13850	LtCOL CHANDLER	6-7811	PH	.	SCHULTZ
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Appendix B-5
Vandenberg AFB Oil/Water Separators
Connected to Sewer Lines

VANDENBERG AIR FORCE BASE

OIL/WATER SEPARATORS

CONNECTED TO SEWER LINES

<u>LOCATION</u>	<u>BUILDING NO</u>
1. Civil Engineering Heavy Equipment	10715
2. Flightline (Near Fuel Trucks)	1705
3. Det 8, Air Rescue and Recovery Squadron	1725
4. Det 8, Air Rescue and Recovery Squadron	1731
5. Auto Hobby Shop	6434
6. Civil Engineering Fuel Power Production	8425
7. Transportation Motor Pool	10726

Appendix B-6

AFOEHL/EQM Ltr, Vandenberg AFB

Wastewater Sampling Strategy, 28 Aug 90

FROM: AF OEHL/EQW
Brooks AFB, TX 78235

28 August 1990

SUBJECT: Vandenberg AFB Wastewater Sampling Strategy

TO: 1 STRAT/ET 1 Strat Hosp/SGF

1. After reviewing the Vandenberg AFB Hazardous Waste Inventory, the Bioenvironmental Engineering Shop Survey Schedule, and the Notice of Violation, I have developed a proposed sampling strategy for the industrial wastewater characterization survey at Vandenberg AFB. From the information provided to us, it appears that the greatest use of potentially hazardous chemicals that could enter the domestic sewer system is from photographic film developing and automotive maintenance.

a. Parameters to be monitored at all sites: Because of the amount of photographic developing done on the base, all samples collected will be analyzed for metals (to determine silver content), and cyanides. In addition, sites will be sampled for VOAs to try to pinpoint the source of the toluene and benzene in the wastewater. Specific contaminants measured in the screening tests are contained in Atch 1.

b. Additional parameters monitored at specific sites:

1.) We propose to collect samples at the following sites during each sampling day of the visit:

Manhole Number	Site Description	Additional Analytes	Justification
E-38-136	Outfall to Lompoc POTW. Near Bldg. 6814.	Chloride Ammonia Phenols Volatiles Oils & Grease Phosphorus Surfactants pH, Temp.	Permit Std. Permit Std. Permit Std. Solvent Usage Oil Usage Car Wash
71-A-4	Manhole near Bldg 9340, AVS Film Lab		Large user of photochemicals

2.) We propose the following sites will be

sampled for three days each during the visit:

Manhole Number -----	Site Description -----	Additional Analytes -----	Justification -----
17-B-2	Manhole near Bldg 7425, Printing Plant	VOHs	1,1,1-Trichloro- ethane use
20-B	Manhole near Bldg 8310, LMSC		Significant use of photochemicals
	Manhole near Bldg 13850, Hospital		X-Ray Film Developing
45-A-8	Manhole near Bldg 7015		Photochemical use
23-A-2	Manhole near Bldg 10726, Motorpool	Oils & Greases, VOHs	Use of petroleum products and solvents
Sewage Pump Station	Near Oregon Avenue	Oils & Greases, VOHs Phosphorus Ammonia Oils & Grease Surfactants	To establish background levels of these contaminants in the domestic (non-industrial) sewer system

2. A list of the oil/water separators and their locations on the base is needed to assist us in tracking down the source of benzene and toluene in the sewer system.

3. We must receive your comments as soon as possible but NLT 31 Aug 90. Our fax number is DSN 240-3945 or (512)536-3945. If we receive no comments by then, we will be in touch to verify that the sampling strategy is satisfactory. We need the concurrence of 1 STRAD/ET (Col. Atwood) and 1 Strat Hosp/SGB. The quality and usefulness of the final Technical Report will depend on the quality of your review.

RICHARD P. MCCOY, Capt, USAF, BSC
Bioenvironmental Engineer

1 Atch: Contaminants
Measured in Screening
Tests

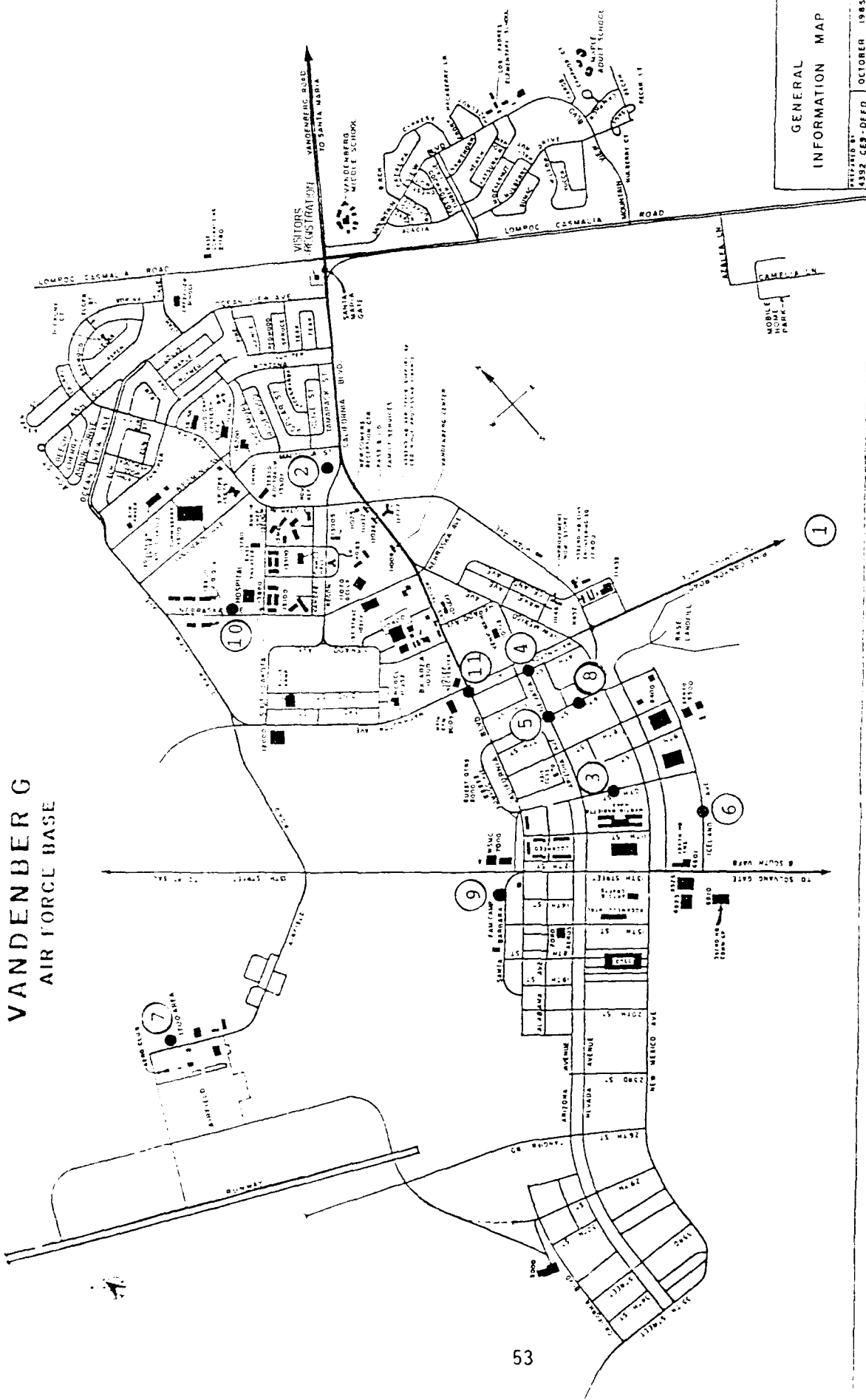
LIST OF CONTAMINANTS MEASURED IN SCREENING TESTS

Screening Test -----	Contaminants Analyzed -----
Metals	Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium (total), Chromium (Vi), Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Zinc
VOHs	Bromodichloromethane, Bromoform, Bromomethane, Carbon Tetrachloride, Chlorobenzene, Chloroethane, 2-Chloroethylvinyl ether, Chloroform, Chloromethane, Dibromochloromethane, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, dichlorodifluoromethane, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethene, trans-1,2-dichloroethene, 1,2-dichloropropane, cis-1,3-dichloropropene, methylene chloride, 1,1,2,2-tetrachloroethane, tetrachloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethylene, trichlorofluoromethane, vinyl chloride
VOAs	Benzene, Chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, ethylbenzene, toluene

