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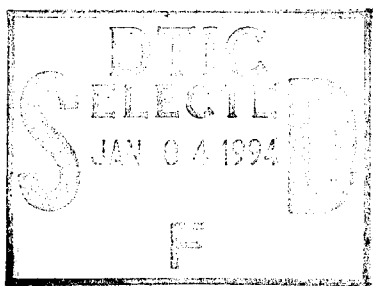
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Evaluation of Proposed U.S. Environmental Protection Agency Dredged Material Bioassays Using Great Lakes Sediments

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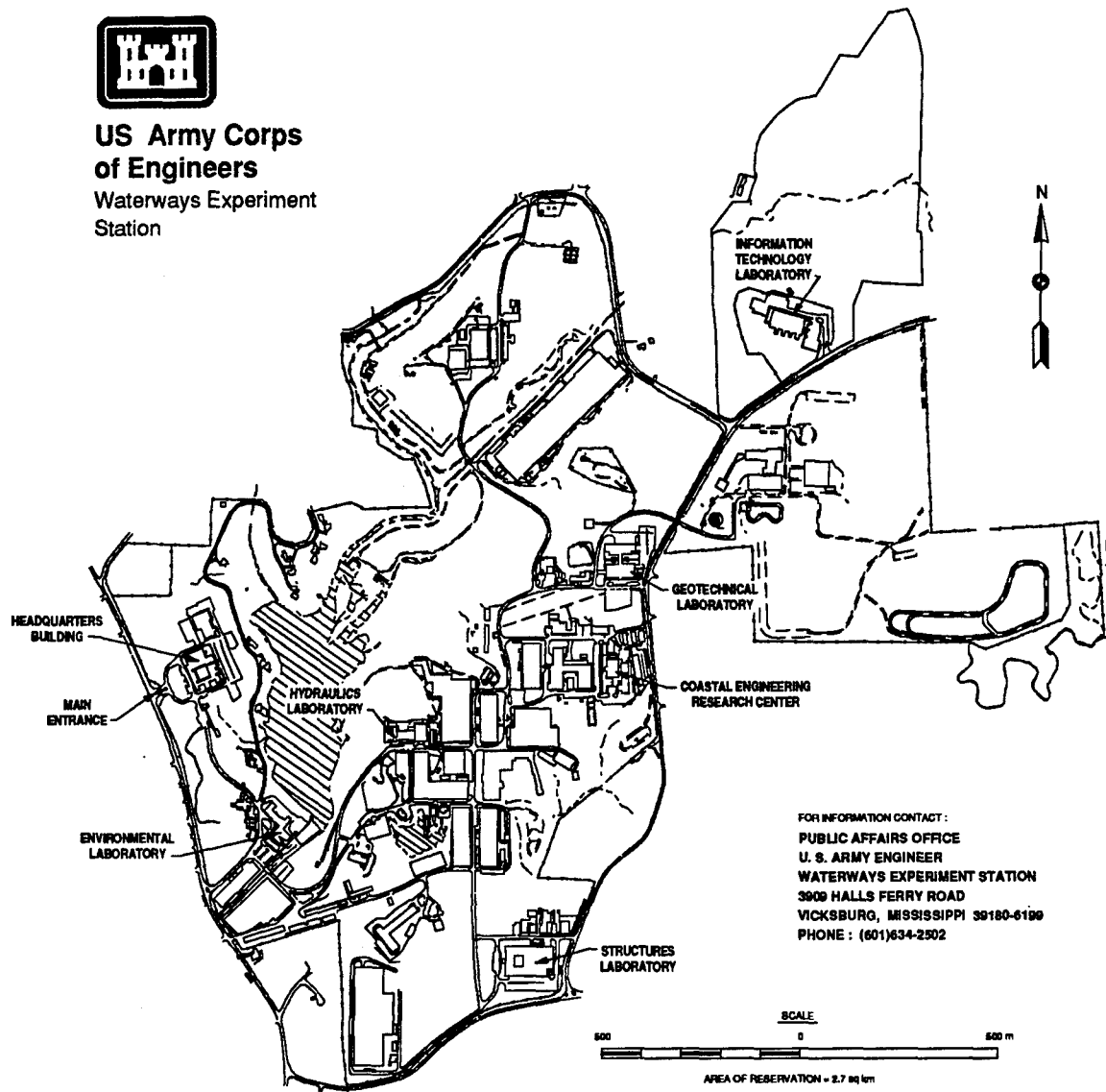
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Contents

Preface	v
1—Introduction	1
Background	1
Scope	1
2—Material and Methods	3
Sediments	3
Ten-Day Solid Phase Tests with <i>Hyalella azteca</i>	3
Seven-Day Elutriate Tests with <i>Pimephales promelas</i>	4
Twenty-One-Day Elutriate Tests with <i>Daphnia magna</i>	6
3—Results	8
Sediment Grain Size Analysis	8
Ten-Day Solid Phase Tests with <i>Hyalella azteca</i>	8
Seven-Day Elutriate Tests with <i>Pimephales promelas</i>	11
Twenty-One-Day Elutriate Tests with <i>Daphnia magna</i>	16
4—Discussion	22
Ten-Day Solid Phase Tests with <i>Hyalella azteca</i>	22
Seven-Day Elutriate Tests with <i>Pimephales promelas</i>	23
Twenty-One-Day Elutriate Tests with <i>Daphnia magna</i>	25
5—Conclusions	27
Solid Phase Test	27
Elutriate Tests	27
6—Recommendations	28
Solid Phase Test	28
Elutriate Tests	28
General	28
References	30
Appendix A: Grain Size Analysis	A1
Appendix B: Ten-Day Solid Phase Tests with <i>Hyalella azteca</i>	B1

Appendix C: Seven-Day Elutriate Tests with <i>Pimephales promelas</i>	C1
Appendix D: Twenty-One-Day Elutriate Tests with <i>Daphnia magna</i>	D1
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List of Tables

Table 1.	Sediment Sample Descriptions	5
Table 2.	Survival of <i>H. azteca</i> in 10-Day Solid Phase Tests with Great Lakes Sediments	10
Table 3.	Mean Percent Survival and Growth of <i>P. promelas</i> in Buffalo District - Toledo Harbor Elutriate Bioassays	12
Table 4.	Mean Percent Survival and Growth of <i>P. promelas</i> in Chicago District - Michigan City Harbor Elutriate Bioassays	14
Table 5.	Mean Percent Survival and Growth of <i>P. promelas</i> in Detroit District - Grand Haven Harbor Elutriate Bioassays	15
Table 6.	Mean Percent Survival and Growth of <i>P. promelas</i> in Detroit District - St. Joseph Harbor Elutriate Bioassays	16
Table 7.	Mean Percent Survival and Total Number of Young per Surviving Adult for <i>D. magna</i> in Buffalo District - Toledo Harbor Elutriate Bioassays	17
Table 8.	Mean Percent Survival and Total Number of Young per Surviving Adult for <i>D. magna</i> in Chicago District - Michigan City Harbor Elutriate Bioassays	19
Table 9.	Mean Percent Survival and Total Number of Young per Surviving Adult for <i>D. magna</i> in Detroit District - Grand Haven Harbor Elutriate Bioassays	20
Table 10.	Mean Percent Survival and Total Number of Young per Surviving Adult for <i>D. magna</i> in Detroit District - St. Joseph Harbor Elutriate Bioassays	21

Preface

The work reported herein was conducted by the U.S. Army Engineer Waterways Experiment Station (WES) for the U.S. Army Engineer Division, North Central. Financial support was provided by the U.S. Army Engineer District, Buffalo, the U.S. Army Engineer District, Chicago, and the U.S. Army Engineer District, Detroit, through an Intra-Army Order for reimbursable services.

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The work was performed under the general supervision of Dr. Bobby L. Folsom, Jr., Chief, Fate and Effects Branch, EPED; Mr. Donald L. Robey, Chief, EPED; and Dr. John W. Keeley, Director, EL.

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1 Introduction

Background

Section 404 (b) (1) of the Clean Water Act (PL 92-500) requires an assessment of potential environmental impact prior to dredging and disposal operations. Currently, the U.S. Environmental Protection Agency (USEPA) and U.S. Army Corps of Engineers (USACE) are jointly developing broad national guidance for conducting these evaluations. Regional guidance is also being developed to supplement the national guidance with a higher level of detail and address specific issues/resources of concern at the regional level.

As part of a larger effort to develop a regional implementation manual, the U.S. Army Engineer Division, North Central, requested the U.S. Army Engineer Waterways Experiment Station (WES) to assess new test methods for the evaluation of dredged material. Issues of regional concern included (a) selection of appropriately sensitive test species representative of indigenous populations, (b) potential for sublethal sediment toxicity, and (c) chronic effects in water column organisms because of resuspension of dredged material. Because of these concerns, the tests selected for the regional manual included tests with organisms indigenous to the Great Lakes (e.g., *Hyaella azteca*, *Chironomus tentans*, *Pimephales promelas*, and *Daphnia magna*), considered sublethal end points such as growth and reproduction, and examined chronic effects of suspended sediments (e.g., 21-day elutriate tests with *D. magna*).

Scope

Sediments from four separate dredging projects (Toledo Harbor and Michigan City Harbor, and Grand Haven Harbor, and St. Joseph Harbor) were provided by the U.S. Army Engineer District, Buffalo, the U.S. Army Engineer District, Chicago, and the U.S. Army Engineer District, Detroit, respectively. Sediments were evaluated in both solid phase bioassays using *Hyaella azteca* (10-day survival) and *Chironomus tentans* (10-day survival and growth) and elutriate tests using *Pimephales promelas* (7-day survival and growth) and *Daphnia magna* (21-day survival and reproduction). This report summarizes results from tests with *H. azteca*, *P. promelas*, and *D. magna*. The purpose of this report is to provide a technical evaluation of the test methods prior to their

incorporation into a regulatory testing program. Results of tests with *C. tentans* have been summarized in a previous report by Call et al. (1994).

2 Material and Methods

Sediments

Sediments from Toledo, Michigan City, Grand Haven, and St. Joseph harbors were received at WES on 31 March, 15 April, 27 April, and 4 May 1993, respectively (see Table 1 for sample descriptions). For solid phase testing, a control sediment was collected from Brown's Lake at WES. All sediments were press-sieved through a 2-mm stainless steel sieve, thoroughly homogenized, and refrigerated (4 °C) until analysis and testing could be performed. Grain size analysis was performed on three composites from each of the sediments using the methods of Patrick (1958). One of the samples (the deepwater reference sample from Toledo Harbor) contained live, adult zebra mussels. Since the zebra mussel, *Dreissena polymorpha*, is a highly invasive nonindigenous species, special precautions were taken to quarantine all sediments during handling, storage, and testing using procedures outlined by Sims, Gamble, and Moore (in preparation).

Ten-Day Solid Phase Tests with *Hyalella azteca*

Ten-day bedded sediment tests using the freshwater amphipod *Hyalella azteca* were conducted according to the methods prescribed by Brooke et al. (1993a) with the exception that seven replicates were used instead of five. A total of 22 sediments were tested. Because of the large number of samples, sediments were evaluated in two phases. Phase I included sediments from Chicago District - Michigan City and Detroit District - Grand Haven and St. Joseph harbors. Phase II included Buffalo District - Toledo Harbor sediments. Additionally, since the number of sediments tested in each phase exceeded the capacity (i.e., seven treatments) of the commercial diluter system used for water delivery, two systems were set up and a set of controls run in each.

One day prior to test initiation, sediments were removed from cold storage, allowed to come to room temperature, and then thoroughly homogenized. Sediments were then placed in 300-ml high-form beakers, each beaker receiving 100 ml of sediment as described in the protocol. Clean sediment collected from Brown's Lake at WES was used as a laboratory control. Beakers were

then placed in a temperature-controlled water bath, and overlying water (filtered, aged tap water) was exchanged (two volumes) over the next 24 hr via a commercial diluter adapted for intermittent water delivery. Water quality parameter monitoring included temperature (°C), dissolved oxygen (mg/L), pH, hardness (mg CaCO₃/L), alkalinity (mg CaCO₃/L), specific conductivity (µmhos/cm), and total ammonia (mg/L).

The following day (i.e., 1 day after sediments had been added to the test chambers) exposures were initiated by adding 10 neonates (<48 hr old) from the WES laboratory culture to each beaker. Beakers were observed and water quality information recorded daily. After the 10-day exposure period, surviving animals from each replicate were recovered by sieving the sediment through a 500-µm screen and counted.

Sensitivity of test animals was monitored in two 96-hr acute toxicity tests with water only exposures of the reference toxicant copper sulfate. Concentrations of copper sulfate were analytically confirmed via flame AA using EPA 600/4-79-020 method 220.1.

The Trimmed Spearman-Kärber method was used to estimate LC₅₀ values for the reference toxicant tests (Hamilton, Russo, and Thurston 1977). Statistical analysis and data transformation of survival data from the solid phase test was performed using SYSTAT statistical software (SYSTAT, Inc. 1992). All data were screened for normality and homogeneity of variance prior to analysis. Normality was confirmed by plotting the values of the variable against the corresponding percentage points of a standard normal variable (Sokal and Rohlf 1981). Homogeneity of variance was evaluated via Bartlett's test. As a result of these data screening procedures, all percent survival information was arc sine transformed to normalize the data prior to statistical analysis. Treatment effects were analyzed using analysis of variance with subsequent separation via Tukey's HSD test (Sokal and Rohlf 1981). Tests for significance were analyzed at a significance level of $\alpha = 0.05$.

Seven-Day Elutriate Tests with *Pimephales promelas*

Seven-day elutriate tests using the freshwater minnow *Pimephales promelas* were conducted according to the methods prescribed by Brooke et al. (1993a). Elutriates were prepared for each sediment by combining sediment with laboratory culture water (filtered, aged tap water) in a 1:4 ratio by volume (e.g., 300 ml of sediment and 1,200 ml of culture water). This mixture was stirred for 30 min, allowed to settle for 1 hr, and then the supernatant siphoned off into a 2-L glass beaker. The supernatant constituted the 100-percent elutriate from which 50-, 25-, 12.5-, and 6.25-percent elutriates were prepared. Because of low dissolved oxygen (e.g., <2.0 mg/L), all 100-percent elutriates were aerated until dissolved oxygen was greater than 7.0 mg/L. Elutriates were prepared and renewed daily. *Pimephales promelas* egg masses were obtained

Table 1 Sediment Sample Descriptions (see Appendix A for grain size analysis)			
Project	Sediment	Category	Description
All Projects	Brown's Lake (Control)	Control ¹	Silt-clay
Buffalo District - Toledo Harbor	Shallow Water-Reference (SWR)	Reference	Mostly silt-clay with some sand
	Deep Water-Reference (DWR)	Reference	Mostly sand with some silt-clay
	River Mile 1-2 (RM 1-2)	Project	Silt-clay
	Lake Mile 0-1 (LM 0-1)	Project	Silt-clay
	Lake Mile 1-2 (LM 1-2)	Project	Silt-clay
	Lake Mile 2-3 (LM 2-3)	Project	Silt-clay
	Lake Mile 3-4 (LM 3-4)	Project	Silt-clay
	Lake Mile 4-5 (LM 4-5)	Project	Silt-clay
	Lake Mile 7-8 (LM 7-8)	Project	Silt-clay with some sand
	Lake Mile 11-12 (LM 11-12)	Project	Mostly silt-clay with some sand
Chicago District - Michigan City Harbor	Michigan City -4 (MC-4) REF	Reference	Sand
	Michigan City -1 (MC-1)	Project	Sand
	Michigan City -2 (MC-2)	Project	Sand
	Michigan City -3 (MC-3)	Project	Mostly silt-clay with some sand
Detroit District - Grand Haven Harbor	Grand Haven -5 (GH-5) REF	Reference	Sand
	Grand Haven -1 (GH-1)	Project	Mostly silt clay with some sand
	Grand Haven -2 (GH-2)	Project	Mostly silt clay with some sand
	Grand Haven -4 (GH-4)	Project	Mostly sand with some silt-clay
Detroit District - St. Joseph Harbor	St. Joseph -5 (SJ-5) REF	Reference	Sand
	St. Joseph -2 (SJ-2)	Project	Silt-clay
	St. Joseph -3 (SJ-3)	Project	Sand with some silt and clay
	St. Joseph -4 (SJ-4)	Project	Sand with some silt and clay
¹ Control only for solid phase tests with <i>H. azteca</i> .			

from a commercial supplier, and fry hatched out at WES (a previous shipment of newly released fry had high mortality and were unacceptable for testing purposes). Tests were initiated with <48-hr-old fry. Because of the large number of samples, sediments were evaluated in two phases. Phase I included sediments from Chicago District - Michigan City and Buffalo District - Toledo harbor sediments. Phase II included sediments from Detroit District - Grand Haven and St. Joseph harbors. Laboratory culture water was used as a control. Water quality parameter monitoring included temperature (°C), dissolved oxygen (mg/L), pH, total ammonia (mg/L), and total suspended solids (mg/L). Hardness, alkalinity, and conductivity measurements were not taken.

Statistical analysis and data transformation of survival and growth data from elutriate tests with *P. promelas* were performed using SigmaStat statistical software (SigmaStat 1992). All data were screened for normality and homogeneity of variance prior to analysis using the Kolmogorov-Smirnov and Levene's tests, respectively. All statistical comparisons were relative to control. Treatment effects were subsequently determined using analysis of variance (ANOVA) or the nonparametric Kruskal-Wallis ANOVA on ranks. Following a significant ANOVA, treatment effects were separated using Dunnett's or Dunn's tests. Dunnett's test was used when the data were parametric or when the data were nonparametric and the sample sizes equal. Dunn's test was used when the data were nonparametric and the sample sizes unequal. All tests for significance were analyzed at a significance level of $\alpha = 0.05$.

Twenty-One-Day Elutriate Tests with *Daphnia magna*

Twenty-one day elutriate tests using the cladoceran *Daphnia magna* were conducted according to the protocols of Call et al. (1993). Elutriates were prepared as described above for *P. promelas* with the exception that all 100-percent elutriates were allowed to settle for 24 hr and then centrifuged prior to dilution as per Call et al. (1993). Centrifugation was necessary to facilitate daily observation of the animals. Adult *D. magna* were obtained from a commercial supplier, and tests were initiated with <48-hr-old neonates from the fourth brood. Because of the large number of samples, sediments were evaluated in two phases. Phase I included sediments from Chicago District - Michigan City (MC-1 and MC-2) and Detroit District - Grand Haven and St. Joseph harbors. Phase II included sediments from Buffalo District - Toledo Harbor and Chicago District - Michigan City Harbor (MC-3). Laboratory culture water was used as a control. Water quality parameter monitoring included temperature (°C), dissolved oxygen (mg/L), pH, hardness (mg CaCO₃/L), alkalinity (mg CaCO₃/L), specific conductivity (µmhos/cm), total ammonia (mg/L), and total suspended solids (mg/L).

Statistical analysis and data transformation of survival and reproduction data from elutriate tests with *D. magna* were performed using SigmaStat

statistical software (SigmaStat 1992). All statistical comparison was relative to control. Survival data were analyzed for treatment effects using Fisher's exact test (Call 1993). Reproductive data were screened for normality and homogeneity of variance prior to analysis using the Kolmogorov-Smirnov and Levene's tests, respectively. Treatment effects were subsequently determined using ANOVA or the nonparametric Kruskal-Wallis ANOVA on ranks. Following a significant ANOVA, treatment effects were separated using Dunnett's or Dunn's tests. Dunnett's test was used when the data were parametric or when the data were nonparametric and the sample sizes equal. Dunn's test was used when the data were nonparametric and the sample sizes unequal. All tests for significance were analyzed at a significance level of $\alpha = 0.05$.

3 Results

Sediment Grain Size Analysis

Toledo Harbor sediments were mostly fine grain (e.g., 64 to 98 percent fines). A higher percentage of coarse grain material was found in the shallow water reference (SWR), and samples collected beyond Lake Mile (LM) 7 (i.e., samples LMs 7-8, LMs 11-12, and deep water reference (DWR) were 17, 37, and 85 percent sand, respectively). Michigan City (MC) Harbor sediments were mostly sand (92 to 100 percent sand); the only exception was MC-3 with 50 percent fines. Analysis of Grand Haven (GH) Harbor sediments showed samples GH-5 reference and GH-4 to be mostly sand (88 and 70 percent sand, respectively), while GH-1 and GH-2 were mostly fine grain material (72 and 77 percent fines, respectively). St. Joseph (SJ) Harbor sediments were mostly sand (75 to 97 percent sand) with the exception of SJ-2, which was fine grain (67 percent fines) (Appendix A).

Ten-Day Solid Phase Tests with *Hyaella azteca*

Buffalo District - Toledo Harbor sediments

Mean percent survival was high (>80 percent) in all Toledo Harbor sediments with the exception of LM 1-2 and LM 2-3, which had mean percent survival of 27 and 43 percent, respectively (Table 2). Statistical analysis indicated that survival in LM 1-2 was significantly less ($p < 0.05$) than in both the SWR (94 percent) and DWR (86 percent) sites, while survival in LM 2-3 was significantly less than the SWR site only. Survival in the control sediments (96 and 94 percent for the two controls) indicated that the test was valid (i.e., criterion for test validity is >80-percent survival in controls) (Table 2).

Water quality was acceptable. The 10-day mean temperature was within ± 1 °C of 23 °C; the 10-day mean dissolved oxygen was ≥ 40 -percent saturation (i.e., ≥ 3.4 mg/L @ 23 °C). The pH ranged from 7.6 to 7.9, while specific conductance ranged from 101 to 245 $\mu\text{mhos/cm}$. Total hardness measurements were between 66.7 and 102.5 mg/L CaCO_3 , and total alkalinity ranged from

51.7 to 76.7 mg/L CaCO₃. Total ammonia measurements ranged from 0.02 to 0.86 mg/L (Appendix B, Table B5).

Chicago District - Michigan City Harbor sediments

Mean percent survival was high (85 to 97 percent) in all three project sediments and were not statistically different ($p > 0.05$) from the reference site (MC-4) with 94-percent survival (Table 2). Survival in the control sediments (96 and 94 percent for the two controls) indicated that the test was valid (Table 2).

Water quality was acceptable. The 10-day mean temperature were within ± 1 °C of 23 °C; the 10-day mean dissolved oxygen was ≥ 40 -percent saturation (i.e., ≥ 3.4 mg/L @ 23 °C). The pH ranged from 7.6 to 7.9, while specific conductance ranged from 84 to 226 $\mu\text{mhos/cm}$. Total hardness measurements were between 71.2 and 97.4 mg/L CaCO₃, and total alkalinity ranged from 61.7 to 83.3 mg/L CaCO₃. Total ammonia measurements ranged from 0.03 to 1.00 mg/L (Appendix B, Table B6).

Detroit District - Grand Haven Harbor sediments

Mean percent survival was high in GH-1 and GH-4 sediments (90 and 84 percent, respectively). Mean percent survival in the GH-2 sediment (69 percent) was significantly less than the GH-5 reference sediment (96 percent) (Table 2). Survival in the control sediments (96 and 97 percent for the two controls) indicated that the test was valid (Table 2).

Water quality was acceptable. The 10-day mean temperature was within ± 1 °C of 23 °C; the 10-day mean dissolved oxygen was ≥ 40 -percent saturation (i.e., ≥ 3.4 mg/L @ 23 °C). The pH ranged from 7.5 to 7.9, while specific conductance ranged from 84 to 253 $\mu\text{mhos/cm}$. Total hardness measurements were between 71.2 and 102.7 mg/L CaCO₃, and total alkalinity ranged from 70.0 to 83.3 mg/L CaCO₃. Total ammonia measurements ranged from 0.03 to 1.26 mg/L (Appendix B, Table B7).

Detroit District - St. Joseph Harbor sediments

Mean percent survival was high in SJ-2 and SJ-4 sediments (90 and 92 percent, respectively). Mean percent survival in the SJ-3 sediment (70 percent), however, was significantly less than the SJ-5 reference sediment (85 percent) (Table 9). Survival in the control sediments (96 and 97 percent for the two controls) indicated that the test was valid (Table 9).

Water quality was within prescribed ranges. The 10-day mean temperature was within ± 1 °C of 23 °C; the 10-day mean dissolved oxygen was ≥ 40 -percent saturation (i.e., ≥ 3.4 mg/L @ 23 °C). The pH ranged from 7.6 to

Table 2
Survival of *H. azteca* in 10-Day Solid Phase Tests with Great Lakes Sediments

Project	Sediment	Mean % Survival (S.E.)
Buffalo District - Toledo Harbor	Control-1	95.7 (2.02)
	Control-2	94.3 (2.97)
	(SWR)	94.3 (2.97)
	(DWR)	85.7 (4.29)
	(RM 1-2)	88.6 (5.53)
	(LM 0-1)	88.6 (4.04)
	(LM 1-2)	27.1 (15.10) ¹
	(LM 2-3)	42.9 (15.80) ²
	(LM 3-4)	88.6 (4.59)
	(LM 4-5)	88.6 (3.40)
	(LM 7-8)	87.1 (3.60)
	(LM 11-12)	80.0 (7.24)
Chicago District - Michigan City Harbor	Control-1	95.7 (2.02)
	Control-2	97.1 (1.84)
	(MC-4) REF	94.3 (4.29)
	(MC-1)	97.1 (1.84)
	(MC-2)	87.1 (9.69)
	(MC-3)	85.7 (4.81)
Detroit District - Grand Haven Harbor	Control-1	95.7 (2.02)
	Control-2	97.1 (1.84)
	(GH-5) REF	95.7 (2.02)
	(GH-1)	90.0 (6.90)
	(GH-2)	68.6 (7.37) ¹
	(GH-4)	84.3 (4.29)
Detroit District - St. Joseph Harbor	Control-1	95.7 (2.02)
	Control-2	97.1 (1.84)
	(SJ-5) REF	85.7 (5.28)
	(SJ-2)	90.0 (5.34)
	(SJ-3)	70.0 (9.26) ¹
	(SJ-4)	92.9 (3.60)

Note: A "1" indicates significantly less than reference ($p \leq 0.05$) $n = 7$.

¹ Significantly different from both the SWR and DWR samples.

² Significantly different from the SWR sample only.

7.8, while specific conductance ranged from 84 to 272 $\mu\text{mhos/cm}$. Total hardness measurements were between 71.2 and 106.1 mg/L CaCO_3 , and total alkalinity ranged from 64.5 to 88.3 mg/L CaCO_3 . Total ammonia measurements ranged from 0.03 to 1.04 mg/L (Appendix B, Table B8).

Reference toxicant tests with *H. azteca*

Sensitivity of test animals to the reference toxicant CuSO_4 was comparable for each of the two phases of testing. Based on measured concentrations of copper, the trimmed Spearman-Kärber 96-hr LC_{50} (95 percent C.I. (confidence interval)) estimates were 70 $\mu\text{g/L}$ (40 to 110 $\mu\text{g/L}$) and 130 $\mu\text{g/L}$ (90 to 180 $\mu\text{g/L}$) for Phase I and Phase II tests, respectively (Appendix B, Tables B9 and B11).

Seven-Day Elutriate Tests with *Pimephales promelas*

Buffalo District - Toledo Harbor sediments

Mean percent survival was low (<73 percent) in all elutriates evaluated (Table 3). Statistical analysis indicated that survival was significantly less ($p < 0.05$) in all elutriates except one LM site (1-2) when compared with control. Survival in the control (83 percent) indicated the test was valid (criterion for test validity is >80-percent survival in the controls). Two of the elutriates (LM 4-5, 25 percent and LM 11-12, 25 percent) showed significantly reduced growth relative to control (0.148 and 0.159 mg) (Table 3). Growth in the control (0.247) indicated that the test was valid (criterion for test validity is ≥ 0.25 mg dry weight in the controls).

Water quality was acceptable. The 7-day mean temperature was within $\pm 1^\circ\text{C}$ of 25°C ; dissolved oxygen for all elutriates was ≥ 90 -percent saturation (i.e., ≥ 7.4 mg/L @ 25°C) at test initiation, and the 7-day means ranged from 6.41 to 7.78 mg/L in the LM 0-1, 100-percent and LM 11-12, 6.25-percent elutriates, respectively. Mean pH ranged from 8.0 to 8.4 in the LM 1-2, 100-percent and LM 11-12, 100-percent elutriates, respectively. Mean total ammonia ranged from 0.07 to 3.72 mg/L in the LM 11-12, 100-percent and RM 1-2, 100-percent elutriates, respectively (Appendix C, Table C9).

Chicago District - Michigan City Harbor sediments

Mean percent survival was low (<50 percent) in all elutriates tested. All were significantly less ($p < 0.05$) than control (Table 4). Survival in the control sediments (83 percent for the two controls) indicated that the test was valid (Table 4). No significant growth effect was observed. Growth in the control (0.247) indicated that the test was valid.

Table 3
Mean (S.E.) Percent Survival and Growth (mg dry weight) of
***P. promelas* in Buffalo District - Toledo Harbor Elutriate**
Bioassays

Treatment	Percent Elutriate	Survival	Growth
Control		83 (3)	0.247 (0.023)
RM 1-2	6.25	43 (3)*	0.181 (0.012)
	12.5	43 (5)*	0.155 (0.025)*
	25	38 (9)*	0.147 (0.013)*
	50	38 (8)*	0.160 (0.012)*
	100	25 (9)*	0.164 (0.005)*
LM 0-1	6.25	40 (9)*	0.253 (0.020)
	12.5	60 (7)	0.207 (0.019)
	25	48 (9)*	0.188 (0.024)
	50	35 (6)*	0.249 (0.028)
	100	8 (8)*	0.232
LM 1-2	6.25	60 (7)	0.189 (0.025)
	12.5	63 (8)	0.218 (0.006)
	25	60 (10)	0.226 (0.039)
	50	73 (5)	0.192 (0.007)
	100	55 (6)	0.182 (0.008)
LM 2-3	6.25	58 (9)	0.216 (0.029)
	12.5	43 (6)*	0.164 (0.022)
	25	58 (11)	0.200 (0.017)
	50	45 (6)*	0.210 (0.025)
	100	43 (9)*	0.213 (0.028)
LM 3-4	6.25	50 (11)*	0.316 (0.047)
	12.5	55 (10)	0.260 (0.010)
	25	50 (0)*	0.205 (0.008)
	50	45 (3)*	0.168 (0.011)
	100	30 (4)*	0.224 (0.022)

(Continued)

Note: A "*" indicates significantly less than control ($p \leq 0.05$) $n = 4$.

Table 3 (Concluded)				
Treatment	Percent Elutriate	Survival		Growth
LM 4-5	6.25	40	(9)▼	0.202 (0.010)
	12.5	45	(10)▼	0.170 (0.011)
	25	63	(9)	0.148 (0.018)▼
	50	45	(3)▼	0.207 (0.021)
	100	23	(8)▼	0.198 (0.043)
LM 7-8	6.25	50	(4)▼	0.207 (0.017)
	12.5	50	(7)▼	0.254 (0.031)
	25	50	(7)▼	0.204 (0.011)
	50	43	(5)▼	0.190 (0.017)
	100	35	(3)▼	0.228 (0.029)
LM 11-12	6.25	43	(6)▼	0.226 (0.023)
	12.5	45	(9)▼	0.187 (0.025)
	25	55	(6)	0.159 (0.013)▼
	50	63	(6)	0.185 (0.017)
	100	50	(11)▼	0.154 (0.026)▼

Water quality was acceptable. The 7-day mean temperature was within ± 1 °C of 25 °C; dissolved oxygen for all elutriates was ≥ 90 -percent saturation (i.e., ≥ 7.4 mg/L @ 25 °C) at test initiation, and the 7-day means ranged from 7.13 to 7.69 mg/L in the MC-1, 25 percent and MC-1, 6.25-percent elutriates, respectively. Mean pH ranged from 8.1 to 8.3 in the MC-3, 100-percent and MC-2, 100-percent elutriates, respectively. Mean total ammonia ranged from 0.11 to 0.66 mg/L in the MC-1, 100-percent and MC-3, 100-percent elutriates, respectively (Appendix C, Table C10).

Detroit District - Grand Haven Harbor sediments

Mean percent survival was low (<78 percent) in all elutriates evaluated (Table 5). Significantly reduced survival relative to control was observed in the GH-1, 100-percent, GH-2, 12.5-, 50-, and 100-percent, and GH-4, 100-percent elutriates. Survival in the control sediments (83 percent for the two controls) indicated that the test was valid (Table 5). Growth data are reported but were not analyzed statistically because growth of control animals (0.138 mg) was below the test performance criterion of 0.25 mg (Table 5).

Water quality was acceptable. The 7-day mean temperature was within ± 1 °C of 25 °C; dissolved oxygen for all elutriates was ≥ 90 -percent saturation

Table 4
Mean (S.E.) Percent Survival and Growth (mg dry weight) of
***P. promelas* in Chicago District - Michigan City Harbor Elutriate**
Bioassays

Treatment	Percent Elutriate	Survival	Growth
Control		83 (3)	0.247 (0.023)
MC-1	6.25	25 (6)*	0.239 (0.014)
	12.5	30 (7)*	0.264 (0.035)
	25	38 (9)*	0.308 (0.052)
	50	28 (5)*	0.274 (0.037)
	100	28 (6)*	0.243 (0.013)
MC-2	6.25	23 (6)*	0.268 (0.050)
	12.5	35 (3)*	0.181 (0.017)
	25	40 (0)*	0.231 (0.021)
	50	33 (5)*	0.283 (0.021)
	100	40 (4)*	0.191 (0.020)
MC-3	6.25	48 (13)*	0.237 (0.041)
	12.5	35 (14)*	0.219 (0.008)
	25	33 (12)*	0.217 (0.021)
	50	28 (3)*	0.180 (0.029)
	100	30 (6)*	0.205 (0.014)

Note: A "*" indicates significantly less than control ($p \leq 0.05$) $n = 4$.

(i.e., ≥ 7.4 mg/L @ 25 °C) at test initiation, and the 7-day means ranged from 6.88 to 7.54 mg/L in the GH-1, 100-percent elutriate and Control-2, respectively. Mean pH ranged from 7.9 to 8.4 in the GH-2, 100-percent elutriate and Control-1, respectively. Mean total ammonia ranged from 0.21 to 14.56 mg/L in Control-1 and the GH-2, 100-percent elutriate, respectively (Appendix C, Table C11).

Detroit District - St. Joseph Harbor sediments

Mean percent survival was low (<75 percent) in all elutriates evaluated (Table 6). Only the SJ-3, 100-percent elutriate, however, was significantly reduced relative to control. Survival in the control sediments (83 percent for the two controls) indicated that the test was valid (Table 6). Growth data are reported but were not analyzed statistically because growth of control animals (0.138 mg) was below the test performance criterion of 0.25 mg (Table 6).

Table 5
Mean (S.E.) Percent Survival and Growth (mg dry weight) of
***P. promelas* in Detroit District - Grand Haven Harbor Elutriate**
Bioassays

Treatment	Percent Elutriate	Survival	Growth
Control		83 (5)	0.138 (0.009)
GH-1	6.25	70 (7)	0.279 (0.031)
	12.5	65 (6)	0.297 (0.016)
	25	68 (9)	0.286 (0.017)
	50	60 (10)	0.230 (0.026)
	100	38 (11)▼	0.264 (0.037)
GH-2	6.25	60 (11)	0.336 (0.040)
	12.5	53 (9)▼	0.305 (0.018)
	25	78 (9)	0.261 (0.030)
	50	53 (5)▼	0.227 (0.031)
	100	0 (0)▼	
GH-4	6.25	43 (10)	0.310 (0.033)
	12.5	60 (8)	0.281 (0.014)
	25	45 (13)	0.320 (0.035)
	50	63 (14)	0.263 (0.012)
	100	33 (14)▼	0.273 (0.038)

Note: The "▼" symbol indicates significantly less than control ($p \leq 0.05$) $n = 4$, respectively. No statistical comparisons were made for growth since controls fell below the 0.25-mg performance criterion.

Water quality was acceptable. The 7-day mean temperature was within ± 1 °C of 25 °C; dissolved oxygen for all elutriates was ≥ 90 -percent saturation (i.e., ≥ 7.4 mg/L @ 25 °C) at test initiation, and the 7-day means ranged from 6.83 to 7.23 mg/L in the SJ-2, 100-percent and SJ-2, 25-percent elutriates, respectively. Mean pH ranged from 7.9 to 8.2 in the SJ-2, 100-percent and SJ-3, 100-percent elutriates, respectively. Mean total ammonia ranged from 0.23 to 8.75 mg/L in the SJ-2, 12.5-percent and the SJ-3, 100-percent elutriates, respectively (Appendix C, Table C12).

Table 6
Mean (S.E.) Percent Survival and Growth (mg dry weight) of
***P. promelas* in Detroit District - St. Joseph Harbor Elutriate**
Bloassays

Treatment	Percent Elutriate	Survival	Growth
Control		83 (5)	0.138 (0.009)
SJ-2	6.25	65 (3)	0.239 (0.031)
	12.5	65 (6)	0.270 (0.024)
	25	63 (9)	0.254 (0.024)
	50	68 (9)	0.258 (0.019)
	100	65 (9)	0.256 (0.036)
SJ-3	6.25	40 (23)	0.326 (0.039)
	12.5	53 (5)	0.330 (0.020)
	25	68 (10)	0.268 (0.015)
	50	73 (8)	0.268 (0.025)
	100	0 (0)*	
SJ-4	6.25	55 (13)	0.357 (0.018)
	12.5	75 (9)	0.309 (0.020)
	25	60 (18)	0.322 (0.038)
	50	63 (9)	0.323 (0.032)
	100	53 (5)	0.341 (0.024)

Note: A "*" indicates significantly less than control ($p \leq 0.05$) $n = 4$. No statistical comparisons were made for growth since controls fell below the 0.25-mg performance criterion.

Twenty-One-Day Elutriate Tests with *Daphnia magna*

Buffalo District - Toledo Harbor sediments

Mean percent survival was high (>70 percent) for most of the elutriates evaluated (Table 7). Statistical analysis indicated that survival was significantly less ($p < 0.05$) than control in RM 1-2 (6.25- and 100-percent elutriates), LM 0-1 (6.25- and 100-percent elutriates), and LM 11-12 (6.25-percent elutriate). Survival in the control (100 percent) indicated the test was valid (criterion for test validity is >80-percent survival in the controls). Production of young per surviving female was significantly reduced relative to control in six of the elutriates (RM 1-2, 50 percent; LM 0-1, 25, 50, and 100 percent; LM 7-8, 6.25 percent; and LM 11-12, 25 percent) and significantly greater than control in four of the elutriates (LM 1-2, 50 and 100 percent; LM 2-3,

Table 7
Mean Percent Survival and Total Number of Young per Surviving Adult (S.E.) for *D. magna* in Buffalo District - Toledo Harbor Elutriate Bioassays

Treatment	Percent Elutriate	Survival	Total No. of Young/Surviving Adult
Control		100	104 (5)
RM 1-2	6.25	60▼	98 (10)
	12.5	80	100 (8)
	25	70	115 (7)
	50	70	77 (5)▼
	100	60▼	94 (6)
LM 0-1	6.25	50▼	82 (17)
	12.5	70	78 (9)
	25	80	70 (7)▼
	50	70	69 (5)▼
	100	50▼	30 (12)▼
LM 1-2	6.25	90	84 (9)
	12.5	100	110 (9)
	25	80	126 (6)
	50	90	142 (9)▲
	100	80	154 (7)▲
LM 2-3	6.25	100	125 (9)
	12.5	100	115 (8)
	25	90	144 (10)
	50	90	140 (12)
	100	100	151 (5)▲
LM 3-4	6.25	90	65 (9)
	12.5	80	100 (8)
	25	100	127 (4)
	50	90	152 (10)▲
	100	100	137 (10)

(Continued)

Note: The "▼" and "▲" symbols indicate significantly less than and significantly greater than control ($p \leq 0.05$) $n = 10$, respectively.

Table 7 (Concluded)			
Treatment	Percent Elutriate	Survival	Total No. of Young/Surviving Adult
M 4-5	6.25	80	70 (10)
	12.5	100	63 (15)
	25	100	95 (6)
	50	100	127 (8)
	100	100	103 (10)
LM 7-8	6.25	80	44 (11)▼
	12.5	90	78 (13)
	25	100	76 (9)
	50	100	87 (10)
	100	90	120 (9)
LM 11-12	6.25	50▼	63 (11)
	12.5	80	74 (8)
	25	80	47 (9)▼
	50	100	74 (11)
	100	90	78 (9)

100 percent; LM 3-4, 50 percent) (Table 7). Mean production of young per surviving female in the control (104) indicated that the test was valid (criterion for test validity is ≥ 60 young per surviving female after 21 days in the control).

Water quality was acceptable. The 21-day mean temperature was within ± 1 °C of 20 °C. The 10-day mean (S.E.) dissolved oxygen was 8.2 (0.1) mg/L. The pH ranged from 7.1 to 9.1, while specific conductance ranged from 440 to 929 $\mu\text{mhos/cm}$. Total hardness measurements were between 373 and 597 mg/L CaCO_3 , and total alkalinity ranged from 93 to 190 mg/L CaCO_3 . Total ammonia measurements ranged from 0.0 to 62.1 mg/L (mean and S.E. were 2.6 and 0.6 mg/L, respectively) (Appendix D, Table D5).

Chicago District - Michigan City Harbor sediments

Mean percent survival was high (>70 percent) for all of the elutriates evaluated (Table 8). None of the elutriates evaluated were statistically different from the control for either survival or production of young per surviving female (Table 8). Survival and mean production of young in the control

Table 8
Mean Percent Survival and Total Number of Young per Surviving Adult (S.E.) for *D. magna* in Chicago District - Michigan City Harbor Elutriate Bioassays

Treatment	Percent Elutriate	Survival	Total No. of Young/Surviving Adult
Control-1		100	104 (5)
Control-2		80	81 (15)
MC-1	6.25	90	74 (10)
	12.5	90	94 (11)
	25	90	77 (12)
	50	70	95 (15)
	100	90	118 (16)
MC-2	6.25	70	89 (10)
	12.5	90	86 (12)
	25	70	98 (21)
	50	80	109 (14)
	100	100	134 (11)
MC-3	100	100	92 (26)

Note: Control-1 was used for comparisons with MC-1 and MC-2, while Control-2 was compared with MC-3 $n = 10$. Because of the small amount of sample available, only five replicates of the 100-percent elutriate was evaluated for MC-3.

(100 percent and 104 young/female, respectively) met the criteria for test validity.

Water quality was acceptable. The 21-day mean temperature was within ± 1 °C of 20 °C. The 10-day mean (S.E.) dissolved oxygen was 8.1 (0.1) mg/L. The pH ranged from 7.0 to 9.1, while specific conductance ranged from 440 to 929 $\mu\text{mhos/cm}$. Total hardness measurements were between 123 and 470 mg/L CaCO_3 , and total alkalinity ranged from 83 to 263 mg/L CaCO_3 . Total ammonia measurements ranged from 0.0 to 7.5 mg/L (Appendix D, Table D6).

Detroit District - Grand Haven Harbor sediments

Mean percent survival was high (>80 percent) for all of the elutriates evaluated (Table 9). Survival was not statistically different from control. Mean production of young per surviving female was significantly greater than control in the GH-1, 12.5-, and 50-percent elutriates; GH-2, 25- and 100-percent

Table 9
Mean Percent Survival and Total Number of Young per Surviving Adult (S.E.) for *D. magna* in Detroit District - Grand Haven Harbor Elutriate Bioassays

Treatment	Percent Elutriate	Survival	Total No. of Young/Surviving Adult
Control		80	81 (15)
GH-1	6.25	90	131 (6)
	12.5	100	138 (9) [▲]
	25	90	109 (15)
	50	90	138 (11) [▲]
	100	90	121 (18)
GH-2	6.25	100	114 (12)
	12.5	100	101 (20)
	25	100	152 (8) [▲]
	50	80	129 (22)
	100	90	142 (17) [▲]
GH-4	6.25	100	115 (8)
	12.5	90	158 (8) [▲]
	25	100	152 (9) [▲]
	50	100	159 (9) [▲]
	100	100	133 (10) [▲]

Note: A "▲" indicates significantly greater than control ($p \leq 0.05$) $n = 10$.

elutriates; and the GH-4, 12.5-, 25-, 50-, and 100-percent elutriates. There were no other statistical differences (Table 9). Survival and mean production of young in the control (80 percent and 81 young/female, respectively) met the criteria for test validity.

Water quality was acceptable. The 21-day mean temperature was within ± 1 °C of 20 °C. The 10-day mean (S.E.) dissolved oxygen was 6.8 (0.1) mg/L. The pH ranged from 7.2 to 8.5, while specific conductance ranged from 412 to 768 $\mu\text{mhos/cm}$. Total hardness measurements were between 157 and 363 mg/L CaCO_3 , and total alkalinity ranged from 107 to 363 mg/L CaCO_3 . Total ammonia measurements ranged from 0.0 to 31.6 mg/L (Appendix D, Table D7).

Detroit District - St. Joseph Harbor sediments

Mean percent survival was high (>80 percent) for all of the elutriates evaluated (Table 10). Survival was not statistically different from control. In all of the elutriates evaluated, mean production of young per surviving female was significantly greater than control. Survival and mean production of young in the control (80 percent and 81 young/female, respectively) met the criteria for test validity.

Water quality was acceptable. The 21-day mean temperature was within ± 1 °C of 20 °C. The 10-day mean (S.E.) dissolved oxygen was 7.0 (0.1) mg/L. The pH ranged from 7.2 to 8.6, while specific conductance ranged from 353 to 725 $\mu\text{mhos/cm}$. Total hardness measurements were between 170 and 367 mg/L CaCO_3 , and total alkalinity ranged from 110 to 476 mg/L CaCO_3 . Total ammonia measurements ranged from 0.0 to 26.7 mg/L (Appendix D, Table D8).

Table 10
Mean Percent Survival and Total Number of Young per Surviving Adult (S.E.) for *D. magna* in Detroit District - St. Joseph Harbor Elutriate Bioassays

Treatment	Percent Elutriate	Survival	Total No. of Young/Surviving Adult
Control		80	81 (15)
SJ-2	50	100	148 (10) [▲]
	100	80	140 (24) [▲]
SJ-3	6.25	100	130 (13) [▲]
	100	100	152 (12) [▲]
SJ-4	100	100	199 (11) [▲]

Note: A "▲" indicates significantly greater than control ($p \leq 0.05$) $n = 10$. The number of elutriate concentrations evaluated for each treatment was limited by the amount of sample available.

4 Discussion

The purpose of this study is to provide a technical evaluation of test methods proposed by the USEPA Region V for the regulatory evaluation of dredged material in the Great Lakes. Sediments from four Great Lake harbors were evaluated in both solid phase bioassays using *Hyalella azteca* (10-day survival) and *Chironomus tentans* (10-day survival and growth) and elutriate tests using *Pimephales promelas* (7-day survival and growth) and *Daphnia magna* (21-day survival and reproduction). The *C. tentans* test is evaluated in a separate report (Call et al. 1994). Critiques of the three remaining tests evaluated during this study are provided below.

Ten-Day Solid Phase Tests with *Hyalella azteca*

The test design described by Brooke et al. (1993b) requires extensive preparation and significant start-up costs. For this study, some 200 test chambers were fabricated from 300-ml high-form glass beakers with side walls drilled and screened. Additionally, the proposed test method requires a mechanism, such as a diluter board, to provide intermittent flow to the test chambers (equivalent to about four volume additions per day). While a simplified water delivery system is described in the protocol, it is only capable of delivering water to two treatments (not typical of most dredging projects). Plans for constructing a diluter board capable of handling a larger number of treatments are available (Benoit, Mattson, and Olson 1982); however, this requires additional preparation, capital outlay, and a certain level of expertise. Diluter boards can be obtained commercially, but are expensive (i.e., approximately \$10K). Set-up and calibration of even commercially available diluter boards require additional time and expertise. All of the above leads one to question the necessity of such a sophisticated test apparatus and the requirement of four water changes per day. The frequency of water exchange stems from concern over water quality. If water quality could be maintained with fewer water exchanges (i.e., one exchange per day), it would eliminate the need for an automated water delivery system. Food (in terms of both quality and quantity) added to the test system is a primary driver in determining how rapidly water quality deteriorates.

The food specified in the protocol is a mixture of filtered, fermented trout chow, cerophyl, and yeast. It is a good substrate for bacterial growth, and the bacteria may in fact be an additional source of food for the test organisms. This food certainly contributes to the biological oxygen demand (BOD) of the test system and may be a reason for the rapidly deteriorating water quality. The procedure for making this food is complex, requiring at least a week to prepare, and yields a food source with a limited shelf life (i.e., no longer than 2 weeks in a freezer). There is at least one commercially available product (e.g., rabbit pellets) with a virtually limitless shelf life that is also recommended for *H. azteca* (American Society for Testing and Materials 1993). A commercially available food such as rabbit pellets may also contribute less BOD and, as a consequence the frequency of water exchange, could be reduced.

The recommended size/stage of test animals is quite small (e.g., 300 to 500 μm in length at test initiation). Consequently, laboratory personnel should have demonstrated success in handling and recovering organisms from sediment prior to test initiation. A recent study by Collyard et al. (1994) suggests that the protocol could be modified to initiate the test with slightly older (7 to 14 days) and thus larger animals. This would enhance recovery efficiencies without affecting test sensitivity.

Apart from the logistical considerations associated with start-up, there is at least one technical consideration that requires further refinement of the protocol prior to regulatory implementation. The physical design of the test system as described in Brooke et al. (1993b) results in pseudoreplication of the test treatments. Since overlying water is freely exchanged between beakers within a treatment, these beakers no longer represent true independent replicates (Hurlbert 1984). A modification of the test system has been proposed by Zummwalt et al. (in preparation) to correct this problem.

Seven-Day Elutriate Tests with *Pimephales promelas*

Water column effects arising from the disposal of dredged material are evaluated in elutriate tests. Elutriate tests are generally more labor intensive than solid phase tests. Part of this increase in labor arises from the traditional approach of evaluating several (usually five) elutriate concentrations for every sediment tested. Additionally, the test protocol of Brooke et al. (1993b) requires that elutriates be prepared fresh each day and renewed. This requires substantial amounts of labor. To run an elutriate test with 10 sediments, for example, would require preparation of fresh elutriates and a renewal for 200 beakers (i.e., five elutriate concentrations with four replicates/concentration) each day of the test. This does not include the labor required for daily enumeration of surviving organisms and water quality monitoring. As evidenced by the size of Appendix C, the data collection requirements of the Brooke et al. (1993) protocol are quite large.

The use of newly released *P. promelas* fry (<48 hr old) poses another logistical issue that needs to be addressed in the protocol. Substantial mortality (>50 percent) was observed among fry shipped to our laboratory for testing purposes. As a result of this high mortality, eggs were requested for future shipments, and much better survival was experienced among newly hatched fry prior to testing. However, shipping stress cannot be discounted as a potential factor in the poor survival and growth observed during the tests. The protocol reads as if only animals obtained from an in-house laboratory culture are to be used in the test and makes no mention of obtaining animals from a commercial supplier. If shipped animals are deemed acceptable for use in this test, then the protocol must address the issue of shipping stress explicitly and identify appropriate procedures to minimize these effects.

Elutriate preparation procedures permit too much latitude. The protocol indicates that elutriates can be allowed to settle for 24 hr and/or centrifuged prior to adding the test animals. The decision to employ these procedures is based on whether the test animals will be visible in the test chambers for daily observation. Selection of procedures for handling of elutriates will have a significant effect on total suspended solids concentrations. If the purpose of this test is to evaluate short-term water column effects, both physical and chemical, then whole elutriates should be evaluated with minimal settling and no centrifugation. However, if the concern is for contaminant effects only, then specific procedures for either settling or centrifugation should be recommended in order to minimize the potentially confounding effects of suspended solids.

Guidance should be provided for addressing other potentially confounding factors such as ammonia toxicity. Sediments with high organic content may result in elutriates with elevated ammonia levels. A no observable effects concentration (NOEC) should be provided in the protocol as a basis for evaluating potential toxicity caused by ammonia. However, because of its transient nature, ammonia is generally not considered a contaminant of concern for purposes of dredged material disposal.

There is no biological basis for interpreting the growth end point. It is suggested in the protocol that "...minor reductions in growth can result in significant reductions of survival and recruitment of larval fish to adult populations, and subsequent population level impacts." However the relationship between growth and subsequent population level impacts has not been defined (e.g., What percent reduction of growth relative to control results in significantly reduced fecundity?). The only basis for evaluating effects on growth in the current protocol is a statistical difference relative to the control.

Twenty-One-Day Elutriate Tests with *Daphnia magna*

Much like the 7-day elutriate test with *P. promelas*, the protocol by Call et al. (1993) for *D. magna* is laborious and generates large volumes of data. This is compounded by the longer duration of the test, 21 days. While an effort has been made on part of the test proponents to reduce the amount of data collection (e.g., water quality monitoring in only three elutriate concentrations (low, medium, and high) per treatment), the data generated is still substantial (see size of Appendix D).

A design feature common to both the *P. promelas* and *D. magna* elutriate tests is the evaluation of multiple elutriate concentrations (e.g., 0-, 6.25-, 12.5-, 25-, 50-, and 100-percent elutriate). The basis for evaluating a series of concentrations is to establish an LC_{50} , which is then compared with output from the "mixing zone model." This model calculates the dilution of dredged material expressed as a percent of initial concentration during disposal. Output from the model includes the maximum concentration of dredged material in the water column outside the boundary of the disposal site during the 4-hr initial mixing period and the maximum concentration anywhere in the environment after the 4-hr initial mixing period. For regulatory purposes, these concentrations are compared with 0.01 of the LC_{50} to determine if the discharge is acceptable. Current guidance (i.e., the Green Book) indicates that if an LC_{50} cannot be calculated because survival is greater than 50 percent in all elutriate concentrations, then the 100-percent elutriate is used as the LC_{50} for comparison with the mixing zone model. Since the only reason for establishing an LC_{50} is for comparison with output from the mixing zone model, a less costly and equally environmentally conservative approach would be to test only the 100-percent elutriate. In most cases, this concentration would then be used for comparison to the mixing zone model output. If, however, mortality exceeded 50 percent in the 100-percent elutriate, then this sediment could be retested using a concentration series. Substantial cost savings would result from conducting these tests using only the 100-percent elutriate. Screening for water column effects in this manner would not result in any loss of statistical power or sensitivity. In fact, statistical power could actually be enhanced through the addition of more replicates made possible by the elimination of the concentration series (see below).

The proposed number of replicates (10) limits the statistical power of the test. During the discussion of hypothesis testing in the draft protocol, only Type I error (i.e., rejecting a true null hypothesis) is considered; Type II error (i.e., acceptance is of a false null hypothesis, which inversely related to the power of the test) is ignored. The result of a hypothesis test indicates whether there is any statistically significant effect at the prescribed error level. If there is not any, one can conclude that there are no statistically discernable effects, not whether there is actually an effect or not. Although this is true for all statistical tests, when sample size is small, this distinction becomes especially important. In addition, chronic end points such as growth and reproduction

tend to be more variable. As a consequence, it becomes more difficult to discern differences between treatments when the sample size is small. Power computations that estimate the sample size required to detect a given difference are relatively straightforward to make (see, e.g., Sokal and Rohlf (1981), pages 262 and 765) and should be addressed explicitly in the protocol (this applies not only to the elutriate test with *D. magna* but all tests). For example, what amount of difference between control and elutriate treatments should the test be expected to detect statistically—50, 30, 20 percent, etc.? The answer to this question should drive the determination of an appropriate replicate number. Oris and Bailer (1993), who examined toxicity tests with the cladoceran *Ceriodaphnia dubia*, emphasize the importance of replicate size and power. Their work strongly suggests the need to increase replicate number in the *D. magna* test to between 15 and 20.

Suspended solids have been shown to be an important “nontreatment” factor for cladocerans. Kirk and Gilbert (1990) performed experiments with a number of planktonic species including *Daphnia ambigua*, *Daphnia pulex*, and *Ceriodaphnia dubia*. They found that concentrations of suspended coarse clay between 50 and 100 mg/L reduced population growth rates because of decreased juvenile survival, increased age at first reproduction, and decreased fecundity. At a concentration of 10 mg/L, positive effects on these same variables were observed. Results of *D. magna* elutriate tests with the North Central Division sediments showed increased fecundity with increasing elutriate concentration in three of the sediments evaluated (LM 1-2, LM 4-5, and LM 7-8) (Table 7). Given these observations, the potentially confounding influence of suspended solids concentration must be defined and more specific guidance given for preparation of elutriates and interpretation of test results.

5 Conclusions

Solid Phase Test

- a. The 10-day test with *Hyalella azteca* requires extensive preparation and significant start-up costs.
- b. The simplified water delivery system described for the 10-day *H. azteca* test can only accommodate two sediments at a time and thus is not practical for dredged material evaluations.
- c. The test system described for the 10-day *H. azteca* test results in pseudoreplication.
- d. Food recommended for *H. azteca* test is difficult to prepare and has a limited shelf life.

Elutriate Tests

- a. Newly hatched *Pimephales promelas* fry may be adversely affected by shipping.
- b. Proposed number of replicates (10) for the 21-day test with *Daphnia magna* limits the statistical power of the test.
- c. Concentration of suspended solids is an important confounding variable in cladoceran tests.
- d. Elutriate preparation procedures permit too much latitude. Depending on procedure selection, the concentration of total suspended solids can vary considerably.
- e. Evaluation of multiple elutriate concentrations per sediment, renewal schedule, and monitoring requirements make elutriate tests labor intensive.

6 Recommendations

Solid Phase Test

- a. Reevaluate the need for multiple water changes per day in solid phase tests with *Hyaella azteca*.
- b. If an automated water delivery system is required for solid phase tests with *H. azteca*, then the modification proposed by Zummwalt et al. (in preparation) should be incorporated to eliminate pseudoreplication.
- c. Initiate *H. azteca* test with older animals (7 to 14 days) to increase recovery efficiency and reduce labor.

Elutriate Tests

- a. Additional guidance must be provided for shipping and handling of *P. promelas* fry.
- b. Replicate size for 21-day test with *D. magna* should be increased to 20 beakers per treatment.
- c. Evaluate only the 100-percent elutriate. If mortality is greater than 50 percent, then provide option to retest using concentration series.
- d. More specific guidance must be given for preparation of elutriates.

General

- a. Additional guidance must be provided for potentially confounding factors such as ammonia (e.g., NOEC) and suspended solids.
- b. Chronic sublethal end points such as growth and reproduction should not be included until technically sound interpretative guidance is available.

- c.* Permit use of commercially available foods shown to produce acceptable survival, growth, and reproduction in the test species.
- d.* Number of replicates should be supported by power analysis.

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Appendix A

Grain Size Analysis

Table A1
Grain Size of North Central Division Sediments

Sediment	Replicate	Percent Sand	Mean Percent Sand	Standard Error	Percent Silt	Mean Percent Silt	Standard Error	Percent Clay	Mean Percent Clay	Standard Error
Buffalo District - Toledo Harbor										
SWR	1	32.5	34	1.7	45.0	38	3.3	22.5	28	2.9
SWR	2	32.5			35.0			32.5		
SWR	3	37.5			35.0			27.5		
DWR	1	80.0	85	2.5	17.5	11	3.3	2.5	4	0.8
DWR	2	87.5			7.5			5.0		
DWR	3	87.5			7.5			5.0		
RM 1-2	1	-2.5	3	2.5	60.0	53	3.8	42.5	45	1.4
RM 1-2	2	5.0			50.0			45.0		
RM 1-2	3	5.0			47.5			47.5		
LM 0-1	1	0.0	0	2.9	55.0	52	1.7	45.0	48	3.3
LM 0-1	2	-5.0			50.0			55.0		
LM 0-1	3	5.0			50.0			45.0		
LM 1-2	1	15.0	10	2.5	5.0	33	14.2	80.0	57	11.7

(Sheet 1 of 5)

Note: SWR = Shallow water reference.
 DWR = Deep water reference.
 RM = River mile.
 LM = Lake mile.
 REF = Reference.

Table A1 (Continued)										
Sediment	Replicate	Percent Sand	Mean Percent Sand	Standard Error	Percent Silt	Mean Percent Silt	Standard Error	Percent Clay	Mean Percent Clay	Standard Error
Buffalo District - Toledo Harbor (Continued)										
LM 1-2	2	7.5			47.5			45.0		
LM 1-2	3	7.5			47.5			45.0		
LM 2-3	1	2.5	4	1.7	55.0	48	3.8	42.5	48	3.0
LM 2-3	2	2.5			45.0			52.5		
LM 2-3	3	7.5			42.5			50.0		
LM 3-4	1	2.5	2	9.8	52.5	54	4.0	45.0	44	5.9
LM 3-4	2	-15.2			61.0			54.2		
LM 3-4	3	18.7			47.4			33.9		
LM 4-5	1	7.5	8	0.0	52.5	46	3.3	40.0	47	3.3
LM 4-5	2	7.5			42.5			50.0		
LM 4-5	3	7.5			42.5			50.0		
LM 7-8	1	25.0	17	7.1	50.0	45	2.5	25.0	38	8.8
LM 7-8	2	22.5			42.5			35.0		
LM 7-8	3	2.5			42.5			55.0		
LM 11-12	1	32.5	37	2.2	32.5	26	3.3	35.0	38	1.4
LM 11-12	2	40.0			22.5			37.5		
LM 11-12	3	37.5			22.5			40.0		
(Sheet 2 of 5)										

Table A1 (Continued)

Sediment	Replicate	Percent Sand	Mean Percent Sand	Standard Error	Percent Silt	Mean Percent Silt	Standard Error	Percent Clay	Mean Percent Clay	Standard Error
Chicago District - Michigan City Harbor										
MC-4 (REF)	1	95.0	99	2.2	10.0	3	3.8	-5.0	-2	1.7
MC-4 (REF)	2	102.5			-2.5			0.0		
MC-4 (REF)	3	100.0			0.0			0.0		
MC-1	1	92.5	97	2.2	10.0	3	3.3	-2.5	0	1.4
MC-1	2	97.5			0.0			2.5		
MC-1	3	100.0			0.0			0.0		
MC-2	1	95.0	98	1.4	7.5	3	2.5	-2.5	0	1.4
MC-2	2	97.5			0.0			2.5		
MC-2	3	100.0			0.0			0.0		
MC-3	1	48.5	50	1.4	8.6	11	1.4	42.9	39	2.5
MC-3	2	52.8			12.9			34.3		
MC-3	3	48.5			12.9			38.6		
Detroit District - Grand Haven Harbor										
GH-5 (REF)	1	70.0	88	8.8	30.0	11	9.6	0.0	2	0.8
GH-5 (REF)	2	97.5			0.0			2.5		
GH-5 (REF)	3	95.0			2.5			2.5		
GH-1	1	25.0	28	2.5	32.5	24	4.2	42.5	48	3.6

(Sheet 3 of 5)

Table A1 (Continued)										
Sediment	Replicate	Percent Sand	Mean Percent Sand	Standard Error	Percent Silt	Mean Percent Silt	Standard Error	Percent Clay	Mean Percent Clay	Standard Error
Detroit District - Grand Haven Harbor (Continued)										
GH-1	2	32.5			20.0			47.5		
GH-1	3	25.0			20.0			55.0		
GH-2	1	27.5	23	3.0	27.5	24	2.2	45.0	53	3.8
GH-2	2	17.5			25.0			57.5		
GH-2	3	25.0			20.0			55.0		
GH-4	1	67.5	69	0.8	20.0	13	3.3	12.5	18	2.5
GH-4	2	70.0			10.0			20.0		
GH-4	3	70.0			10.0			20.0		
Detroit District - St. Joseph Harbor										
SJ-5 (REF)	1	90.0	97	3.3	12.5	4	4.2	-2.5	-1	0.8
SJ-5 (REF)	2	100.0			0.0			0.0		
SJ-5 (REF)	3	100.0			0.0			0.0		
SJ-2	1	35.0	33	0.8	27.5	25	5.2	37.5	42	5.5
SJ-2	2	32.5			32.5			35.0		
SJ-2	3	32.5			15.0			52.5		
SJ-3	1	80.0	75	2.9	17.5	12	3.0	2.5	13	5.5
SJ-3	2	70.0			10.0			20.0		
(Sheet 4 of 5)										

Table A1 (Continued)										
Sediment	Replicate	Percent Sand	Mean Percent Sand	Standard Error	Percent Silt	Mean Percent Silt	Standard Error	Percent Clay	Mean Percent Clay	Standard Error
Detroit District - St. Joseph Harbor (Continued)										
SJ-3	3	75.0			7.5			17.5		
SJ-4	1	75.0	78	2.2	20.0	12	4.2	5.0	10	2.9
SJ-4	2	82.5			7.5			10.0		
SJ-4	3	77.5			7.5			15.0		
(Sheet 5 of 5)										

Appendix B

Ten-Day Solid Phase Tests

with *Hyalella azteca*

Table B1
Survival of *H. azteca* Exposed to Bedded Sediments from Buffalo District - Toledo Harbor

Sediment	Replicate	No. Recovered
Control-1	1	10
Control-1	2	10
Control-1	3	10
Control-1	4	9
Control-1	5	10
Control-1	6	9
Control-1	7	9
Control-2	1	8
Control-2	2	9
Control-2	3	9
Control-2	4	10
Control-2	5	10
Control-2	6	10
Control-2	7	10
DWR	1	10
DWR	2	8
DWR	3	8
DWR	4	7
DWR	5	10
DWR	6	8
DWR	7	9
SWR	1	9
SWR	2	10
SWR	3	9
SWR	4	8
SWR	5	10
SWR	6	10
SWR	7	10
RM 1-2	1	6
RM 1-2	2	8
RM 1-2	3	10
RM 1-2	4	9
RM 1-2	5	10
RM 1-2	6	10

(Sheet 1 of 3)

Note: DWR = Deep water reference.
 SWR = Shallow water reference.
 RM = River mile.
 LM = Lake mile.
 REF = Reference.

Table B1 (Continued)		
Sediment	Replicate	No. Recovered
RM 1-2	7	9
LM 0-1	1	9
LM 0-1	2	9
LM 0-1	3	7
LM 0-1	4	8
LM 0-1	5	10
LM 0-1	6	9
LM 0-1	7	10
LM 1-2	1	0
LM 1-2	2	0
LM 1-2	3	0
LM 1-2	4	2
LM 1-2	5	0
LM 1-2	6	7
LM 1-2	7	10
LM 2-3	1	9
LM 2-3	2	0
LM 2-3	3	0
LM 2-3	4	0
LM 2-3	5	8
LM 2-3	6	8
LM 2-3	7	5
LM 3-4	1	10
LM 3-4	2	7
LM 3-4	3	8
LM 3-4	4	10
LM 3-4	5	10
LM 3-4	6	8
LM 3-4	7	9
LM 4-5	1	9
LM 4-5	2	9
LM 4-5	3	8
LM 4-5	4	8
LM 4-5	5	10
LM 4-5	6	8
LM 4-5	7	10
LM 7-8	1	10
(Sheet 2 of 3)		

Table B1 (Concluded)		
Sediment	Replicate	No. Recovered
LM 7-8	2	9
LM 7-8	3	8
LM 7-8	4	8
LM 7-8	5	10
LM 7-8	6	8
LM 7-8	7	8
LM 11-12	1	10
LM 11-12	2	4
LM 11-12	3	8
LM 11-12	4	8
LM 11-12	5	9
LM 11-12	6	9
LM 11-12	7	8
<i>(Sheet 3 of 3)</i>		

Table B2
Survival of *H. azteca* Exposed to Bedded Sediments from
Chicago District - Michigan City Harbor

Sediment	Replicate	No. Recovered
Control-1	1	9
Control-1	2	10
Control-1	3	9
Control-1	4	9
Control-1	5	10
Control-1	6	10
Control-1	7	10
Control-2	1	10
Control-2	2	9
Control-2	3	10
Control-2	4	10
Control-2	5	10
Control-2	6	10
Control-2	7	9
MC-4 (REF)	1	9
MC-4 (REF)	2	10
MC-4 (REF)	3	10
MC-4 (REF)	4	7
MC-4 (REF)	5	10
MC-4 (REF)	6	10
MC-4 (REF)	7	10
MC-1	1	10
MC-1	2	9
MC-1	3	10
MC-1	4	10
MC-1	5	10
MC-1	6	9
MC-1	7	10
MC-2	1	3
(Continued)		
Note: REF = Reference.		