Appendix B-7
Sanitary Sewer Sampling Site Locations

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VANDENBERG AIR FORCE BASE



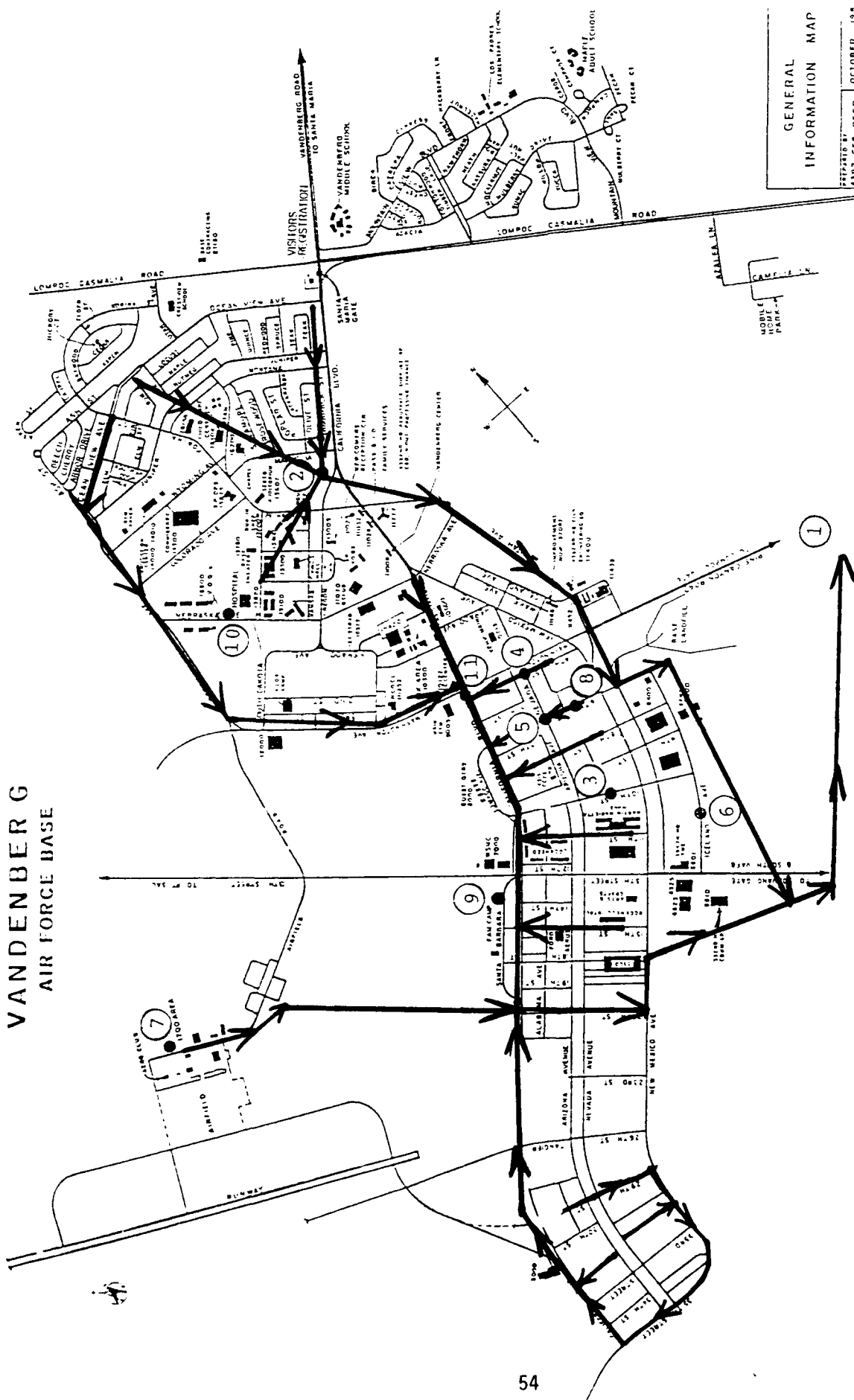
Sanitary Sewer Sampling Site Locations

- -- Sample Site
○ -- Site Number
1. Lompoc POTW (Off Base)
 2. Sewage Lift Station, Oregon Avenue
 3. Bldg 7425 on 10th St.
 4. Bldg 9340
 5. Bldg 9325
 6. Manhole near Bldgs. 8401, 7525, 7501
 7. Flightline Lift Station
 8. Bldg 9320 @ 6th St.
 9. Bldg 7015 on Santa Barbara
 10. Hospital
 11. Motorpool (near Rec Center)

GENERAL
INFORMATION MAP

4392 CES-DEED OCTOBER 1985

VANDENBERG AIR FORCE BASE

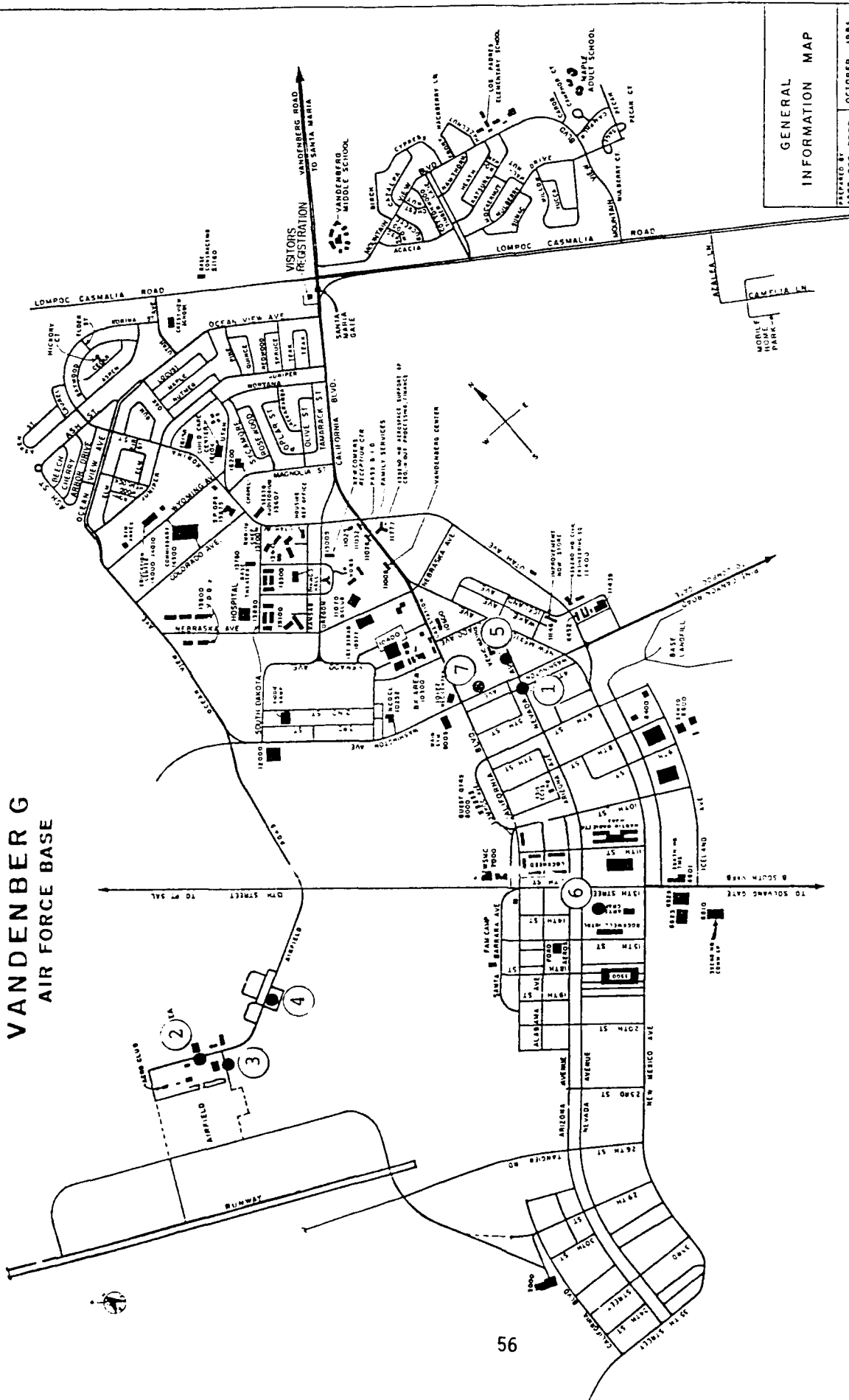


Sanitary Sewer Sampling Site Locations

- | | | | |
|------------------|---------------------------------------|---|---------------------------------|
| ● -- Sample Site | 1. Lompoc POTW (Off Base) | 4. Bldg 9340 | 7. Flightline Lift Station |
| ○ -- Site Number | 2. Sewage Lift Station, Oregon Avenue | 5. Bldg 9325 | 8. Bldg 9320 @ 6th St. |
| | 3. Bldg 7425 on 10th St. | 6. Manhole near Bldgs. 8401, 7525, 7501 | 9. Bldg 7015 on Santa Barbara |
| | | | 10. Hospital |
| | | | 11. Motorpool (near Rec Center) |

Appendix B-8
Oil/Water Sampling Site Locations

VANDENBERG AIR FORCE BASE



Appendix B-9
Analyses and Preservation Methods Used for Samples

Appendix B-9: ANALYSES AND PRESERVATION METHODS USED FOR SAMPLES

<u>Analysis</u>	<u>Preservation</u>	<u>EPA Method</u>	<u>Holding Time (days)</u>
Volatile Organic Aromatics (VOA)	4°C	602	14
Volatile Organic Hydrocarbon (VOH)	4°C	601	14
ICP Metals	HNO ₃	200.7	180
Lead	HNO ₃	239.1	180
Silver	HNO ₃	272.1	180
Cyanide	NaOH	335.3	14
Chlorides	None	325.2	28
Ammonia	H ₂ SO ₄ , 4°C	350.1	28
Phenols	H ₂ SO ₄ , 4°C	420.2	28
Oil and Grease	H ₂ SO ₄ , 4°C	413.2	28
Phosphorus, Total	H ₂ SO ₄ , 4°C	365.1	28
Surfactants, MBAS	4°C	425.1	2
Residue, Filterable	4°C	160.1	7
Hydrocarbons, Total	HC ₇	418.1	
Conductance, Spec.	4°C	120.1	28
Total Toxic Organics (TTO)*	4°C	624	14
TTO*	4°C	625	7
TTO*	4°C	608	7

* Analyzed by Contract Lab (Datachem, Salt Lake City UT)

APPENDIX C
VOLATILE ORGANIC AROMATICS (VOA) RESULTS

Table C-1
VOLATILE ORGANIC AROMATICS (VOA) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 1, Lompoc POTW
(All Concentrations in ug/l)

Analyte	26 Sep	27 Sep	28 Sep	29 Sep	30 Sep	01 Oct	02 Oct	03 Oct	04 Oct
1,3-Dichlorobenzene	<0.5	<0.5	IP*	IP	IP	IP	<0.5	<0.5	IP
1,4-Dichlorobenzene	<0.7	<0.7	IP	IP	IP	IP	1.1	<0.7	IP
Ethyl Benzene	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chlorobenzene	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Toluene	2.3	<0.3	1.1	1.1	1	1.4	<0.3	2.9	1
Benzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	<1.0	<1.0	IP	IP	IP	IP	<1.0	<1.0	IP

IP - Interfering Peaks

Table C-2
VOLATILE ORGANIC AROMATICS (VOA) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 2, Sewage Lift Station, Oregon Avenue
(All Concentrations in ug/l)

Analyte	26 Sep	27 Sep	28 Sep	29 Sep	30 Sep	01 Oct	02 Oct	03 Oct	04 Oct
1,3-Dichlorobenzene	<0.5	<0.5	<0.5	IP	IP	IP	<0.5	<0.5	IP
1,4-Dichlorobenzene	3.2	3.7	3.9	IP	IP	IP	3.7	<0.7	IP
Ethyl Benzene	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chlorobenzene	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Toluene	9.1	13	9	12	15	5.3	16.6	<0.3	11
Benzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	<1.0	11	<1.0	IP	IP	IP	<1.0	<1.0	IP

IP - Interfering Peaks

Table C-3
VOLATILE ORGANIC AROMATICS (VOA) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 3, Manhole on 10th Ave., Near Bldg 7425
(All concentrations in ug/l)

Analyte	26 Sep	(REPL) 26 Sep	(ISCOhd) 27 Sep	(DIP) 27 Sep	28 Sep
1,3-Dichlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	<0.7	<0.7	<0.7	<0.7	<0.7
Ethyl Benzene	<0.3	<0.3	<0.3	<0.3	<0.3
Chlorobenzene	<0.6	<0.6	<0.6	<0.6	<0.6
Toluene	<0.3	<0.3	<0.3	<0.3	<0.3
Benzene	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0

REPL - Replicate ISCOhd - Sample from ISCO pump head
DIP - Sample dipped from manhole