Table B2 (Concluded)		
Sediment	Replicate	No. Recovered
MC-2	2	9
MC-2	3	10
MC-2	4	10
MC-2	5	10
MC-2	6	9
MC-2	7	10
MC-3	1	6
MC-3	2	9
MC-3	3	9
MC-3	4	9
MC-3	5	8
MC-3	6	9
MC-3	7	10

Table B3
Survival of *H. azteca* Exposed to Bedded Sediments from
Detroit District - Grand Haven Harbor

Sediment	Replicate	No. Recovered
Control-1	1	9
Control-1	2	10
Control-1	3	9
Control-1	4	9
Control-1	5	10
Control-1	6	10
Control-1	7	10
Control-2	1	10
Control-2	2	9
Control-2	3	10
Control-2	4	10
Control-2	5	10
Control-2	6	10
Control-2	7	9
GH-5 (REF)	1	10
GH-5 (REF)	2	9
GH-5 (REF)	3	9
GH-5 (REF)	4	10
GH-5 (REF)	5	10
GH-5 (REF)	6	9
GH-5 (REF)	7	10
GH-1	1	10
GH-1	2	10
GH-1	3	10
GH-1	4	10
GH-1	5	9
GH-1	6	5
GH-1	7	9
GH-2	1	6
(Continued)		

Table B3 (Concluded)		
Sediment	Replicate	No. Recovered
GH-2	2	3
GH-2	3	7
GH-2	4	7
GH-2	5	8
GH-2	6	9
GH-2	7	8
GH-4	1	9
GH-4	2	9
GH-4	3	8
GH-4	4	9
GH-4	5	9
GH-4	6	9
GH-4	7	6

Table B4
Survival of *H. azteca* Exposed to Bedded Sediments from
Detroit District - St. Joseph Harbor

Sediment	Replicate	No. Recovered
Control-1	1	9
Control-1	2	10
Control-1	3	9
Control-1	4	9
Control-1	5	10
Control-1	6	10
Control-1	7	10
Control-2	1	10
Control-2	2	9
Control-2	3	10
Control-2	4	10
Control-2	5	10
Control-2	6	10
Control-2	7	9
SJ-5 (REF)	1	8
SJ-5 (REF)	2	9
SJ-5 (REF)	3	9
SJ-5 (REF)	4	6
SJ-5 (REF)	5	8
SJ-5 (REF)	6	10
SJ-5 (REF)	7	10
SJ-2	1	9
SJ-2	2	10
SJ-2	3	9
SJ-2	4	9
SJ-2	5	6
SJ-2	6	10
SJ-2	7	10
SJ-3	1	7
SJ-3	2	7
(Continued)		

Table B4 (Concluded)		
Sediment	Replicate	No. Recovered
SJ-3	3	8
SJ-3	4	2
SJ-3	5	8
SJ-3	6	10
SJ-3	7	7
SJ-4	1	10
SJ-4	2	10
SJ-4	3	8
SJ-4	4	10
SJ-4	5	8
SJ-4	6	9
SJ-4	7	10

Table B5
Water Quality for *H. azteca* Exposed to Bedded Sediments from Buffalo District - Toledo Harbor

Sediment	Day	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L
Control-1	0	22.3	7.5					
Control-1	1	22.4	7.9	7.81	66.7	66.7	224	
Control-1	2	22.4	7.7					
Control-1	3	22.3	7.5					0.50
Control-1	4	22.4	7.6					
Control-1	5	22.3	7.7					
Control-1	6	22.0	7.7					
Control-1	7	22.4	7.8					
Control-1	8	22.7	7.8					0.06
Control-1	9	23.0	7.7	7.84	73.0	61.7	218	
Control-1	10	22.9	7.7					
Control-2	0	23.0	7.6					
Control-2	1	23.1	7.8	7.82	69.2	63.3	219	
Control-2	2	23.0	7.7					
Control-2	3	23.1	7.9					0.33
Control-2	4	23.0	7.8					
Control-2	5	22.9	7.7					
Control-2	6	22.6	7.9					
Control-2	7	22.8	7.9					
Control-2	8	22.8	7.9					
Control-2	9	22.6	7.8	7.72	85.5	61.7	202	
Control-2	10	22.7	7.8					
DWR	0	22.8	7.5					
DWR	1	23.0	7.7	7.84	69.2	51.7	193	
DWR	2	23.0	7.8					
DWR	3	23.1	7.6					0.03
DWR	4	23.0	7.5					
DWR	5	22.8	7.6					
DWR	6	22.6	7.9					

(Sheet 1 of 5)

Table B5 (Continued)

Sediment	Day	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L
DWR	7	22.8	7.7					
DWR	8	22.8	7.8					0.05
DWR	9	22.6	7.8	7.85	75.8	51.7	101	
DWR	10	22.6	7.8					
SWR	0	22.3	7.4					
SWR	1	22.4	7.9	7.82	78.0	61.7	121	
SWR	2	22.3	7.6					
SWR	3	22.3	7.7					0.11
SWR	4	22.4	7.8					
SWR	5	22.3	7.7					
SWR	6	22.0	7.7					
SWR	7	22.2	7.8					
SWR	8	22.6	7.8					
SWR	9	23.0	7.8	7.82	87.0	63.3	137	
SWR	10	22.7	7.9					
RM 1-2	0	22.3	7.3					
RM 1-2	1	22.2	7.9	7.87	70.9	60.0	235	
RM 1-2	2	22.3	7.7					
RM 1-2	3	22.3	7.6					
RM 1-2	4	22.3	7.6					
RM 1-2	5	22.3	7.5					
RM 1-2	6	21.6	7.9					
RM 1-2	7	22.2	7.7					
RM 1-2	8	22.6	7.8					
RM 1-2	9	22.8	7.8	7.99	69.2	66.7	245	
RM 1-2	10	22.8	7.8					
LM 0-1	0	22.6	7.2					
LM 0-1	1	22.8	7.7	7.72	75.4	75.0	160	
LM 0-1	2	22.8	7.6					

(Sheet 2 of 5)

Table B5 (Concluded)								
Sediment	Day	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L
LM 0-1	3	22.7	7.5					0.30
LM 0-1	4	22.8	7.5					
LM 0-1	5	22.8	7.6					
LM 0-1	6	22.2	7.8					
LM 0-1	7	22.6	7.8					
LM 0-1	8	22.6	7.7					
LM 0-1	9	22.6	7.8	7.73	90.0	68.3	262	
LM 0-1	10	22.5	7.8					
LM 1-2	0	22.8	7.5					
LM 1-2	1	23.0	7.8	7.77	71.7	64.5	162	
LM 1-2	2	22.8	7.6					
LM 1-2	3	23.0	7.6					0.03
LM 1-2	4	22.9	7.6					
LM 1-2	5	22.8	7.6					
LM 1-2	6	22.6	7.8					
LM 1-2	7	22.8	7.7					
LM 1-2	8	22.8	7.7					0.04
LM 1-2	9	22.6	7.8	7.82	102.5	66.7	204	
LM 1-2	10	22.6	7.9					
LM 2-3	0	22.8	7.4					
LM 2-3	1	23.0	7.7	7.76	75.8	70.0	198	
LM 2-3	2	22.8	7.5					
LM 2-3	3	22.9	7.5					0.21
LM 2-3	4	22.8	7.5					
LM 2-3	5	22.8	7.6					
LM 2-3	6	22.6	7.8					
LM 2-3	7	22.8	7.7					
LM 2-3	8	22.6	7.9					0.12
LM 2-3	9	22.6	7.7	7.79	87.8	75.0	196	
LM 2-3	10	22.6	7.8					
(Sheet 3 of 5)								

Table B5 (Continued)

Sediment	Day	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L
LM 3-4	0	22.8	7.4					
LM 3-4	1	23.0	7.8	7.77	76.3	71.7	228	
LM 3-4	2	22.8	7.7					
LM 3-4	3	22.9	7.5					0.28
LM 3-4	4	22.8	7.6					
LM 3-4	5	22.8	7.7					
LM 3-4	6	22.4	7.8					
LM 3-4	7	22.8	7.7					
LM 3-4	8	22.6	7.8					0.06
LM 3-4	9	22.6	7.8	7.63	102.0	68.3	171	
LM 3-4	10	22.5	7.9					
LM 4-5	0	22.3	7.4					
LM 4-5	1	22.4	7.8	7.77	83.8	76.7	164	
LM 4-5	2	22.3	7.6					
LM 4-5	3	22.3	7.8					0.86
LM 4-5	4	22.3	7.7					
LM 4-5	5	22.3	7.8					
LM 4-5	6	22.0	7.6					
LM 4-5	7	22.2	7.7					
LM 4-5	8	22.6	7.8					0.09
LM 4-5	9	23.0	7.7	7.86	78.8	66.7		
LM 4-5	10	22.7	7.6					
LM 7-8	0	22.3	7.5					
LM 7-8	1	22.4	7.8	7.78	78.7	68.3	211	
LM 7-8	2	22.4	7.8					
LM 7-8	3	22.3	7.3					0.02
LM 7-8	4	22.4	7.6					
LM 7-8	5	22.3	7.5					
LM 7-8	6	22.0	7.8					
LM 7-8	7	22.4	7.6					

(Sheet 4 of 5)

Table B5 (Concluded)								
Sediment	Day	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L
LM 7-8	8	22.7	7.7					0.06
LM 7-8	9	23.0	7.6	7.73	91.3	66.7	204	
LM 7-8	10	22.8	7.7					
LM 11-12	0	22.3	7.4					
LM 11-12	1	22.4	8.0	7.82	72.2	66.7	218	
LM 11-12	2	22.3	7.8					
LM 11-12	3	22.3	7.9					0.04
LM 11-12	4	22.3	7.6					
LM 11-12	5	22.3	7.7					
LM 11-12	6	22.0	7.9					
LM 11-12	7	22.2	7.8					
LM 11-12	8	22.6	8.0					0.05
LM 11-12	9	23.0	7.9	7.78	96.2	66.7	229	
LM 11-12	10	22.7	7.9					
(Sheet 5 of 5)								

Table B6
Water Quality for *H. azteca* Exposed to Bedded Sediments from Chicago
District - Michigan City Harbor

Sediment	Day	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L
Control-1	0	22.1	6.9					
Control-1	1	22.2	7.5	7.80	85.4	76.6	226	
Control-1	2	22.2	7.3					
Control-1	3	22.4	7.6					0.64
Control-1	4	22.4	7.3					
Control-1	5	22.4	7.4					
Control-1	6	22.4	7.5					
Control-1	7	22.6	7.4					
Control-1	8	22.6	7.4					0.06
Control-1	9	22.3	7.4	7.63	83.8		84	
Control-1	10	22.4	7.3					
Control-2	0	22.4	7.3					
Control-2	1	23.1	7.2	7.71	89.9	83.3	226	
Control-2	2	22.8	7.3					
Control-2	3	23.0	7.4					0.80
Control-2	4	23.0	7.3					
Control-2	5	23.0	7.2					
Control-2	6	23.0	7.1					
Control-2	7	23.0	7.2					
Control-2	8	23.0	7.3					1.00
Control-2	9	23.0	7.3	7.66	71.2		113	
Control-2	10	23.0	7.4					
MC-4 (REF)	0	22.1	7.0					
MC-4 (REF)	1	22.2	7.4	7.84	88.7	75.0	214	
MC-4 (REF)	2	22.2	7.4					
MC-4 (REF)	3	22.4	7.5					0.08
MC-4 (REF)	4	22.4	7.4					
MC-4 (REF)	5	22.4	7.4					

(Sheet 1 of 3)

Table B6 (Continued)

Sediment	Day	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L
MC-4 (REF)	6	22.4	7.4					
MC-4 (REF)	7	22.6	7.4					
MC-4 (REF)	8	22.6	7.6					0.08
MC-4 (REF)	9	22.3	7.5	7.63	87.8		112	
MC-4 (REF)	10	22.4	7.3					
MC-1	0	22.2	7.1					
MC-1	1	22.4	7.7	7.88	95.7	65.0	196	
MC-1	2	22.4	7.4					
MC-1	3	22.4	7.7					0.10
MC-1	4	22.4	7.5					
MC-1	5	22.4	7.7					
MC-1	6	22.4	7.5					
MC-1	7	22.5	7.6					
MC-1	8	22.6	7.8					0.03
MC-1	9	22.2	7.8	7.67	73.0		157	
MC-1	10	22.4	7.7					
MC-2	0	22.2	7.1					
MC-2	1	22.4	7.6	7.94	85.8	61.7	209	
MC-2	2	22.4	7.5					
MC-2	3	22.4	7.7					0.10
MC-2	4	22.4	7.6					
MC-2	5	22.4	7.5					
MC-2	6	22.6	7.4					
MC-2	7	22.2	7.6					
MC-2	8	22.5	7.8					0.05
MC-2	9	22.2	7.4	7.70	72.1		142	
MC-2	10	22.5	7.5					
MC-3	0	22.4	7.1					
MC-3	1	22.4	7.6	7.75	97.4	78.3		

(Sheet 2 of 3)

Table B6 (Concluded)

Sediment	Day	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L
MC-3	2	22.4	7.5					
MC-3	3	22.4	7.3					
MC-3	4	22.4	7.4					
MC-3	5	22.4	7.3					
MC-3	6	22.4	7.3					
MC-3	7	22.4	7.4					
MC-3	8	22.6	7.4					
MC-3	9	22.4	7.3	7.70	72.5			
MC-3	10	22.4	7.4					

(Sheet 3 of 3)

Table B7
Water Quality for *H. azteca* Exposed to Bedded Sediments from Detroit District - Grand Haven Harbor

Sediment	Day	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L
Control-1	0	22.1	6.9					
Control-1	1	22.2	7.5	7.80	85.4	76.7	226	
Control-1	2	22.2	7.3					
Control-1	3	22.4	7.6					0.64
Control-1	4	22.4	7.3					
Control-1	5	22.4	7.4					
Control-1	6	22.4	7.5					
Control-1	7	22.6	7.4					
Control-1	8	22.6	7.4					0.06
Control-1	9	22.3	7.4	7.63	83.8		84	
Control-1	10	22.4	7.3					
Control-2	0	22.4	7.3					
Control-2	1	23.1	7.2	7.71	89.9	83.3	226	
Control-2	2	22.8	7.3					
Control-2	3	23.0	7.4					0.80
Control-2	4	23.0	7.3					
Control-2	5	23.0	7.2					
Control-2	6	23.0	7.1					
Control-2	7	23.0	7.2					
Control-2	8	23.0	7.3					1.00
Control-2	9	23.0	7.3	7.66	71.2		113	
Control-2	10	23.0	7.4					
GH-5 (REF)	0	22.5	7.0					
GH-5 (REF)	1	22.4	7.5	7.92	94.1	70.0	230	
GH-5 (REF)	2	22.4	7.3					
GH-5 (REF)	3	22.4	7.3					0.19
GH-5 (REF)	4	22.4	7.4					
GH-5 (REF)	5	22.4	7.4					
GH-5 (REF)	6	22.4	7.3					
GH-5 (REF)	7	22.4	7.4					
GH-5 (REF)	8	22.6	7.6					0.05
GH-5 (REF)	9	22.5	7.5	7.67	79.2		186	
GH-5 (REF)	10	22.5	7.6					
GH-1	0	22.1	7.2					
GH-1	1	22.8	7.2	7.76	102.7	83.3	253	
GH-1	2	22.6	7.3					
GH-1	3	22.8	7.3					0.80

(Continued)

Table B7 (Concluded)

Sediment	Day	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L
GH-1	4	22.8	7.2					
GH-1	5	22.8	7.2					
GH-1	6	22.8	7.3					
GH-1	7	22.8	7.2					
GH-1	8	22.7	7.1					0.03
GH-1	9	22.6	7.4	7.66	87.0		157	
GH-1	10	22.8	7.3					
GH-2	0	22.2	6.9					
GH-2	1	22.4	7.3	7.83	86.6	70.5	249	
GH-2	2	22.4	7.3					
GH-2	3	22.4	7.5					1.26
GH-2	4	22.4	7.4					
GH-2	5	22.4	7.4					
GH-2	6	22.4	7.4					
GH-2	7	22.4	7.5					
GH-2	8	22.6	7.3					0.14
GH-2	9	22.2	7.4	7.56	95.8		93	
GH-2	10	22.5	7.5					
GH-4	0	22.6	7.0					
GH-4	1	23.2	7.0	7.72	90.3	75.0	241	
GH-4	2	22.8	6.9					
GH-4	3	23.0	7.2					0.72
GH-4	4	23.0	7.1					
GH-4	5	23.0	7.0					
GH-4	6	23.0	7.1					
GH-4	7	23.0	7.0					
GH-4	8	23.1	7.2					0.03
GH-4	9	23.0	7.3	7.63	79.5		219	
GH-4	10	23.0	7.2					

Table B8
Water Quality for *H. azteca* Exposed to Bedded Sediments from Detroit District - St. Joseph Harbor

Sediment	Day	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L
Control-1	0	22.1	6.9				226	
Control-1	1	22.2	7.5	7.80	85.4	76.7		
Control-1	2	22.2	7.3					0.64
Control-1	3	22.4	7.6					
Control-1	4	22.4	7.3					
Control-1	5	22.4	7.4					
Control-1	6	22.4	7.5					
Control-1	7	22.6	7.4					0.06
Control-1	8	22.6	7.4				84	
Control-1	9	22.3	7.4	7.63	83.8			
Control-1	10	22.4	7.3					
Control-2	0	22.4	7.3				226	
Control-2	1	23.1	7.2	7.71	89.9	83.3		
Control-2	2	22.8	7.3					0.80
Control-2	3	23.0	7.4					
Control-2	4	23.0	7.3					
Control-2	5	23.0	7.2					
Control-2	6	23.0	7.1					
Control-2	7	23.0	7.2					1.00
Control-2	8	23.0	7.3				113	
Control-2	9	23.0	7.3	7.66	71.2			
Control-2	10	23.0	7.4					
SJ-5 (REF)	0	22.2	7.5					
SJ-5 (REF)	1	23.1	7.6	7.85	79.6	64.5	177	
SJ-5 (REF)	2	22.8	7.5					
SJ-5 (REF)	3	23.0	7.7					0.17
SJ-5 (REF)	4	22.8	7.6					
SJ-5 (REF)	5	22.8	7.5					
SJ-5 (REF)	6	22.8	7.7					
SJ-5 (REF)	7	22.8	7.4					
SJ-5 (REF)	8	22.8	7.8					0.05
SJ-5 (REF)	9	22.8	7.7	7.78	100.0		144	
SJ-5 (REF)	10	22.9	7.6					
SJ-2	0	22.2	7.1					
SJ-2	1	23.1	7.0	7.76	87.8	80.0	249	
SJ-2	2	22.8	7.1					
SJ-2	3	23.0	7.3					0.38
(Continued)								

Table B8 (Concluded)

Sediment	Day	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L
SJ-2	4	22.8	7.2					
SJ-2	5	22.8	7.1					
SJ-2	6	22.8	7.0					
SJ-2	7	22.8	7.2					
SJ-2	8	22.9	7.3					0.03
SJ-2	9	22.8	7.1	7.71	106.1		140	
SJ-2	10	22.9	7.2					
SJ-3	0	22.2	6.9					
SJ-3	1	23.1	6.2	7.67	97.4	88.3	272	
SJ-3	2	22.8	6.3					
SJ-3	3	23.0	6.3					0.55
SJ-3	4	23.0	6.2					
SJ-3	5	23.0	6.4					
SJ-3	6	23.0	6.1					
SJ-3	7	22.8	6.4					
SJ-3	8	23.0	6.4					0.68
SJ-3	9	22.9	6.7	7.66	84.5		174	
SJ-3	10	22.9	6.6					
SJ-4	0	22.0	7.3					
SJ-4	1	23.0	7.3	7.78	99.0	76.7	236	
SJ-4	2	22.6	7.4					
SJ-4	3	22.8	7.5					1.04
SJ-4	4	22.8	7.4					
SJ-4	5	22.8	7.3					
SJ-4	6	22.8	7.5					
SJ-4	7	22.8	7.4					
SJ-4	8	22.8	7.3					0.14
SJ-4	9	22.8	7.3	7.71	73.0		161	
SJ-4	10	22.8	7.4					

Table B9
Survival of *H. azteca* (animals used in Phase I) Exposed to
Reference Toxicant Copper Sulfate

Nominal CuSO ₄ Concentration mg/L	Replicate	Measured CuSO ₄ Concentration mg/L	Number of Surviving Animals				
			Exposure Duration, hr				
			0	24	48	72	96
Control	A	<0.014	10	10	10	10	9
Control	B	<0.014	10	10	10	9	8
Control	C	<0.014	10	10	10	10	8
0.01	A	<0.014	10		8	6	3
0.01	B	<0.014	10		7	5	1
0.01	C	<0.014	10		8	6	1
0.10	A	0.056	10		5	4	4
0.10	B	0.050	10		6	3	3
0.10	C	0.055	10		6	6	6
1.00	A	0.61	10		1	0	0
1.00	B	0.60	10		1	0	0
1.00	C	0.59	10		2	0	0
10.0	A	6.30	10		0	0	0
10.0	B	6.30	10		0	0	0
10.0	C	6.50	10		0	0	0

Note: The 96-hr Spearman-Kärber LC₅₀ estimates (measured concentration in ppm): 0.07
 95% Lower Confidence: 0.04
 95% Upper Confidence: 0.11
 Spearman-Kärber Trim: 16.67%

Table B10
Water Quality for Phase I Reference Toxicant Tests with
H. azteca

Nominal CuSO ₄ Concentration mg/L	Replicate	Exposure Duration hr	Temp. °C	Dissolved Oxygen mg/L	pH	Specific Conductivity µmhos/cm
Control	A	0	19.0	7.20	8.67	251
Control	B	0	19.0	7.00	8.68	253
Control	C	0	19.0	7.20	8.65	253
Control	A	96	21.1	7.90	8.00	192
Control	B	96	21.1	7.71	8.00	180
Control	C	96	21.1	7.91	7.90	203

Table B11
Survival of *H. azteca* (animals used in Phase II) Exposed to
Reference Toxicant Copper Sulfate

Nominal CuSO ₄ Concentration mg/L	Replicate	Measured CuSO ₄ Concentration mg/L	Number of Surviving Animals				
			Exposure Duration, hr				
			0	24	48	72	96
Control	A	<0.014	10	9	9	9	9
Control	B	<0.014	10	10	10	10	9
Control	C	<0.014	10	10	10	10	10
0.01	A	<0.014	10	10	10	10	10
0.01	B	<0.014	10	9	9	9	9
0.01	C	<0.014	10	10	0	10	10
0.10	A	0.055	10	6	8	8	8
0.10	B	0.055	10	7	8	8	8
0.10	C	0.046	10	7	10	8	8
1.00	A	0.69	10	9	5	1	0
1.00	B	0.69	10	8	1	0	0
1.00	C	0.69	10	6	2	1	1
10.0	A	7.5	10	0	0	0	0
10.0	B	7.4	10	0	0	0	0
10.0	C	7.4	10	0	0	0	0

Note: The 96-hr Spearman-Kärber LC₅₀ estimates (measured concentration in ppm): 0.13
95% Lower Confidence: 0.09
95% Upper Confidence: 0.18
Spearman-Kärber Trim: 3.33%

Table B12
Water Quality for Phase II Reference Toxicant Tests with
H. azteca

Nominal CuSO ₄ Concentration mg/L	Replicate	Exposure Duration hr	Temp. °C	Dissolved Oxygen mg/L	pH	Specific Conductivity µmhos/cm
Control	A	0	20	8.2	7.78	257
Control	B	0	20	8.2	7.80	257
Control	C	0	20	8.1	7.80	257
Control	A	96	20	8.5	7.80	337
Control	B	96	20	8.6	7.82	240
Control	C	96	20	8.5	7.80	242

Appendix C

Seven-Day Elutriate Tests with

Pimephales promelas

Table C1
Time Course for Survival of *P. promelas* Exposed to Elutriates
of Buffalo District - Toledo Harbor Sediments

Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
Control-1	0	1	0	10
Control-1	0	1	1	10
Control-1	0	1	2	10
Control-1	0	1	3	10
Control-1	0	1	4	10
Control-1	0	1	5	10
Control-1	0	1	6	9
Control-1	0	1	7	9
Control-1	0	2	0	10
Control-1	0	2	1	10
Control-1	0	2	2	10
Control-1	0	2	3	10
Control-1	0	2	4	10
Control-1	0	2	5	10
Control-1	0	2	6	8
Control-1	0	2	7	8
Control-1	0	3	0	10
Control-1	0	3	1	10
Control-1	0	3	2	10
Control-1	0	3	3	10
Control-1	0	3	4	10
Control-1	0	3	5	10
Control-1	0	3	6	8
Control-1	0	3	7	8
Control-1	0	4	0	10
Control-1	0	4	1	10
Control-1	0	4	2	10

(Sheet 1 of 42)

Note: RM = River mile.
 LM = Lake mile.

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
Control-1	0	4	3	10
Control-1	0	4	4	10
Control-1	0	4	5	10
Control-1	0	4	6	8
Control-1	0	4	7	8
RM 1-2	100	4	7	3
RM 1-2	6.25	1	0	10
RM 1-2	6.25	1	1	10
RM 1-2	6.25	1	2	10
RM 1-2	6.25	1	3	10
RM 1-2	6.25	1	4	8
RM 1-2	6.25	1	5	8
RM 1-2	6.25	1	6	8
RM 1-2	6.25	1	7	8
RM 1-2	6.25	2	0	10
RM 1-2	6.25	2	1	10
RM 1-2	6.25	2	2	10
RM 1-2	6.25	2	3	10
RM 1-2	6.25	2	4	10
RM 1-2	6.25	2	5	9
RM 1-2	6.25	2	6	6
RM 1-2	6.25	2	7	5
RM 1-2	6.25	3	0	10
RM 1-2	6.25	3	1	10
RM 1-2	6.25	3	2	10
RM 1-2	6.25	3	3	10
RM 1-2	6.25	3	4	5
RM 1-2	6.25	3	5	5
RM 1-2	6.25	3	6	5
RM 1-2	6.25	3	7	5
RM 1-2	6.25	4	0	10
(Sheet 2 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
RM 1-2	6.25	4	1	10
RM 1-2	6.25	4	2	10
RM 1-2	6.25	4	3	10
RM 1-2	6.25	4	4	7
RM 1-2	6.25	4	5	7
RM 1-2	6.25	4	6	7
RM 1-2	6.25	4	7	7
RM 1-2	12.5	1	0	10
RM 1-2	12.5	1	1	10
RM 1-2	12.5	1	2	10
RM 1-2	12.5	1	3	10
RM 1-2	12.5	1	4	10
RM 1-2	12.5	1	5	9
RM 1-2	12.5	1	6	9
RM 1-2	12.5	1	7	8
RM 1-2	12.5	2	0	10
RM 1-2	12.5	2	1	10
RM 1-2	12.5	2	2	10
RM 1-2	12.5	2	3	10
RM 1-2	12.5	2	4	7
RM 1-2	12.5	2	5	7
RM 1-2	12.5	2	6	6
RM 1-2	12.5	2	7	6
RM 1-2	12.5	3	0	10
RM 1-2	12.5	3	1	10
RM 1-2	12.5	3	2	10
RM 1-2	12.5	3	3	10
RM 1-2	12.5	3	4	10
RM 1-2	12.5	3	5	10
RM 1-2	12.5	3	6	7
RM 1-2	12.5	3	7	7
RM 1-2	12.5	4	0	10

(Sheet 3 of 42)

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
RM 1-2	12.5	4	1	10
RM 1-2	12.5	4	2	10
RM 1-2	12.5	4	3	10
RM 1-2	12.5	4	4	5
RM 1-2	12.5	4	5	5
RM 1-2	12.5	4	6	4
RM 1-2	12.5	4	7	4
RM 1-2	25	1	0	10
RM 1-2	25	1	1	10
RM 1-2	25	1	2	10
RM 1-2	25	1	3	10
RM 1-2	25	1	4	8
RM 1-2	25	1	5	8
RM 1-2	25	1	6	6
RM 1-2	25	1	7	6
RM 1-2	25	2	0	10
RM 1-2	25	2	1	10
RM 1-2	25	2	2	10
RM 1-2	25	2	3	10
RM 1-2	25	2	4	8
RM 1-2	25	2	5	7
RM 1-2	25	2	6	6
RM 1-2	25	2	7	6
RM 1-2	25	3	0	10
RM 1-2	25	3	1	10
RM 1-2	25	3	2	10
RM 1-2	25	3	3	10
RM 1-2	25	3	4	10
RM 1-2	25	3	5	9
RM 1-2	25	3	6	5
RM 1-2	25	3	7	5
RM 1-2	25	4	0	10
(Sheet 4 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
RM 1-2	25	4	1	10
RM 1-2	25	4	2	10
RM 1-2	25	4	3	10
RM 1-2	25	4	4	8
RM 1-2	25	4	5	7
RM 1-2	25	4	6	5
RM 1-2	25	4	7	5
RM 1-2	50	1	0	10
RM 1-2	50	1	1	10
RM 1-2	50	1	2	10
RM 1-2	50	1	3	10
RM 1-2	50	1	4	10
RM 1-2	50	1	5	10
RM 1-2	50	1	6	8
RM 1-2	50	1	7	5
RM 1-2	50	2	0	10
RM 1-2	50	2	1	10
RM 1-2	50	2	2	10
RM 1-2	50	2	3	10
RM 1-2	50	2	4	7
RM 1-2	50	2	5	7
RM 1-2	50	2	6	7
RM 1-2	50	2	7	2
RM 1-2	50	3	0	10
RM 1-2	50	3	1	10
RM 1-2	50	3	2	10
RM 1-2	50	3	3	10
RM 1-2	50	3	4	10
RM 1-2	50	3	5	10
RM 1-2	50	3	6	9
RM 1-2	50	3	7	4
RM 1-2	50	4	0	10
(Sheet 5 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
RM 1-2	50	4	1	10
RM 1-2	50	4	2	10
RM 1-2	50	4	3	10
RM 1-2	50	4	4	10
RM 1-2	50	4	5	9
RM 1-2	50	4	6	6
RM 1-2	50	4	7	3
RM 1-2	100	1	0	10
RM 1-2	100	1	1	10
RM 1-2	100	1	2	10
RM 1-2	100	1	3	10
RM 1-2	100	1	4	10
RM 1-2	100	1	5	9
RM 1-2	100	1	6	7
RM 1-2	100	1	7	7
RM 1-2	100	2	0	10
RM 1-2	100	2	1	10
RM 1-2	100	2	2	10
RM 1-2	100	2	3	10
RM 1-2	100	2	4	7
RM 1-2	100	2	5	7
RM 1-2	100	2	6	5
RM 1-2	100	2	7	2
RM 1-2	100	3	0	10
RM 1-2	100	3	1	10
RM 1-2	100	3	2	10
RM 1-2	100	3	3	10
RM 1-2	100	3	4	8
RM 1-2	100	3	5	7
RM 1-2	100	3	6	5
RM 1-2	100	3	7	2
RM 1-2	100	4	0	10

(Sheet 6 of 42)

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
RM 1-2	100	4	1	10
RM 1-2	100	4	2	10
RM 1-2	100	4	3	10
RM 1-2	100	4	4	10
RM 1-2	100	4	5	6
RM 1-2	100	4	6	3
LM 0-1	100	4	7	1
LM 0-1	6.25	1	0	10
LM 0-1	6.25	1	1	10
LM 0-1	6.25	1	2	10
LM 0-1	6.25	1	3	10
LM 0-1	6.25	1	4	6
LM 0-1	6.25	1	5	5
LM 0-1	6.25	1	6	4
LM 0-1	6.25	1	7	4
LM 0-1	6.25	2	0	10
LM 0-1	6.25	2	1	10
LM 0-1	6.25	2	2	10
LM 0-1	6.25	2	3	10
LM 0-1	6.25	2	4	4
LM 0-1	6.25	2	5	4
LM 0-1	6.25	2	6	4
LM 0-1	6.25	2	7	4
LM 0-1	6.25	3	0	10
LM 0-1	6.25	3	1	10
LM 0-1	6.25	3	2	10
LM 0-1	6.25	3	3	10
LM 0-1	6.25	3	4	5
LM 0-1	6.25	3	5	5
LM 0-1	6.25	3	6	5
LM 0-1	6.25	3	7	5
LM 0-1	6.25	4	0	10
(Sheet 7 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 0-1	6.25	4	1	10
LM 0-1	6.25	4	2	5
LM 0-1	6.25	4	3	8
LM 0-1	6.25	4	4	7
LM 0-1	6.25	4	5	6
LM 0-1	6.25	4	6	4
LM 0-1	6.25	4	7	4
LM 0-1	12.5	1	0	10
LM 0-1	12.5	1	1	10
LM 0-1	12.5	1	2	10
LM 0-1	12.5	1	3	10
LM 0-1	12.5	1	4	10
LM 0-1	12.5	1	5	8
LM 0-1	12.5	1	6	6
LM 0-1	12.5	1	7	5
LM 0-1	12.5	2	0	10
LM 0-1	12.5	2	1	10
LM 0-1	12.5	2	2	10
LM 0-1	12.5	2	3	9
LM 0-1	12.5	2	4	7
LM 0-1	12.5	2	5	7
LM 0-1	12.5	2	6	5
LM 0-1	12.5	2	7	5
LM 0-1	12.5	3	0	10
LM 0-1	12.5	3	1	10
LM 0-1	12.5	3	2	10
LM 0-1	12.5	3	3	10
LM 0-1	12.5	3	4	8
LM 0-1	12.5	3	5	6
LM 0-1	12.5	3	6	6
LM 0-1	12.5	3	7	4
LM 0-1	12.5	4	0	10
(Sheet 8 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 0-1	12.5	4	1	10
LM 0-1	12.5	4	2	10
LM 0-1	12.5	4	3	9
LM 0-1	12.5	4	4	5
LM 0-1	12.5	4	5	5
LM 0-1	12.5	4	6	5
LM 0-1	12.5	4	7	3
LM 0-1	25	1	0	10
LM 0-1	25	1	1	10
LM 0-1	25	1	2	10
LM 0-1	25	1	3	10
LM 0-1	25	1	4	5
LM 0-1	25	1	5	4
LM 0-1	25	1	6	3
LM 0-1	25	1	7	2
LM 0-1	25	2	0	10
LM 0-1	25	2	1	10
LM 0-1	25	2	2	10
LM 0-1	25	2	3	8
LM 0-1	25	2	4	4
LM 0-1	25	2	5	4
LM 0-1	25	2	6	4
LM 0-1	25	2	7	3
LM 0-1	25	3	0	10
LM 0-1	25	3	1	10
LM 0-1	25	3	2	10
LM 0-1	25	3	3	10
LM 0-1	25	3	4	9
LM 0-1	25	3	5	7
LM 0-1	25	3	6	6
LM 0-1	25	3	7	6
LM 0-1	25	4	0	10

(Sheet 9 of 42)

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 0-1	25	4	1	10
LM 0-1	25	4	2	10
LM 0-1	25	4	3	10
LM 0-1	25	4	4	6
LM 0-1	25	4	5	4
LM 0-1	25	4	6	4
LM 0-1	25	4	7	4
LM 0-1	50	1	0	10
LM 0-1	50	1	1	10
LM 0-1	50	1	2	10
LM 0-1	50	1	3	10
LM 0-1	50	1	4	9
LM 0-1	50	1	5	8
LM 0-1	50	1	6	7
LM 0-1	50	1	7	6
LM 0-1	50	2	0	10
LM 0-1	50	2	1	10
LM 0-1	50	2	2	10
LM 0-1	50	2	3	10
LM 0-1	50	2	4	5
LM 0-1	50	2	5	4
LM 0-1	50	2	6	3
LM 0-1	50	2	7	3
LM 0-1	50	3	0	10
LM 0-1	50	3	1	10
LM 0-1	50	3	2	10
LM 0-1	50	3	3	10
LM 0-1	50	3	4	5
LM 0-1	50	3	5	4
LM 0-1	50	3	6	3
LM 0-1	50	3	7	3
LM 0-1	50	4	0	10

(Sheet 10 of 42)

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 0-1	50	4	1	10
LM 0-1	50	4	2	10
LM 0-1	50	4	3	10
LM 0-1	50	4	4	5
LM 0-1	50	4	5	4
LM 0-1	50	4	6	4
LM 0-1	50	4	7	3
LM 0-1	100	1	0	10
LM 0-1	100	1	1	10
LM 0-1	100	1	2	10
LM 0-1	100	1	3	10
LM 0-1	100	1	4	0
LM 0-1	100	1	5	0
LM 0-1	100	1	6	0
LM 0-1	100	1	7	0
LM 0-1	100	2	0	10
LM 0-1	100	2	1	10
LM 0-1	100	2	2	10
LM 0-1	100	2	3	10
LM 0-1	100	2	4	4
LM 0-1	100	2	5	4
LM 0-1	100	2	6	4
LM 0-1	100	2	7	4
LM 0-1	100	3	0	10
LM 0-1	100	3	1	10
LM 0-1	100	3	2	10
LM 0-1	100	3	3	10
LM 0-1	100	3	4	6
LM 0-1	100	3	5	6
LM 0-1	100	3	6	5
LM 0-1	100	3	7	3
LM 0-1	100	4	0	10
(Sheet 11 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 0-1	100	4	1	10
LM 0-1	100	4	2	5
LM 0-1	100	4	3	5
LM 0-1	100	4	4	4
LM 0-1	100	4	5	4
LM 0-1	100	4	6	3
LM 1-2	100	4	7	3
LM 1-2	6.25	1	0	10
LM 1-2	6.25	1	1	10
LM 1-2	6.25	1	2	10
LM 1-2	6.25	1	3	9
LM 1-2	6.25	1	4	6
LM 1-2	6.25	1	5	6
LM 1-2	6.25	1	6	6
LM 1-2	6.25	1	7	6
LM 1-2	6.25	2	0	10
LM 1-2	6.25	2	1	10
LM 1-2	6.25	2	2	10
LM 1-2	6.25	2	3	5
LM 1-2	6.25	2	4	3
LM 1-2	6.25	2	5	2
LM 1-2	6.25	2	6	2
LM 1-2	6.25	2	7	2
LM 1-2	6.25	3	0	10
LM 1-2	6.25	3	1	10
LM 1-2	6.25	3	2	10
LM 1-2	6.25	3	3	10
LM 1-2	6.25	3	4	4
LM 1-2	6.25	3	5	3
LM 1-2	6.25	3	6	3
LM 1-2	6.25	3	7	3
LM 1-2	6.25	4	0	10

(Sheet 12 of 42)

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 1-2	6.25	4	1	10
LM 1-2	6.25	4	2	10
LM 1-2	6.25	4	3	10
LM 1-2	6.25	4	4	6
LM 1-2	6.25	4	5	6
LM 1-2	6.25	4	6	5
LM 1-2	6.25	4	7	5
LM 1-2	12.5	1	0	10
LM 1-2	12.5	1	1	10
LM 1-2	12.5	1	2	10
LM 1-2	12.5	1	3	10
LM 1-2	12.5	1	4	8
LM 1-2	12.5	1	5	7
LM 1-2	12.5	1	6	7
LM 1-2	12.5	1	7	7
LM 1-2	12.5	2	0	10
LM 1-2	12.5	2	1	10
LM 1-2	12.5	2	2	10
LM 1-2	12.5	2	3	10
LM 1-2	12.5	2	4	8
LM 1-2	12.5	2	5	8
LM 1-2	12.5	2	6	7
LM 1-2	12.5	2	7	7
LM 1-2	12.5	3	0	10
LM 1-2	12.5	3	1	10
LM 1-2	12.5	3	2	10
LM 1-2	12.5	3	3	10
LM 1-2	12.5	3	4	7
LM 1-2	12.5	3	5	6
LM 1-2	12.5	3	6	6
LM 1-2	12.5	3	7	6
LM 1-2	12.5	4	0	10
(Sheet 13 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 1-2	12.5	4	1	10
LM 1-2	12.5	4	2	10
LM 1-2	12.5	4	3	10
LM 1-2	12.5	4	4	6
LM 1-2	12.5	4	5	4
LM 1-2	12.5	4	6	4
LM 1-2	12.5	4	7	4
LM 1-2	25	1	0	10
LM 1-2	25	1	1	10
LM 1-2	25	1	2	10
LM 1-2	25	1	3	10
LM 1-2	25	1	4	5
LM 1-2	25	1	5	5
LM 1-2	25	1	6	5
LM 1-2	25	1	7	5
LM 1-2	25	2	0	10
LM 1-2	25	2	1	10
LM 1-2	25	2	2	10
LM 1-2	25	2	3	10
LM 1-2	25	2	4	4
LM 1-2	25	2	5	3
LM 1-2	25	2	6	3
LM 1-2	25	2	7	3
LM 1-2	25	3	0	10
LM 1-2	25	3	1	10
LM 1-2	25	3	2	10
LM 1-2	25	3	3	10
LM 1-2	25	3	4	6
LM 1-2	25	3	5	5
LM 1-2	25	3	6	4
LM 1-2	25	3	7	4
LM 1-2	25	4	0	10

(Sheet 14 of 42)

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 1-2	25	4	1	10
LM 1-2	25	4	2	10
LM 1-2	25	4	3	10
LM 1-2	25	4	4	8
LM 1-2	25	4	5	8
LM 1-2	25	4	6	7
LM 1-2	25	4	7	7
LM 1-2	50	1	0	10
LM 1-2	50	1	1	10
LM 1-2	50	1	2	10
LM 1-2	50	1	3	10
LM 1-2	50	1	4	7
LM 1-2	50	1	5	4
LM 1-2	50	1	6	3
LM 1-2	50	1	7	3
LM 1-2	50	2	0	10
LM 1-2	50	2	1	10
LM 1-2	50	2	2	10
LM 1-2	50	2	3	10
LM 1-2	50	2	4	3
LM 1-2	50	2	5	3
LM 1-2	50	2	6	3
LM 1-2	50	2	7	2
LM 1-2	50	3	0	10
LM 1-2	50	3	1	10
LM 1-2	50	3	2	10
LM 1-2	50	3	3	10
LM 1-2	50	3	4	8
LM 1-2	50	3	5	6
LM 1-2	50	3	6	5
LM 1-2	50	3	7	5
LM 1-2	50	4	0	10
(Sheet 15 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 1-2	50	4	1	10
LM 1-2	50	4	2	10
LM 1-2	50	4	3	10
LM 1-2	50	4	4	9
LM 1-2	50	4	5	8
LM 1-2	50	4	6	8
LM 1-2	50	4	7	4
LM 1-2	100	1	0	10
LM 1-2	100	1	1	10
LM 1-2	100	1	2	10
LM 1-2	100	1	3	10
LM 1-2	100	1	4	0
LM 1-2	100	1	5	0
LM 1-2	100	1	6	0
LM 1-2	100	1	7	0
LM 1-2	100	2	0	10
LM 1-2	100	2	1	10
LM 1-2	100	2	2	10
LM 1-2	100	2	3	10
LM 1-2	100	2	4	6
LM 1-2	100	2	5	3
LM 1-2	100	2	6	3
LM 1-2	100	2	7	3
LM 1-2	100	3	0	10
LM 1-2	100	3	1	10
LM 1-2	100	3	2	10
LM 1-2	100	3	3	10
LM 1-2	100	3	4	0
LM 1-2	100	3	5	0
LM 1-2	100	3	6	0
LM 1-2	100	3	7	0
LM 1-2	100	4	0	10
(Sheet 16 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 1-2	100	4	1	10
LM 1-2	100	4	2	10
LM 1-2	100	4	3	10
LM 1-2	100	4	4	0
LM 1-2	100	4	5	0
LM 1-2	100	4	6	0
LM 2-3	100	4	7	0
LM 2-3	6.25	1	0	10
LM 2-3	6.25	1	1	10
LM 2-3	6.25	1	2	10
LM 2-3	6.25	1	3	10
LM 2-3	6.25	1	4	8
LM 2-3	6.25	1	5	7
LM 2-3	6.25	1	6	6
LM 2-3	6.25	1	7	6
LM 2-3	6.25	2	0	10
LM 2-3	6.25	2	1	10
LM 2-3	6.25	2	2	10
LM 2-3	6.25	2	3	10
LM 2-3	6.25	2	4	10
LM 2-3	6.25	2	5	9
LM 2-3	6.25	2	6	8
LM 2-3	6.25	2	7	8
LM 2-3	6.25	3	0	10
LM 2-3	6.25	3	1	10
LM 2-3	6.25	3	2	10
LM 2-3	6.25	3	3	10
LM 2-3	6.25	3	4	9
LM 2-3	6.25	3	5	9
LM 2-3	6.25	3	6	5
LM 2-3	6.25	3	7	5
LM 2-3	6.25	4	0	10

(Sheet 17 of 42)

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 2-3	6.25	4	1	10
LM 2-3	6.25	4	2	10
LM 2-3	6.25	4	3	10
LM 2-3	6.25	4	4	7
LM 2-3	6.25	4	5	7
LM 2-3	6.25	4	6	5
LM 2-3	6.25	4	7	5
LM 2-3	12.5	1	0	10
LM 2-3	12.5	1	1	10
LM 2-3	12.5	1	2	10
LM 2-3	12.5	1	3	10
LM 2-3	12.5	1	4	8
LM 2-3	12.5	1	5	8
LM 2-3	12.5	1	6	8
LM 2-3	12.5	1	7	8
LM 2-3	12.5	2	0	10
LM 2-3	12.5	2	1	10
LM 2-3	12.5	2	2	10
LM 2-3	12.5	2	3	10
LM 2-3	12.5	2	4	10
LM 2-3	12.5	2	5	10
LM 2-3	12.5	2	6	9
LM 2-3	12.5	2	7	5
LM 2-3	12.5	3	0	10
LM 2-3	12.5	3	1	10
LM 2-3	12.5	3	2	10
LM 2-3	12.5	3	3	10
LM 2-3	12.5	3	4	10
LM 2-3	12.5	3	5	10
LM 2-3	12.5	3	6	9
LM 2-3	12.5	3	7	5
LM 2-3	12.5	4	0	10
(Sheet 18 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 2-3	12.5	4	1	10
LM 2-3	12.5	4	2	10
LM 2-3	12.5	4	3	10
LM 2-3	12.5	4	4	10
LM 2-3	12.5	4	5	9
LM 2-3	12.5	4	6	9
LM 2-3	12.5	4	7	7
LM 2-3	25	1	0	10
LM 2-3	25	1	1	10
LM 2-3	25	1	2	10
LM 2-3	25	1	3	10
LM 2-3	25	1	4	8
LM 2-3	25	1	5	8
LM 2-3	25	1	6	7
LM 2-3	25	1	7	7
LM 2-3	25	2	0	10
LM 2-3	25	2	1	10
LM 2-3	25	2	2	10
LM 2-3	25	2	3	10
LM 2-3	25	2	4	9
LM 2-3	25	2	5	9
LM 2-3	25	2	6	7
LM 2-3	25	2	7	7
LM 2-3	25	3	0	10
LM 2-3	25	3	1	10
LM 2-3	25	3	2	10
LM 2-3	25	3	3	10
LM 2-3	25	3	4	8
LM 2-3	25	3	5	7
LM 2-3	25	3	6	7
LM 2-3	25	3	7	7
LM 2-3	25	4	0	10

(Sheet 19 of 42)

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 2-3	25	4	1	10
LM 2-3	25	4	2	10
LM 2-3	25	4	3	10
LM 2-3	25	4	4	7
LM 2-3	25	4	5	4
LM 2-3	25	4	6	3
LM 2-3	25	4	7	3
LM 2-3	50	1	0	10
LM 2-3	50	1	1	10
LM 2-3	50	1	2	10
LM 2-3	50	1	3	10
LM 2-3	50	1	4	6
LM 2-3	50	1	5	6
LM 2-3	50	1	6	6
LM 2-3	50	1	7	6
LM 2-3	50	2	0	10
LM 2-3	50	2	1	10
LM 2-3	50	2	2	10
LM 2-3	50	2	3	10
LM 2-3	50	2	4	10
LM 2-3	50	2	5	9
LM 2-3	50	2	6	8
LM 2-3	50	2	7	8
LM 2-3	50	3	0	10
LM 2-3	50	3	1	10
LM 2-3	50	3	2	10
LM 2-3	50	3	3	10
LM 2-3	50	3	4	8
LM 2-3	50	3	5	7
LM 2-3	50	3	6	7
LM 2-3	50	3	7	7
LM 2-3	50	4	0	10
(Sheet 20 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 2-3	50	4	1	10
LM 2-3	50	4	2	10
LM 2-3	50	4	3	10
LM 2-3	50	4	4	8
LM 2-3	50	4	5	8
LM 2-3	50	4	6	8
LM 2-3	50	4	7	8
LM 2-3	100	1	0	10
LM 2-3	100	1	1	10
LM 2-3	100	1	2	10
LM 2-3	100	1	3	10
LM 2-3	100	1	4	9
LM 2-3	100	1	5	8
LM 2-3	100	1	6	7
LM 2-3	100	1	7	7
LM 2-3	100	2	0	10
LM 2-3	100	2	1	10
LM 2-3	100	2	2	10
LM 2-3	100	2	3	10
LM 2-3	100	2	4	7
LM 2-3	100	2	5	6
LM 2-3	100	2	6	5
LM 2-3	100	2	7	5
LM 2-3	100	3	0	10
LM 2-3	100	3	1	10
LM 2-3	100	3	2	10
LM 2-3	100	3	3	10
LM 2-3	100	3	4	10
LM 2-3	100	3	5	8
LM 2-3	100	3	6	4
LM 2-3	100	3	7	4
(Sheet 21 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 2-3	100	4	0	10
LM 2-3	100	4	1	10
LM 2-3	100	4	2	10
LM 2-3	100	4	3	10
LM 2-3	100	4	4	10
LM 2-3	100	4	5	8
LM 2-3	100	4	6	6
LM 3-4	100	4	7	6
LM 3-4	6.25	1	0	10
LM 3-4	6.25	1	1	10
LM 3-4	6.25	1	2	10
LM 3-4	6.25	1	3	10
LM 3-4	6.25	1	4	10
LM 3-4	6.25	1	5	9
LM 3-4	6.25	1	6	6
LM 3-4	6.25	1	7	6
LM 3-4	6.25	2	0	10
LM 3-4	6.25	2	1	10
LM 3-4	6.25	2	2	10
LM 3-4	6.25	2	3	9
LM 3-4	6.25	2	4	9
LM 3-4	6.25	2	5	8
LM 3-4	6.25	2	6	4
LM 3-4	6.25	2	7	4
LM 3-4	6.25	3	0	10
LM 3-4	6.25	3	1	10
LM 3-4	6.25	3	2	10
LM 3-4	6.25	3	3	10
LM 3-4	6.25	3	4	10
LM 3-4	6.25	3	5	9
LM 3-4	6.25	3	6	5
LM 3-4	6.25	3	7	5
(Sheet 22 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 3-4	6.25	4	0	10
LM 3-4	6.25	4	1	10
LM 3-4	6.25	4	2	10
LM 3-4	6.25	4	3	10
LM 3-4	6.25	4	4	10
LM 3-4	6.25	4	5	10
LM 3-4	6.25	4	6	8
LM 3-4	6.25	4	7	8
LM 3-4	12.5	1	0	10
LM 3-4	12.5	1	1	10
LM 3-4	12.5	1	2	10
LM 3-4	12.5	1	3	10
LM 3-4	12.5	1	4	10
LM 3-4	12.5	1	5	10
LM 3-4	12.5	1	6	4
LM 3-4	12.5	1	7	4
LM 3-4	12.5	2	0	10
LM 3-4	12.5	2	1	10
LM 3-4	12.5	2	2	10
LM 3-4	12.5	2	3	10
LM 3-4	12.5	2	4	10
LM 3-4	12.5	2	5	10
LM 3-4	12.5	2	6	6
LM 3-4	12.5	2	7	6
LM 3-4	12.5	3	0	10
LM 3-4	12.5	3	1	10
LM 3-4	12.5	3	2	10
LM 3-4	12.5	3	3	10
LM 3-4	12.5	3	4	10
LM 3-4	12.5	3	5	9
LM 3-4	12.5	3	6	3
LM 3-4	12.5	3	7	3
(Sheet 23 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 3-4	12.5	4	0	10
LM 3-4	12.5	4	1	10
LM 3-4	12.5	4	2	10
LM 3-4	12.5	4	3	10
LM 3-4	12.5	4	4	10
LM 3-4	12.5	4	5	9
LM 3-4	12.5	4	6	4
LM 3-4	12.5	4	7	4
LM 3-4	25	1	0	10
LM 3-4	25	1	1	10
LM 3-4	25	1	2	10
LM 3-4	25	1	3	10
LM 3-4	25	1	4	10
LM 3-4	25	1	5	9
LM 3-4	25	1	6	7
LM 3-4	25	1	7	7
LM 3-4	25	2	0	10
LM 3-4	25	2	1	10
LM 3-4	25	2	2	10
LM 3-4	25	2	3	10
LM 3-4	25	2	4	10
LM 3-4	25	2	5	10
LM 3-4	25	2	6	6
LM 3-4	25	2	7	6
LM 3-4	25	3	0	10
LM 3-4	25	3	1	10
LM 3-4	25	3	2	10
LM 3-4	25	3	3	10
LM 3-4	25	3	4	10
LM 3-4	25	3	5	9
LM 3-4	25	3	6	8
LM 3-4	25	3	7	8
(Sheet 24 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 3-4	25	4	0	10
LM 3-4	25	4	1	10
LM 3-4	25	4	2	10
LM 3-4	25	4	3	10
LM 3-4	25	4	4	10
LM 3-4	25	4	5	9
LM 3-4	25	4	6	4
LM 3-4	25	4	7	3
LM 3-4	50	1	0	10
LM 3-4	50	1	1	10
LM 3-4	50	1	2	10
LM 3-4	50	1	3	10
LM 3-4	50	1	4	10
LM 3-4	50	1	5	10
LM 3-4	50	1	6	8
LM 3-4	50	1	7	5
LM 3-4	50	2	0	10
LM 3-4	50	2	1	10
LM 3-4	50	2	2	10
LM 3-4	50	2	3	10
LM 3-4	50	2	4	10
LM 3-4	50	2	5	10
LM 3-4	50	2	6	7
LM 3-4	50	2	7	4
LM 3-4	50	3	0	10
LM 3-4	50	3	1	10
LM 3-4	50	3	2	10
LM 3-4	50	3	3	10
LM 3-4	50	3	4	10
LM 3-4	50	3	5	9
LM 3-4	50	3	6	8
LM 3-4	50	3	7	6
(Sheet 25 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 3-4	50	4	0	10
LM 3-4	50	4	1	10
LM 3-4	50	4	2	10
LM 3-4	50	4	3	10
LM 3-4	50	4	4	10
LM 3-4	50	4	5	8
LM 3-4	50	4	6	5
LM 3-4	50	4	7	3
LM 3-4	100	1	0	10
LM 3-4	100	1	1	10
LM 3-4	100	1	2	10
LM 3-4	100	1	3	10
LM 3-4	100	1	4	10
LM 3-4	100	1	5	10
LM 3-4	100	1	6	6
LM 3-4	100	1	7	6
LM 3-4	100	2	0	10
LM 3-4	100	2	1	10
LM 3-4	100	2	2	10
LM 3-4	100	2	3	10
LM 3-4	100	2	4	10
LM 3-4	100	2	5	9
LM 3-4	100	2	6	4
LM 3-4	100	2	7	4
LM 3-4	100	3	0	10
LM 3-4	100	3	1	10
LM 3-4	100	3	2	10
LM 3-4	100	3	3	10
LM 3-4	100	3	4	10
LM 3-4	100	3	5	8
LM 3-4	100	3	6	5
LM 3-4	100	3	7	5
(Sheet 26 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 3-4	100	4	0	10
LM 3-4	100	4	1	10
LM 3-4	100	4	2	10
LM 3-4	100	4	3	10
LM 3-4	100	4	4	10
LM 3-4	100	4	5	5
LM 3-4	100	4	6	2
LM 4-5	100	4	7	2
LM 4-5	6.25	1	0	10
LM 4-5	6.25	1	1	10
LM 4-5	6.25	1	2	10
LM 4-5	6.25	1	3	5
LM 4-5	6.25	1	4	3
LM 4-5	6.25	1	5	3
LM 4-5	6.25	1	6	3
LM 4-5	6.25	1	7	3
LM 4-5	6.25	2	0	10
LM 4-5	6.25	2	1	10
LM 4-5	6.25	2	2	10
LM 4-5	6.25	2	3	6
LM 4-5	6.25	2	4	5
LM 4-5	6.25	2	5	5
LM 4-5	6.25	2	6	5
LM 4-5	6.25	2	7	5
LM 4-5	6.25	3	0	10
LM 4-5	6.25	3	1	10
LM 4-5	6.25	3	2	10
LM 4-5	6.25	3	3	10
LM 4-5	6.25	3	4	10
LM 4-5	6.25	3	5	9
LM 4-5	6.25	3	6	8
LM 4-5	6.25	3	7	8
(Sheet 27 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 4-5	6.25	4	0	10
LM 4-5	6.25	4	1	10
LM 4-5	6.25	4	2	10
LM 4-5	6.25	4	3	7
LM 4-5	6.25	4	4	4
LM 4-5	6.25	4	5	4
LM 4-5	6.25	4	6	4
LM 4-5	6.25	4	7	4
LM 4-5	12.5	1	0	10
LM 4-5	12.5	1	1	10
LM 4-5	12.5	1	2	10
LM 4-5	12.5	1	3	9
LM 4-5	12.5	1	4	8
LM 4-5	12.5	1	5	8
LM 4-5	12.5	1	6	7
LM 4-5	12.5	1	7	7
LM 4-5	12.5	2	0	10
LM 4-5	12.5	2	1	10
LM 4-5	12.5	2	2	10
LM 4-5	12.5	2	3	10
LM 4-5	12.5	2	4	8
LM 4-5	12.5	2	5	7
LM 4-5	12.5	2	6	7
LM 4-5	12.5	2	7	7
LM 4-5	12.5	3	0	10
LM 4-5	12.5	3	1	10
LM 4-5	12.5	3	2	10
LM 4-5	12.5	3	3	8
LM 4-5	12.5	3	4	6
LM 4-5	12.5	3	5	5
LM 4-5	12.5	3	6	5
LM 4-5	12.5	3	7	5
(Sheet 28 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 4-5	12.5	4	0	10
LM 4-5	12.5	4	1	10
LM 4-5	12.5	4	2	10
LM 4-5	12.5	4	3	4
LM 4-5	12.5	4	4	4
LM 4-5	12.5	4	5	3
LM 4-5	12.5	4	6	3
LM 4-5	12.5	4	7	3
LM 4-5	25	1	0	10
LM 4-5	25	1	1	10
LM 4-5	25	1	2	10
LM 4-5	25	1	3	10
LM 4-5	25	1	4	10
LM 4-5	25	1	5	5
LM 4-5	25	1	6	5
LM 4-5	25	1	7	5
LM 4-5	25	2	0	10
LM 4-5	25	2	1	10
LM 4-5	25	2	2	10
LM 4-5	25	2	3	9
LM 4-5	25	2	4	9
LM 4-5	25	2	5	8
LM 4-5	25	2	6	7
LM 4-5	25	2	7	5
LM 4-5	25	3	0	10
LM 4-5	25	3	1	10
LM 4-5	25	3	2	10
LM 4-5	25	3	3	8
LM 4-5	25	3	4	8
LM 4-5	25	3	5	8
LM 4-5	25	3	6	8
LM 4-5	25	3	7	5
(Sheet 29 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 4-5	25	4	0	10
LM 4-5	25	4	1	10
LM 4-5	25	4	2	10
LM 4-5	25	4	3	10
LM 4-5	25	4	4	10
LM 4-5	25	4	5	9
LM 4-5	25	4	6	9
LM 4-5	25	4	7	5
LM 4-5	50	1	0	10
LM 4-5	50	1	1	10
LM 4-5	50	1	2	10
LM 4-5	50	1	3	10
LM 4-5	50	1	4	10
LM 4-5	50	1	5	9
LM 4-5	50	1	6	8
LM 4-5	50	1	7	4
LM 4-5	50	2	0	10
LM 4-5	50	2	1	10
LM 4-5	50	2	2	10
LM 4-5	50	2	3	8
LM 4-5	50	2	4	6
LM 4-5	50	2	5	4
LM 4-5	50	2	6	4
LM 4-5	50	2	7	4
LM 4-5	50	3	0	10
LM 4-5	50	3	1	10
LM 4-5	50	3	2	10
LM 4-5	50	3	3	10
LM 4-5	50	3	4	7
LM 4-5	50	3	5	7
LM 4-5	50	3	6	7
LM 4-5	50	3	7	5
(Sheet 30 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 4-5	50	4	0	10
LM 4-5	50	4	1	10
LM 4-5	50	4	2	10
LM 4-5	50	4	3	10
LM 4-5	50	4	4	10
LM 4-5	50	4	5	8
LM 4-5	50	4	6	8
LM 4-5	50	4	7	5
LM 4-5	100	1	0	10
LM 4-5	100	1	1	10
LM 4-5	100	1	2	10
LM 4-5	100	1	3	10
LM 4-5	100	1	4	10
LM 4-5	100	1	5	7
LM 4-5	100	1	6	7
LM 4-5	100	1	7	3
LM 4-5	100	2	0	10
LM 4-5	100	2	1	10
LM 4-5	100	2	2	10
LM 4-5	100	2	3	8
LM 4-5	100	2	4	5
LM 4-5	100	2	5	4
LM 4-5	100	2	6	4
LM 4-5	100	2	7	2
LM 4-5	100	3	0	10
LM 4-5	100	3	1	10
LM 4-5	100	3	2	10
LM 4-5	100	3	3	10
LM 4-5	100	3	4	10
LM 4-5	100	3	5	6
LM 4-5	100	3	6	6
LM 4-5	100	3	7	3
(Sheet 31 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 4-5	100	4	0	10
LM 4-5	100	4	1	10
LM 4-5	100	4	2	10
LM 4-5	100	4	3	10
LM 4-5	100	4	4	10
LM 4-5	100	4	5	8
LM 4-5	100	4	6	8
LM 7-8	100	4	7	5
LM 7-8	6.25	1	0	10
LM 7-8	6.25	1	1	10
LM 7-8	6.25	1	2	10
LM 7-8	6.25	1	3	10
LM 7-8	6.25	1	4	5
LM 7-8	6.25	1	5	5
LM 7-8	6.25	1	6	5
LM 7-8	6.25	1	7	3
LM 7-8	6.25	2	0	10
LM 7-8	6.25	2	1	10
LM 7-8	6.25	2	2	10
LM 7-8	6.25	2	3	10
LM 7-8	6.25	2	4	10
LM 7-8	6.25	2	5	7
LM 7-8	6.25	2	6	6
LM 7-8	6.25	2	7	5
LM 7-8	6.25	3	0	10
LM 7-8	6.25	3	1	10
LM 7-8	6.25	3	2	10
LM 7-8	6.25	3	3	10
LM 7-8	6.25	3	4	6
LM 7-8	6.25	3	5	2
LM 7-8	6.25	3	6	2
LM 7-8	6.25	3	7	2
(Sheet 32 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 7-8	6.25	4	0	10
LM 7-8	6.25	4	1	10
LM 7-8	6.25	4	2	10
LM 7-8	6.25	4	3	10
LM 7-8	6.25	4	4	10
LM 7-8	6.25	4	5	8
LM 7-8	6.25	4	6	7
LM 7-8	6.25	4	7	6
LM 7-8	12.5	1	0	10
LM 7-8	12.5	1	1	10
LM 7-8	12.5	1	2	10
LM 7-8	12.5	1	3	10
LM 7-8	12.5	1	4	3
LM 7-8	12.5	1	5	2
LM 7-8	12.5	1	6	2
LM 7-8	12.5	1	7	2
LM 7-8	12.5	2	0	10
LM 7-8	12.5	2	1	10
LM 7-8	12.5	2	2	10
LM 7-8	12.5	2	3	10
LM 7-8	12.5	2	4	9
LM 7-8	12.5	2	5	7
LM 7-8	12.5	2	6	5
LM 7-8	12.5	2	7	4
LM 7-8	12.5	3	0	10
LM 7-8	12.5	3	1	10
LM 7-8	12.5	3	2	10
LM 7-8	12.5	3	3	10
LM 7-8	12.5	3	4	10
LM 7-8	12.5	3	5	9
LM 7-8	12.5	3	6	7
LM 7-8	12.5	3	7	7
(Sheet 33 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 7-8	12.5	4	0	10
LM 7-8	12.5	4	1	10
LM 7-8	12.5	4	2	10
LM 7-8	12.5	4	3	10
LM 7-8	12.5	4	4	5
LM 7-8	12.5	4	5	5
LM 7-8	12.5	4	6	5
LM 7-8	12.5	4	7	5
LM 7-8	25	1	0	10
LM 7-8	25	1	1	10
LM 7-8	25	1	2	10
LM 7-8	25	1	3	8
LM 7-8	25	1	4	8
LM 7-8	25	1	5	6
LM 7-8	25	1	6	6
LM 7-8	25	1	7	4
LM 7-8	25	2	0	10
LM 7-8	25	2	1	10
LM 7-8	25	2	2	10
LM 7-8	25	2	3	10
LM 7-8	25	2	4	10
LM 7-8	25	2	5	8
LM 7-8	25	2	6	8
LM 7-8	25	2	7	6
LM 7-8	25	3	0	10
LM 7-8	25	3	1	10
LM 7-8	25	3	2	10
LM 7-8	25	3	3	10
LM 7-8	25	3	4	10
LM 7-8	25	3	5	9
LM 7-8	25	3	6	8
LM 7-8	25	3	7	7
(Sheet 34 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 7-8	25	4	0	10
LM 7-8	25	4	1	10
LM 7-8	25	4	2	10
LM 7-8	25	4	3	10
LM 7-8	25	4	4	9
LM 7-8	25	4	5	9
LM 7-8	25	4	6	9
LM 7-8	25	4	7	8
LM 7-8	50	1	0	10
LM 7-8	50	1	1	10
LM 7-8	50	1	2	10
LM 7-8	50	1	3	10
LM 7-8	50	1	4	10
LM 7-8	50	1	5	6
LM 7-8	50	1	6	5
LM 7-8	50	1	7	5
LM 7-8	50	2	0	10
LM 7-8	50	2	1	10
LM 7-8	50	2	2	10
LM 7-8	50	2	3	10
LM 7-8	50	2	4	10
LM 7-8	50	2	5	8
LM 7-8	50	2	6	5
LM 7-8	50	2	7	4
LM 7-8	50	3	0	10
LM 7-8	50	3	1	10
LM 7-8	50	3	2	10
LM 7-8	50	3	3	10
LM 7-8	50	3	4	10
LM 7-8	50	3	5	8
LM 7-8	50	3	6	4
LM 7-8	50	3	7	4
(Sheet 35 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 7-8	50	4	0	10
LM 7-8	50	4	1	10
LM 7-8	50	4	2	10
LM 7-8	50	4	3	10
LM 7-8	50	4	4	8
LM 7-8	50	4	5	8
LM 7-8	50	4	6	6
LM 7-8	50	4	7	5
LM 7-8	100	1	0	10
LM 7-8	100	1	1	10
LM 7-8	100	1	2	10
LM 7-8	100	1	3	10
LM 7-8	100	1	4	10
LM 7-8	100	1	5	8
LM 7-8	100	1	6	4
LM 7-8	100	1	7	4
LM 7-8	100	2	0	10
LM 7-8	100	2	1	10
LM 7-8	100	2	2	10
LM 7-8	100	2	3	10
LM 7-8	100	2	4	10
LM 7-8	100	2	5	7
LM 7-8	100	2	6	1
LM 7-8	100	2	7	1
LM 7-8	100	3	0	10
LM 7-8	100	3	1	10
LM 7-8	100	3	2	10
LM 7-8	100	3	3	10
LM 7-8	100	3	4	10
LM 7-8	100	3	5	5
LM 7-8	100	3	6	1
LM 7-8	100	3	7	1
(Sheet 36 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 7-8	100	4	0	10
LM 7-8	100	4	1	10
LM 7-8	100	4	2	10
LM 7-8	100	4	3	10
LM 7-8	100	4	4	10
LM 7-8	100	4	5	3
LM 7-8	100	4	6	3
LM 11-12	100	4	7	3
LM 11-12	6.25	1	0	10
LM 11-12	6.25	1	1	10
LM 11-12	6.25	1	2	10
LM 11-12	6.25	1	3	10
LM 11-12	6.25	1	4	9
LM 11-12	6.25	1	5	8
LM 11-12	6.25	1	6	5
LM 11-12	6.25	1	7	5
LM 11-12	6.25	2	0	10
LM 11-12	6.25	2	1	10
LM 11-12	6.25	2	2	10
LM 11-12	6.25	2	3	10
LM 11-12	6.25	2	4	7
LM 11-12	6.25	2	5	5
LM 11-12	6.25	2	6	4
LM 11-12	6.25	2	7	4
LM 11-12	6.25	3	0	10
LM 11-12	6.25	3	1	10
LM 11-12	6.25	3	2	10
LM 11-12	6.25	3	3	10
LM 11-12	6.25	3	4	6
LM 11-12	6.25	3	5	5
LM 11-12	6.25	3	6	5
LM 11-12	6.25	3	7	5
(Sheet 37 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 11-12	6.25	4	0	10
LM 11-12	6.25	4	1	10
LM 11-12	6.25	4	2	10
LM 11-12	6.25	4	3	10
LM 11-12	6.25	4	4	10
LM 11-12	6.25	4	5	8
LM 11-12	6.25	4	6	6
LM 11-12	6.25	4	7	6
LM 11-12	12.5	1	0	10
LM 11-12	12.5	1	1	10
LM 11-12	12.5	1	2	10
LM 11-12	12.5	1	3	10
LM 11-12	12.5	1	4	10
LM 11-12	12.5	1	5	9
LM 11-12	12.5	1	6	5
LM 11-12	12.5	1	7	5
LM 11-12	12.5	2	0	10
LM 11-12	12.5	2	1	10
LM 11-12	12.5	2	2	10
LM 11-12	12.5	2	3	10
LM 11-12	12.5	2	4	8
LM 11-12	12.5	2	5	7
LM 11-12	12.5	2	6	4
LM 11-12	12.5	2	7	4
LM 11-12	12.5	3	0	10
LM 11-12	12.5	3	1	10
LM 11-12	12.5	3	2	10
LM 11-12	12.5	3	3	10
LM 11-12	12.5	3	4	10
LM 11-12	12.5	3	5	10
LM 11-12	12.5	3	6	7
LM 11-12	12.5	3	7	7
(Sheet 38 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 11-12	12.5	4	0	10
LM 11-12	12.5	4	1	10
LM 11-12	12.5	4	2	10
LM 11-12	12.5	4	3	10
LM 11-12	12.5	4	4	8
LM 11-12	12.5	4	5	7
LM 11-12	12.5	4	6	4
LM 11-12	12.5	4	7	4
LM 11-12	25	1	0	10
LM 11-12	25	1	1	10
LM 11-12	25	1	2	10
LM 11-12	25	1	3	10
LM 11-12	25	1	4	6
LM 11-12	25	1	5	6
LM 11-12	25	1	6	5
LM 11-12	25	1	7	4
LM 11-12	25	2	0	10
LM 11-12	25	2	1	10
LM 11-12	25	2	2	10
LM 11-12	25	2	3	10
LM 11-12	25	2	4	7
LM 11-12	25	2	5	7
LM 11-12	25	2	6	4
LM 11-12	25	2	7	4
LM 11-12	25	3	0	10
LM 11-12	25	3	1	10
LM 11-12	25	3	2	10
LM 11-12	25	3	3	10
LM 11-12	25	3	4	8
LM 11-12	25	3	5	7
LM 11-12	25	3	6	7
LM 11-12	25	3	7	7
(Sheet 39 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 11-12	25	4	0	10
LM 11-12	25	4	1	10
LM 11-12	25	4	2	10
LM 11-12	25	4	3	10
LM 11-12	25	4	4	10
LM 11-12	25	4	5	9
LM 11-12	25	4	6	5
LM 11-12	25	4	7	5
LM 11-12	50	1	0	10
LM 11-12	50	1	1	10
LM 11-12	50	1	2	10
LM 11-12	50	1	3	10
LM 11-12	50	1	4	5
LM 11-12	50	1	5	5
LM 11-12	50	1	6	5
LM 11-12	50	1	7	5
LM 11-12	50	2	0	10
LM 11-12	50	2	1	10
LM 11-12	50	2	2	10
LM 11-12	50	2	3	10
LM 11-12	50	2	4	8
LM 11-12	50	2	5	7
LM 11-12	50	2	6	4
LM 11-12	50	2	7	3
LM 11-12	50	3	0	10
LM 11-12	50	3	1	10
LM 11-12	50	3	2	10
LM 11-12	50	3	3	10
LM 11-12	50	3	4	6
LM 11-12	50	3	5	5
LM 11-12	50	3	6	4
LM 11-12	50	3	7	4
(Sheet 40 of 42)				