Table C-4
VOLATILE ORGANIC AROMATICS (VOA) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 5, Manhole at Bldg 9325, Nevada & 6th Avenue
(All Concentrations in ug/l)

Analyte	26 Sep	27 Sep	28 Sep
1,3-Dichlorobenzene	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	<0.7	<0.7	<0.7
Ethyl Benzene	<0.3	<0.3	<0.3
Chlorobenzene	<0.6	<0.6	<0.6
Toluene	<0.3	<0.3	<0.3
Benzene	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	<1.0	<1.0	<1.0

Table C-5
VOLATILE ORGANIC AROMATICS (VOA) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 6, Manhole Near Bldgs. 8401, 7525, 7501
(All Concentrations in ug/l)

Analyte	26 Sep	27 Sep	28 Sep
1,3-Dichlorobenzene	<0.5	NA	IP
1,4-Dichlorobenzene	<0.7	NA	IP
Ethyl Benzene	<0.3	NA	<0.3
Chlorobenzene	<0.6	NA	<0.6
Toluene	<0.3	NA	0.65
Benzene	<0.5	NA	<0.5
1,2-Dichlorobenzene	<1.0	NA	IP

IP - Interfering Peaks, NA - Not Analyzed by Lab

Table C-6
VOLATILE ORGANIC AROMATICS (VOA) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 4, Manhole at Bldg 9340, AVS
(All Concentrations in ug/l)

Analyte	26 Sep	(REPL) 26 Sep	27 Sep	(REPL) 27 Sep	28 Sep
1,3-Dichlorobenzene	<0.5	<0.5	<0.5	<0.5	IP
1,4-Dichlorobenzene	<0.7	<0.7	<0.7	<0.7	IP
Ethyl Benzene	<0.3	<0.3	<0.3	<0.3	<0.3
Chlorobenzene	<0.6	<0.6	<0.6	<0.6	<0.6
Toluene	2.3	<0.3	<0.3	<0.3	<0.3
Benzene	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0	IP

IP - Interfering Peaks, REPL - Replicate samples

Table C-7
VOLATILE ORGANIC AROMATICS (VOA) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 7, Flightline Lift Station
(All Concentrations in ug/l)

Analyte	02 Oct	03 Oct	04 Oct
1,3-Dichlorobenzene	<0.5	<0.5	IP
1,4-Dichlorobenzene	0.4	0.7	IP
Ethyl Benzene	<0.3	<0.3	1.9
Chlorobenzene	<0.6	<0.6	<0.6
Toluene	<0.3	66.2	<0.3
Benzene	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	<1.0	1.0	IP

IP - Interfering Peaks

Table C-8
VOLATILE ORGANIC AROMATICS (VOA) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 11, Motorpool (Manhole Near Rec Center)
(All Concentrations in ug/l)

Analyte	02 Oct	03 Oct	04 Oct
1,3-Dichlorobenzene	<0.5	<0.5	IP
1,4-Dichlorobenzene	<0.7	3.3	IP
Ethyl Benzene	<0.3	<0.3	<0.3
Chlorobenzene	<0.6	<0.6	<0.6
Toluene	<0.3	<0.3	0.81
Benzene	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	<1.0	<1.0	IP

IP - Interfering Peaks

Table C-9
VOLATILE ORGANIC AROMATICS (VOA) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 8, Bldg 9320 at 6th Avenue
(All Concentrations in ug/l)

Analyte	02 Oct	03 Oct	04 Oct
-----	-----	-----	-----
1,3-Dichlorobenzene	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	<0.7	<0.7	<0.7
Ethyl Benzene	<0.3	<0.3	<0.3
Chlorobenzene	<0.6	<0.6	<0.6
Toluene	<0.3	<0.3	<0.3
Benzene	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	<1.0	<1.0	<1.0

Table C-10
VOLATILE ORGANIC AROMATICS (VOA) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 10, Manhole near Hospital
(All Concentrations in ug/l)

Analyte	02 Oct	03 Oct	04 Oct
-----	-----	-----	-----
1,3-Dichlorobenzene	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	<0.7	<0.7	<0.7
Ethyl Benzene	<0.3	<0.3	<0.3
Chlorobenzene	<0.6	<0.6	<0.6
Toluene	<0.3	<0.3	<0.3
Benzene	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	<1.0	<1.0	<1.0

Table C-11
VOLATILE ORGANIC AROMATICS (VOA) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 9, Bldg 7015, Santa Barbara Avenue
(All Concentrations in ug/l)

Analyte	02 Oct	03 Oct	04 Oct
-----	-----	-----	-----
1,3-Dichlorobenzene	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	<0.7	<0.7	<0.7
Ethyl Benzene	<0.3	<0.3	<0.3
Chlorobenzene	<0.6	<0.6	<0.6
Toluene	<0.3	<0.3	<0.3
Benzene	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	<1.0	<1.0	<1.0

Table C-12
VOLATILE ORGANIC AROMATIC (VOA) RESULTS
Vandenbergh AFB Wastewater Characterization Survey
Site: Bldg 9340 Basement Sump, AVS
(All Concentrations in ug/l)

Analyte	26 Sep	01 Oct	03 Oct
1,3-Dichlorobenzene	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	<0.7	<0.7	<0.7
Ethyl Benzene	<0.3	<0.3	<0.3
Chlorobenzene	<0.6	<0.6	<0.6
Toluene	<0.3	<0.3	<0.3
Benzene	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	<1.0	<1.0	<1.0

Table C-13
VOLATILE ORGANIC AROMATICS (VOA) RESULTS
Vandenbergh AFB Wastewater Characterization Survey
Site: Oil/Water Separators Collected 26 Sep 90
(All Concentrations in ug/l)

Analyte	Site:	Sample #	B1731, Det 8 GN901175	B1725, Det 8 GN901173	B1715, Refuel GN901171	B10715, Auto CE HvyEq Hobby GN901169	B10726 Mtrpool GN901177
1,3-Dichlorobenzene			<0.5	NA	IP	<0.5	NA
1,4-Dichlorobenzene			<0.7	NA	IP	<0.7	NA
Ethyl Benzene			<0.3	NA	<0.3	<0.3	NA
Chlorobenzene			<0.6	NA	<0.6	<0.6	NA
Toluene			<0.3	NA	5.3	<0.3	NA
Benzene			<0.5	NA	<0.5	<0.5	NA
1,2-Dichlorobenzene			<1.0	NA	IP	<1.0	NA

IP - Interfering Peaks, NA - Not Analyzed by Lab

APPENDIX D
VOLATILE ORGANIC HYDROCARBON (VOH) RESULTS

Table D-1
VOLATILE ORGANIC HYDROCARBON (VOH) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 1, Lompoc POTW
(All Concentrations in ug/l)

Analyte	Date:	26 Sep	27 Sep	28 Sep	29 Sep	30 Sep	1 Oct	2 Oct	3 Oct	4 Oct
Bromodichloromethane		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Bromoform		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Carbon Tetrachloride		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene		<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Chloroethane		IP	IP	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
Chloroform		0.4	<0.3	<0.3	<0.3	0.5	0.55	0.4	<0.3	<0.3
Chloromethane		IP	IP	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Chlorodibromomethane		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene		1.4	0.9	1.1	0.6	0.7	0.5	1.1	0.9	<0.7
Dichlorodifluoromethane		IP	IP	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
1,1-Dichloroethane		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
1,2-Dichloroethane		<0.3	1.2	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
1,1-Dichloroethene		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
trans-1,2-Dichloroethene		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methylene Chloride		<0.4	<0.4	<0.4	<0.4	<0.4	4.2	1.5	<0.4	<0.4
1,1,2,2-Tetrachloroethane		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene		<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
1,1,1-Trichloroethane		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethylene		0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane		IP	IP	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Vinyl Chloride		IP	IP	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
Bromomethane		IP	IP	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
2-Chloroethylvinyl ether		<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
IP - Interfering Peaks										

Table D-2

VOLATILE ORGANIC HYDROCARBON (VOH) RESULTS
 Vandenberg AFB Wastewater Characterization Survey
 Site 2, Sewage Lift Station, Oregon Avenue
 (All Concentrations in ug/l)

Analyte	Date:	26 Sep	27 Sep	28 Sep	29 Sep	30 Sep	1 Oct	2 Oct	3 Oct	4 Oct
Bromodichloromethane		<0.4	<0.4	1.1	0.6	0.6	1.2	<0.4	<0.4	<0.4
Bromoform		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Carbon Tetrachloride		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene		<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Chloroethane		IP	IP	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
Chloroform		0.3	<0.3	0.4	<0.3	0.4	<0.3	<0.3	<0.3	<0.3
Chloromethane		1.1	IP	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Chlorodibromomethane		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene		<1.0	3.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene		7.1	4.9	1.1	2.1	2.7	2.0	3.7	<0.7	1.6
Dichlorodifluoromethane		IP	IP	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
1,1-Dichloroethane		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
1,2-Dichloroethane		2.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
1,1-Dichloroethene		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
trans-1,2-Dichloroethene		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methylene Chloride		0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethane		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene		<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
1,1,1-Trichloroethane		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethylene		0.8	1.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane		IP	IP	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Vinyl Chloride		IP	IP	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
Bromomethane		IP	IP	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
2-Chloroethylvinyl ether		<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9

IP - Interfering Peaks

Table D-3
VOLATILE ORGANIC HYDROCARBON (VOH) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 3, Manhole on 10th Avenue, near Bldg 7425
(All Concentrations in ug/l)

Analyte	Date:	26 Sep	26 Sep*	27 Sep	28 Sep
Bromodichloromethane		<0.4	<0.4	<0.4	0.9
Bromoform		<0.7	<0.7	<0.7	<0.7
Carbon Tetrachloride		<0.5	<0.5	<0.5	<0.5
Chlorobenzene		<0.6	<0.6	<0.6	<0.6
Chloroethane		IP	IP	IP	<0.9
Chloroform		<0.3	<0.3	<0.3	<0.3
Chloromethane		IP	IP	IP	<0.8
Chlorodibromomethane		<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene		<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene		<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene		<0.7	<0.7	<0.7	<0.7
Dichlorodifluoromethane		IP	IP	IP	<0.9
1,1-Dichloroethane		<0.4	<0.4	<0.4	<0.4
1,2-Dichloroethane		<0.3	<0.3	<0.3	<0.3
1,1-Dichloroethene		<0.3	<0.3	IP	<0.3
trans-1,2-Dichloroethene		<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane		<0.3	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene		<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene		<0.5	<0.5	<0.5	<0.5
Methylene Chloride		<0.4	<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethane		<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene		<0.6	<0.6	<0.6	<0.6
1,1,1-Trichloroethane		<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane		<0.5	<0.5	<0.5	<0.5
Trichloroethylene		<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane		IP	IP	IP	<0.4
Vinyl Chloride		IP	IP	IP	<0.9
Bromomethane		IP	IP	IP	<0.9
2-Chloroethylvinyl ether		<0.9	<0.9	<0.9	<0.9