Table C1 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 11-12	50	4	0	10
LM 11-12	50	4	1	10
LM 11-12	50	4	2	10
LM 11-12	50	4	3	10
LM 11-12	50	4	4	6
LM 11-12	50	4	5	6
LM 11-12	50	4	6	5
LM 11-12	50	4	7	5
LM 11-12	100	1	0	10
LM 11-12	100	1	1	10
LM 11-12	100	1	2	10
LM 11-12	100	1	3	10
LM 11-12	100	1	4	10
LM 11-12	100	1	5	8
LM 11-12	100	1	6	8
LM 11-12	100	1	7	4
LM 11-12	100	2	0	10
LM 11-12	100	2	1	10
LM 11-12	100	2	2	10
LM 11-12	100	2	3	10
LM 11-12	100	2	4	5
LM 11-12	100	2	5	5
LM 11-12	100	2	6	3
LM 11-12	100	2	7	3
LM 11-12	100	3	0	10
LM 11-12	100	3	1	10
LM 11-12	100	3	2	10
LM 11-12	100	3	3	10
LM 11-12	100	3	4	6
LM 11-12	100	3	5	4
LM 11-12	100	3	6	4
LM 11-12	100	3	7	4
(Sheet 41 of 42)				

Table C1 (Concluded)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
LM 11-12	100	4	0	10
LM 11-12	100	4	1	10
LM 11-12	100	4	2	10
LM 11-12	100	4	3	10
LM 11-12	100	4	4	6
LM 11-12	100	4	5	5
LM 11-12	100	4	6	3
LM 11-12	100	4	7	3
(Sheet 42 of 42)				

Table C2
Time Course for Survival of *P. promelas* Exposed to Elutriates
of Chicago District - Michigan City Harbor Sediments

Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
Control-1	0	1	0	10
Control-1	0	1	1	10
Control-1	0	1	2	10
Control-1	0	1	3	10
Control-1	0	1	4	10
Control-1	0	1	5	10
Control-1	0	1	6	9
Control-1	0	1	7	9
Control-1	0	2	0	10
Control-1	0	2	1	10
Control-1	0	2	2	10
Control-1	0	2	3	10
Control-1	0	2	4	10
Control-1	0	2	5	10
Control-1	0	2	6	8
Control-1	0	2	7	8
Control-1	0	3	0	10
Control-1	0	3	1	10
Control-1	0	3	2	10
Control-1	0	3	3	10
Control-1	0	3	4	10
Control-1	0	3	5	10
Control-1	0	3	6	8
Control-1	0	3	7	8
Control-1	0	4	0	10
Control-1	0	4	1	10
Control-1	0	4	2	10
Control-1	0	4	3	10
Control-1	0	4	4	10
Control-1	0	4	5	10

(Sheet 1 of 18)

Table C2 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
Control-1	0	4	6	8
Control-1	0	4	7	8
MC-1	6.25	1	0	10
MC-1	6.25	1	1	10
MC-1	6.25	1	2	10
MC-1	6.25	1	3	7
MC-1	6.25	1	4	4
MC-1	6.25	1	5	1
MC-1	6.25	1	6	1
MC-1	6.25	1	7	1
MC-1	6.25	2	0	10
MC-1	6.25	2	1	10
MC-1	6.25	2	2	10
MC-1	6.25	2	3	10
MC-1	6.25	2	4	10
MC-1	6.25	2	5	9
MC-1	6.25	2	6	4
MC-1	6.25	2	7	4
MC-1	6.25	3	0	10
MC-1	6.25	3	1	10
MC-1	6.25	3	2	10
MC-1	6.25	3	3	10
MC-1	6.25	3	4	4
MC-1	6.25	3	5	3
MC-1	6.25	3	6	3
MC-1	6.25	3	7	3
MC-1	6.25	4	0	10
MC-1	6.25	4	1	10
MC-1	6.25	4	2	10
(Sheet 2 of 18)				

Table C2 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
MC-1	6.25	4	3	7
MC-1	6.25	4	4	3
MC-1	6.25	4	5	3
MC-1	6.25	4	6	2
MC-1	6.25	4	7	2
MC-1	12.5	1	0	10
MC-1	12.5	1	1	10
MC-1	12.5	1	2	10
MC-1	12.5	1	3	2
MC-1	12.5	1	4	2
MC-1	12.5	1	5	2
MC-1	12.5	1	6	2
MC-1	12.5	1	7	2
MC-1	12.5	2	0	10
MC-1	12.5	2	1	10
MC-1	12.5	2	2	10
MC-1	12.5	2	3	10
MC-1	12.5	2	4	4
MC-1	12.5	2	5	3
MC-1	12.5	2	6	3
MC-1	12.5	2	7	2
MC-1	12.5	3	0	10
MC-1	12.5	3	1	10
MC-1	12.5	3	2	10
MC-1	12.5	3	3	10
MC-1	12.5	3	4	7
MC-1	12.5	3	5	7
MC-1	12.5	3	6	5
MC-1	12.5	3	7	5
(Sheet 3 of 18)				

Table C2 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
MC-1	12.5	4	0	10
MC-1	12.5	4	1	10
MC-1	12.5	4	2	10
MC-1	12.5	4	3	5
MC-1	12.5	4	4	5
MC-1	12.5	4	5	4
MC-1	12.5	4	6	3
MC-1	12.5	4	7	3
MC-1	25	1	0	10
MC-1	25	1	1	10
MC-1	25	1	2	10
MC-1	25	1	3	10
MC-1	25	1	4	5
MC-1	25	1	5	5
MC-1	25	1	6	3
MC-1	25	1	7	3
MC-1	25	2	0	10
MC-1	25	2	1	10
MC-1	25	2	2	10
MC-1	25	2	3	10
MC-1	25	2	4	5
MC-1	25	2	5	4
MC-1	25	2	6	2
MC-1	25	2	7	2
MC-1	25	3	0	10
MC-1	25	3	1	10
MC-1	25	3	2	10
MC-1	25	3	3	10
MC-1	25	3	4	10
(Sheet 4 of 18)				

Table C2 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
MC-1	25	3	5	8
MC-1	25	3	6	4
MC-1	25	3	7	4
MC-1	25	4	0	10
MC-1	25	4	1	10
MC-1	25	4	2	10
MC-1	25	4	3	10
MC-1	25	4	4	6
MC-1	25	4	5	6
MC-1	25	4	6	6
MC-1	25	4	7	6
MC-1	50	1	0	10
MC-1	50	1	1	10
MC-1	50	1	2	10
MC-1	50	1	3	9
MC-1	50	1	4	10
MC-1	50	1	5	5
MC-1	50	1	6	3
MC-1	50	1	7	3
MC-1	50	2	0	10
MC-1	50	2	1	10
MC-1	50	2	2	10
MC-1	50	2	3	10
MC-1	50	2	4	4
MC-1	50	2	5	4
MC-1	50	2	6	4
MC-1	50	2	7	4
MC-1	50	3	0	10
MC-1	50	3	1	10

(Sheet 5 of 18)

Table C2 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
MC-1	50	3	2	10
MC-1	50	3	3	10
MC-1	50	3	4	4
MC-1	50	3	5	3
MC-1	50	3	6	2
MC-1	50	3	7	2
MC-1	50	4	0	10
MC-1	50	4	1	10
MC-1	50	4	2	10
MC-1	50	4	3	4
MC-1	50	4	4	10
MC-1	50	4	5	4
MC-1	50	4	6	2
MC-1	50	4	7	2
MC-1	100	1	0	10
MC-1	100	1	1	10
MC-1	100	1	2	10
MC-1	100	1	3	10
MC-1	100	1	4	10
MC-1	100	1	5	5
MC-1	100	1	6	3
MC-1	100	1	7	3
MC-1	100	2	0	10
MC-1	100	2	1	10
MC-1	100	2	2	10
MC-1	100	2	3	10
MC-1	100	2	4	10
MC-1	100	2	5	4
MC-1	100	2	6	4
(Sheet 6 of 18)				

Table C2 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
MC-1	100	2	7	4
MC-1	100	3	0	10
MC-1	100	3	1	10
MC-1	100	3	2	10
MC-1	100	3	3	8
MC-1	100	3	4	3
MC-1	100	3	5	3
MC-1	100	3	6	1
MC-1	100	3	7	1
MC-1	100	4	0	10
MC-1	100	4	1	10
MC-1	100	4	2	10
MC-1	100	4	3	8
MC-1	100	4	4	7
MC-1	100	4	5	6
MC-1	100	4	6	3
MC-1	100	4	7	3
MC-2	6.25	1	0	10
MC-2	6.25	1	1	10
MC-2	6.25	1	2	10
MC-2	6.25	1	3	6
MC-2	6.25	1	4	5
MC-2	6.25	1	5	3
MC-2	6.25	1	6	2
MC-2	6.25	1	7	2
MC-2	6.25	2	0	10
MC-2	6.25	2	1	10
MC-2	6.25	2	2	10
MC-2	6.25	2	3	8
(Sheet 7 of 18)				

Table C2 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
MC-2	6.25	2	4	6
MC-2	6.25	2	5	4
MC-2	6.25	2	6	4
MC-2	6.25	2	7	1
MC-2	6.25	3	0	10
MC-2	6.25	3	1	10
MC-2	6.25	3	2	10
MC-2	6.25	3	3	9
MC-2	6.25	3	4	6
MC-2	6.25	3	5	6
MC-2	6.25	3	6	2
MC-2	6.25	3	7	2
MC-2	6.25	4	0	10
MC-2	6.25	4	1	10
MC-2	6.25	4	2	10
MC-2	6.25	4	3	7
MC-2	6.25	4	4	7
MC-2	6.25	4	5	7
MC-2	6.25	4	6	4
MC-2	6.25	4	7	4
MC-2	12.5	1	0	10
MC-2	12.5	1	1	10
MC-2	12.5	1	2	10
MC-2	12.5	1	3	7
MC-2	12.5	1	4	7
MC-2	12.5	1	5	4
MC-2	12.5	1	6	3
MC-2	12.5	1	7	3
MC-2	12.5	2	0	10
(Sheet 8 of 18)				

Table C2 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
MC-2	12.5	2	1	10
MC-2	12.5	2	2	10
MC-2	12.5	2	3	10
MC-2	12.5	2	4	9
MC-2	12.5	2	5	9
MC-2	12.5	2	6	6
MC-2	12.5	2	7	4
MC-2	12.5	3	0	10
MC-2	12.5	3	1	10
MC-2	12.5	3	2	10
MC-2	12.5	3	3	10
MC-2	12.5	3	4	3
MC-2	12.5	3	5	3
MC-2	12.5	3	6	3
MC-2	12.5	3	7	3
MC-2	12.5	4	0	10
MC-2	12.5	4	1	10
MC-2	12.5	4	2	10
MC-2	12.5	4	3	10
MC-2	12.5	4	4	7
MC-2	12.5	4	5	7
MC-2	12.5	4	6	4
MC-2	12.5	4	7	4
MC-2	25	1	0	10
MC-2	25	1	1	10
MC-2	25	1	2	10
MC-2	25	1	3	7
MC-2	25	1	4	6
MC-2	25	1	5	5
(Sheet 9 of 18)				

Table C2 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
MC-2	25	1	6	4
MC-2	25	1	7	4
MC-2	25	2	0	10
MC-2	25	2	1	10
MC-2	25	2	2	10
MC-2	25	2	3	6
MC-2	25	2	4	6
MC-2	25	2	5	5
MC-2	25	2	6	5
MC-2	25	2	7	4
MC-2	25	3	0	10
MC-2	25	3	1	10
MC-2	25	3	2	10
MC-2	25	3	3	7
MC-2	25	3	4	5
MC-2	25	3	5	5
MC-2	25	3	6	4
MC-2	25	3	7	4
MC-2	25	4	0	10
MC-2	25	4	1	10
MC-2	25	4	2	10
MC-2	25	4	3	9
MC-2	25	4	4	8
MC-2	25	4	5	5
MC-2	25	4	6	5
MC-2	25	4	7	4
MC-2	50	1	0	10
MC-2	50	1	1	10
MC-2	50	1	2	10
(Sheet 10 of 18)				

Table C2 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
MC-2	50	1	3	10
MC-2	50	1	4	7
MC-2	50	1	5	7
MC-2	50	1	6	4
MC-2	50	1	7	4
MC-2	50	2	0	10
MC-2	50	2	1	10
MC-2	50	2	2	10
MC-2	50	2	3	6
MC-2	50	2	4	5
MC-2	50	2	5	3
MC-2	50	2	6	2
MC-2	50	2	7	2
MC-2	50	3	0	10
MC-2	50	3	1	10
MC-2	50	3	2	10
MC-2	50	3	3	10
MC-2	50	3	4	4
MC-2	50	3	5	3
MC-2	50	3	6	3
MC-2	50	3	7	3
MC-2	50	4	0	10
MC-2	50	4	1	10
MC-2	50	4	2	10
MC-2	50	4	3	10
MC-2	50	4	4	8
MC-2	50	4	5	5
MC-2	50	4	6	4
MC-2	50	4	7	4
(Sheet 11 of 18)				

Table C2 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
MC-2	100	1	0	10
MC-2	100	1	1	10
MC-2	100	1	2	10
MC-2	100	1	3	10
MC-2	100	1	4	10
MC-2	100	1	5	8
MC-2	100	1	6	8
MC-2	100	1	7	3
MC-2	100	2	0	10
MC-2	100	2	1	10
MC-2	100	2	2	10
MC-2	100	2	3	10
MC-2	100	2	4	10
MC-2	100	2	5	10
MC-2	100	2	6	7
MC-2	100	2	7	4
MC-2	100	3	0	10
MC-2	100	3	1	10
MC-2	100	3	2	10
MC-2	100	3	3	8
MC-2	100	3	4	7
MC-2	100	3	5	7
MC-2	100	3	6	5
MC-2	100	3	7	5
MC-2	100	4	0	10
MC-2	100	4	1	10
MC-2	100	4	2	10
MC-2	100	4	3	10
MC-2	100	4	4	8
(Sheet 12 of 18)				

Table C2 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
MC-2	100	4	5	6
MC-2	100	4	6	4
MC-2	100	4	7	4
MC-3	100	4	7	3
MC-3	6.25	1	0	10
MC-3	6.25	1	1	10
MC-3	6.25	1	2	10
MC-3	6.25	1	3	6
MC-3	6.25	1	4	5
MC-3	6.25	1	5	3
MC-3	6.25	1	6	2
MC-3	6.25	1	7	2
MC-3	6.25	2	0	10
MC-3	6.25	2	1	10
MC-3	6.25	2	2	10
MC-3	6.25	2	3	8
MC-3	6.25	2	4	6
MC-3	6.25	2	5	4
MC-3	6.25	2	6	4
MC-3	6.25	2	7	1
MC-3	6.25	3	0	10
MC-3	6.25	3	1	10
MC-3	6.25	3	2	10
MC-3	6.25	3	3	9
MC-3	6.25	3	4	6
MC-3	6.25	3	5	6
MC-3	6.25	3	6	2
MC-3	6.25	3	7	2
MC-3	6.25	4	0	10
(Sheet 13 of 18)				

Table C2 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
MC-3	6.25	4	1	10
MC-3	6.25	4	2	10
MC-3	6.25	4	3	7
MC-3	6.25	4	4	7
MC-3	6.25	4	5	7
MC-3	6.25	4	6	4
MC-3	6.25	4	7	4
MC-3	12.5	1	0	10
MC-3	12.5	1	1	10
MC-3	12.5	1	2	10
MC-3	12.5	1	3	7
MC-3	12.5	1	4	7
MC-3	12.5	1	5	4
MC-3	12.5	1	6	3
MC-3	12.5	1	7	3
MC-3	12.5	2	0	10
MC-3	12.5	2	1	10
MC-3	12.5	2	2	10
MC-3	12.5	2	3	10
MC-3	12.5	2	4	9
MC-3	12.5	2	5	9
MC-3	12.5	2	6	6
MC-3	12.5	2	7	4
MC-3	12.5	3	0	10
MC-3	12.5	3	1	10
MC-3	12.5	3	2	10
MC-3	12.5	3	3	10
MC-3	12.5	3	4	3
MC-3	12.5	3	5	3
(Sheet 14 of 18)				

Table C2 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
MC-3	12.5	3	6	3
MC-3	12.5	3	7	3
MC-3	12.5	4	0	10
MC-3	12.5	4	1	10
MC-3	12.5	4	2	10
MC-3	12.5	4	3	10
MC-3	12.5	4	4	7
MC-3	12.5	4	5	7
MC-3	12.5	4	6	4
MC-3	12.5	4	7	4
MC-3	25	1	0	10
MC-3	25	1	1	10
MC-3	25	1	2	10
MC-3	25	1	3	7
MC-3	25	1	4	6
MC-3	25	1	5	5
MC-3	25	1	6	4
MC-3	25	1	7	4
MC-3	25	2	0	10
MC-3	25	2	1	10
MC-3	25	2	2	10
MC-3	25	2	3	6
MC-3	25	2	4	6
MC-3	25	2	5	5
MC-3	25	2	6	5
MC-3	25	2	7	4
MC-3	25	3	0	10
MC-3	25	3	1	10
MC-3	25	3	2	10
(Sheet 15 of 18)				

Table C2 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
MC-3	25	3	3	7
MC-3	25	3	4	5
MC-3	25	3	5	5
MC-3	25	3	6	4
MC-3	25	3	7	4
MC-3	25	4	0	10
MC-3	25	4	1	10
MC-3	25	4	2	10
MC-3	25	4	3	9
MC-3	25	4	4	8
MC-3	25	4	5	5
MC-3	25	4	6	5
MC-3	25	4	7	4
MC-3	50	1	0	10
MC-3	50	1	1	10
MC-3	50	1	2	10
MC-3	50	1	3	10
MC-3	50	1	4	7
MC-3	50	1	5	7
MC-3	50	1	6	4
MC-3	50	1	7	4
MC-3	50	2	0	10
MC-3	50	2	1	10
MC-3	50	2	2	10
MC-3	50	2	3	6
MC-3	50	2	4	5
MC-3	50	2	5	3
MC-3	50	2	6	2
MC-3	50	2	7	2
(Sheet 16 of 18)				

Table C2 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
MC-3	50	3	0	10
MC-3	50	3	1	10
MC-3	50	3	2	10
MC-3	50	3	3	10
MC-3	50	3	4	4
MC-3	50	3	5	3
MC-3	50	3	6	3
MC-3	50	3	7	3
MC-3	50	4	0	10
MC-3	50	4	1	10
MC-3	50	4	2	10
MC-3	50	4	3	10
MC-3	50	4	4	8
MC-3	50	4	5	5
MC-3	50	4	6	4
MC-3	50	4	7	4
MC-3	100	1	0	10
MC-3	100	1	1	10
MC-3	100	1	2	10
MC-3	100	1	3	10
MC-3	100	1	4	10
MC-3	100	1	5	8
MC-3	100	1	6	8
MC-3	100	1	7	3
MC-3	100	2	0	10
MC-3	100	2	1	10
MC-3	100	2	2	10
MC-3	100	2	3	10
MC-3	100	2	4	10
(Sheet 17 of 18)				

Table C2 (Concluded)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
MC-3	100	2	5	10
MC-3	100	2	6	7
MC-3	100	2	7	4
MC-3	100	3	0	10
MC-3	100	3	1	10
MC-3	100	3	2	10
MC-3	100	3	3	8
MC-3	100	3	4	7
MC-3	100	3	5	7
MC-3	100	3	6	5
MC-3	100	3	7	5
MC-3	100	4	0	10
MC-3	100	4	1	10
MC-3	100	4	2	10
MC-3	100	4	3	10
MC-3	100	4	4	8
MC-3	100	4	5	6
MC-3	100	4	6	4
MC-3	100	4	7	4
(Sheet 18 of 18)				

Table C3
Time Course for Survival of *P. promelas* Exposed to Elutriates
of Detroit District - Grand Haven Harbor Sediments

Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
Control-2	0	1	0	10
Control-2	0	1	1	10
Control-2	0	1	2	9
Control-2	0	1	3	9
Control-2	0	1	4	9
Control-2	0	1	5	9
Control-2	0	1	6	9
Control-2	0	1	7	9
Control-2	0	2	0	10
Control-2	0	2	1	10
Control-2	0	2	2	10
Control-2	0	2	3	9
Control-2	0	2	4	8
Control-2	0	2	5	8
Control-2	0	2	6	7
Control-2	0	2	7	7
Control-2	0	3	0	10
Control-2	0	3	1	10
Control-2	0	3	2	10
Control-2	0	3	3	10
Control-2	0	3	4	10
Control-2	0	3	5	10
Control-2	0	3	6	9
Control-2	0	3	7	9
Control-2	0	4	0	10
Control-2	0	4	1	10
Control-2	0	4	2	10
Control-2	0	4	3	10
Control-2	0	4	4	9
Control-2	0	4	5	8

(Sheet 1 of 17)

Table C3 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
Control-2	0	4	6	8
Control-2	0	4	7	8
GH-1	6.25	1	0	10
GH-1	6.25	1	1	10
GH-1	6.25	1	2	10
GH-1	6.25	1	3	9
GH-1	6.25	1	4	9
GH-1	6.25	1	5	8
GH-1	6.25	1	6	8
GH-1	6.25	1	7	7
GH-1	6.25	2	0	10
GH-1	6.25	2	1	10
GH-1	6.25	2	2	9
GH-1	6.25	2	3	9
GH-1	6.25	2	4	9
GH-1	6.25	2	5	6
GH-1	6.25	2	6	6
GH-1	6.25	2	7	6
GH-1	6.25	3	0	10
GH-1	6.25	3	1	10
GH-1	6.25	3	2	10
GH-1	6.25	3	3	10
GH-1	6.25	3	4	10
GH-1	6.25	3	5	9
GH-1	6.25	3	6	9
GH-1	6.25	3	7	9
GH-1	6.25	4	0	10
GH-1	6.25	4	1	10
GH-1	6.25	4	2	10
GH-1	6.25	4	3	10
GH-1	6.25	4	4	10
(Sheet 2 of 17)				

Table C3 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
GH-1	6.25	4	5	10
GH-1	6.25	4	6	10
GH-1	6.25	4	7	7
GH-1	12.5	1	0	10
GH-1	12.5	1	1	9
GH-1	12.5	1	2	7
GH-1	12.5	1	3	7
GH-1	12.5	1	4	7
GH-1	12.5	1	5	7
GH-1	12.5	1	6	7
GH-1	12.5	1	7	5
GH-1	12.5	2	0	10
GH-1	12.5	2	1	10
GH-1	12.5	2	2	10
GH-1	12.5	2	3	9
GH-1	12.5	2	4	9
GH-1	12.5	2	5	8
GH-1	12.5	2	6	8
GH-1	12.5	2	7	8
GH-1	12.5	3	0	10
GH-1	12.5	3	1	10
GH-1	12.5	3	2	10
GH-1	12.5	3	3	9
GH-1	12.5	3	4	9
GH-1	12.5	3	5	9
GH-1	12.5	3	6	9
GH-1	12.5	3	7	9
GH-1	12.5	4	0	10
GH-1	12.5	4	1	10
GH-1	12.5	4	2	10
GH-1	12.5	4	3	9

(Sheet 3 of 17)

Table C3 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
GH-1	12.5	4	4	9
GH-1	12.5	4	5	8
GH-1	12.5	4	6	8
GH-1	12.5	4	7	8
GH-1	25	1	0	10
GH-1	25	1	1	10
GH-1	25	1	2	10
GH-1	25	1	3	10
GH-1	25	1	4	10
GH-1	25	1	5	10
GH-1	25	1	6	10
GH-1	25	1	7	10
GH-1	25	2	0	10
GH-1	25	2	1	10
GH-1	25	2	2	10
GH-1	25	2	3	8
GH-1	25	2	4	8
GH-1	25	2	5	7
GH-1	25	2	6	7
GH-1	25	2	7	5
GH-1	25	3	0	10
GH-1	25	3	1	10
GH-1	25	3	2	9
GH-1	25	3	3	7
GH-1	25	3	4	7
GH-1	25	3	5	7
GH-1	25	3	6	6
GH-1	25	3	7	6
GH-1	25	4	0	10
GH-1	25	4	1	10
GH-1	25	4	2	9
(Sheet 4 of 17)				

Table C3 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
GH-1	25	4	3	8
GH-1	25	4	4	8
GH-1	25	4	5	8
GH-1	25	4	6	8
GH-1	25	4	7	8
GH-1	50	1	0	10
GH-1	50	1	1	10
GH-1	50	1	2	10
GH-1	50	1	3	10
GH-1	50	1	4	10
GH-1	50	1	5	8
GH-1	50	1	6	8
GH-1	50	1	7	7
GH-1	50	2	0	10
GH-1	50	2	1	10
GH-1	50	2	2	10
GH-1	50	2	3	9
GH-1	50	2	4	9
GH-1	50	2	5	8
GH-1	50	2	6	8
GH-1	50	2	7	8
GH-1	50	3	0	10
GH-1	50	3	1	10
GH-1	50	3	2	10
GH-1	50	3	3	8
GH-1	50	3	4	8
GH-1	50	3	5	5
GH-1	50	3	6	5
GH-1	50	3	7	3
GH-1	50	4	0	10
GH-1	50	4	1	10

(Sheet 5 of 17)

Table C3 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
GH-1	50	4	2	10
GH-1	50	4	3	10
GH-1	50	4	4	10
GH-1	50	4	5	10
GH-1	50	4	6	10
GH-1	50	4	7	8
GH-1	100	1	0	10
GH-1	100	1	1	4
GH-1	100	1	2	4
GH-1	100	1	3	3
GH-1	100	1	4	3
GH-1	100	1	5	3
GH-1	100	1	6	3
GH-1	100	1	7	3
GH-1	100	2	0	10
GH-1	100	2	1	9
GH-1	100	2	2	9
GH-1	100	2	3	9
GH-1	100	2	4	9
GH-1	100	2	5	4
GH-1	100	2	6	4
GH-1	100	2	7	1
GH-1	100	3	0	10
GH-1	100	3	1	7
GH-1	100	3	2	7
GH-1	100	3	3	7
GH-1	100	3	4	7
GH-1	100	3	5	7
GH-1	100	3	6	7
GH-1	100	3	7	6
GH-1	100	4	0	10
(Sheet 6 of 17)				

Table C3 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
GH-1	100	4	1	6
GH-1	100	4	2	6
GH-1	100	4	3	6
GH-1	100	4	4	6
GH-1	100	4	5	6
GH-1	100	4	6	6
GH-1	100	4	7	5
GH-2	6.25	1	0	10
GH-2	6.25	1	1	10
GH-2	6.25	1	2	10
GH-2	6.25	1	3	10
GH-2	6.25	1	4	10
GH-2	6.25	1	5	9
GH-2	6.25	1	6	9
GH-2	6.25	1	7	9
GH-2	6.25	2	0	10
GH-2	6.25	2	1	10
GH-2	6.25	2	2	10
GH-2	6.25	2	3	10
GH-2	6.25	2	4	10
GH-2	6.25	2	5	8
GH-2	6.25	2	6	6
GH-2	6.25	2	7	6
GH-2	6.25	3	0	10
GH-2	6.25	3	1	10
GH-2	6.25	3	2	9
GH-2	6.25	3	3	8
GH-2	6.25	3	4	8
GH-2	6.25	3	5	7
GH-2	6.25	3	6	6
GH-2	6.25	3	7	5
(Sheet 7 of 17)				

Table C3 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
GH-2	6.25	4	0	10
GH-2	6.25	4	1	10
GH-2	6.25	4	2	10
GH-2	6.25	4	3	9
GH-2	6.25	4	4	9
GH-2	6.25	4	5	8
GH-2	6.25	4	6	6
GH-2	6.25	4	7	6
GH-2	12.5	1	0	10
GH-2	12.5	1	1	10
GH-2	12.5	1	2	9
GH-2	12.5	1	3	9
GH-2	12.5	1	4	9
GH-2	12.5	1	5	8
GH-2	12.5	1	6	5
GH-2	12.5	1	7	5
GH-2	12.5	2	0	10
GH-2	12.5	2	1	10
GH-2	12.5	2	2	10
GH-2	12.5	2	3	10
GH-2	12.5	2	4	8
GH-2	12.5	2	5	6
GH-2	12.5	2	6	4
GH-2	12.5	2	7	4
GH-2	12.5	3	0	10
GH-2	12.5	3	1	10
GH-2	12.5	3	2	10
GH-2	12.5	3	3	9
GH-2	12.5	3	4	8
GH-2	12.5	3	5	8
GH-2	12.5	3	6	8
(Sheet 8 of 17)				

Table C3 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
GH-2	12.5	3	7	8
GH-2	12.5	4	0	10
GH-2	12.5	4	1	10
GH-2	12.5	4	2	8
GH-2	12.5	4	3	8
GH-2	12.5	4	4	8
GH-2	12.5	4	5	8
GH-2	12.5	4	6	3
GH-2	12.5	4	7	3
GH-2	25	1	0	10
GH-2	25	1	1	10
GH-2	25	1	2	10
GH-2	25	1	3	9
GH-2	25	1	4	9
GH-2	25	1	5	9
GH-2	25	1	6	9
GH-2	25	1	7	9
GH-2	25	2	0	10
GH-2	25	2	1	10
GH-2	25	2	2	9
GH-2	25	2	3	9
GH-2	25	2	4	9
GH-2	25	2	5	9
GH-2	25	2	6	8
GH-2	25	2	7	8
GH-2	25	3	0	10
GH-2	25	3	1	10
GH-2	25	3	2	9
GH-2	25	3	3	9
GH-2	25	3	4	9
GH-2	25	3	5	9
(Sheet 9 of 17)				

Table C3 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
GH-2	25	3	6	8
GH-2	25	3	7	8
GH-2	25	4	0	10
GH-2	25	4	1	10
GH-2	25	4	2	10
GH-2	25	4	3	10
GH-2	25	4	4	10
GH-2	25	4	5	10
GH-2	25	4	6	10
GH-2	25	4	7	9
GH-2	50	1	0	10
GH-2	50	1	1	10
GH-2	50	1	2	10
GH-2	50	1	3	9
GH-2	50	1	4	8
GH-2	50	1	5	8
GH-2	50	1	6	7
GH-2	50	1	7	6
GH-2	50	2	0	10
GH-2	50	2	1	10
GH-2	50	2	2	8
GH-2	50	2	3	7
GH-2	50	2	4	7
GH-2	50	2	5	7
GH-2	50	2	6	5
GH-2	50	2	7	5
GH-2	50	3	0	10
GH-2	50	3	1	9
GH-2	50	3	2	9
GH-2	50	3	3	9
GH-2	50	3	4	9
(Sheet 10 of 17)				

Table C3 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
GH-2	50	3	5	7
GH-2	50	3	6	6
GH-2	50	3	7	4
GH-2	50	4	0	10
GH-2	50	4	1	10
GH-2	50	4	2	10
GH-2	50	4	3	9
GH-2	50	4	4	9
GH-2	50	4	5	9
GH-2	50	4	6	9
GH-2	50	4	7	6
GH-2	100	1	0	10
GH-2	100	1	1	5
GH-2	100	1	2	5
GH-2	100	1	3	4
GH-2	100	1	4	3
GH-2	100	1	5	1
GH-2	100	1	6	0
GH-2	100	1	7	0
GH-2	100	2	0	10
GH-2	100	2	1	1
GH-2	100	2	2	0
GH-2	100	2	3	0
GH-2	100	2	4	0
GH-2	100	2	5	0
GH-2	100	2	6	0
GH-2	100	2	7	0
GH-2	100	3	0	10
GH-2	100	3	1	3
GH-2	100	3	2	0
GH-2	100	3	3	0
(Sheet 11 of 17)				

Table C3 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
GH-2	100	3	4	0
GH-2	100	3	5	0
GH-2	100	3	6	0
GH-2	100	3	7	0
GH-2	100	4	0	10
GH-2	100	4	1	0
GH-2	100	4	2	0
GH-2	100	4	3	0
GH-2	100	4	4	0
GH-2	100	4	5	0
GH-2	100	4	6	0
GH-2	100	4	7	0
GH-4	6.25	1	0	10
GH-4	6.25	1	1	10
GH-4	6.25	1	2	10
GH-4	6.25	1	3	10
GH-4	6.25	1	4	9
GH-4	6.25	1	5	8
GH-4	6.25	1	6	8
GH-4	6.25	1	7	7
GH-4	6.25	2	0	10
GH-4	6.25	2	1	10
GH-4	6.25	2	2	8
GH-4	6.25	2	3	8
GH-4	6.25	2	4	8
GH-4	6.25	2	5	4
GH-4	6.25	2	6	4
GH-4	6.25	2	7	4
GH-4	6.25	3	0	10
GH-4	6.25	3	1	10
GH-4	6.25	3	2	9
(Sheet 12 of 17)				

Table C3 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
GH-4	6.25	3	3	9
GH-4	6.25	3	4	8
GH-4	6.25	3	5	4
GH-4	6.25	3	6	4
GH-4	6.25	3	7	4
GH-4	6.25	4	0	10
GH-4	6.25	4	1	10
GH-4	6.25	4	2	10
GH-4	6.25	4	3	9
GH-4	6.25	4	4	9
GH-4	6.25	4	5	2
GH-4	6.25	4	6	2
GH-4	6.25	4	7	2
GH-4	12.5	1	0	10
GH-4	12.5	1	1	9
GH-4	12.5	1	2	9
GH-4	12.5	1	3	9
GH-4	12.5	1	4	9
GH-4	12.5	1	5	5
GH-4	12.5	1	6	5
GH-4	12.5	1	7	4
GH-4	12.5	2	0	10
GH-4	12.5	2	1	10
GH-4	12.5	2	2	10
GH-4	12.5	2	3	10
GH-4	12.5	2	4	10
GH-4	12.5	2	5	8
GH-4	12.5	2	6	6
GH-4	12.5	2	7	6
GH-4	12.5	3	0	10
GH-4	12.5	3	1	10
(Sheet 13 of 17)				

Table C3 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
GH-4	12.5	3	2	10
GH-4	12.5	3	3	10
GH-4	12.5	3	4	10
GH-4	12.5	3	5	9
GH-4	12.5	3	6	9
GH-4	12.5	3	7	6
GH-4	12.5	4	0	10
GH-4	12.5	4	1	10
GH-4	12.5	4	2	9
GH-4	12.5	4	3	9
GH-4	12.5	4	4	9
GH-4	12.5	4	5	8
GH-4	12.5	4	6	8
GH-4	12.5	4	7	8
GH-4	25	1	0	10
GH-4	25	1	1	10
GH-4	25	1	2	8
GH-4	25	1	3	8
GH-4	25	1	4	8
GH-4	25	1	5	7
GH-4	25	1	6	7
GH-4	25	1	7	5
GH-4	25	2	0	10
GH-4	25	2	1	10
GH-4	25	2	2	9
GH-4	25	2	3	9
GH-4	25	2	4	9
GH-4	25	2	5	9
GH-4	25	2	6	9
GH-4	25	2	7	8
GH-4	25	3	0	10
(Sheet 14 of 17)				

Table C3 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
GH-4	25	3	1	10
GH-4	25	3	2	10
GH-4	25	3	3	10
GH-4	25	3	4	6
GH-4	25	3	5	5
GH-4	25	3	6	5
GH-4	25	3	7	3
GH-4	25	4	0	10
GH-4	25	4	1	10
GH-4	25	4	2	8
GH-4	25	4	3	6
GH-4	25	4	4	6
GH-4	25	4	5	3
GH-4	25	4	6	3
GH-4	25	4	7	2
GH-4	50	1	0	10
GH-4	50	1	1	10
GH-4	50	1	2	10
GH-4	50	1	3	10
GH-4	50	1	4	10
GH-4	50	1	5	9
GH-4	50	1	6	9
GH-4	50	1	7	9
GH-4	50	2	0	10
GH-4	50	2	1	10
GH-4	50	2	2	10
GH-4	50	2	3	10
GH-4	50	2	4	10
GH-4	50	2	5	4
GH-4	50	2	6	4
GH-4	50	2	7	3
(Sheet 15 of 17)				

Table C3 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
GH-4	50	3	0	10
GH-4	50	3	1	9
GH-4	50	3	2	9
GH-4	50	3	3	9
GH-4	50	3	4	9
GH-4	50	3	5	9
GH-4	50	3	6	9
GH-4	50	3	7	5
GH-4	50	4	0	10
GH-4	50	4	1	10
GH-4	50	4	2	10
GH-4	50	4	3	10
GH-4	50	4	4	10
GH-4	50	4	5	10
GH-4	50	4	6	10
GH-4	50	4	7	9
GH-4	100	1	0	10
GH-4	100	1	1	10
GH-4	100	1	2	9
GH-4	100	1	3	6
GH-4	100	1	4	6
GH-4	100	1	5	6
GH-4	100	1	6	6
GH-4	100	1	7	6
GH-4	100	2	0	10
GH-4	100	2	1	10
GH-4	100	2	2	9
GH-4	100	2	3	9
GH-4	100	2	4	9
GH-4	100	2	5	5
GH-4	100	2	6	5
(Sheet 16 of 17)				

Table C3 (Concluded)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
GH-4	100	2	7	5
GH-4	100	3	0	10
GH-4	100	3	1	10
GH-4	100	3	2	7
GH-4	100	3	3	7
GH-4	100	3	4	7
GH-4	100	3	5	3
GH-4	100	3	6	3
GH-4	100	3	7	2
GH-4	100	4	0	10
GH-4	100	4	1	10
GH-4	100	4	2	10
GH-4	100	4	3	10
GH-4	100	4	4	10
GH-4	100	4	5	0
GH-4	100	4	6	0
GH-4	100	4	7	0
				(Sheet 17 of 17)

Table C4
Time Course for Survival of *P. promelas* Exposed to Elutriates
of Detroit District - St. Joseph Harbor Sediments

Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
Control-2	0	1	0	10
Control-2	0	1	1	10
Control-2	0	1	2	9
Control-2	0	1	3	9
Control-2	0	1	4	9
Control-2	0	1	5	9
Control-2	0	1	6	9
Control-2	0	1	7	9
Control-2	0	2	0	10
Control-2	0	2	1	10
Control-2	0	2	2	10
Control-2	0	2	3	9
Control-2	0	2	4	8
Control-2	0	2	5	8
Control-2	0	2	6	7
Control-2	0	2	7	7
Control-2	0	3	0	10
Control-2	0	3	1	10
Control-2	0	3	2	10
Control-2	0	3	3	10
Control-2	0	3	4	10
Control-2	0	3	5	10
Control-2	0	3	6	9
Control-2	0	3	7	9
Control-2	0	4	0	10
Control-2	0	4	1	10
Control-2	0	4	2	10
Control-2	0	4	3	10
Control-2	0	4	4	9
Control-2	0	4	5	8

(Sheet 1 of 22)

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
Control-2	0	4	6	8
Control-2	0	4	7	8
SJ-5 (REF)	6.25	1	0	10
SJ-5 (REF)	6.25	1	1	10
SJ-5 (REF)	6.25	1	2	10
SJ-5 (REF)	6.25	1	3	9
SJ-5 (REF)	6.25	1	4	9
SJ-5 (REF)	6.25	1	5	8
SJ-5 (REF)	6.25	1	6	6
SJ-5 (REF)	6.25	1	7	6
SJ-5 (REF)	6.25	2	0	10
SJ-5 (REF)	6.25	2	1	10
SJ-5 (REF)	6.25	2	2	10
SJ-5 (REF)	6.25	2	3	9
SJ-5 (REF)	6.25	2	4	9
SJ-5 (REF)	6.25	2	5	9
SJ-5 (REF)	6.25	2	6	9
SJ-5 (REF)	6.25	2	7	7
SJ-5 (REF)	6.25	3	0	10
SJ-5 (REF)	6.25	3	1	9
SJ-5 (REF)	6.25	3	2	9
SJ-5 (REF)	6.25	3	3	8
SJ-5 (REF)	6.25	3	4	8
SJ-5 (REF)	6.25	3	5	8
SJ-5 (REF)	6.25	3	6	8
SJ-5 (REF)	6.25	3	7	7
SJ-5 (REF)	6.25	4	0	10
SJ-5 (REF)	6.25	4	1	10
SJ-5 (REF)	6.25	4	2	10
SJ-5 (REF)	6.25	4	3	8
SJ-5 (REF)	6.25	4	4	8
(Sheet 2 of 22)				

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-5 (REF)	6.25	4	5	7
SJ-5 (REF)	6.25	4	6	7
SJ-5 (REF)	6.25	4	7	5
SJ-5 (REF)	12.5	1	0	10
SJ-5 (REF)	12.5	1	1	10
SJ-5 (REF)	12.5	1	2	10
SJ-5 (REF)	12.5	1	3	8
SJ-5 (REF)	12.5	1	4	8
SJ-5 (REF)	12.5	1	5	8
SJ-5 (REF)	12.5	1	6	8
SJ-5 (REF)	12.5	1	7	6
SJ-5 (REF)	12.5	2	0	10
SJ-5 (REF)	12.5	2	1	10
SJ-5 (REF)	12.5	2	2	10
SJ-5 (REF)	12.5	2	3	8
SJ-5 (REF)	12.5	2	4	8
SJ-5 (REF)	12.5	2	5	8
SJ-5 (REF)	12.5	2	6	8
SJ-5 (REF)	12.5	2	7	8
SJ-5 (REF)	12.5	3	0	10
SJ-5 (REF)	12.5	3	1	10
SJ-5 (REF)	12.5	3	2	10
SJ-5 (REF)	12.5	3	3	9
SJ-5 (REF)	12.5	3	4	9
SJ-5 (REF)	12.5	3	5	9
SJ-5 (REF)	12.5	3	6	5
SJ-5 (REF)	12.5	3	7	5
SJ-5 (REF)	12.5	4	0	10
SJ-5 (REF)	12.5	4	1	10
SJ-5 (REF)	12.5	4	2	10
SJ-5 (REF)	12.5	4	3	9
(Sheet 3 of 22)				

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-5 (REF)	12.5	4	4	9
SJ-5 (REF)	12.5	4	5	6
SJ-5 (REF)	12.5	4	6	6
SJ-5 (REF)	12.5	4	7	3
SJ-5 (REF)	25	1	0	10
SJ-5 (REF)	25	1	1	10
SJ-5 (REF)	25	1	2	10
SJ-5 (REF)	25	1	3	10
SJ-5 (REF)	25	1	4	10
SJ-5 (REF)	25	1	5	9
SJ-5 (REF)	25	1	6	9
SJ-5 (REF)	25	1	7	8
SJ-5 (REF)	25	2	0	10
SJ-5 (REF)	25	2	1	9
SJ-5 (REF)	25	2	2	9
SJ-5 (REF)	25	2	3	6
SJ-5 (REF)	25	2	4	6
SJ-5 (REF)	25	2	5	5
SJ-5 (REF)	25	2	6	5
SJ-5 (REF)	25	2	7	4
SJ-5 (REF)	25	3	0	10
SJ-5 (REF)	25	3	1	10
SJ-5 (REF)	25	3	2	10
SJ-5 (REF)	25	3	3	8
SJ-5 (REF)	25	3	4	8
SJ-5 (REF)	25	3	5	4
SJ-5 (REF)	25	3	6	4
SJ-5 (REF)	25	3	7	2
SJ-5 (REF)	25	4	0	10
SJ-5 (REF)	25	4	1	10
SJ-5 (REF)	25	4	2	10

(Sheet 4 of 22)

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-5 (REF)	25	4	3	8
SJ-5 (REF)	25	4	4	8
SJ-5 (REF)	25	4	5	7
SJ-5 (REF)	25	4	6	7
SJ-5 (REF)	25	4	7	5
SJ-5 (REF)	50	1	0	10
SJ-5 (REF)	50	1	1	10
SJ-5 (REF)	50	1	2	10
SJ-5 (REF)	50	1	3	10
SJ-5 (REF)	50	1	4	10
SJ-5 (REF)	50	1	5	8
SJ-5 (REF)	50	1	6	8
SJ-5 (REF)	50	1	7	4
SJ-5 (REF)	50	2	0	10
SJ-5 (REF)	50	2	1	10
SJ-5 (REF)	50	2	2	10
SJ-5 (REF)	50	2	3	10
SJ-5 (REF)	50	2	4	10
SJ-5 (REF)	50	2	5	10
SJ-5 (REF)	50	2	6	7
SJ-5 (REF)	50	2	7	7
SJ-5 (REF)	50	3	0	10
SJ-5 (REF)	50	3	1	10
SJ-5 (REF)	50	3	2	10
SJ-5 (REF)	50	3	3	10
SJ-5 (REF)	50	3	4	10
SJ-5 (REF)	50	3	5	9
SJ-5 (REF)	50	3	6	9
SJ-5 (REF)	50	3	7	9
SJ-5 (REF)	50	4	0	10
SJ-5 (REF)	50	4	1	10
(Sheet 5 of 22)				

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-5 (REF)	50	4	2	10
SJ-5 (REF)	50	4	3	9
SJ-5 (REF)	50	4	4	9
SJ-5 (REF)	50	4	5	9
SJ-5 (REF)	50	4	6	9
SJ-5 (REF)	50	4	7	6
SJ-5 (REF)	100	1	0	10
SJ-5 (REF)	100	1	1	10
SJ-5 (REF)	100	1	2	10
SJ-5 (REF)	100	1	3	10
SJ-5 (REF)	100	1	4	10
SJ-5 (REF)	100	1	5	10
SJ-5 (REF)	100	1	6	10
SJ-5 (REF)	100	1	7	6
SJ-5 (REF)	100	2	0	10
SJ-5 (REF)	100	2	1	10
SJ-5 (REF)	100	2	2	10
SJ-5 (REF)	100	2	3	9
SJ-5 (REF)	100	2	4	9
SJ-5 (REF)	100	2	5	9
SJ-5 (REF)	100	2	6	8
SJ-5 (REF)	100	2	7	7
SJ-5 (REF)	100	3	0	10
SJ-5 (REF)	100	3	1	10
SJ-5 (REF)	100	3	2	10
SJ-5 (REF)	100	3	3	9
SJ-5 (REF)	100	3	4	9
SJ-5 (REF)	100	3	5	9
SJ-5 (REF)	100	3	6	9
SJ-5 (REF)	100	3	7	7
SJ-5 (REF)	100	4	0	10
(Sheet 6 of 22)				

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-5 (REF)	100	4	1	9
SJ-5 (REF)	100	4	2	9
SJ-5 (REF)	100	4	3	9
SJ-5 (REF)	100	4	4	9
SJ-5 (REF)	100	4	5	9
SJ-5 (REF)	100	4	6	9
SJ-5 (REF)	100	4	7	6
SJ-2	6.25	1	0	10
SJ-2	6.25	1	1	10
SJ-2	6.25	1	2	10
SJ-2	6.25	1	3	10
SJ-2	6.25	1	4	9
SJ-2	6.25	1	5	9
SJ-2	6.25	1	6	8
SJ-2	6.25	1	7	7
SJ-2	6.25	2	0	10
SJ-2	6.25	2	1	9
SJ-2	6.25	2	2	9
SJ-2	6.25	2	3	9
SJ-2	6.25	2	4	9
SJ-2	6.25	2	5	9
SJ-2	6.25	2	6	6
SJ-2	6.25	2	7	6
SJ-2	6.25	3	0	10
SJ-2	6.25	3	1	10
SJ-2	6.25	3	2	10
SJ-2	6.25	3	3	10
SJ-2	6.25	3	4	10
SJ-2	6.25	3	5	10
SJ-2	6.25	3	6	7
SJ-2	6.25	3	7	6
(Sheet 7 of 22)				

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-2	6.25	4	0	10
SJ-2	6.25	4	1	10
SJ-2	6.25	4	2	10
SJ-2	6.25	4	3	9
SJ-2	6.25	4	4	9
SJ-2	6.25	4	5	9
SJ-2	6.25	4	6	8
SJ-2	6.25	4	7	7
SJ-2	12.5	1	0	10
SJ-2	12.5	1	1	10
SJ-2	12.5	1	2	10
SJ-2	12.5	1	3	10
SJ-2	12.5	1	4	10
SJ-2	12.5	1	5	9
SJ-2	12.5	1	6	9
SJ-2	12.5	1	7	8
SJ-2	12.5	2	0	10
SJ-2	12.5	2	1	10
SJ-2	12.5	2	2	10
SJ-2	12.5	2	3	9
SJ-2	12.5	2	4	9
SJ-2	12.5	2	5	8
SJ-2	12.5	2	6	7
SJ-2	12.5	2	7	6
SJ-2	12.5	3	0	10
SJ-2	12.5	3	1	10
SJ-2	12.5	3	2	10
SJ-2	12.5	3	3	10
SJ-2	12.5	3	4	10
SJ-2	12.5	3	5	10
SJ-2	12.5	3	6	7
(Sheet 8 of 22)				

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-2	12.5	3	7	7
SJ-2	12.5	4	0	10
SJ-2	12.5	4	1	10
SJ-2	12.5	4	2	10
SJ-2	12.5	4	3	9
SJ-2	12.5	4	4	9
SJ-2	12.5	4	5	7
SJ-2	12.5	4	6	6
SJ-2	12.5	4	7	6
SJ-2	25	1	0	10
SJ-2	25	1	1	10
SJ-2	25	1	2	10
SJ-2	25	1	3	10
SJ-2	25	1	4	10
SJ-2	25	1	5	9
SJ-2	25	1	6	8
SJ-2	25	1	7	8
SJ-2	25	2	0	10
SJ-2	25	2	1	10
SJ-2	25	2	2	10
SJ-2	25	2	3	9
SJ-2	25	2	4	9
SJ-2	25	2	5	8
SJ-2	25	2	6	7
SJ-2	25	2	7	7
SJ-2	25	3	0	10
SJ-2	25	3	1	10
SJ-2	25	3	2	9
SJ-2	25	3	3	9
SJ-2	25	3	4	9
SJ-2	25	3	5	9
(Sheet 9 of 22)				

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-2	25	3	6	9
SJ-2	25	3	7	8
SJ-2	25	4	0	10
SJ-2	25	4	1	10
SJ-2	25	4	2	10
SJ-2	25	4	3	9
SJ-2	25	4	4	9
SJ-2	25	4	5	7
SJ-2	25	4	6	6
SJ-2	25	4	7	6
SJ-2	50	1	0	10
SJ-2	50	1	1	10
SJ-2	50	1	2	9
SJ-2	50	1	3	9
SJ-2	50	1	4	9
SJ-2	50	1	5	8
SJ-2	50	1	6	6
SJ-2	50	1	7	6
SJ-2	50	2	0	10
SJ-2	50	2	1	10
SJ-2	50	2	2	9
SJ-2	50	2	3	9
SJ-2	50	2	4	9
SJ-2	50	2	5	8
SJ-2	50	2	6	6
SJ-2	50	2	7	6
SJ-2	50	3	0	10
SJ-2	50	3	1	10
SJ-2	50	3	2	10
SJ-2	50	3	3	10
SJ-2	50	3	4	10
(Sheet 10 of 22)				

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-2	50	3	5	9
SJ-2	50	3	6	9
SJ-2	50	3	7	9
SJ-2	50	4	0	10
SJ-2	50	4	1	10
SJ-2	50	4	2	8
SJ-2	50	4	3	7
SJ-2	50	4	4	7
SJ-2	50	4	5	7
SJ-2	50	4	6	6
SJ-2	50	4	7	6
SJ-2	100	1	0	10
SJ-2	100	1	1	10
SJ-2	100	1	2	10
SJ-2	100	1	3	10
SJ-2	100	1	4	8
SJ-2	100	1	5	8
SJ-2	100	1	6	8
SJ-2	100	1	7	7
SJ-2	100	2	0	10
SJ-2	100	2	1	10
SJ-2	100	2	2	9
SJ-2	100	2	3	9
SJ-2	100	2	4	5
SJ-2	100	2	5	5
SJ-2	100	2	6	5
SJ-2	100	2	7	4
SJ-2	100	3	0	10
SJ-2	100	3	1	10
SJ-2	100	3	2	10
SJ-2	100	3	3	10
(Sheet 11 of 22)				

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-2	100	3	4	7
SJ-2	100	3	5	7
SJ-2	100	3	6	7
SJ-2	100	3	7	7
SJ-2	100	4	0	10
SJ-2	100	4	1	10
SJ-2	100	4	2	10
SJ-2	100	4	3	10
SJ-2	100	4	4	10
SJ-2	100	4	5	10
SJ-2	100	4	6	9
SJ-2	100	4	7	8
SJ-3	6.25	1	0	10
SJ-3	6.25	1	1	0
SJ-3	6.25	1	2	0
SJ-3	6.25	1	3	0
SJ-3	6.25	1	4	0
SJ-3	6.25	1	5	0
SJ-3	6.25	1	6	0
SJ-3	6.25	1	7	0
SJ-3	6.25	2	0	10
SJ-3	6.25	2	1	10
SJ-3	6.25	2	2	10
SJ-3	6.25	2	3	9
SJ-3	6.25	2	4	8
SJ-3	6.25	2	5	8
SJ-3	6.25	2	6	7
SJ-3	6.25	2	7	7
SJ-3	6.25	3	0	10
SJ-3	6.25	3	1	0
SJ-3	6.25	3	2	0

(Sheet 12 of 22)

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-3	6.25	3	3	0
SJ-3	6.25	3	4	0
SJ-3	6.25	3	5	0
SJ-3	6.25	3	6	0
SJ-3	6.25	3	7	0
SJ-3	6.25	4	0	10
SJ-3	6.25	4	1	10
SJ-3	6.25	4	2	10
SJ-3	6.25	4	3	9
SJ-3	6.25	4	4	9
SJ-3	6.25	4	5	9
SJ-3	6.25	4	6	9
SJ-3	6.25	4	7	9
SJ-3	12.5	1	0	10
SJ-3	12.5	1	1	9
SJ-3	12.5	1	2	9
SJ-3	12.5	1	3	9
SJ-3	12.5	1	4	9
SJ-3	12.5	1	5	9
SJ-3	12.5	1	6	8
SJ-3	12.5	1	7	6
SJ-3	12.5	2	0	10
SJ-3	12.5	2	1	10
SJ-3	12.5	2	2	10
SJ-3	12.5	2	3	10
SJ-3	12.5	2	4	10
SJ-3	12.5	2	5	8
SJ-3	12.5	2	6	6
SJ-3	12.5	2	7	6
SJ-3	12.5	3	0	10
SJ-3	12.5	3	1	10
(Sheet 13 of 22)				

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-3	12.5	3	2	10
SJ-3	12.5	3	3	10
SJ-3	12.5	3	4	10
SJ-3	12.5	3	5	7
SJ-3	12.5	3	6	7
SJ-3	12.5	3	7	4
SJ-3	12.5	4	0	10
SJ-3	12.5	4	1	10
SJ-3	12.5	4	2	10
SJ-3	12.5	4	3	10
SJ-3	12.5	4	4	10
SJ-3	12.5	4	5	9
SJ-3	12.5	4	6	7
SJ-3	12.5	4	7	6
SJ-3	25	1	0	10
SJ-3	25	1	1	9
SJ-3	25	1	2	9
SJ-3	25	1	3	9
SJ-3	25	1	4	9
SJ-3	25	1	5	9
SJ-3	25	1	6	5
SJ-3	25	1	7	5
SJ-3	25	2	0	10
SJ-3	25	2	1	10
SJ-3	25	2	2	10
SJ-3	25	2	3	10
SJ-3	25	2	4	9
SJ-3	25	2	5	9
SJ-3	25	2	6	9
SJ-3	25	2	7	9
SJ-3	25	3	0	10

(Sheet 14 of 22)

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-3	25	3	1	10
SJ-3	25	3	2	10
SJ-3	25	3	3	10
SJ-3	25	3	4	9
SJ-3	25	3	5	9
SJ-3	25	3	6	9
SJ-3	25	3	7	9
SJ-3	25	4	0	10
SJ-3	25	4	1	9
SJ-3	25	4	2	9
SJ-3	25	4	3	9
SJ-3	25	4	4	9
SJ-3	25	4	5	7
SJ-3	25	4	6	7
SJ-3	25	4	7	7
SJ-3	50	1	0	10
SJ-3	50	1	1	10
SJ-3	50	1	2	10
SJ-3	50	1	3	10
SJ-3	50	1	4	10
SJ-3	50	1	5	9
SJ-3	50	1	6	9
SJ-3	50	1	7	9
SJ-3	50	2	0	10
SJ-3	50	2	1	10
SJ-3	50	2	2	10
SJ-3	50	2	3	10
SJ-3	50	2	4	10
SJ-3	50	2	5	8
SJ-3	50	2	6	8
SJ-3	50	2	7	8
(Sheet 15 of 22)				

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-3	50	3	0	10
SJ-3	50	3	1	10
SJ-3	50	3	2	10
SJ-3	50	3	3	10
SJ-3	50	3	4	10
SJ-3	50	3	5	8
SJ-3	50	3	6	8
SJ-3	50	3	7	6
SJ-3	50	4	0	10
SJ-3	50	4	1	10
SJ-3	50	4	2	10
SJ-3	50	4	3	10
SJ-3	50	4	4	10
SJ-3	50	4	5	7
SJ-3	50	4	6	6
SJ-3	50	4	7	6
SJ-3	100	1	0	10
SJ-3	100	1	1	0
SJ-3	100	1	2	0
SJ-3	100	1	3	0
SJ-3	100	1	4	0
SJ-3	100	1	5	0
SJ-3	100	1	6	0
SJ-3	100	1	7	0
SJ-3	100	2	0	10
SJ-3	100	2	1	0
SJ-3	100	2	2	0
SJ-3	100	2	3	0
SJ-3	100	2	4	0
SJ-3	100	2	5	0
SJ-3	100	2	6	0
(Sheet 16 of 22)				

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-3	100	2	7	0
SJ-3	100	3	0	10
SJ-3	100	3	1	0
SJ-3	100	3	2	0
SJ-3	100	3	3	0
SJ-3	100	3	4	0
SJ-3	100	3	5	0
SJ-3	100	3	6	0
SJ-3	100	3	7	0
SJ-3	100	4	0	10
SJ-3	100	4	1	0
SJ-3	100	4	2	0
SJ-3	100	4	3	0
SJ-3	100	4	4	0
SJ-3	100	4	5	0
SJ-3	100	4	6	0
SJ-3	100	4	7	0
SJ-4	6.25	1	0	10
SJ-4	6.25	1	1	9
SJ-4	6.25	1	2	9
SJ-4	6.25	1	3	9
SJ-4	6.25	1	4	9
SJ-4	6.25	1	5	9
SJ-4	6.25	1	6	9
SJ-4	6.25	1	7	9
SJ-4	6.25	2	0	10
SJ-4	6.25	2	1	10
SJ-4	6.25	2	2	9
SJ-4	6.25	2	3	9
SJ-4	6.25	2	4	9
SJ-4	6.25	2	5	9
(Sheet 17 of 22)				

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-4	6.25	2	6	5
SJ-4	6.25	2	7	3
SJ-4	6.25	3	0	10
SJ-4	6.25	3	1	9
SJ-4	6.25	3	2	10
SJ-4	6.25	3	3	10
SJ-4	6.25	3	4	10
SJ-4	6.25	3	5	9
SJ-4	6.25	3	6	9
SJ-4	6.25	3	7	5
SJ-4	6.25	4	0	10
SJ-4	6.25	4	1	10
SJ-4	6.25	4	2	10
SJ-4	6.25	4	3	10
SJ-4	6.25	4	4	10
SJ-4	6.25	4	5	10
SJ-4	6.25	4	6	10
SJ-4	6.25	4	7	5
SJ-4	12.5	1	0	10
SJ-4	12.5	1	1	10
SJ-4	12.5	1	2	10
SJ-4	12.5	1	3	10
SJ-4	12.5	1	4	9
SJ-4	12.5	1	5	9
SJ-4	12.5	1	6	8
SJ-4	12.5	1	7	8
SJ-4	12.5	2	0	10
SJ-4	12.5	2	1	10
SJ-4	12.5	2	2	10
SJ-4	12.5	2	3	10
SJ-4	12.5	2	4	10
(Sheet 18 of 22)				

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-4	12.5	2	5	10
SJ-4	12.5	2	6	10
SJ-4	12.5	2	7	7
SJ-4	12.5	3	0	10
SJ-4	12.5	3	1	10
SJ-4	12.5	3	2	10
SJ-4	12.5	3	3	9
SJ-4	12.5	3	4	9
SJ-4	12.5	3	5	9
SJ-4	12.5	3	6	9
SJ-4	12.5	3	7	9
SJ-4	12.5	4	0	10
SJ-4	12.5	4	1	10
SJ-4	12.5	4	2	9
SJ-4	12.5	4	3	9
SJ-4	12.5	4	4	9
SJ-4	12.5	4	5	7
SJ-4	12.5	4	6	7
SJ-4	12.5	4	7	5
SJ-4	25	1	0	10
SJ-4	25	1	1	10
SJ-4	25	1	2	10
SJ-4	25	1	3	9
SJ-4	25	1	4	9
SJ-4	25	1	5	9
SJ-4	25	1	6	9
SJ-4	25	1	7	6
SJ-4	25	2	0	10
SJ-4	25	2	1	10
SJ-4	25	2	2	10
SJ-4	25	2	3	9

(Sheet 19 of 22)

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-4	25	2	4	9
SJ-4	25	2	5	9
SJ-4	25	2	6	9
SJ-4	25	2	7	9
SJ-4	25	3	0	10
SJ-4	25	3	1	10
SJ-4	25	3	2	10
SJ-4	25	3	3	9
SJ-4	25	3	4	9
SJ-4	25	3	5	7
SJ-4	25	3	6	5
SJ-4	25	3	7	1
SJ-4	25	4	0	10
SJ-4	25	4	1	10
SJ-4	25	4	2	10
SJ-4	25	4	3	10
SJ-4	25	4	4	10
SJ-4	25	4	5	10
SJ-4	25	4	6	10
SJ-4	25	4	7	10
SJ-4	50	1	0	10
SJ-4	50	1	1	9
SJ-4	50	1	2	9
SJ-4	50	1	3	9
SJ-4	50	1	4	9
SJ-4	50	1	5	8
SJ-4	50	1	6	8
SJ-4	50	1	7	6
SJ-4	50	2	0	10
SJ-4	50	2	1	10
SJ-4	50	2	2	8

(Sheet 20 of 22)

Table C4 (Continued)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-4	50	2	3	8
SJ-4	50	2	4	8
SJ-4	50	2	5	8
SJ-4	50	2	6	8
SJ-4	50	2	7	7
SJ-4	50	3	0	10
SJ-4	50	3	1	10
SJ-4	50	3	2	10
SJ-4	50	3	3	10
SJ-4	50	3	4	9
SJ-4	50	3	5	9
SJ-4	50	3	6	9
SJ-4	50	3	7	4
SJ-4	50	4	0	10
SJ-4	50	4	1	9
SJ-4	50	4	2	9
SJ-4	50	4	3	9
SJ-4	50	4	4	9
SJ-4	50	4	5	9
SJ-4	50	4	6	9
SJ-4	50	4	7	8
SJ-4	100	1	0	10
SJ-4	100	1	1	9
SJ-4	100	1	2	9
SJ-4	100	1	3	8
SJ-4	100	1	4	8
SJ-4	100	1	5	8
SJ-4	100	1	6	8
SJ-4	100	1	7	8
SJ-4	100	2	0	10
SJ-4	100	2	1	8
(Sheet 21 of 22)				

Table C4 (Concluded)				
Sediment	Percent Elutriate	Replicate	Day	No. of Survivors
SJ-4	100	2	2	8
SJ-4	100	2	3	88
SJ-4	100	2	4	8
SJ-4	100	2	5	8
SJ-4	100	2	6	8
SJ-4	100	2	7	7
SJ-4	100	3	0	10
SJ-4	100	3	1	10
SJ-4	100	3	2	10
SJ-4	100	3	3	9
SJ-4	100	3	4	9
SJ-4	100	3	5	7
SJ-4	100	3	6	7
SJ-4	100	3	7	6
SJ-4	100	4	0	10
SJ-4	100	4	1	10
SJ-4	100	4	2	10
SJ-4	100	4	3	10
SJ-4	100	4	4	10
SJ-4	100	4	5	9
SJ-4	100	4	6	8
SJ-4	100	4	7	4
(Sheet 22 of 22)				

Table C5
Survival and Dry Weight Data for *P. promelas* Exposed to
Elutriates of Buffalo District - Toledo Harbor Sediments

Sediment	Percent Elutriate	Replicate	No. of Animals	Mean Dry Wt, g
Control-2	0	1	9	0.31
Control-2	0	2	8	0.26
Control-2	0	3	8	0.22
Control-2	0	4	8	0.20
RM 1-2	6.25	1	4	0.15
RM 1-2	6.25	2	4	0.18
RM 1-2	6.25	3	5	0.19
RM 1-2	6.25	4	4	0.20
RM 1-2	12.5	1	5	0.12
RM 1-2	12.5	2	5	0.17
RM 1-2	12.5	3	4	0.11
RM 1-2	12.5	4	3	0.22
RM 1-2	25	1	2	0.11
RM 1-2	25	2	3	0.17
RM 1-2	25	3	6	0.16
RM 1-2	25	4	4	0.15
RM 1-2	50	1	6	0.13
RM 1-2	50	2	3	0.16
RM 1-2	50	3	3	0.18
RM 1-2	50	4	3	0.17
RM 1-2	100	2	4	0.16
RM 1-2	100	3	3	0.16
RM 1-2	100	4	3	0.17
LM 0-1	6.25	1	6	0.19
LM 0-1	6.25	2	2	0.28
LM 0-1	6.25	3	3	0.26
LM 0-1	6.25	4	5	0.27
LM 0-1	12.5	1	7	0.18
LM 0-1	12.5	2	7	0.17
LM 0-1	12.5	3	6	0.24

(Sheet 1 of 6)

Table C5 (Continued)				
Sediment	Percent Elutriate	Replicate	No. of Animals	Mean Dry Wt, g
LM 0-1	12.5	4	4	0.24
LM 0-1	25	1	5	0.23
LM 0-1	25	2	3	0.13
LM 0-1	25	3	4	0.21
LM 0-1	25	4	7	0.18
LM 0-1	50	1	3	0.19
LM 0-1	50	2	2	0.32
LM 0-1	50	3	5	0.26
LM 0-1	50	4	4	0.23
LM 0-1	100	2	3	0.23
LM 1-2	6.25	1	6	0.15
LM 1-2	6.25	2	8	0.15
LM 1-2	6.25	3	5	0.24
LM 1-2	6.25	4	5	0.23
LM 1-2	12.5	1	8	0.21
LM 1-2	12.5	2	5	0.24
LM 1-2	12.5	3	5	0.22
LM 1-2	12.5	4	7	0.21
LM 1-2	25	1	7	0.13
LM 1-2	25	2	7	0.21
LM 1-2	25	3	7	0.30
LM 1-2	25	4	3	0.27
LM 1-2	50	1	6	0.20
LM 1-2	50	2	8	0.20
LM 1-2	50	3	7	0.20
LM 1-2	50	4	8	0.17
LM 1-2	100	1	7	0.16
LM 1-2	100	2	5	0.19
LM 1-2	100	3	4	0.19
LM 1-2	100	4	6	0.19
LM 2-3	6.25	1	6	0.17
LM 2-3	6.25	2	4	0.17
(Sheet 2 of 6)				

Table C5 (Continued)				
Sediment	Percent Elutriate	Replicate	No. of Animals	Mean Dry Wt, g
LM 2-3	6.25	3	5	0.28
LM 2-3	6.25	4	8	0.25
LM 2-3	12.5	1	4	0.16
LM 2-3	12.5	2	6	0.16
LM 2-3	12.5	3	3	0.11
LM 2-3	12.5	4	4	0.22
LM 2-3	25	1	7	0.16
LM 2-3	25	2	5	0.19
LM 2-3	25	3	8	0.24
LM 2-3	25	4	3	0.22
LM 2-3	50	1	5	0.28
LM 2-3	50	2	4	0.19
LM 2-3	50	3	6	0.18
LM 2-3	50	4	3	0.18
LM 2-3	100	1	6	0.25
LM 2-3	100	2	4	0.21
LM 2-3	100	3	5	0.13
LM 2-3	100	4	2	0.25
LM 3-4	6.25	1	3	0.22
LM 3-4	6.25	2	5	0.39
LM 3-4	6.25	3	8	0.40
LM 3-4	6.25	4	4	0.26
LM 3-4	12.5	1	7	0.24
LM 3-4	12.5	2	7	0.28
LM 3-4	12.5	3	5	0.27
LM 3-4	12.5	4	3	0.26
LM 3-4	25	1	5	0.22
LM 3-4	25	2	5	0.19
LM 3-4	25	3	5	0.21
LM 3-4	25	4	5	0.19
LM 3-4	50	1	4	0.19
LM 3-4	50	2	4	0.16
(Sheet 3 of 6)				

Table C5 (Continued)				
Sediment	Percent Elutriate	Replicate	No. of Animals	Mean Dry Wt, g
LM 3-4	50	3	5	0.19
LM 3-4	50	4	5	0.14
LM 3-4	100	1	3	0.18
LM 3-4	100	2	2	0.28
LM 3-4	100	3	3	0.19
LM 3-4	100	4	4	0.24
LM 4-5	6.25	1	3	0.20
LM 4-5	6.25	2	5	0.21
LM 4-5	6.25	3	2	0.17
LM 4-5	6.25	4	6	0.22
LM 4-5	12.5	1	2	0.18
LM 4-5	12.5	2	4	0.14
LM 4-5	12.5	3	7	0.16
LM 4-5	12.5	4	5	0.19
LM 4-5	25	1	4	0.10
LM 4-5	25	2	6	0.19
LM 4-5	25	3	7	0.15
LM 4-5	25	4	8	0.16
LM 4-5	50	1	5	0.16
LM 4-5	50	2	4	0.25
LM 4-5	50	3	4	0.23
LM 4-5	50	4	5	0.19
LM 4-5	100	1	4	0.26
LM 4-5	100	2	1	0.28
LM 4-5	100	3	1	0.12
LM 4-5	100	4	3	0.13
LM 7-8	6.25	1	5	0.20
LM 7-8	6.25	2	4	0.23
LM 7-8	6.25	3	5	0.24
LM 7-8	6.25	4	6	0.16
LM 7-8	12.5	1	5	0.28
LM 7-8	12.5	2	4	0.24

(Sheet 4 of 6)