* Replicate Sample

IP - Interfering Peaks

Table D-4
VOLATILE ORGANIC HYDROCARBON (VOH) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 5, Manhole at Bldg 9325, Corner of Nevada and 6th
(All Concentrations in ug/l)

Analyte	Date:	26 Sep	27 Sep	28 Sep
Bromodichloromethane		<0.4	<0.4	<0.4
Bromoform		5.5	<0.7	<0.7
Carbon Tetrachloride		<0.5	<0.5	<0.5
Chlorobenzene		<0.6	<0.6	<0.6
Chloroethane		IP	IP	<0.9
Chloroform		<0.3	<0.3	<0.3
Chloromethane		IP	IP	<0.8
Chlorodibromomethane		1.2	<0.5	<0.5
1,2-Dichlorobenzene		<1.0	<1.0	<1.0
1,3-Dichlorobenzene		<0.5	<0.5	<0.5
1,4-Dichlorobenzene		<0.7	<0.7	<0.7
Dichlorodifluoromethane		IP	IP	<0.9
1,1-Dichloroethane		<0.4	<0.4	<0.4
1,2-Dichloroethane		<0.3	1.2	<0.3
1,1-Dichloroethene		<0.3	IP	<0.3
trans-1,2-Dichloroethene		<0.5	<0.5	<0.5
1,2-Dichloropropane		<0.3	<0.3	<0.3
cis-1,3-Dichloropropene		<0.5	<0.5	<0.5
trans-1,3-Dichloropropene		<0.5	<0.5	<0.5
Methylene Chloride		<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethane		<0.5	<0.5	<0.5
Tetrachloroethylene		<0.6	<0.6	<0.6
1,1,1-Trichloroethane		<0.5	<0.5	<0.5
1,1,2-Trichloroethane		<0.5	<0.5	<0.5
Trichloroethylene		<0.5	<0.5	<0.5
Trichlorofluoromethane		IP	IP	<0.4
Vinyl Chloride		IP	IP	<0.9
Bromomethane		IP	IP	<0.9
2-Chloroethylvinyl ether		<0.9	<0.9	<0.9

IP - Interfering Peaks

Table D-5
VOLATILE ORGANIC HYDROCARBON (VOH) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 6, Manhole at Bldgs. 8401, ,7527, 7501
(All Concentrations in ug/l)

Analyte	Date:	26 Sep	27 Sep	28 Sep
Bromodichloromethane		<0.4	<0.4	<0.4
Bromoform		<0.7	<0.7	<0.7
Carbon Tetrachloride		<0.5	<0.5	<0.5
Chlorobenzene		<0.6	<0.6	<0.6
Chloroethane		IP	<0.9	<0.9
Chloroform		<0.3	<0.3	<0.3
Chloromethane		IP	<0.8	<0.8
Chlorodibromomethane		<0.5	<0.5	<0.5
1,2-Dichlorobenzene		<1.0	<1.0	<1.0
1,3-Dichlorobenzene		<0.5	<0.5	<0.5
1,4-Dichlorobenzene		<0.7	<0.7	<0.7
Dichlorodifluoromethane		IP	<0.9	0.6
1,1-Dichloroethane		<0.4	<0.4	3.4
1,2-Dichloroethane		<0.3	<0.3	<0.3
1,1-Dichloroethene		<0.3	<0.3	<0.3
trans-1,2-Dichloroethene		<0.5	<0.5	<0.5
1,2-Dichloropropane		<0.3	<0.3	<0.3
cis-1,3-Dichloropropene		<0.5	<0.5	<0.5
trans-1,3-Dichloropropene		<0.5	<0.5	<0.5
Methylene Chloride		<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethane		<0.5	<0.5	<0.5
Tetrachloroethylene		<0.6	<0.6	<0.6
1,1,1-Trichloroethane		<0.5	<0.5	<0.5
1,1,2-Trichloroethane		<0.5	<0.5	<0.5
Trichloroethylene		<0.5	<0.5	<0.5
Trichlorofluoromethane		IP	<0.4	<0.4
Vinyl Chloride		IP	<0.9	<0.9
Bromomethane		IP	<0.9	<0.9
2-Chloroethylvinyl ether		<0.9	<0.9	<0.9

IP - Interfering Peaks

Table D-6
VOLATILE ORGANIC HYDROCARBON (VOH) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 4, Manhole at Bldg 9340, AVS
(All Concentrations in ug/l)

Analyte	Date:	26 Sep	27 Sep	27 Sep*	28 Sep
-----		-----	-----	-----	-----
Bromodichloromethane		<0.4	<0.4	<0.4	0.6
Bromoform		20	8.5	<0.7	15
Carbon Tetrachloride		<0.5	<0.5	<0.5	<0.5
Chlorobenzene		<0.6	<0.6	<0.6	<0.6
Chloroethane		IP	IP	IP	<0.9
Chloroform		0.7	7.5	8.8	1.4
Chloromethane		IP	IP	IP	<0.8
Chlorodibromomethane		5.4	1.4	2.2	4.5
1,2-Dichlorobenzene		<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene		<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene		<0.7	<0.7	<0.7	<0.7
Dichlorodifluoromethane		IP	IP	IP	<0.9
1,1-Dichloroethane		<0.4	<0.4	<0.4	<0.4
1,2-Dichloroethane		1.4	3.4	1.0	<0.3
1,1-Dichloroethene		<0.3	IP	<0.3	<0.3
trans-1,2-Dichloroethene		<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane		<0.3	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene		<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene		<0.5	<0.5	<0.5	<0.5
Methylene Chloride		<0.4	<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethane		<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene		<0.6	<0.6	<0.6	<0.6
1,1,1-Trichloroethane		<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane		<0.5	<0.5	<0.5	<0.5
Trichloroethylene		<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane		1.5	IP	IP	<0.4
Vinyl Chloride		IP	IP	IP	<0.9
Bromomethane		IP	IP	IP	<0.9
2-Chloroethylvinyl ether		<0.9	<0.9	<0.9	<0.9

* Replicate

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Table D-7
VOLATILE ORGANIC HYDROCARBON (VOH) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 7, Flightline Lift Station
(All Concentrations in ug/l)

Analyte	Date:	2 Oct	3 Oct	4 Oct
Bromodichloromethane		<0.4	<0.4	0.6
Bromoform		<0.7	<0.7	15
Carbon Tetrachloride		<0.5	<0.5	<0.5
Chlorobenzene		<0.6	<0.6	<0.6
Chloroethane		<0.9	<0.9	<0.9
Chloroform		<0.3	<0.3	1.4
Chloromethane		<0.8	<0.8	<0.8
Chlorodibromomethane		<0.5	<0.5	4.5
1,2-Dichlorobenzene		<1.0	<1.0	<1.0
1,3-Dichlorobenzene		<0.5	<0.5	<0.5
1,4-Dichlorobenzene		0.4	0.7	<0.7
Dichlorodifluoromethane		<0.9	<0.9	<0.9
1,1-Dichloroethane		<0.4	<0.4	<0.4
1,2-Dichloroethane		<0.3	<0.3	<0.3
1,1-Dichloroethene		<0.3	<0.3	<0.3
trans-1,2-Dichloroethene		<0.5	<0.5	2.1
1,2-Dichloropropane		<0.3	<0.3	<0.3
cis-1,3-Dichloropropene		<0.5	<0.5	<0.5
trans-1,3-Dichloropropene		<0.5	<0.5	<0.5
Methylene Chloride		<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethane		<0.5	<0.5	<0.5
Tetrachloroethylene		<0.6	<0.6	<0.6
1,1,1-Trichloroethane		<0.5	<0.5	<0.5
1,1,2-Trichloroethane		<0.5	<0.5	<0.5
Trichloroethylene		<0.5	<0.5	<0.5
Trichlorofluoromethane		<0.4	<0.4	0.6
Vinyl Chloride		<0.9	<0.9	<0.9
Bromomethane		<0.9	<0.9	<0.9
2-Chloroethylvinyl ether		<0.9	<0.9	<0.9

Table D-8
VOLATILE ORGANIC HYDROCARBON (VOH) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 11, Motorpool, near Rec Center
(All Concentrations in ug/l)

Analyte	Date:	2 Oct	3 Oct	4 Oct
Bromodichloromethane		6.4	<0.4	0.6
Bromoform		<0.7	<0.7	<0.7
Carbon Tetrachloride		<0.5	<0.5	<0.5
Chlorobenzene		<0.6	<0.6	<0.6
Chloroethane		<0.9	<0.9	<0.9
Chloroform		12.0	<0.3	<0.3
Chloromethane		<0.8	<0.8	<0.8
Chlorodibromomethane		<0.5	<0.5	<0.5
1,2-Dichlorobenzene		<1.0	<1.0	IP
1,3-Dichlorobenzene		<0.5	<0.5	IP
1,4-Dichlorobenzene		<0.7	3.3	IP
Dichlorodifluoromethane		<0.9	<0.9	<0.9
1,1-Dichloroethane		<0.4	<0.4	4.3
1,2-Dichloroethane		<0.3	<0.3	<0.3
1,1-Dichloroethene		<0.3	<0.3	<0.3
trans-1,2-Dichloroethene		<0.5	<0.5	<0.5
1,2-Dichloropropane		<0.3	<0.3	<0.3
cis-1,3-Dichloropropene		<0.5	<0.5	<0.5
trans-1,3-Dichloropropene		<0.5	<0.5	<0.5
Methylene Chloride		<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethane		<0.5	<0.5	<0.5
Tetrachloroethylene		<0.6	<0.6	<0.6
1,1,1-Trichloroethane		<0.5	<0.5	2.3
1,1,2-Trichloroethane		<0.5	<0.5	<0.5
Trichloroethylene		<0.5	<0.5	<0.5
Trichlorofluoromethane		<0.4	<0.4	<0.4
Vinyl Chloride		<0.9	<0.9	<0.9
Bromomethane		<0.9	<0.9	<0.9
2-Chloroethylvinyl ether		<0.9	<0.9	<0.9

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Table D-9
VOLATILE ORGANIC HYDROCARBON (VOH) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 8, Bldg 9320 at 6th Avenue
(All Concentrations in ug/l)