Table C5 (Continued)				
Sediment	Percent Elutriate	Replicate	No. of Animals	Mean Dry Wt, g
LM 7-8	12.5	3	7	0.32
LM 7-8	12.5	4	4	0.18
LM 7-8	25	1	4	0.21
LM 7-8	25	2	4	0.23
LM 7-8	25	3	7	0.18
LM 7-8	25	4	5	0.19
LM 7-8	50	1	5	0.14
LM 7-8	50	2	3	0.19
LM 7-8	50	3	4	0.21
LM 7-8	50	4	5	0.21
LM 7-8	100	1	4	0.23
LM 7-8	100	2	3	0.31
LM 7-8	100	3	4	0.18
LM 7-8	100	4	3	0.20
LM 11-12	6.25	1	4	0.26
LM 11-12	6.25	2	3	0.27
LM 11-12	6.25	3	6	0.16
LM 11-12	6.25	4	4	0.22
LM 11-12	12.5	1	6	0.25
LM 11-12	12.5	2	5	0.18
LM 11-12	12.5	3	5	0.13
LM 11-12	12.5	4	2	0.18
LM 11-12	25	1	5	0.17
LM 11-12	25	2	7	0.18
LM 11-12	25	3	6	0.17
LM 11-12	25	4	4	0.12
LM 11-12	50	1	8	0.21
LM 11-12	50	2	6	0.14
LM 11-12	50	3	5	0.18
LM 11-12	50	4	6	0.21
LM 11-12	100	1	5	0.18
LM 11-12	100	2	8	0.17
(Sheet 5 of 6)				

Table C5 (Concluded)				
Sediment	Percent Elutriate	Replicate	No. of Animals	Mean Dry Wt, g
LM 11-12	100	3	4	0.19
LM 11-12	100	4	3	0.08
(Sheet 6 of 6)				

Table C6
Survival and Dry Weight Data for *P. promelas* Exposed to
Elutriates of Chicago District - Michigan City Harbor Sediments

Sediment	Percent Elutriate	Replicate	No. of Animals	Mean Dry Wt, g
Control-2	0	1	9	0.31
Control-2	0	2	8	0.26
Control-2	0	3	8	0.22
Control-2	0	4	8	0.20
MC-1	6.25	1	1	0.24
MC-1	6.25	2	4	0.26
MC-1	6.25	3	3	0.20
MC-1	6.25	4	2	0.25
MC-1	12.5	1	2	0.20
MC-1	12.5	2	2	0.29
MC-1	12.5	3	5	0.22
MC-1	12.5	4	3	0.35
MC-1	25	1	3	0.30
MC-1	25	2	2	0.46
MC-1	25	3	4	0.24
MC-1	25	4	6	0.24
MC-1	50	1	3	0.29
MC-1	50	2	4	0.25
MC-1	50	3	2	0.19
MC-1	50	4	2	0.36
MC-1	100	1	3	0.23
MC-1	100	2	4	0.21
MC-1	100	3	1	0.27
MC-1	100	4	3	0.26
MC-2	6.25	1	2	0.37
MC-2	6.25	2	1	0.34
MC-2	6.25	3	2	0.17
MC-2	6.25	4	4	0.20
MC-2	12.5	1	3	0.21
MC-2	12.5	2	4	0.18
MC-2	12.5	3	3	0.13
(Continued)				

Table C6 (Concluded)				
Sediment	Percent Elutriate	Replicate	No. of Animals	Mean Dry Wt, g
MC-2	12.5	4	4	0.20
MC-2	25	1	4	0.23
MC-2	25	2	4	0.25
MC-2	25	3	4	0.27
MC-2	25	4	4	0.17
MC-2	50	1	4	0.27
MC-2	50	2	2	0.31
MC-2	50	3	3	0.32
MC-2	50	4	4	0.23
MC-2	100	1	3	0.24
MC-2	100	2	4	0.20
MC-2	100	3	5	0.16
MC-2	100	4	4	0.16
MC-3	6.25	1	7	0.21
MC-3	6.25	2	5	0.21
MC-3	6.25	3	6	0.17
MC-3	6.25	4	1	0.36
MC-3	12.5	1	4	0.24
MC-3	12.5	3	7	0.21
MC-3	12.5	4	3	0.21
MC-3	25	1	3	0.20
MC-3	25	2	5	0.19
MC-3	25	3	5	0.26
MC-3	50	1	3	0.18
MC-3	50	2	3	0.15
MC-3	50	3	3	0.13
MC-3	50	4	2	0.26
MC-3	100	1	2	0.17
MC-3	100	2	2	0.24
MC-3	100	3	4	0.21
MC-3	100	4	4	0.19

Table C7
Survival and Dry Weight Data for *P. promelas* Exposed to
Elutriates of Detroit District - Grand Haven Harbor Sediments

Sediment	Percent Elutriate	Replicate	No. of Animals	Mean Dry Wt, g
Control-1	0	1	9	0.16
Control-1	0	2	7	0.13
Control-1	0	3	9	0.12
Control-1	0	4	8	0.14
GH-1	6.25	1	7	0.25
GH-1	6.25	2	6	0.37
GH-1	6.25	3	9	0.25
GH-1	6.25	4	7	0.25
GH-1	12.5	1	5	0.33
GH-1	12.5	2	8	0.27
GH-1	12.5	3	8	0.27
GH-1	12.5	4	7	0.31
GH-1	25	1	10	0.29
GH-1	25	2	5	0.33
GH-1	25	3	6	0.26
GH-1	25	4	8	0.27
GH-1	50	1	7	0.20
GH-1	50	2	8	0.17
GH-1	50	3	3	0.29
GH-1	50	4	8	0.25
GH-1	100	1	3	0.34
GH-1	100	2	1	0.17
GH-1	100	3	6	0.29
GH-1	100	4	5	0.26
GH-2	6.25	1	9	0.28
GH-2	6.25	2	6	0.32
GH-2	6.25	3	5	0.30
GH-2	6.25	4	5	0.45
GH-2	12.5	1	5	0.29
GH-2	12.5	2	4	0.34
(Continued)				

Table C7 (Concluded)				
Sediment	Percent Elutriate	Replicate	No. of Animals	Mean Dry Wt, g
Control-1	0	1	9	0.16
GH-2	12.5	3	8	0.33
GH-2	12.5	4	4	0.27
GH-2	25	1	9	0.20
GH-2	25	2	5	0.33
GH-2	25	3	8	0.29
GH-2	25	4	9	0.23
GH-2	50	1	6	0.22
GH-2	50	2	5	0.21
GH-2	50	3	4	0.31
GH-2	50	4	6	0.16
GH-4	6.25	1	7	0.29
GH-4	6.25	2	4	0.34
GH-4	6.25	3	4	0.23
GH-4	6.25	4	2	0.38
GH-4	12.5	1	4	0.27
GH-4	12.5	2	6	0.32
GH-4	12.5	3	6	0.26
GH-4	12.5	4	8	0.26
GH-4	25	1	5	0.32
GH-4	25	2	8	0.29
GH-4	25	3	3	0.41
GH-4	25	4	2	0.25
GH-4	50	1	8	0.24
GH-4	50	2	3	0.29
GH-4	50	3	5	0.25
GH-4	50	4	9	0.27
GH-4	100	1	6	0.20
GH-4	100	2	5	0.30
GH-4	100	3	2	0.32

Table C8
Survival and Dry Weight Data for *P. promelas* Exposed to
Elutriates of Detroit District - St. Joseph Harbor Sediments

Sediment	Percent Elutriate	Replicate	No. of Animals	Mean Dry Wt, g
Control-1	0	1	9	0.16
Control-1	0	2	7	0.13
Control-1	0	3	9	0.12
Control-1	0	4	8	0.14
SJ-2	6.25	1	7	0.21
SJ-2	6.25	2	6	0.33
SJ-2	6.25	3	6	0.22
SJ-2	6.25	4	7	0.19
SJ-2	12.5	1	8	0.30
SJ-2	12.5	2	6	0.20
SJ-2	12.5	3	7	0.31
SJ-2	12.5	4	6	0.27
SJ-2	25	1	8	0.27
SJ-2	25	2	7	0.30
SJ-2	25	3	8	0.19
SJ-2	25	4	6	0.25
SJ-2	50	1	6	0.26
SJ-2	50	2	7	0.22
SJ-2	50	3	9	0.24
SJ-2	50	4	6	0.31
SJ-2	100	1	7	0.23
SJ-2	100	2	4	0.36
SJ-2	100	3	7	0.24
SJ-2	100	4	8	0.19
SJ-3	6.25	2	7	0.36
SJ-3	6.25	4	9	0.29
SJ-3	12.5	1	6	0.35
SJ-3	12.5	2	6	0.30
SJ-3	12.5	3	4	0.29
SJ-3	12.5	4	6	0.38
(Continued)				

Table C8 (Concluded)				
Sediment	Percent Elutriate	Replicate	No. of Animals	Mean Dry Wt, g
SJ-3	25	1	5	0.28
SJ-3	25	2	7	0.27
SJ-3	25	3	9	0.23
SJ-3	25	4	7	0.30
SJ-3	50	1	9	0.35
SJ-3	50	2	8	0.27
SJ-3	50	3	6	0.23
SJ-3	50	4	6	0.30
SJ-4	6.25	1	9	0.35
SJ-4	6.25	2	3	0.36
SJ-4	6.25	3	5	0.40
SJ-4	6.25	4	5	0.31
SJ-4	12.5	1	8	0.26
SJ-4	12.5	2	8	0.29
SJ-4	12.5	3	9	0.33
SJ-4	12.5	4	5	0.35
SJ-4	25	1	6	0.31
SJ-4	25	2	9	0.28
SJ-4	25	3	1	0.43
SJ-4	25	4	10	0.27
SJ-4	50	1	6	0.40
SJ-4	50	2	7	0.26
SJ-4	50	3	4	0.36
SJ-4	50	4	8	0.27
SJ-4	100	1	8	0.28
SJ-4	100	2	7	0.38
SJ-4	100	3	6	0.37
SJ-4	100	4	4	0.34

Table C9
Water Quality for *P. promelas* Exposed to Elutriates of Buffalo
District - Toledo Harbor Sediments

Sediment	Percent Elutriate	Day	Temp °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids, mg/L
Control-1	0	0	25	7.6	7.99	0.02	
Control-1	0	1	25	6.9	7.98	0.02	
Control-1	0	2	25	7.2	8.05	0.41	
Control-1	0	3	25	7.5	8.65	0.36	
Control-1	0	4	25	7.4	8.68	0.11	
Control-1	0	5	25	7.7	8.73	0.11	
Control-1	0	6	25	7.7	8.76	0.04	
Control-1	0	7	25	7.5	8.26	0.62	
RM 1-2	6.25	0	25	8.2	7.81		
RM 1-2	6.25	1	25	5.9	7.97	0.15	
RM 1-2	6.25	2	25	7.4	7.88	0.39	
RM 1-2	6.25	3	25	7.1	8.72	0.01	
RM 1-2	6.25	4	25	8.4	8.68	0.44	
RM 1-2	6.25	5	25	7.2	8.27	0.67	
RM 1-2	6.25	6	25	7.7	8.34	0.01	
RM 1-2	6.25	7	25	8.0	8.02	0.11	
RM 1-2	12.5	0	25	7.2	7.75		
RM 1-2	12.5	1	25	6.0	7.95	0.46	
RM 1-2	12.5	2	25	7.5	7.89	0.05	
RM 1-2	12.5	3	25	7.2	8.71	0.07	
RM 1-2	12.5	4	25	8.4	8.88	0.09	
RM 1-2	12.5	5	25	7.2	8.22	0.41	
RM 1-2	12.5	6	25	7.5	8.30	0.31	
RM 1-2	12.5	7	25	8.0	8.02	0.19	
RM 1-2	25	0	25	6.2	7.76		
RM 1-2	25	1	25	5.9	7.95	0.86	
RM 1-2	25	2	25	7.3	7.89	1.89	
RM 1-2	25	3	25	6.0	8.63	0.10	
RM 1-2	25	4	25	7.8	8.69	1.01	

(Sheet 1 of 11)

Table C9 (Continued)

Sediment	Percent Elutriate	Day	Temp °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids, mg/L
RM 1-2	25	5	25	7.2	8.19	0.78	
RM 1-2	25	6	25	7.5	8.30	0.05	
RM 1-2	25	7	25	7.9	8.03	0.02	
RM 1-2	50	0	25	6.2	7.57		
RM 1-2	50	1	25	5.8	7.96	1.13	
RM 1-2	50	2	25	7.3	7.92	0.75	
RM 1-2	50	3	25	6.0	8.57	0.09	
RM 1-2	50	4	25	7.4	8.65	4.12	
RM 1-2	50	5	25	7.0	8.26	1.38	
RM 1-2	50	6	25	7.4	8.29	0.04	
RM 1-2	50	7	25	7.8	7.87	0.08	
RM 1-2	100	0	25	6.3	7.58		1,599
RM 1-2	100	1	25	6.9	7.96	0.08	
RM 1-2	100	2	25	7.2	7.81	12.00	
RM 1-2	100	3	25	6.0	8.51	0.11	
RM 1-2	100	4	25	3.5	8.63	8.97	
RM 1-2	100	5	25	6.9	8.16	4.69	
RM 1-2	100	6	25	7.2	7.90	0.08	
RM 1-2	100	7	25	7.6	7.90	0.08	11,928
LM 0-1	6.25	0	25	7.5	7.76		
LM 0-1	6.25	1	25	4.7	8.00		
LM 0-1	6.25	2	25	6.5	8.01	0.16	
LM 0-1	6.25	3	25	7.2	8.59	1.17	
LM 0-1	6.25	4	25	6.9	8.68	0.14	
LM 0-1	6.25	5	25	7.6	8.22		
LM 0-1	6.25	6	25	7.8	8.28	0.20	
LM 0-1	6.25	7	25	8.0	8.06	0.23	
LM 0-1	12.5	0	25	6.5	7.66		
LM 0-1	12.5	1	25	4.7	7.95		
LM 0-1	12.5	2	25	6.5	7.98	0.03	

(Sheet 2 of 11)

Table C9 (Continued)							
Sediment	Percent Elutriate	Day	Temp °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids, mg/L
LM 0-1	12.5	3	25	7.5	8.53	0.05	
LM 0-1	12.5	4	25	6.8	8.60	0.02	
LM 0-1	12.5	5	25	7.4	8.16	0.72	
LM 0-1	12.5	6	25	7.7	8.24	0.08	
LM 0-1	12.5	7	25	7.8	7.91	0.02	
LM 0-1	25	0	25	6.5	7.65		
LM 0-1	25	1	25	4.0	7.86		
LM 0-1	25	2	25	6.6	7.98	0.03	
LM 0-1	25	3	25	7.4	8.57	0.05	
LM 0-1	25	4	25	6.6	8.69	0.02	
LM 0-1	25	5	25	7.4	8.13	0.52	
LM 0-1	25	6	25	7.7	8.20	0.06	
LM 0-1	25	7	25	7.2	7.92	0.07	
LM 0-1	50	0	25	6.0	7.60		
LM 0-1	50	1	25	4.2	7.84		
LM 0-1	50	2	25	6.6	7.88	0.11	
LM 0-1	50	3	25	6.9	8.44	0.05	
LM 0-1	50	4	25	6.8	8.66	0.02	
LM 0-1	50	5	25	6.6	8.07	0.79	
LM 0-1	50	6	25	7.0	8.20	0.04	
LM 0-1	50	7	25	7.5	7.79	0.03	
LM 0-1	100	0	25	6.0	7.60		9,506
LM 0-1	100	1	25	5.0	7.78		
LM 0-1	100	2	25	7.0	7.82	0.04	
LM 0-1	100	3	25	6.0	8.40	0.04	
LM 0-1	100	4	25	6.4	8.69	0.02	
LM 0-1	100	5	25	6.3	8.01	3.64	
LM 0-1	100	6	25	7.0	8.15	3.57	
LM 0-1	100	7	25	7.6	7.78	0.04	5,556
LM 1-2	6.25	0	25	8.5	7.79		
LM 1-2	6.25	1	25	4.9	8.01		
(Sheet 3 of 11)							

Table C9 (Continued)

Sediment	Percent Elutriate	Day	Temp °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids, mg/L
LM 1-2	6.25	2	25	7.3	7.98		
LM 1-2	6.25	3	25	7.7	8.37	1.38	
LM 1-2	6.25	4	25	8.2	8.47	0.40	
LM 1-2	6.25	5	25	7.0	8.23	0.49	
LM 1-2	6.25	6	25	7.3	8.26	0.25	
LM 1-2	6.25	7	25	7.6	7.93	0.04	
LM 1-2	12.5	0	25	8.5	7.79		
LM 1-2	12.5	1	25	5.0	7.98		
LM 1-2	12.5	2	25	7.1	8.00	0.14	
LM 1-2	12.5	3	25	7.6	8.27	0.05	
LM 1-2	12.5	4	25	8.6	8.34	0.08	
LM 1-2	12.5	5	25	7.0	8.21	0.04	
LM 1-2	12.5	6	25	7.4	8.28	0.16	
LM 1-2	12.5	7	25	7.3	8.02	0.04	
LM 1-2	25	0	25	8.0	7.66		
LM 1-2	25	1	25	4.3	7.90		
LM 1-2	25	2	25	7.2	8.02	0.07	
LM 1-2	25	3	25	7.6	8.12	0.05	
LM 1-2	25	4	25	8.7	8.32	0.25	
LM 1-2	25	5	25	7.0	8.15	0.24	
LM 1-2	25	6	25	7.3	8.24	0.32	
LM 1-2	25	7	25	7.8	8.01	0.03	
LM 1-2	50	0	25	6.5	7.59		
LM 1-2	50	1	25	4.1	7.84		
LM 1-2	50	2	25	7.1	7.99	0.09	
LM 1-2	50	3	25	7.5	8.10	0.05	
LM 1-2	50	4	25	8.7	8.36	1.05	
LM 1-2	50	5	25	6.4	8.09	0.03	
LM 1-2	50	6	25	7.0	8.19	0.03	
LM 1-2	50	7	25	8.0	7.89	0.01	

(Sheet 4 of 11)

Table C9 (Continued)							
Sediment	Percent Elutriate	Day	Temp °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids, mg/L
LM 1-2	100	0	25	8.5	7.66		5,355
LM 1-2	100	1	25	4.0	7.86		
LM 1-2	100	2	25	7.1	7.87	2.24	
LM 1-2	100	3	25	7.5	8.10	0.05	
LM 1-2	100	4	25	8.2	8.38	0.07	
LM 1-2	100	5	25	6.0	7.98	0.08	
LM 1-2	100	6	25	7.0	8.20	0.85	
LM 1-2	100	7	25	7.2	7.94	0.03	13,973
LM 2-3	6.25	0	25	8.8	7.91		
LM 2-3	6.25	1	25	4.8	8.01		
LM 2-3	6.25	2	25	7.5	7.73	5.16	
LM 2-3	6.25	3	25	7.9	8.78	0.01	
LM 2-3	6.25	4	25	8.1	8.76	0.21	
LM 2-3	6.25	5	25	7.0	8.16	0.05	
LM 2-3	6.25	6	25	7.3	8.19	0.01	
LM 2-3	6.25	7	25	6.6	7.82	0.01	
LM 2-3	12.5	0	25	8.8	7.90		
LM 2-3	12.5	1	25	4.5	8.04		
LM 2-3	12.5	2	25	7.4	7.99	0.40	
LM 2-3	12.5	3	25	7.9	8.87	0.01	
LM 2-3	12.5	4	25	8.2	8.89	0.01	
LM 2-3	12.5	5	25	7.0	8.24	0.05	
LM 2-3	12.5	6	25	7.4	8.20	5.00	
LM 2-3	12.5	7	25	7.2	7.91	0.01	
LM 2-3	25	0	25	8.5	7.93		
LM 2-3	25	1	25	4.7	8.98		
LM 2-3	25	2	25	7.6	7.99	1.29	
LM 2-3	25	3	25	7.2	8.75	0.01	
LM 2-3	25	4	25	7.9	8.88	0.01	
LM 2-3	25	5	25	7.0	8.19	0.01	
LM 2-3	25	6	25	7.5	8.21	0.38	
(Sheet 5 of 11)							

Table C9 (Continued)

Sediment	Percent Elutriate	Day	Temp °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids, mg/L
LM 2-3	25	7	25	7.5	7.62	0.03	
LM 2-3	50	0	25	8.2	7.90		
LM 2-3	50	1	25	4.1	7.89		
LM 2-3	50	2	25	7.1	7.84	0.45	
LM 2-3	50	3	25	7.0	8.68	0.03	
LM 2-3	50	4	25	7.9	8.65	0.02	
LM 2-3	50	5	25	6.5	8.09	0.01	
LM 2-3	50	6	25	7.1	8.19	0.02	
LM 2-3	50	7	25	6.8	7.76	0.02	
LM 2-3	100	0	25	7.6	7.88		3,092
LM 2-3	100	1	25	4.2	7.90		
LM 2-3	100	2	25	7.0	7.85	2.50	
LM 2-3	100	3	25	6.2	8.44	0.02	
LM 2-3	100	4	25	7.3	8.46	0.01	
LM 2-3	100	5	25	6.0	8.25	0.02	
LM 2-3	100	6	25	7.2	8.19		
LM 2-3	100	7	25	6.5	7.88		7,215
LM 3-4	6.25	0	25	8.9	7.90		
LM 3-4	6.25	1	25	4.9	8.01		
LM 3-4	6.25	2	25	6.9	8.09	0.85	
LM 3-4	6.25	3	25	8.0	8.69	1.43	
LM 3-4	6.25	4	25	8.5	8.72	0.30	
LM 3-4	6.25	5	25	7.3	8.22	0.33	
LM 3-4	6.25	6	25	7.8	8.23	0.17	
LM 3-4	6.25	7	25	7.5	7.25	0.03	
LM 3-4	12.5	0	25	8.7	7.81		
LM 3-4	12.5	1	25	4.9	7.96		
LM 3-4	12.5	2	25	6.9	8.00	1.38	
LM 3-4	12.5	3	25	7.9	8.63	1.61	
LM 3-4	12.5	4	25	8.4	8.69	0.26	

(Sheet 6 of 11)

Table C9 (Continued)							
Sediment	Percent Elutriate	Day	Temp °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids, mg/L
LM 3-4	12.5	5	25	7.3	8.16	0.63	
LM 3-4	12.5	6	25	7.5	8.22	0.08	
LM 3-4	12.5	7	25	7.3	7.59	0.01	
LM 3-4	25	0	25	8.5	7.76		
LM 3-4	25	1	25	4.9	7.92		
LM 3-4	25	2	25	6.9	8.07	2.00	
LM 3-4	25	3	25	7.9	8.60	0.35	
LM 3-4	25	4	25	8.1	8.71	0.02	
LM 3-4	25	5	25	7.0	8.08	0.31	
LM 3-4	25	6	25	7.4	8.19	0.02	
LM 3-4	25	7	25	7.0	7.75	0.05	
LM 3-4	50	0	25	7.9	7.69		
LM 3-4	50	1	25	4.5	7.87		
LM 3-4	50	2	25	7.0	8.00	4.20	
LM 3-4	50	3	25	7.0	8.68	0.02	
LM 3-4	50	4	25	7.5	8.73	0.03	
LM 3-4	50	5	25	6.3	8.01	0.36	
LM 3-4	50	6	25	7.0	8.15	0.02	
LM 3-4	50	7	25	6.8	7.73	0.02	
LM 3-4	100	0	25	6.9	7.60		5,443
LM 3-4	100	1	25	4.6	7.83		
LM 3-4	100	2	25	7.3	8.06	9.39	
LM 3-4	100	3	25	6.9	8.66	0.05	
LM 3-4	100	4	25	7.1	8.70	0.04	
LM 3-4	100	5	25	6.2	7.94	0.74	
LM 3-4	100	6	25	7.0	8.14	0.03	
LM 3-4	100	7	25	6.2	7.64	0.04	2,987
LM 4-5	6.25	0	25	8.5	7.71		
LM 4-5	6.25	1	25	5.2	7.97		
LM 4-5	6.25	2	25	7.5	8.09	0.02	
LM 4-5	6.25	3	25	7.2	8.77	0.82	
(Sheet 7 of 11)							

Table C9 (Continued)

Sediment	Percent Elutriate	Day	Temp °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids, mg/L
LM 4-5	6.25	4	25	7.9	8.80	0.02	
LM 4-5	6.25	5	25	7.0	8.17	0.25	
LM 4-5	6.25	6	25	7.3	8.19	0.94	
LM 4-5	6.25	7	25	7.9	7.90	0.01	
LM 4-5	12.5	0	25	8.0	7.65		
LM 4-5	12.5	1	25	5.0	7.91		
LM 4-5	12.5	2	25	7.3	8.02	0.41	
LM 4-5	12.5	3	25	7.2	7.84	0.01	
LM 4-5	12.5	4	25	8.0	8.80	0.02	
LM 4-5	12.5	5	25	6.0	8.04	0.06	
LM 4-5	12.5	6	25	6.9	8.12	0.05	
LM 4-5	12.5	7	25	8.0	7.96	0.02	
LM 4-5	25	0	25	7.2	7.59		
LM 4-5	25	1	25	4.5	7.83		
LM 4-5	25	2	25	7.3	8.07	0.11	
LM 4-5	25	3	25	7.1	8.71	0.06	
LM 4-5	25	4	25	8.0	8.79	0.01	
LM 4-5	25	5	25	6.5	8.04	0.38	
LM 4-5	25	6	25	6.9	8.10	0.05	
LM 4-5	25	7	25	7.8	7.94	0.03	
LM 4-5	50	0	25	6.1	7.53		
LM 4-5	50	1	25	4.5	7.82		
LM 4-5	50	2	25	7.2	8.04	0.18	
LM 4-5	50	3	25	6.8	8.69	0.01	
LM 4-5	50	4	25	7.1	8.75	0.14	
LM 4-5	50	5	25	6.0	8.10	0.98	
LM 4-5	50	6	25	6.8	8.09	0.05	
LM 4-5	50	7	25	7.2	7.94	2.11	
LM 4-5	100	0	25	8.5	7.35		54,232
LM 4-5	100	1	25	4.6	7.84		

(Sheet 8 of 11)

Table C9 (Continued)							
Sediment	Percent Elutriate	Day	Temp °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids, mg/L
LM 4-5	100	2	25	7.5	7.97	3.23	
LM 4-5	100	3	25	6.0	8.52	0.02	
LM 4-5	100	4	25	6.6	8.60	1.68	
LM 4-5	100	5	25	7.0	8.02	1.48	
LM 4-5	100	6	25	7.3	8.14	0.03	
LM 4-5	100	7	25	7.7	7.92	4.07	10,411
LM 7-8	6.25	0	25	8.9	7.85		
LM 7-8	6.25	1	25	5.6	7.99		
LM 7-8	6.25	2	25	7.3	7.73	0.24	
LM 7-8	6.25	3	25	7.5	8.59	0.04	
LM 7-8	6.25	4	25	8.1	8.63	0.14	
LM 7-8	6.25	5	25	7.9	8.24	0.52	
LM 7-8	6.25	6	25	8.1	8.26	0.05	
LM 7-8	6.25	7	25	8.1	8.05	0.03	
LM 7-8	12.5	0	25	8.5	7.76	0.69	
LM 7-8	12.5	1	25	5.6	7.95		
LM 7-8	12.5	2	25	7.2	7.90	0.02	
LM 7-8	12.5	3	25	7.5	8.59	0.03	
LM 7-8	12.5	4	25	8.1	8.65	0.36	
LM 7-8	12.5	5	25	7.9	8.14	0.56	
LM 7-8	12.5	6	25	8.1	8.25	0.58	
LM 7-8	12.5	7	25	7.2	7.91	0.09	
LM 7-8	25	0	25	8.5	7.69		
LM 7-8	25	1	25	5.4	7.94		
LM 7-8	25	2	25	7.1	7.71	0.03	
LM 7-8	25	3	25	7.2	8.60	0.03	
LM 7-8	25	4	25	7.9	8.76	0.17	
LM 7-8	25	5	25	7.8	8.14	0.76	
LM 7-8	25	6	25	7.7	8.14	0.01	
LM 7-8	25	7	25	7.8	8.02	0.01	
LM 7-8	50	0	25	7.5	7.61	0.11	
(Sheet 9 of 11)							

Table C9 (Continued)

Sediment	Percent Elutriate	Day	Temp °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids, mg/L
LM 7-8	50	1	25	5.4	7.96		
LM 7-8	50	2	25	7.0	7.82	0.39	
LM 7-8	50	3	25	7.0	8.62	0.06	
LM 7-8	50	4	25	7.9	8.69	0.04	
LM 7-8	50	5	25	7.5	8.16	1.21	
LM 7-8	50	6	25	7.6	8.17	0.02	
LM 7-8	50	7	25	7.6	7.93	0.03	
LM 7-8	100	0	25	7.6	7.46	0.10	21,300
LM 7-8	100	1	25	5.0	7.96		
LM 7-8	100	2	25	7.0	7.61	3.21	
LM 7-8	100	3	25	6.9	8.60	0.07	
LM 7-8	100	4	25	7.1	8.66	0.61	
LM 7-8	100	5	25	7.7	8.76	2.61	
LM 7-8	100	6	25	7.3	8.10	0.02	
LM 7-8	100	7	25	7.1	7.82	0.16	8,945
LM 11-12	6.25	0	25	7.9	7.88		
LM 11-12	6.25	1	25	5.9	7.98		
LM 11-12	6.25	2	25	7.0	7.75	0.44	
LM 11-12	6.25	3	25	8.4	9.54	0.39	
LM 11-12	6.25	4	25	8.8	9.63	0.24	
LM 11-12	6.25	5	25	8.0	8.24	0.37	
LM 11-12	6.25	6	25	7.9	8.18	0.09	
LM 11-12	6.25	7	25	8.3	8.04	0.13	
LM 11-12	12.5	0	25	7.9	7.99		
LM 11-12	12.5	1	25	5.8	7.93	0.12	
LM 11-12	12.5	2	25	7.0	7.93	0.25	
LM 11-12	12.5	3	25	8.0	9.50	0.01	
LM 11-12	12.5	4	25	8.1	9.64	0.20	
LM 11-12	12.5	5	25	7.9	8.14	0.40	
LM 11-12	12.5	6	25	7.8	8.17		

(Sheet 10 of 11)

Table C9 (Concluded)							
Sediment	Percent Elutriate	Day	Temp °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids, mg/L
LM 11-12	12.5	7	25	7.5	8.00	0.24	
LM 11-12	25	0	25	7.8	7.90		
LM 11-12	25	1	25	5.8	7.89		
LM 11-12	25	2	25	7.1	7.87	0.03	
LM 11-12	25	3	25	8.0	9.54	0.14	
LM 11-12	25	4	25	8.4	9.63	0.10	
LM 11-12	25	5	25	7.9	8.15	0.25	
LM 11-12	25	6	25	7.7	8.16	0.06	
LM 11-12	25	7	25	8.0	8.0	0.03	
LM 11-12	50	0	25	7.6	7.88		
LM 11-12	50	1	25	5.7	7.93		
LM 11-12	50	2	25	7.0	7.99	0.21	
LM 11-12	50	3	25	7.9	9.52	0.72	
LM 11-12	50	4	25	8.2	9.56	0.08	
LM 11-12	50	5	25	7.5	8.18	0.29	
LM 11-12	50	6	25	7.6	8.19	0.01	
LM 11-12	50	7	25	7.4	7.80	0.14	
LM 11-12	100	0	25	6.5	7.76		5,893
LM 11-12	100	1	25	5.7	7.90		
LM 11-12	100	2	25	7.1	7.99	0.03	
LM 11-12	100	3	25	7.8	9.45	0.01	
LM 11-12	100	4	25	8.1	9.55	0.34	
LM 11-12	100	5	25	7.0	8.16	0.04	
LM 11-12	100	6	25	7.2	8.19	0.01	
LM 11-12	100	7	25			0.01	2,545
(Sheet 11 of 11)							

Table C10**Water Quality for *P. promelas* Exposed to Elutriates of Chicago District - Michigan City Harbor Sediment**

Sediment	Percent Elutriate	Day	Temp. °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids mg/L
Control-1	0	0	25	7.6	7.99	0.02	
Control-1	0	1	25	6.9	7.98	0.02	
Control-1	0	2	25	7.2	8.05	0.41	
Control-1	0	3	25	7.5	8.65	0.36	
Control-1	0	4	25	7.4	8.68	0.11	
Control-1	0	5	25	7.7	8.73	0.11	
Control-1	0	6	25	7.7	8.76	0.05	
Control-1	0	7	25	7.5	8.26	0.62	
MC-1	6.25	0	25	7.7	8.06	0.19	
MC-1	6.25	1	25	7.4	8.12		
MC-1	6.25	2	25	7.3	8.00	0.29	
MC-1	6.25	3	25	7.6	8.71	0.73	
MC-1	6.25	4	25	7.7	8.69	0.34	
MC-1	6.25	5	25	7.8	8.14	0.49	
MC-1	6.25	6	25	7.6	8.26	0.11	
MC-1	6.25	7	25	8.4	8.04		
MC-1	12.5	0	25	7.0	7.96	0.16	
MC-1	12.5	1	25	5.5	7.83		
MC-1	12.5	2	25	7.0	8.07	0.82	
MC-1	12.5	3	25	7.3	8.68	1.58	
MC-1	12.5	4	25	7.5	8.55	0.20	
MC-1	12.5	5	25	7.8	8.19	0.24	
MC-1	12.5	6	25	7.7	8.24	0.05	
MC-1	12.5	7	25	8.1	7.96		
MC-1	25	0	25	7.0	7.98	0.09	
MC-1	25	1	25	5.0	7.90		
MC-1	25	2	25	6.5	8.05	0.85	
MC-1	25	3	25	7.6	8.73	0.05	

(Sheet 1 of 5)

Table C10 (Continued)							
Sediment	Percent Elutriate	Day	Temp. °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids mg/L
MC-1	25	4	25	7.8	8.82	0.25	
MC-1	25	5	25	7.5	8.20	0.30	
MC-1	25	6	25	7.6	8.31	0.10	
MC-1	25	7	25	8.0	7.90		
MC-1	50	0	25	7.2	8.06	0.62	
MC-1	50	1	25	5.2	7.93		
MC-1	50	2	25	6.9	8.02	0.25	
MC-1	50	3	25	8.0	8.76	0.32	
MC-1	50	4	25	8.4	8.88	0.44	
MC-1	50	5	25	7.5	8.20	0.53	
MC-1	50	6	25	7.8	8.31	0.43	
MC-1	50	7	25	7.9	7.96		
MC-1	100	0	25	7.2	8.06	0.02	470
MC-1	100	1	25	5.0	7.93		
MC-1	100	2	25	6.8	8.05	0.09	
MC-1	100	3	25	7.9	8.75	0.02	
MC-1	100	4	25	8.4	8.69	0.20	
MC-1	100	5	25	7.5	8.20	0.29	
MC-1	100	6	25	7.7	8.29	0.03	
MC-1	100	7	25	7.7	8.03		215
MC-2	6.25	0	25	7.5	7.97	0.13	
MC-2	6.25	1	25	5.5	8.03		
MC-2	6.25	2	25	6.6	8.13	0.33	
MC-2	6.25	3	25	8.0	8.87	0.08	
MC-2	6.25	4	25	8.4	8.99	0.36	
MC-2	6.25	5	25	7.6	8.19	0.40	
MC-2	6.25	6	25	7.9	8.32	0.05	
MC-2	6.25	7	25	7.5	7.97	0.32	
MC-2	12.5	0	25	7.5	7.98	0.12	
MC-2	12.5	1	25	5.0	8.05		
(Sheet 2 of 5)							