Analyte	Date:	2 Oct	3 Oct	4 Oct
-----		-----	-----	-----
Bromodichloromethane		<0.4	<0.4	<0.4
Bromoform		<0.7	<0.7	<0.7
Carbon Tetrachloride		<0.5	<0.5	<0.5
Chlorobenzene		<0.6	<0.6	<0.6
Chloroethane		<0.9	<0.9	<0.9
Chloroform		<0.3	<0.3	<0.3
Chloromethane		<0.8	<0.8	<0.8
Chlorodibromomethane		<0.5	<0.5	<0.5
1,2-Dichlorobenzene		<1.0	<1.0	<1.0
1,3-Dichlorobenzene		<0.5	<0.5	<0.5
1,4-Dichlorobenzene		<0.7	<0.7	<0.7
Dichlorodifluoromethane		<0.9	<0.9	<0.9
1,1-Dichloroethane		<0.4	<0.4	<0.4
1,2-Dichloroethane		<0.3	<0.3	<0.3
1,1-Dichloroethene		<0.3	<0.3	<0.3
trans-1,2-Dichloroethene		<0.5	<0.5	<0.5
1,2-Dichloropropane		<0.3	<0.3	<0.3
cis-1,3-Dichloropropene		<0.5	<0.5	<0.5
trans-1,3-Dichloropropene		<0.5	<0.5	<0.5
Methylene Chloride		<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethane		<0.5	<0.5	<0.5
Tetrachloroethylene		<0.6	<0.6	<0.6
1,1,1-Trichloroethane		<0.5	<0.5	<0.5
1,1,2-Trichloroethane		<0.5	<0.5	<0.5
Trichloroethylene		<0.5	<0.5	<0.5
Trichlorofluoromethane		<0.4	<0.4	<0.4
Vinyl Chloride		<0.9	<0.9	<0.9
Bromomethane		<0.9	<0.9	<0.9
2-Chloroethylvinyl ether		<0.9	<0.9	<0.9

Table D-10
VOLATILE ORGANIC HYDROCARBON (VOH) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 10, Hospital
(All Concentrations in ug/l)

Analyte	Date:	2 Oct	3 Oct	4 Oct
-----		-----	-----	-----
Bromodichloromethane		<0.4	0.8	<0.4
Brom form		5.8	<0.7	2.2
Carbon Tetrachloride		<0.5	<0.5	<0.5
Chlorobenzene		<0.6	<0.6	<0.6
Chloroethane		<0.9	<0.9	<0.9
Chloroform		0.6	<0.3	<0.3
Chloromethane		<0.8	<0.8	<0.8
Chlorodibromomethane		0.3	2.3	1.1
1,2-Dichlorobenzene		<1.0	<1.0	<1.0
1,3-Dichlorobenzene		<0.5	<0.5	<0.5
1,4-Dichlorobenzene		<0.7	<0.7	<0.7
Dichlorodifluoromethane		<0.9	<0.9	<0.9
1,1-Dichloroethane		<0.4	<0.4	<0.4
1,2-Dichloroethane		<0.3	<0.3	<0.3
1,1-Dichloroethene		<0.3	<0.3	<0.3
trans-1,2-Dichloroethene		<0.5	<0.5	<0.5
1,2-Dichloropropane		<0.3	<0.3	<0.3
cis-1,3-Dichloropropene		<0.5	<0.5	<0.5
trans-1,3-Dichloropropene		<0.5	<0.5	<0.5
Methylene Chloride		<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethane		<0.5	<0.5	<0.5
Tetrachloroethylene		<0.6	<0.6	<0.6
1,1,1-Trichloroethane		<0.5	<0.5	<0.5
1,1,2-Trichloroethane		<0.5	<0.5	<0.5
Trichloroethylene		<0.5	<0.5	<0.5
Trichlorofluoromethane		<0.4	<0.4	<0.4
Vinyl Chloride		<0.9	<0.9	<0.9
Bromomethane		<0.9	<0.9	<0.9
2-Chloroethylvinyl ether		<0.9	<0.9	<0.9

Table D-11
VOLATILE ORGANIC HYDROCARBON (VOH) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 9, Bldg 7015, Santa Barbara Avenue
(All Concentrations in ug/l)

Analyte	Date:	2 Oct	3 Oct	4 Oct
-----		-----	-----	-----
Bromodichloromethane		<0.4	<0.4	<0.4
Bromoform		<0.7	<0.7	<0.7
Carbon tetrachloride		<0.5	<0.5	<0.5
Chlorobenzene		<0.6	<0.6	<0.6
Chloroethane		<0.9	<0.9	IP
Chloroform		<0.3	<0.3	<0.3
Chloromethane		<0.8	<0.8	IP
Chlorodibromomethane		1.2	<0.5	<0.5
1,2-Dichlorobenzene		<1.0	<1.0	<1.0
1,3-Dichlorobenzene		<0.5	<0.5	<0.5
1,4-Dichlorobenzene		<0.7	<0.7	<0.7
Dichlorodifluoromethane		<0.9	<0.9	<0.9
1,1-Dichloroethane		<0.4	<0.4	<0.4
1,2-Dichloroethane		<0.3	<0.3	<0.3
1,1-Dichloroethene		<0.3	<0.3	<0.3
trans-1,2-Dichloroethene		<0.5	<0.5	<0.5
1,2-Dichloropropane		<0.3	<0.3	<0.3
cis-1,3-Dichloropropene		<0.5	<0.5	<0.5
trans-1,3-Dichloropropene		<0.5	<0.5	<0.5
Methylene Chloride		<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethane		<0.5	<0.5	<0.5
Tetrachloroethylene		<0.6	<0.6	<0.6
1,1,1-Trichloroethane		<0.5	<0.5	<0.5
1,1,2-Trichloroethane		<0.5	<0.5	<0.5
Trichloroethylene		<0.5	<0.5	<0.5
Trichlorofluoromethane		<0.4	<0.4	IP
Vinyl Chloride		<0.9	<0.9	<0.9
Bromomethane		<0.9	<0.9	IP
2-Chloroethylvinyl ether		<0.9	<0.9	<0.9

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Table D-12
VOLATILE ORGANIC HYDROCARBON (VOH) RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site: Basement Sump, AVS, Bldg 9340
(All Concentrations in ug/l)

Analyte	Date:	26 Sep	1 Oct	3 Oct
-----		-----	-----	-----
Bromodichloromethane		<0.4	<0.4	<0.4
Bromoform		<0.7	<0.7	<0.7
Carbon Tetrachloride		<0.5	<0.5	<0.5
Chlorobenzene		<0.6	<0.6	<0.6
Chloroethane		IP	<0.9	<0.9
Chloroform		103	26.6	<0.3
Chloromethane		IP	<0.8	<0.8
Chlorodibromomethane		<0.5	<0.5	<0.5
1,2-Dichlorobenzene		<1.0	<1.0	<1.0
1,3-Dichlorobenzene		<0.5	<0.5	<0.5
1,4-Dichlorobenzene		<0.7	<0.7	<0.7
Dichlorodifluoromethane		IP	<0.9	<0.9
1,1-Dichloroethane		<0.4	16.2	<0.4
1,2-Dichloroethane		20	1.2	<0.3
1,1-Dichloroethene		IP	<0.3	<0.3
trans-1,2-Dichloroethene		<0.5	<0.5	<0.5
1,2-Dichloropropane		<0.3	<0.3	<0.3
cis-1,3-Dichloropropene		<0.5	<0.5	<0.5
trans-1,3-Dichloropropene		<0.5	<0.5	<0.5
Methylene Chloride		0.7	<0.4	<0.4
1,1,2,2-Tetrachloroethane		<0.5	<0.5	<0.5
Tetrachloroethylene		<0.6	<0.6	<0.6
1,1,1-Trichloroethane		59	30.1	<0.5
1,1,2-Trichloroethane		<0.5	<0.5	<0.5
Trichloroethylene		0.8	<0.5	<0.5
Trichlorofluoromethane		IP	<0.4	<0.4
Vinyl Chloride		IP	<0.9	<0.9
Bromomethane		IP	<0.9	<0.9
2-Chloroethylvinyl ether		<0.9	<0.9	<0.9

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Table D-13

VOLATILE ORGANIC HYDROCARBON (VOH) RESULTS
 Site: Oil/Water Separators
 Samples Collected on 26 Sep 90.
 (All Concentrations in ug/l)

Analyte	Site:	1731	1725	1705	10715	Auto Hob	10726
Bromodichloromethane		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Bromoform		<0.7	<0.7	<0.7	2.8	<0.7	<0.7
Carbon Tetrachloride		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene		<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Chloroethane		IP	<0.9	IP	IP	<0.6	<0.6
Chloroform		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chloromethane		IP	<0.8	IP	IP	<0.8	<0.8
Chlorodibromomethane		<0.5	<0.5	<0.5	0.5	<0.5	<0.5
1,2-Dichlorobenzene		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Dichlorodifluoromethane		IP	<0.9	IP	IP	<0.9	<0.9
1,1-Dichloroethane		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
1,2-Dichloroethane		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
1,1-Dichloroethene		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
trans-1,2-Dichloroethene		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methylene Chloride		<0.4	2.0	<0.4	<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethane		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene		<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
1,1,1-Trichloroethane		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethylene		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane		IP	<0.4	IP	IP	<0.4	<0.4
Vinyl Chloride		IP	<0.9	IP	IP	<0.9	<0.9
Bromomethane		IP	<0.9	IP	IP	<0.9	<0.9
2-Chloroethylvinyl ether		<0.9	<0.9	<0.9	<0.9	<0.9	<0.9

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APPENDIX E
METALS RESULTS

Table E-1
METALS RESULTS
VANDENBERG AFB WASTEWATER CHARACTERIZATION SURVEY
Site 1, Lompoc POTW

Analyte	Units	Permit Std.	25 Sep	26 Sep	27 Sep	28 Sep	29 Sep	30 Sep	01 Oct	02 Oct	03 Oct
Arsenic	ug/l	2000	5603	<100	<100	<100	<100	<100	<100	<100	237
Barium	ug/l	---	119	<100	<100	133	<100	<100	<100	118	121
Beryllium	ug/l	3000	<100	<100	<100	<100	<100	<100	<100	<100	<100
Cadmium	ug/l	400	960	<100	<100	<100	<100	<100	<100	<100	<100
Calcium	mg/l	---	65.6	64.3	67.2	65.4	63.5	64.1	61	70.6	69
Chromium	ug/l	2000	<100	<100	<100	<100	<100	<100	<100	<100	<100
Copper	ug/l	1000	<100	<100	<100	<100	<100	<100	<100	<100	<100
Iron	ug/l	---	800	405	728	671	361	473	1016	584	6414
Manganese	ug/l	---	<100	<100	<100	<100	<100	<100	<100	<100	<100
Nickel	ug/l	2000	<100	<100	<100	<100	<100	<100	<100	<100	<100
Zinc	ug/l	1000	216	112	467	450	124	179	<100	<100	<100
Aluminum	ug/l	---	258	159	320	307	162	223	219	198	237
Cobalt	ug/l	---	<100	<100	<100	<100	<100	<100	239	228	259
Titanium	ug/l	---	<100	<100	<100	<100	<100	<100	<100	<100	<100
Vanadium	ug/l	---	<100	<100	<100	<100	<100	<100	<100	<100	<100
Molybdenum	ug/l	---	<100	<100	<100	<100	<100	<100	<100	<100	<100
Mercury	ug/l	20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Magnesium	mg/l	---	16.6	15.4	15.8	14.8	14.9	15.1	14.4	15.4	15.2
Lead	ug/l	1000	<20	<20	30	<20	<20	20	<20	<20	<20
Silver	ug/l	1000	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	38	25	<10.0

Table E-2
METALS RESULTS
VANDENBERG AFB WASTEWATER CHARACTERIZATION SURVEY
Site 2, Sewage Lift Station, Oregon Avenue

Analyte	Units	Permit Std.	25 Sep	26 Sep	27 Sep	28 Sep	29 Sep	30 Sep	01 Oct	02 Oct	03 Oct
Arsenic	ug/l	2000	<100	<100	<100	<100	<100	<100	<100	<100	<100
Barium	ug/l	---	<100	<100	<100	<100	<100	<100	<100	<100	106
Beryllium	ug/l	3000	<100	<100	<100	<100	<100	<100	<100	<100	<100
Cadmium	ug/l	400	<100	<100	<100	<100	<100	<100	<100	<100	<100
Calcium	mg/l	---	66.1	61	62.8	58.5	61.8	63.6	60.7	69.6	57.8
Chromium	ug/l	2000	<100	<100	<100	<100	<100	<100	<100	<100	<100
Copper	ug/l	1000	<100	<100	<100	<100	<100	<100	<100	<100	<100
Iron	ug/l	---	479	712	362	342	365	547	300	363	290
Manganese	ug/l	---	<100	<100	<100	<100	<100	<100	<100	<100	<100
Nickel	ug/l	2000	<100	<100	<100	<100	<100	<100	<100	<100	<100
Zinc	ug/l	1000	<100	112	<100	<100	<100	<100	<100	<100	<100
Aluminum	ug/l	---	168	159	119	<100	<100	183	164	106	15
Cobalt	ug/l	---	<100	<100	<100	<100	<100	<100	<100	<100	<100
Titanium	ug/l	---	<100	<100	<100	<100	<100	<100	<100	<100	<100
Vanadium	ug/l	---	<100	<100	<100	<100	<100	<100	<100	<100	<100
Molybdenum	ug/l	---	<100	<100	<100	<100	<100	<100	<100	<100	<100
Mercury	ug/l	20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Magnesium	mg/l	---	15.6	15.4	15.1	14.1	14.4	14.3	14.6	15.3	14.7
Lead	ug/l	1000	<20	<20	<20	<20	<20	<20	<20	<20	<20
Silver	ug/l	1000	<10.0	<10.0	<10.0	25	<10.0	<10.0	<10.0	<10.0	<10.0

Table E-3
METALS RESULTS
VANDENBERG AFB WASTEWATER CHARACTERIZATION SURVEY
Site 3, Manhole on 10th Street, near Bldg. 7425

Analyte	Units	Permit Std.	25 Sep	25 Sep	26 Sep	27 Sep
Arsenic	ug/l	2000	<100	<100	<100	<100
Barium	ug/l	---	<100	258	<100	<100
Beryllium	ug/l	3000	<100	<100	<100	<100
Cadmium	ug/l	400	<100	<100	<100	<100
Calcium	mg/l	---	55.1	100.1	54.7	89.1
Chromium	ug/l	2000	<100	<100	<100	<100
Copper	ug/l	1000	303	1133	139	<100
Iron	ug/l	---	737	8627	158	526
Manganese	ug/l	---	<100	233	1158	<100
Nickel	ug/l	2000	<100	<100	<100	<100
Zinc	ug/l	1000	298	1335	<100	<100
Aluminum	ug/l	---	348	2277	185	<100
Cobalt	ug/l	---	<100	<100	268	<100
Titanium	ug/l	---	<100	<100	<100	<100
Vanadium	ug/l	---	<100	<100	<100	<100
Molybdenum	ug/l	---	<100	<100	<100	<100
Mercury	ug/l	20	<1.0	<1.0	<1.0	<1.0
Magnesium	mg/l	---	11.3	15.4	12.7	17.4
Lead	ug/l	1000	<20	<20	<20	<20
Silver	ug/l	1000	<10.0	<10.0	<10.0	<10.0

Table E-4
METALS RESULTS
VANDENBERG AFB WASTEWATER CHARACTERIZATION SURVEY
Site 5, Manhole at Bldg 9325, Nevada and 6th St.

Analyte	Units	Permit Std.	25 Sep	26 Sep	27 Sep
-----	-----	-----	-----	-----	-----
Arsenic	ug/l	---	<100	<100	<100
Barium	ug/l	---	233	<100	<100
Beryllium	ug/l	---	<100	<100	<100
Cadmium	ug/l	690	<100	<100	<100
Calcium	mg/l	---	284.4	64.9	64.7
Chromium	ug/l	2770	<100	<100	<100
Copper	ug/l	3380	9521	<100	<100
Iron	ug/l	---	8715	356	610
Manganese	ug/l	---	32	<100	<100
Nickel	ug/l	3980	748	<100	<100
Zinc	ug/l	2610	2495	130	132
Aluminum	ug/l	---	1489	<100	<100
Cobalt	ug/l	---	<100	<100	<100
Titanium	ug/l	---	<100	<100	<100
Vanadium	ug/l	---	<100	<100	<100
Molybdenum	ug/l	---	<100	<100	<100
Mercury	ug/l	---	<1.0	<1.0	<1.0
Magnesium	mg/l	---	19.5	15.4	15.2
Lead	ug/l	690		60	<20
Silver	ug/l	430		12	12

Table E-5
METALS RESULTS
VANDENBERG AFB WASTEWATER CHARACTERIZATION SURVEY
Site 6, Manhole at Bldg 8401

Analyte	Units	Permit Std.	25 Sep	26 Sep	27 Sep
Arsenic	ug/l	2000	<100	<100	<100
Barium	ug/l	---	239	190	154
Beryllium	ug/l	3000	<100	<100	<100
Cadmium	ug/l	400	<100	<100	<100
Calcium	mg/l	---	90.7	86.8	92.9
Chromium	ug/l	2000	<100	<100	<100
Copper	ug/l	1000	<100	396	<100
Iron	ug/l	---	795	3225	1407
Maganese	ug/l	---	<100	185	<100
Nickel	ug/l	2000	<100	<100	<100
Zinc	ug/l	1000	208	961	360
Aluminum	ug/l	---	<100	524	210
Cobalt	ug/l	---	<100	<100	<100
Titanium	ug/l	---	<100	<100	<100
Vanadium	ug/l	---	<100	<100	<100
Molybdenum	ug/l	---	610	<100	742
Mercury	ug/l	20	<1.0	<1.0	<1.0
Magnesium	mg/l	---	2.6	20	21.1
Lead	ug/l	1000	<20	<20	<20
Silver	ug/l	1000	<10.0	<10.0	12

Table E-6
METALS RESULTS
VANDENBERG AFB WASTEWATER CHARACTERIZATION SURVEY
Site 4, Manhole at Bldg 9340, AVS

Analyte	Units	Permit Std.	25 Sep	26 Sep	26 Sep	27 Sep
-----	----	-----	-----	-----	-----	-----
Arsenic	ug/l	2000	<100	<100	<100	<100
Barium	ug/l	---	<100	<100	<100	<100
Beryllium	ug/l	3000	<100	<100	<100	<100
Cadmium	ug/l	400	<100	<100	<100	<100
Calcium	mg/l	---	69.7	64.9	65	74.9
Chromium	ug/l	2000	<100	<100	<100	<100
Copper	ug/l	1000	<100	<100	<100	654
Iron	ug/l	---	665	134	1092	1530
Maganese	ug/l	---	<100	<100	<100	571
Nickel	ug/l	2000	<100	<100	<100	<100
Zinc	ug/l	1000	278	<100	<100	1634
Aluminum	ug/l	---	<100	<100	<100	390
Cobalt	ug/l	---	<100	<100	<100	<100
Titanium	ug/l	---	<100	<100	<100	<100
Vanadium	ug/l	---	<100	<100	<100	<100
Molybdenum	ug/l	---	<100	<100	<100	<100
Mercury	ug/l	20	<1.0	<1.0	<1.0	<1.0
Magnesium	mg/l	---	15.5	18.4	18.5	23.6
Lead	ug/l	1000	<20	<20	<20	<20
Silver	ug/l	1000	<10.0	<10.0	10	610

Table E-7
METALS RESULTS
VANDENBERG AFB WASTEWATER CHARACTERIZATION SURVEY
Site 7, Flightline Lift Station

Analyte	Units	Permit Std.	01 Oct	02 Oct	03 Oct
-----	----	-----	-----	-----	-----
Arsenic	ug/l	2000	<100	191	163
Barium	ug/l	---	<100	109	<100
Beryllium	ug/l	3000	<100	<100	<100
Cadmium	ug/l	400	<100	<100	<100
Calcium	mg/l	---	61.7	70.2	69.7
Chromium	ug/l	2000	<100	<100	<100
Copper	ug/l	1000	<100	<100	<100
Iron	ug/l	---	1530	1548	1406
Maganese	ug/l	---	<100	<100	<100
Nickel	ug/l	2000	<100	<100	<100
Zinc	ug/l	1000	272	191	163
Aluminum	ug/l	---	<100	<100	<100
Cobalt	ug/l	---	<100	<100	<100
Titanium	ug/l	---	<100	<100	<100
Vanadium	ug/l	---	<100	<100	<100
Molybdenum	ug/l	---	<100	<100	<100
Mercury	ug/l	20	<1.0	<1.0	<1.0
Magnesium	mg/l	---	18.8	19.2	20.3
Lead	ug/l	1000	<20	<20	<20
Silver	ug/l	1000	<10.0	<10.0	<10.0

Table E-8
METALS RESULTS
VANDENBERG AFB WASTEWATER CHARACTERIZATION SURVEY
Site 11, Manhole near Motorpool (front of Rec Ctr.)

Analyte	Units	Permit Std.	01 Oct	02 Oct	03 Oct
Arsenic	ug/l	2000	<100	127	<100
Barium	ug/l	---	<100	114	<100
Beryllium	ug/l	3000	<100	<100	<100
Cadmium	ug/l	400	<100	<100	<100
Calcium	mg/l	---	73.1	68.6	67
Chromium	ug/l	2000	<100	<100	<100
Copper	ug/l	1000	<100	<100	<100
Iron	ug/l	---	1093	830	1240
Maganese	ug/l	---	<100	<100	<100
Nickel	ug/l	2000	<100	<100	<100
Zinc	ug/l	1000	116	127	<100
Aluminum	ug/l	---	170	132	103
Cobalt	ug/l	---	<100	<100	<100
Titanium	ug/l	---	<100	<100	<100
Vanadium	ug/l	---	<100	<100	<100
Molybdenum	ug/l	---	<100	<100	<100
Mercury	ug/l	20	<1.0	<1.0	<1.0
Magnesium	mg/l	---	17.3	16.4	22
Lead	ug/l	1000	<20	<20	<20
Silver	ug/l	1000	<10.0	<10.0	<10.0

Table E-9
METALS RESULTS
VANDENBERG AFB WASTEWATER CHARACTERIZATION SURVEY
Site 8, Manhole near Bldg 9320 on 6th Street

Analyte	Units	Permit Std.	01 Oct	02 Oct	03 Oct
Arsenic	ug/l	---	<100	<100	<100
Barium	ug/l	---	<100	102	<100
Beryllium	ug/l	---	<100	<100	<100
Cadmium	ug/l	690	<100	<100	<100
Calcium	mg/l	---	102.5	<0.1	76.2
Chromium	ug/l	2770	<100	<100	<100
Copper	ug/l	3380	<100	102	<100
Iron	ug/l	---	401	192	191
Manganese	ug/l	---	<100	<100	<100
Nickel	ug/l	3980	<100	<100	<100
Zinc	ug/l	2610	138	<100	<100
Aluminum	ug/l	---	<100	<100	<100
Cobalt	ug/l	---	<100	<100	<100
Titanium	ug/l	---	<100	<100	<100
Vanadium	ug/l	---	<100	<100	<100
Molybdenum	ug/l	---	<100	<100	<100
Mercury	ug/l	---	<1.0	<1.0	<1.0
Magnesium	mg/l	---	21.2	16.9	17.1
Lead	ug/l	690	<20	<20	<20
Silver	ug/l	430	<10.0	<10.0	<10.0

Table E-10
METALS RESULTS
VANDENBERG AFB WASTEWATER CHARACTERIZATION SURVEY
Site 10, Manhole near Hospital

Analyte	Units	Permit Std.	01 Oct	02 Oct	03 Oct
-----	----	-----	-----	-----	-----
Arsenic	ug/l	2000	<100	<100	679
Barium	ug/l	---	<100	133	286
Beryllium	ug/l	3000	<100	<100	<100
Cadmium	ug/l	400	<100	<100	<100
Calcium	mg/l	---	52.4	47	904.2
Chromium	ug/l	2000	<100	<100	<100
Copper	ug/l	1000	<100	<100	135
Iron	ug/l	---	600	466	5451
Maganese	ug/l	---	<100	<100	218
Nickel	ug/l	2000	<100	<100	<100
Zinc	ug/l	1000	137	<100	679
Aluminum	ug/l	---	106	375	1103
Cobalt	ug/l	---	<100	<100	<100
Titanium	ug/l	---	<100	356	<100
Vanadium	ug/l	---	<100	<100	7293
Molybdenum	ug/l	---	<100	<100	<100
Mercury	ug/l	20	1.6	12.6	2.9
Magnesium	mg/l	---	1.6	9.5	17.9
Lead	ug/l	1000	<20	<20	<20
Silver	ug/l	1000	11	20	52

Table E-11
METALS RESULTS
VANDENBERG AFB WASTEWATER CHARACTERIZATION SURVEY
Site 9, Manhole near Bldg 7015, Santa Barbara Ave.

Analyte	Units	Permit Std.	01 Oct	02 Oct	03 Oct
-----	----	-----	-----	-----	-----
Arsenic	ug/l	2000	<100	117	131
Barium	ug/l	---	<100	113	<100
Beryllium	ug/l	3000	<100	<100	<100
Cadmium	ug/l	400	<100	<100	<100
Calcium	mg/l	---	50.8	68.1	37.8
Chromium	ug/l	2000	<100	101	136
Copper	ug/l	1000	100	<100	100
Iron	ug/l	---	1723	1695	1470
Maganese	ug/l	---	126	131	141
Nickel	ug/l	2000	<100	<100	<100
Zinc	ug/l	1000	150	117	131
Aluminum	ug/l	---	<100	<100	<100
Cobalt	ug/l	---	<100	<100	<100
Titanium	ug/l	---	<100	<100	<100
Vanadium	ug/l	---	<100	<100	<100
Molybdenum	ug/l	---	<100	<100	<100
Mercury	ug/l	20	<1.0	<1.0	<1.0
Magnesium	mg/l	---	14.4	17.7	16.1
Lead	ug/l	1000	<20	<20	<20
Silver	ug/l	1000	<10.0	<10.0	47

Table E-12
METALS RESULTS
VANDENBERG AFB WASTEWATER CHARACTERIZATION SURVEY
Site: Basement Sump at Bldg 9340, AVS

Analyte	Units	Permit Std.	27 Sep	01 Oct	03 Oct
-----	----	-----	-----	-----	-----
Arsenic	ug/l	2000	150	1470	231
Barium	ug/l	---	<100	<100	<100
Beryllium	ug/l	3000	<100	<100	<100
Cadmium	ug/l	400	125	<100	<100
Calcium	mg/l	---	68.8	61.8	63.4
Chromium	ug/l	2000	490	<100	<100
Copper	ug/l	1000	302	<100	<100
Iron	ug/l	---	1630	11890	8540
Maganese	ug/l	---	2006	185	128
Nickel	ug/l	2000	543	<100	<100
Zinc	ug/l	1000	1622	1470	231
Aluminum	ug/l	---	1491	222	200
Cobalt	ug/l	---	<100	<100	<100
Titanium	ug/l	---	<100	<100	<100
Vanadium	ug/l	---	<100	142	148
Molybdenum	ug/l	---	<100	<100	<100
Mercury	ug/l	20	<1	<1.0	<1.0
Magnesium	mg/l	---	29.5	32.8	33.7
Lead	ug/l	1000	23		27
Silver	ug/l	1000	8690		20840

Table E-13
METALS RESULTS
VANDENBERG AFB WASTEWATER CHARACTERIZATION SURVEY
Site: Blank

Analyte	Units	26 Sep
-----	-----	-----
Arsenic	ug/l	<100
Barium	ug/l	<100
Beryllium	ug/l	<100
Cadmium	ug/l	<100
Calcium	mg/l	<0.1
Chromium	ug/l	<100
Copper	ug/l	<100
Iron	ug/l	<100
Maganese	ug/l	<100
Nickel	ug/l	<100
Zinc	ug/l	<100
Aluminum	ug/l	<100
Cobalt	ug/l	<100
Titanium	ug/l	<100
Vanadium	ug/l	<100
Molybdenum	ug/l	<100
Mercury	ug/l	<1.0
Magnesium	mg/l	<0.1
Lead	ug/l	<20
Silver	ug/l	<10.0

APPENDIX F
TOTAL TOXIC ORGANICS (TTO) RESULTS

Appendix F
Total Toxic Organics (TTO) Results
Vandenberg AFB Wastewater Characterization Survey
(All Concentrations in ug/l)

Analyte	Site		
	Lompoc POTW	9325 Nev&6th	8401
Acenaphthene	NA	NA	NA
Acrolein	NA	NA	NA
Acrylonitrile	NA	NA	NA
Benzene	<1.6	<1.6	<1.6
Benzidine	NA	NA	NA
Carbon Tetrachloride	<1.5	<1.5	<1.5
Chlorobenzene	<1.3	<1.3	<1.3
1,2,4-Trichlorobenzene	NA	NA	NA
Hexachlorobenzene	NA	NA	NA
1,2-Dichloroethane	<2.4	<2.4	<2.4
1,1,1-Trichloroethane	<1.6	<1.6	<1.6
Hexachloroethane	NA	NA	NA
1,1-Dichloroethane	<2.1	<2.1	<2.1
1,1,2-Trichloroethane	<1.1	<1.1	<1.1
1,1,2,2-Tetrachloroethane	<2.0	<2.0	<2.0
Chloroethane	<1.4	<1.4	<1.4
Bis(2-chloroethyl)ether	NA	NA	NA
2-Chloroethyl vinyl ether (mixed)	<3.3	<3.3	<3.3
2-Chloronaphthalene	NA	NA	NA
2,4,6-trichlorophenol	NA	NA	NA
Parachlorometa cresol	NA	NA	NA
Chloroform	<1.8	<1.8	<1.8
2-Chlorophenol	NA	NA	NA
1,2-Dichlorobenzene	<5	<5	<5
1,3-Dichlorobenzene	<5	<5	<5
1,4-Dichlorobenzene	<5	<5	<5
3,3-Dichlorobenzidine	NA	NA	NA
1,1-Dichloroethylene	<1.2	<1.2	<1.2
1,2-Trans-dichloroethylene	<0.5	<0.5	<0.5
2,4-Dichlorophenol	NA	NA	NA
1,2-Dichloropropane	<2.0	<2.0	<2.0
1,3-Dichloropropylene	<6.0	<6.0	<6.0
2,4-Dimethylphenol	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA
1,2-Diphenylhydrazine	NA	NA	NA
Ethylbenzene	<1.4	<1.4	<1.4
Fluoranthene	NA	NA	NA
4-Chlorophenyl phenyl ether	NA	NA	NA
4-Bromophenyl phenyl ether	NA	NA	NA
Bis(2-chloroisopropyl)ether	NA	NA	NA
Bis(2-chloroethoxy)methane	NA	NA	NA
Methylene Chloride	<1.6	<1.6	<1.6
Chloromethane	<1.6	<1.6	<1.6
Methyl bromide (bromomethane)	<1.5	<1.5	<1.5
Bromoform	<1.2	<1.2	<1.2
Dichlorobromomethane	<1.8	<1.8	<1.8
Chlorodibromomethane	<1.4	<1.4	<1.4

NA - Not Analyzed

Appendix F
Total Toxic Organics (TTO) Results
Vandenberg AFB Wastewater Characterization Survey
(All Concentrations in ug/l)

Analyte	Site		
	Lompoc POTW	9325 Nev&6th	8401
Hexachlorobutadiene	NA	NA	NA
Hexachlorocyclopentadiene	NA	NA	NA
Isophorone	NA	NA	NA
Naphthalene	NA	NA	NA
Nitrobenzene	NA	NA	NA
2-Nitrophenol	NA	NA	NA
4-Nitrophenol	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA
4,6-Dinitro-o-cresol	NA	NA	NA
N-Nitrosodimethylamine	NA	NA	NA
N-Nitrosodiphenylamine	NA	NA	NA
N-nitrosodi-n-propylamine	NA	NA	NA
Pentachlorophenol	NA	NA	NA
Phenol	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NA	NA	NA
Butyl benzyl phthalate	NA	NA	NA
Di-n-butyl phthalate	NA	NA	NA
Di-n-octyl phthalate	NA	NA	NA
Diethyl phthalate	NA	NA	NA
Dimethyl phthalate	NA	NA	NA
1,2-Benzanthracene	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA
3,4-Benzofluoranthene	NA	NA	NA
11,12-Benzofluoranthene	NA	NA	NA
Chrysene	NA	NA	NA
Acenaphthylene	NA	NA	NA
Anthracene	NA	NA	NA
1,12-Benzoperylene	NA	NA	NA
Fluorene	NA	NA	NA
Phenanthrene	NA	NA	NA
1,2,5,6-Dibenzanthracene	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA
Pyrene	NA	NA	NA
Tetrachloroethylene	<1.5	<1.5	<1.5
Toluene	<1.5	<1.5	<1.5
Trichloroethylene	<1.3	<1.3	<1.3
Vinyl chloride	<1.7	<1.7	<1.7
Aldrin	<0.01	<0.01	<0.01
Dieldrin	<0.05	<0.05	<0.05
Chlordane	<0.1	<0.1	<0.1
4,4-DDT	<0.05	<0.05	<0.05
4,4-DDE	<0.01	<0.01	<0.01
4,4-DDD	0.36	<0.01	<0.01
Alpha-endosulfan	<0.02	<0.02	<0.02
Beta-endosulfan	<0.02	<0.02	<0.02
Endosulfan sulfate	<0.02	<0.02	<0.02
Endrin	<0.01	<0.01	<0.01
Endrin aldehyde	<0.02	<0.02	<0.02

NA - Not Analyzed

Appendix F
Total Toxic Organics (TTO) Results
Vandenberg AFB Wastewater Characterization Survey
(All Concentrations in ug/l)

Analyte	Site		
	Lompoc POTW	9325 Nev&6th	8401
Heptachlor	<0.01	<0.01	<0.01
Heptachlor epoxide	<0.01	<0.01	<0.01
Alpha-BHC	<0.01	<0.01	<0.01
Beta-BHC	<0.01	<0.01	<0.01
Gamma-BHC	<0.01	<0.01	<0.01
Delta-BHC	<0.01	<0.01	<0.01
Arochlor 1242	<0.5	<0.5	<0.5
Arochlor 1254	<0.5	<0.5	<0.5
Arochlor 1221	<0.5	<0.5	<0.5
Arochlor 1232	<0.5	<0.5	<0.5
Arochlor 1248	<0.5	<0.5	<0.5
Arochlor 1260	<0.5	<0.5	<0.5
Arochlor 1016	<0.5	<0.5	<0.5
Toxaphene	<1.0	<1.0	<1.0
2,3,7,8-TCDD	NA	NA	NA

NA - Not Analyzed

APPENDIX G
MISCELLANEOUS SAMPLING RESULTS

Table G-1
MISCELLANEOUS ANALYTICAL RESULTS
Vanderberg AFB Wastewater Characterization Survey
Site 1, Lompoc FOIW

Analyte	Units	Permit										
		Standard	25 Sep	26 Sep	27 Sep	28 Sep	29 Sep	30 Sep	01 Oct	02 Oct	03 Oct	04 Oct
Filterable Resid.	mg/l			644	662	680	940	665	620	725	965	1715
Surfactants-MBAS	mg/l			0.1	0.1	0.2	0.1	0.4	0.3	0.7	4.8	2.5
Oils and Grease	mg/l	100		23.2	29.3	38.4	29.6	36.0	48.0	9.4	10.4	14.8
Total Hydrocarbon	mg/l			1.9	2.8	3.5	1.4	2.8	3.5	<1.0	1.0	2.5
Cyanide, Total	mg/l	2	0.021	0.010	0.037	0.045	0.042	0.033	0.045	0.073	0.031	
Ammonia	mg/l	50	24.4	24.8	26.8	25.2	22.0	42.1	28.0	28.4	25.6	
Phosphorus, Total	mg/l		7.8	6.6	7.6	7.6	8.4	8.6	7.4	7.6	7.6	
Phenol	mg/l		20	27	16	41	10	209	42	37	42	
Chlorides	mg/l	250	154	146	146	146	134		146	142	148	

Table G-2
MISCELLANEOUS ANALYTICAL RESULTS
Vanderberg AFB Wastewater Characterization Survey
Site 2, Sewage Lift Station, Oregon Avenue

Analyte	Units	Permit										
		Standard	25 Sep	26 Sep	27 Sep	28 Sep	29 Sep	30 Sep	01 Oct	02 Oct	03 Oct	04 Oct
Filterable Resid.	mg/l			554	254	1150	890	650	565	755	225	795
Surfactants-MBAS	mg/l			1.2	2.4	1.6	1.1	0.5	2.4	3.3	1.8	0.9
Oils and Grease	mg/l	100		48.0	59.2	56.8	47.2	20.8	84.0	14.7	19.6	10.4
Total Hydrocarbon	mg/l			2.8	5.3	4.8	2.9	1.8	3.8	<1.0	1.9	<1.0
Cyanide, Total	mg/l	2	<0.005	<0.005	0.005	0.010	<0.005	<0.005	0.005	<0.005		
Ammonia	mg/l	50	42.6	43.9	23.2	23.6	22.0	37.2	24.4	23.2		
Phosphorus, Total	mg/l		8.0	7.2	7.4	7.4	7.4	6.8	7.4	7.2		
Phenol	mg/l		35	38	42	73	80	50	66	193		
Chlorides	mg/l	250	122	130	130	130	120	128	124	120		

Table G-3
MISCELLANEOUS ANALYTICAL RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 3, Manhole near Bldg 7425, 10th Street

Analyte	Units	Permit Standard	25 Sep	25 Sep*	26 Sep	27 Sep
Cyanide, Total	mg/l	2	0.027	0.021	0.013	0.022

Table G-4
MISCELLANEOUS ANALYTICAL RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 5, Manhole at Bldg. 9325, corner of Nevada and 6th

Analyte	Units	Permit Standard	25 Sep	26 Sep	27 Sep
Cyanide, Total	mg/l	1.2	0.020	0.007	0.012

Table G-5
MISCELLANEOUS ANALYTICAL RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 6, Manhole near Bldg 8401

Analyte	Units	Permit Standard	25 Sep	26 Sep	27 Sep
Cyanide, Total	mg/l	2	0.065	0.084	0.045

Table G-6
MISCELLANEOUS ANALYTICAL RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 4, Manhole at Bldg 9340, AVS

Analyte	Units	Permit Standard	25 Sep	26 Sep	26 Sep*	27 Sep
Cyanide, Total	mg/l	2	0.060	0.880	0.910	0.174

* Replicate

Table G-7
MISCELLANEOUS ANALYTICAL RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 7, Flightline Lift Station

Analyte	Units	Permit				
		Standard	01 Oct	02 Oct	03 Oct	04 Oct
Filterable Resid.	mg/l			935	1420	1240
Surfactants-MBAS	mg/l			1.4	1.7	2.0
Oils and Grease	mg/l	100		8.9	7.2	11.2
Total Hydrocarbon	mg/l			2.1	<1.0	<1.0
Cyanide, Total	mg/l	2	0.007	0.007	0.006	

Table G-8
MISCELLANEOUS ANALYTICAL RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 11, Motorpool, Bldg 10726

Analyte	Units	Permit				
		Standard	02 Oct	02 Oct	03 Oct	04 Oct
Filterable Resid.	mg/l			809	915	794
Surfactants-MBAS	mg/l			<0.1	1.7	0.2
Oils and Grease	mg/l	100		<0.3	8.7	4.3
Total Hydrocarbon	mg/l			<1.0	<1.0	1.3
Cyanide, Total	mg/l	2	0.005	0.007	<0.005	

Table G-9
MISCELLANEOUS ANALYTICAL RESULTS
Vandenberg AFB Wastewater Characterization Survey
Site 8, Manhole near Bldg 9320, 6th Avenue

Analyte	Units	Permit			
		Standard	01 Oct	02 Oct	03 Oct
Cyanide, Total	mg/l	1.2	0.013	0.007	0.008

Table G-10
 MISCELLANEOUS ANALYTICAL RESULTS
 Vandenberg AFB Wastewater Characterization Survey
 Site 10, Manhole near Hospital

Analyte	Units	Permit	01 Oct	03 Oct
		Standard		
Cyanide, Total	mg/l	2	<0.005	0.008

Table G-11
 MISCELLANEOUS ANALYTICAL RESULTS
 Vandenberg AFB Wastewater Characterization Survey
 Site 9, Santa Barbara Avenue

Analyte	Units	Permit	01 Oct	02 Oct	03 Oct
		Standard			
Cyanide, Total	mg/l	2	0.078	0.030	1.0

Table G-12
 MISCELLANEOUS ANALYTICAL RESULTS
 Vandenberg AFB Wastewater Characterization Survey
 Site: Basement Sump, Bldg 9340, AVS

Analyte	Units	Permit	26 Sep	27 Sep	01 Oct	03 Oct
		Standard				
Filterable Resid.	mg/l			8102	588	1950
Surfactants-MBAS	mg/l			62.0	3.7	26.0
Oils and Grease	mg/l	100	1.8		<0.3	<0.3
Total Hydrocarbon	mg/l		1.4		<1.0	<1.0
Cyanide, Total	mg/l	2		<0.005	8.60	<0.005
Ammonia	mg/l	50		3308.0	232.0	1216
Phosphorus	mg/l			17.0	2.3	12.0
Chlorides	mg/l	250		960	960	1240
Phenol	ug/l			59	20	<10.0

Table G-13
 MISCELLANEOUS ANALYTICAL RESULTS
 Vandenberg AFB Wastewater Characterization Survey
 Site: Oil/Water Separators
 All Samples Collected on 26 Sep 90

Analyte	Units	Site:	10715	1705	1725	1731	10725	Auto Hob
Oils and Grease	mg/l		<0.3	LIT*	160.8	31.6	1200	420.0
Total Hydrocarbon	mg/l		<1.0	LIT	92.4	25.2	1200	328.0

*LIT = Leaked in Transit, not Analyzed.

Table G-14
 MISCELLANEOUS ANALYTICAL RESULTS
 Vandenberg AFB Wastewater Characterization Survey
 Site: Blanks

Analyte	Units	26 Sep
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Cyanide, Total	mg/l	<0.005
Ammonia	mg/l	<0.2
Phosphorus	mg/l	<0.1
Phenol	ug/l	<10.0