Table C10 (Continued)							
Sediment	Percent Elutriate	Day	Temp. °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids mg/L
MC-2	12.5	2	25	6.9	8.09	0.44	
MC-2	12.5	3	25	8.0	8.88	0.03	
MC-2	12.5	4	25	8.7	8.77	0.22	
MC-2	12.5	5	25	7.6	8.22	0.24	
MC-2	12.5	6	25	7.8	8.29	0.25	
MC-2	12.5	7	25	7.7	8.04	0.30	
MC-2	25	0	25	7.4	8.00	0.08	
MC-2	25	1	25	4.9	8.05		
MC-2	25	2	25	7.1	8.09	1.16	
MC-2	25	3	25	7.9	8.85	0.19	
MC-2	25	4	25	8.4	8.91	0.26	
MC-2	25	5	25	7.5	8.24	0.45	
MC-2	25	6	25	7.7	8.29	0.14	
MC-2	25	7	25	7.8	8.05	0.03	
MC-2	50	0	20	7.4	8.02	0.30	
MC-2	50	1	25	5.1	8.05		
MC-2	50	2	25	7.1	8.07	0.28	
MC-2	50	3	25	8.0	8.82	0.05	
MC-2	50	4	25	8.4	8.76	0.20	
MC-2	50	5	25	7.5	8.26	0.29	
MC-2	50	6	25	7.9	8.32	0.18	
MC-2	50	7	25	8.0	8.06	0.05	
MC-2	100	0	20	7.4	8.11	0.21	279
MC-2	100	1	25	5.3	8.01		
MC-2	100	2	25	7.0	8.13	0.07	
MC-2	100	3	25	8.0	8.86	0.03	
MC-2	100	4	25	8.4	8.77	0.14	
MC-2	100	5	25	7.4	8.24	0.24	
MC-2	100	6	25	7.9	8.33	0.13	140
MC-2	100	7	25	7.9	8.03	0.03	
(Sheet 3 of 5)							

Table C10 (Continued)							
Sediment	Percent Elutriate	Day	Temp. °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids mg/L
MC-3	6.25	0	21	7.6	7.87	0.33	
MC-3	6.25	1	25	5.5	8.06	0.15	
MC-3	6.25	2	25	7.2	8.17	0.26	
MC-3	6.25	3	25	7.6	8.43	0.42	
MC-3	6.25	4	25	8.7	8.52	0.44	
MC-3	6.25	5	25	7.5	8.11	0.57	
MC-3	6.25	6	25	7.9	8.28	0.40	
MC-3	6.25	7	25	7.9	7.97	0.09	
MC-3	12.5	0	21	7.5	7.77	0.81	
MC-3	12.5	1	25	5.0	8.03	0.76	
MC-3	12.5	2	25	7.4	8.04	0.71	
MC-3	12.5	3	25	7.6	8.73	0.02	
MC-3	12.5	4	25	8.4	8.82	0.53	
MC-3	12.5	5	25	7.4	8.10	0.29	
MC-3	12.5	6	25	7.8	8.24	0.48	
MC-3	12.5	7	25	8.0	8.00	0.07	
MC-3	25	0	25	7.1	7.66	0.26	
MC-3	25	1	25	5.0	8.01	1.41	
MC-3	25	2	25	7.9	8.12	0.80	
MC-3	25	3	25	7.5	8.70	0.02	
MC-3	25	4	25	8.0	8.79	0.16	
MC-3	25	5	25	7.4	8.08	1.01	
MC-3	25	6	25	7.7	8.20	0.96	
MC-3	25	7	25	8.0	7.99	0.06	
MC-3	50	0	25	6.9	7.65	0.04	
MC-3	50	1	25	5.1	8.02	1.56	
MC-3	50	2	25	7.8	8.10	1.33	
MC-3	50	3	25	7.5	8.70	0.02	
MC-3	50	4	25	8.2	8.79	0.02	
MC-3	50	5	25	7.3	8.08	0.55	
(Sheet 4 of 5)							

Table C10 (Concluded)							
Sediment	Percent Elutriate	Day	Temp. °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids mg/L
MC-3	50	6	25	7.6	8.19	0.32	
MC-3	50	7	25	8.1	7.91	0.06	
MC-3	100	0	25	6.8	7.49	0.04	1,844
MC-3	100	1	25	5.4	7.94		
MC-3	100	2	25	7.5	8.05	2.54	
MC-3	100	3	25	7.2	8.66	0.02	
MC-3	100	4	25	8.4	8.76	0.02	
MC-3	100	5	25	7.0	8.09	1.95	
MC-3	100	6	25	7.5	8.19	0.03	
MC-3	100	7	25	8.2	7.93	0.04	920
(Sheet 5 of 5)							

Table C11
Water Quality for *P. promelas* Exposed to Elutriates of Detroit District - Grand Haven Harbor Sediment

Sediment	Percent Elutriate	Day	Temp. °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids mg/L
Control-2	0	0	25	8.0	8.23		
Control-2	0	1	25	6.5	8.13		
Control-2	0	2	25	7.3	8.17	0.18	
Control-2	0	3	25	8.2	8.00	0.28	
Control-2	0	4	25	7.9	7.89	0.16	
Control-2	0	5	25	7.9	8.17	0.33	
Control-2	0	6	25	7.6	8.03		
Control-2	0	7	25	6.9	7.73	0.23	
GH-1	6.25	0	25	7.2	8.07	0.66	
GH-1	6.25	1	25	7.8	7.95	0.44	
GH-1	6.25	2	25	7.9	7.99	6.33	
GH-1	6.25	3	25	8.1	8.04	0.60	
GH-1	6.25	4	25	7.8	8.10	0.25	
GH-1	6.25	5	25	7.1	8.06	0.26	
GH-1	6.25	6	25	6.9	8.15		
GH-1	6.25	7	25	7.4	8.24	0.36	
GH-1	12.5	0	25	7.1	8.11	1.12	
GH-1	12.5	1	25	6.5	7.99	0.42	
GH-1	12.5	2	25	7.3	8.11	1.00	
GH-1	12.5	3	25	7.5	8.02	1.05	
GH-1	12.5	4	25	7.1	8.00	0.38	
GH-1	12.5	5	25	7.0	7.91	0.34	
GH-1	12.5	6	25	6.9	8.14		
GH-1	12.5	7	25	6.7	7.89	0.05	
GH-1	25	0	25	7.4	8.14	2.26	
GH-1	25	1	25	7.0	7.91	1.13	
GH-1	25	2	25	7.4	8.02	2.25	
GH-1	25	3	25	7.2	8.01	2.09	

(Sheet 1 of 5)

Table C11 (Continued)

Sediment	Percent Elutriate	Day	Temp. °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids mg/L
GH-1	25	4	25	6.9	8.11	0.75	
GH-1	25	5	25	6.5	7.88	0.41	
GH-1	25	6	25	6.8	8.16	0.52	
GH-1	25	7	25	6.6	7.81	0.01	
GH-1	50	0	25	7.0	8.11	3.66	
GH-1	50	1	25	6.9	8.07	1.22	
GH-1	50	2	25	7.3	8.14	1.14	
GH-1	50	3	25	6.9	8.06	3.52	
GH-1	50	4	25	7.2	8.08	1.45	
GH-1	50	5	25	6.8	7.85	0.29	
GH-1	50	6	25	6.9	8.20	2.12	
GH-1	50	7	25	7.1	7.79	0.05	
GH-1	100	0	25	7.0	8.04	8.12	6,004
GH-1	100	1	25	6.0	8.08	3.21	
GH-1	100	2	25	7.2	8.16	0.41	
GH-1	100	3	25	7.0	8.09	7.19	
GH-1	100	4	25	7.4	8.04	2.42	
GH-1	100	5	25	6.9	7.91	1.30	
GH-1	100	6	25	6.5	8.19	7.47	
GH-1	100	7	25	7.0	7.72	1.83	4,447
GH-2	6.25	0	25	7.1	7.73	1.48	10,965
GH-2	6.25	1	25	7.2	7.90	0.68	
GH-2	6.25	2	25	7.8	8.18	0.61	
GH-2	6.25	3	25	7.6	8.04	0.89	
GH-2	6.25	4	25	7.3	7.99	0.36	
GH-2	6.25	5	25	7.0	7.98	0.91	
GH-2	6.25	6	25	8.0	8.25		
GH-2	6.25	7	25	6.7	7.92	0.32	
GH-2	12.5	0	25	7.1	7.67	3.85	
GH-2	12.5	1	25	6.9	7.91	1.80	

(Sheet 2 of 5)

Table C11 (Continued)							
Sediment	Percent Elutriate	Dry	Temp. °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids mg/L
GH-2	12.5	2	25	7.4	8.19	3.59	
GH-2	12.5	3	25	7.5	8.03	1.34	
GH-2	12.5	4	25	7.3	8.20	0.99	
GH-2	12.5	5	25	6.2	7.95	1.77	
GH-2	12.5	6	25	6.9	8.25		
GH-2	12.5	7	25	7.0	7.90	2.92	
GH-2	25	0	25	6.9	7.58	4.63	
GH-2	25	1	25	7.1	7.96	1.89	
GH-2	25	2	25	7.7	8.18	4.09	
GH-2	25	3	25	7.5	8.03	3.40	
GH-2	25	4	25	6.8	8.00	1.43	
GH-2	25	5	25	6.4	7.98	3.57	
GH-2	25	6	25	6.9	8.10	1.11	
GH-2	25	7	25	6.8	7.92	5.27	
GH-2	50	0	25	7.0	7.41	7.50	
GH-2	50	1	25	6.8	8.05	3.44	
GH-2	50	2	25	7.5	8.16	9.43	
GH-2	50	3	25	6.9	8.09	6.81	
GH-2	50	4	25	7.3	8.00	2.08	
GH-2	50	5	25	6.5	7.91	6.79	
GH-2	50	6	25	6.8	8.19	3.95	
GH-2	50	7	25	6.5	7.77	12.90	
GH-2	100	0	25	7.0	7.22	31.50	
GH-2	100	1	25	6.8	8.06	7.93	
GH-2	100	2	25	7.4	8.16	21.30	
GH-2	100	3	25	7.0	8.07	12.00	
GH-2	100	4	25	6.8	8.11	4.34	
GH-2	100	5	25	6.8	7.89	10.30	
GH-4	6.25	0	25	7.5	7.88	1.01	
GH-4	6.25	1	25	7.9	7.88	0.58	
(Sheet 3 of 5)							

Table C11 (Continued)

Sediment	Percent Elutriate	Day	Temp. °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids mg/L
GH-4	6.25	2	25	7.9	8.20	1.00	
GH-4	6.25	3	25	8.0	8.27	0.59	
GH-4	6.25	4	25	7.9	8.10	0.30	
GH-4	6.25	5	25	6.8	7.87	0.93	
GH-4	6.25	6	25	6.9	8.14	0.58	
GH-4	6.25	7	25	6.5	7.86	0.23	
GH-4	12.5	0	25	7.5	7.90	1.85	
GH-4	12.5	1	25	7.1	7.99	0.81	
GH-4	12.5	2	25	7.6	8.23	1.25	
GH-4	12.5	3	25	7.5	8.34	2.83	
GH-4	12.5	4	25	7.0	8.24	0.78	
GH-4	12.5	5	25	6.5	7.91	1.63	
GH-4	12.5	6	25	6.9	8.20	0.72	
GH-4	12.5	7	25	7.3	7.71	0.02	
GH-4	25	0	25	7.4	7.88	2.96	
GH-4	25	1	25	6.8	7.96	1.36	
GH-4	25	2	25	7.7	8.19	0.91	
GH-4	25	3	25	7.4	8.04	2.35	
GH-4	25	4	25	7.3	8.02	0.56	
GH-4	25	5	25	6.9	7.88	2.19	
GH-4	25	6	25	7.2	8.15	0.95	
GH-4	25	7	25	6.8	7.73	0.02	
GH-4	50	0	25	7.2	7.85	2.90	
GH-4	50	1	25	6.9	7.99	2.62	
GH-4	50	2	25	6.9	8.21	2.56	
GH-4	50	3	25	7.4	8.02	2.36	
GH-4	50	4	25	6.9	8.19	0.92	
GH-4	50	5	25	6.5	7.91	5.82	
GH-4	50	6	25	6.9	8.20	4.16	
GH-4	50	7	25	6.5	7.71	0.10	

(Sheet 4 of 5)

Table C11 (Concluded)							
Sediment	Percent Elutriate	Day	Temp. °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids mg/L
GH-4	100	0	25	6.8	7.78	8.25	7,330
GH-4	100	1	25	6.5	7.99	5.29	
GH-4	100	2	25	7.9	8.20	6.50	
GH-4	100	3	25	7.2	8.06	9.07	
GH-4	100	4	25	6.9	8.09	2.47	
GH-4	100	5	25	6.4	7.85	9.77	
GH-4	100	6	25	6.7	8.23	9.52	
GH-4	100	7	25	7.0	7.74	7.63	4,538
(Sheet 5 of 5)							

Table C12
Water Quality for *P. promelas* Exposed to Elutriates of Detroit District - St. Joseph Harbor

Sediment	Percent Elutriate	Day	Temp. °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids mg/L
Control-2	0	0	25	8.0	8.23		
Control-2	0	1	25	6.5	8.13		
Control-2	0	2	25	7.3	8.17	0.11	
Control-2	0	3	25	8.2	8.00	0.21	
Control-2	0	4	25	7.9	7.89	0.16	
Control-2	0	5	25	7.9	8.17	0.33	
Control-2	0	6	25	7.6	8.03		
Control-2	0	7	25	6.9	7.73	0.23	
SJ-2	6.25	0	25	7.4	8.06	0.25	
SJ-2	6.25	1	25	7.1	8.20	0.26	
SJ-2	6.25	2	25	7.4	8.15	0.04	
SJ-2	6.25	3	25	7.2	7.98	0.30	
SJ-2	6.25	4	25	7.4	8.00	0.12	
SJ-2	6.25	5	25	7.1	7.92	0.46	
SJ-2	6.25	6	25	6.9	7.84	0.21	
SJ-2	6.25	7	25	7.0	7.91	0.14	
SJ-2	12.5	0	25	7.2	8.03	0.31	
SJ-2	12.5	1	25	6.8	8.10	0.11	
SJ-2	12.5	2	25	7.5	8.14	0.36	
SJ-2	12.5	3	25	7.3	7.99	0.18	
SJ-2	12.5	4	25	7.5	8.12	0.18	
SJ-2	12.5	5	25	6.7	7.91	0.36	
SJ-2	12.5	6	25	6.8	7.86	0.20	
SJ-2	12.5	7	25	6.7	7.97	0.05	
SJ-2	25	0	25	7.2	8.04	0.05	
SJ-2	25	1	25	7.5	8.04	0.45	
SJ-2	25	2	25	7.4	8.10	0.05	
SJ-2	25	3	25	7.4	7.95	0.54	

(Sheet 1 of 5)

Table C12 (Continued)							
Sediment	Percent Elutriate	Day	Temp. °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids mg/L
SJ-2	25	4	25	7.5	7.99	0.26	
SJ-2	25	5	25	6.9	7.91	0.71	
SJ-2	25	6	25	6.7	7.81	0.05	
SJ-2	25	7	25	7.2	7.89	0.03	
SJ-2	50	0	25	7.0	7.98	0.05	
SJ-2	50	1	25	6.7	8.00	1.10	
SJ-2	50	2	25	7.4	8.14	0.05	
SJ-2	50	3	25	7.5	7.92	1.02	
SJ-2	50	4	25	7.6	7.98	0.24	
SJ-2	50	5	25	6.6	7.86	1.63	
SJ-2	50	6	25	6.6	7.78	0.05	
SJ-2	50	7	25	6.8	7.87	0.07	
SJ-2	100	0	25	7.0	7.94	0.05	6,964
SJ-2	100	1	25	6.0	8.03	1.69	
SJ-2	100	2	25	7.2	8.11	0.02	
SJ-2	100	3	25	7.2	7.88	2.17	
SJ-2	100	4	25	7.4	8.00	0.30	
SJ-2	100	5	25	6.4	7.83	3.62	
SJ-2	100	6	25	6.8	7.79	0.03	
SJ-2	100	7	25	6.6	7.85	1.00	3,950
SJ-3	6.25	0	25	7.5	8.17	0.94	
SJ-3	6.25	1	25	6.9	8.02	0.32	
SJ-3	6.25	2	25	7.8	8.22	0.50	
SJ-3	6.25	3	25	6.9	8.10	0.78	
SJ-3	6.25	4	25	7.0	8.09	0.12	
SJ-3	6.25	5	25	6.8	7.94	0.92	
SJ-3	6.25	6	25	6.9	7.84	0.53	
SJ-3	6.25	7	25	6.6	7.94	0.41	
SJ-3	12.5	0	25	7.4	8.17	1.97	
SJ-3	12.5	1	25	7.2	8.06	0.81	
(Sheet 2 of 5)							

Table C12 (Continued)							
Sediment	Percent Elutriate	Day	Temp. °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids mg/L
SJ-3	12.5	2	25	7.7	8.26	0.60	
SJ-3	12.5	3	25	7.2	8.13	1.15	
SJ-3	12.5	4	25	7.2	8.13	0.61	
SJ-3	12.5	5	25	6.7	8.00	1.33	
SJ-3	12.5	6	25	6.9	7.86	0.56	
SJ-3	12.5	7	25	6.6	7.93	0.26	
SJ-3	25	0	25	7.2	8.22	2.05	
SJ-3	25	1	25	6.8	8.08	1.40	
SJ-3	25	2	25	7.5	8.04	0.15	
SJ-3	25	3	25	7.2	8.12	1.97	
SJ-3	25	4	25	7.4	8.12	0.56	
SJ-3	25	5	25	6.8	7.97	2.40	
SJ-3	25	6	25	6.5	7.82	0.12	
SJ-3	25	7	25	6.5	7.89	0.87	
SJ-3	50	0	25	7.0	8.18	6.57	
SJ-3	50	1	25	7.0	8.11	1.84	
SJ-3	50	2	25	7.8	8.22	1.95	
SJ-3	50	3	25	7.3	8.06	4.22	
SJ-3	50	4	25	7.5	8.11	0.13	
SJ-3	50	5	25	6.9	7.93	4.72	
SJ-3	50	6	25	6.8	7.84	2.41	
SJ-3	50	7	25	6.5	7.92	0.06	
SJ-3	100	0	25	7.0	8.13	11.90	10,154
SJ-3	100	1	25	6.4	8.17	5.60	
SJ-3	100	2	25	0.0	0.00		
SJ-3	100	3	25	0.0	0.00		
SJ-3	100	4	25	0.0	0.00		
SJ-3	100	5	25	0.0	0.00		
SJ-3	100	6	25	0.0	0.00		
SJ-3	100	7	25	0.0	0.00		
(Sheet 3 of 5)							

Table C12 (Continued)							
Sediment	Percent Elutriate	Day	Temp. °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids mg/L
SJ-4	6.25	0	25	7.5	8.00	0.10	
SJ-4	6.25	1	25	7.1	7.98	0.48	
SJ-4	6.25	2	25	7.0	8.24	0.54	
SJ-4	6.25	3	25	7.5	8.01	0.34	
SJ-4	6.25	4	25	7.4	8.11	0.24	
SJ-4	6.25	5	25	6.9	7.94	0.54	
SJ-4	6.25	6	25	6.9	7.89	0.62	
SJ-4	6.25	7	25	6.5	7.74	0.27	
SJ-4	12.5	0	25	7.5	8.02	0.43	
SJ-4	12.5	1	25	6.8	8.02	0.78	
SJ-4	12.5	2	25	7.0	8.27	0.24	
SJ-4	12.5	3	25	7.6	8.02	0.98	
SJ-4	12.5	4	25	7.5	8.07	0.52	
SJ-4	12.5	5	25	7.2	7.92	1.05	
SJ-4	12.5	6	25	6.9	7.86	0.40	
SJ-4	12.5	7	25	6.7	7.83	0.37	
SJ-4	25	0	25	7.3	8.01	0.05	
SJ-4	25	1	25	7.0	8.00	1.68	
SJ-4	25	2	25	6.9	8.28	2.26	
SJ-4	25	3	25	7.3	8.02	2.38	
SJ-4	25	4	25	7.5	8.10	0.95	
SJ-4	25	5	25	7.1	7.94	0.86	
SJ-4	25	6	25	6.9	7.82	0.74	
SJ-4	25	7	25	6.3	7.88	0.09	
SJ-4	50	0	25	7.2	8.02	1.09	
SJ-4	50	1	25	6.4	7.95	3.02	
SJ-4	50	2	25	7.0	8.25	4.95	
SJ-4	50	3	25	7.2	8.01	5.08	
SJ-4	50	4	25	7.4	8.01	1.77	
SJ-4	50	5	25	6.9	7.91	1.69	
(Sheet 4 of 5)							

Table C12 (Concluded)							
Sediment	Percent Elutriate	Day	Temp. °C	Dissolved Oxygen mg/L	pH	NH ₃ mg/L	Total Suspended Solids mg/L
SJ-4	50	6	25	6.6	7.85	2.22	
SJ-4	50	7	25	6.0	7.85	1.78	
SJ-4	100	0	25	7.0	7.98	0.99	2,836
SJ-4	100	1	25	7.5	7.95	5.66	
SJ-4	100	2	25	7.1	8.23	6.37	
SJ-4	100	3	25	7.0	8.00	8.37	
SJ-4	100	4	25	7.0	8.00	2.93	
SJ-4	100	5	25	6.8	7.90	1.41	
SJ-4	100	6	25	6.8	7.88	4.20	
SJ-4	100	7	25	7.1	7.88	7.31	1,274
(Sheet 5 of 5)							

Table C13
Mean (S.E.) Water Quality Parameters for *P. promelas* Exposed to Elutriates of Great Lakes Sediments (n = 8)

Project	Sediment	Percent Elutriate	Temp., °C	Dissolved Oxygen, mg/L	pH	Total NH ₃ , mg/L
Buffalo District - Toledo Harbor	Control	0.00	24.94	7.44 (0.10)	8.39 (0.12)	0.21 (0.08)
	RM 1-2	6.25	24.94	7.49 (0.28)	8.21 (0.12)	0.25 (0.09)
	RM 1-2	12.50	24.94	7.38 (0.25)	8.22 (0.14)	0.23 (0.06)
	RM 1-2	25.00	24.93	6.98 (0.29)	8.18 (0.12)	0.67 (0.26)
	RM 1-2	50.00	24.96	6.86 (0.27)	8.14 (0.13)	1.08 (0.55)
	RM 1-2	100.00	24.93	6.45 (0.46)	8.06 (0.13)	3.72 (1.89)
	LM 0-1	6.25	24.98	7.03 (0.37)	8.20 (0.11)	0.38 (0.20)
	LM 0-1	12.50	24.98	6.86 (0.36)	8.13 (0.11)	0.15 (0.11)
	LM 0-1	25.00	24.98	6.68 (0.41)	8.13 (0.13)	0.13 (0.08)
	LM 0-1	50.00	24.98	6.45 (0.35)	8.06 (0.13)	0.17 (0.12)
	LM 0-1	100.00	24.95	6.41 (0.28)	8.03 (0.13)	1.23 (0.75)
	LM 1-2	6.25	24.99	7.31 (0.39)	8.13 (0.08)	0.51 (0.23)
	LM 1-2	12.50	24.94	7.31 (0.39)	8.11 (0.07)	0.09 (0.02)
	LM 1-2	25.00	24.94	7.24 (0.46)	8.05 (0.07)	0.16 (0.05)
	LM 1-2	50.00	24.94	6.91 (0.48)	8.01 (0.08)	0.21 (0.17)
	LM 1-2	100.00	24.94	6.94 (0.50)	8.00 (0.08)	0.55 (0.36)
	LM 2-3	6.25	24.96	7.25 (0.42)	8.17 (0.14)	0.91 (0.85)
	LM 2-3	12.50	24.95	7.30 (0.45)	8.26 (0.14)	0.91 (0.82)
	LM 2-3	25.00	24.98	7.24 (0.40)	8.32 (0.17)	0.29 (0.21)

(Sheet 1 of 6)

Table C13 (Continued)

Project	Sediment	Percent Elutriate	Temp., °C	Dissolved Oxygen, mg/L	pH	Total NH ₃ , mg/L				
Buffalo District - Toledo Harbor (Continued)										
	LM 2-3	50.00	24.98	(0.03)	6.84	(0.44)	8.13	(0.13)	0.09	(0.07)
	LM 2-3	100.00	24.95	0.03	6.50	(0.38)	8.11	(0.09)	0.64	(0.62)
	LM 3-4	6.25	24.98	(0.03)	7.48	(0.43)	8.14	(0.16)	0.52	(0.22)
	LM 3-4	12.50	24.95	(0.03)	7.36	(0.41)	8.13	(0.13)	0.66	(0.28)
	LM 3-4	25.00	24.98	(0.03)	7.21	(0.39)	8.14	(0.13)	0.46	(0.31)
	LM 3-4	50.00	24.98	(0.03)	6.75	(0.36)	8.11	(0.14)	0.77	(0.69)
	LM 3-4	100.00	24.98	(0.03)	6.53	(0.31)	8.07	(0.15)	1.71	(1.54)
	LM 4-5	6.25	24.96	(0.03)	7.31	(0.35)	8.20	(0.14)	0.34	(0.18)
	LM 4-5	12.50	24.95	(0.03)	7.05	(0.38)	8.16	(0.14)	0.09	(0.06)
	LM 4-5	25.00	24.95	(0.03)	6.91	(0.38)	8.13	(0.15)	0.11	(0.06)
	LM 4-5	50.00	24.95	(0.03)	6.46	(0.33)	8.12	(0.15)	0.58	(0.34)
	LM 4-5	100.00	24.96	(0.03)	6.90	(0.42)	8.05	(0.14)	1.75	(0.67)
	LM 7-8	6.25	24.85	(0.12)	7.69	(0.34)	8.17	(0.12)	0.17	(0.08)
	LM 7-8	12.50	24.96	(0.02)	7.51	(0.32)	8.14	(0.12)	0.33	(0.11)
	LM 7-8	25.00	24.98	(0.02)	7.43	(0.33)	8.13	(0.14)	0.17	(0.12)
	LM 7-8	50.00	24.96	(0.02)	7.19	(0.28)	8.12	(0.13)	0.27	(0.17)

Sheet 2 of 6

(Sheet 2 of 6)

Table C13 (Continued)										
Project	Sediment	Percent Elutriate	Temp., °C	Dissolved Oxygen, mg/L	pH	Total NH ₃ , mg/L				
Buffalo District - Toledo Harbor (Continued)										
	LM 7-8	100.00	24.95	(0.03)	6.96	(0.30)	8.12	(0.18)	0.97	(0.51)
	LM 11-12	6.25	24.98	(0.03)	7.78	(0.33)	8.41	(0.26)	0.28	(0.06)
	LM 11-12	12.50	24.95	(0.03)	7.50	(0.27)	8.41	(0.25)	0.20	(0.05)
	LM 11-12	25.00	24.96	(0.02)	7.59	(0.29)	8.40	(0.26)	0.10	(0.03)
	LM 11-12	50.00	24.98	(0.03)	7.36	(0.27)	8.38	(0.26)	0.24	(0.10)
	LM 11-12	100.00	25.00	(0.00)	7.06	(0.30)	8.43	(0.28)	0.07	(0.05)
	Control	0.00	24.94	(0.03)	7.44	(0.10)	8.39	(0.12)	0.21	(0.08)
	MC-1	6.25	24.98	(0.03)	7.69	(0.12)	8.25	(0.10)	0.36	(0.09)
	MC-1	12.50	24.89	(0.06)	7.24	(0.28)	8.19	(0.11)	0.51	(0.24)
	MC-1	25.00	24.89	(0.06)	7.13	(0.35)	8.24	(0.13)	0.27	(0.12)
Chicago District - Michigan City	MC-1	50.00	24.89	(0.06)	7.36	(0.35)	8.27	(0.13)	0.43	(0.05)
	MC-1	100.00	24.93	(0.04)	7.28	(0.37)	8.25	(0.11)	0.11	(0.05)
	MC-2	6.25	24.94	(0.03)	7.38	(0.33)	8.31	(0.14)	0.24	(0.06)
	MC-2	12.50	25.00	(0.00)	7.40	(0.39)	8.29	(0.12)	0.23	(0.05)
	MC-2	25.00	25.00	(0.00)	7.34	(0.37)	8.31	(0.13)	0.33	(0.15)
	MC-2	50.00	24.39	(0.58)	7.43	(0.36)	8.30	(0.11)	0.19	(0.04)
(Sheet 3 of 6)										

Table C13 (Continued)

Project	Sediment	Percent Elutriate	Temp., °C	Dissolved Oxygen, mg/L	pH	Total NH ₄ , mg/L				
Chicago District - Michigan City (Continued)										
Detroit District - Grand Haven Harbor	MC-2	100.00	24.39	(0.58)	7.41	(0.34)	8.31	(0.12)	0.12	(0.03)
	MC-3	6.25	24.44	(0.53)	7.49	(0.32)	8.18	(0.08)	0.33	(0.06)
	MC-3	12.50	24.44	(0.53)	7.39	(0.36)	8.22	(0.13)	0.46	(0.11)
	MC-3	25.00	24.94	(0.04)	7.33	(0.35)	8.19	(0.13)	0.58	(0.19)
	MC-3	50.00	24.94	(0.04)	7.31	(0.35)	8.18	(0.14)	0.49	(0.22)
	MC-3	100.00	24.95	(0.03)	7.25	(0.33)	8.14	(0.14)	0.66	(0.41)
	Control	0.00	25.00	(0.00)	7.54	(0.21)	8.04	(0.06)	0.24	(0.03)
	GH-1	6.25	25.00	(0.00)	7.53	(0.15)	8.08	(0.03)	1.27	(0.85)
	GH-1	12.50	25.00	(0.00)	7.01	(0.11)	8.02	(0.03)	0.62	(0.16)
	GH-1	25.00	25.00	(0.00)	6.98	(0.12)	8.01	(0.05)	1.18	(0.32)
	GH-1	50.00	25.00	(0.00)	7.01	(0.06)	8.04	(0.05)	1.68	(0.48)
	GH-1	100.00	25.00	(0.00)	6.88	(0.15)	8.03	(0.05)	3.99	(1.10)
	GH-2	6.25	25.00	(0.00)	7.34	(0.15)	8.00	(0.06)	0.75	(0.15)
	GH-2	12.50	25.00	(0.00)	7.04	(0.14)	8.01	(0.07)	2.32	(0.43)
	GH-2	25.00	25.00	(0.00)	7.01	(0.15)	7.97	(0.06)	3.17	(0.54)
	GH-2	50.00	25.00	(0.00)	6.91	(0.12)	7.95	(0.09)	6.61	(1.24)
(Sheet 4 of 6)										

Table C13 (Continued)										
Project	Sediment	Percent Elutriate	Temp., °C	Dissolved Oxygen, mg/L	pH	Total NH ₃ , mg/L				
Detroit District - Grand Haven Harbor (Continued)										
Detroit District - St. Joseph Harbor	GH-2	100.00	25.00	(0.00)	6.97	(0.10)	7.92	(0.14)	14.56	(4.10)
	GH-4	6.25	25.00	(0.00)	7.43	(0.21)	8.03	(0.06)	0.65	(0.11)
	GH-4	12.50	25.00	(0.00)	7.18	(0.13)	8.07	(0.08)	1.24	(0.31)
	GH-4	25.00	25.00	(0.00)	7.19	(0.12)	7.98	(0.05)	1.42	(0.35)
	GH-4	50.00	25.00	(0.00)	6.90	(0.11)	8.01	(0.06)	2.68	(0.63)
	GH-4	100.00	25.00	(0.00)	6.93	(0.17)	7.99	(0.07)	7.31	(0.88)
	Control	0.00	25.00	(0.00)	7.54	(0.21)	8.04	(0.06)	0.24	(0.03)
	SJ-2	6.25	25.00	(0.00)	7.19	(0.07)	8.01	(0.04)	0.23	(0.05)
	SJ-2	12.50	25.00	(0.00)	7.06	(0.12)	8.02	(0.04)	0.23	(0.04)
	SJ-2	25.00	25.00	(0.00)	7.23	(0.10)	7.97	(0.03)	0.28	(0.10)
	SJ-2	50.00	25.00	(0.00)	7.03	(0.15)	7.94	(0.04)	0.53	(0.22)
	SJ-2	100.00	25.00	(0.00)	6.83	(0.17)	7.93	(0.04)	1.11	(0.46)
	SJ-3	6.25	25.00	(0.00)	7.05	(0.14)	8.04	(0.05)	0.57	(0.10)
	SJ-3	12.50	25.00	(0.00)	7.11	(0.13)	8.07	(0.05)	0.91	(0.19)
	SJ-3	25.00	25.00	(0.00)	6.99	(0.14)	8.03	(0.05)	1.19	(0.32)
(Sheet 5 of 6)										

Table C13 (Concluded)

Project	Sediment	Percent Elutriate	Temp., °C	Dissolved Oxygen, mg/L	pH	Total NH ₃ , mg/L
Detroit District - St. Joseph Harbor (Continued)						
	SJ-3	50.00	25.00 (0.00)	7.10 (0.15)	8.05 (0.05)	2.74 (0.81)
	SJ-3	100.00	25.00 (0.00)	6.70 (0.30)	8.15 (0.02)	8.75 (3.15)
	SJ-4	6.25	25.00 (0.00)	7.10 (0.12)	7.99 (0.05)	0.39 (0.06)
	SJ-4	12.50	25.00 (0.00)	7.15 (0.12)	8.00 (0.05)	0.59 (0.11)
	SJ-4	25.00	25.00 (0.00)	7.04 (0.13)	8.01 (0.05)	1.13 (0.32)
	SJ-4	50.00	25.00 (0.00)	6.84 (0.17)	7.98 (0.05)	2.70 (0.54)
	SJ-4	100.00	25.00 (0.00)	7.04 (0.08)	7.98 (0.04)	4.66 (0.96)
(Sheet 6 of 6)						

Appendix D

Twenty-One Day Elutriate

Tests with *Daphnia magna*

Table D1**Time Course for Survival of *D. magna* Exposed to Elutriates of Buffalo District - Toledo Harbor Sediments**

Sediment	Percent Elutriate	Replicate	Day of Death
Control-1	0	1	
Control-1	0	2	
Control-1	0	3	
Control-1	0	4	
Control-1	0	5	
Control-1	0	6	
Control-1	0	7	
Control-1	0	8	
Control-1	0	9	
Control-1	0	10	
RM 1-2	6.25	1	2
RM 1-2	6.25	2	
RM 1-2	6.25	3	
RM 1-2	6.25	4	
RM 1-2	6.25	5	
RM 1-2	6.25	6	
RM 1-2	6.25	7	
RM 1-2	6.25	8	12
RM 1-2	6.25	9	12
RM 1-2	6.25	10	8
RM 1-2	12.5	1	
RM 1-2	12.5	2	
RM 1-2	12.5	3	12
RM 1-2	12.5	4	
RM 1-2	12.5	5	
RM 1-2	12.5	6	
RM 1-2	12.5	7	
RM 1-2	12.5	8	13
RM 1-2	12.5	9	

(Sheet 1 of 15)

Table D1 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
RM 1-2	12.5	10	
RM 1-2	25	1	2
RM 1-2	25	2	
RM 1-2	25	3	
RM 1-2	25	4	
RM 1-2	25	5	
RM 1-2	25	6	
RM 1-2	25	7	
RM 1-2	25	8	6
RM 1-2	25	9	
RM 1-2	25	10	12
RM 1-2	50	1	
RM 1-2	50	2	
RM 1-2	50	3	
RM 1-2	50	4	3
RM 1-2	50	5	16
RM 1-2	50	6	
RM 1-2	50	7	2
RM 1-2	50	8	
RM 1-2	50	9	
RM 1-2	50	10	
RM 1-2	100	1	20
RM 1-2	100	2	
RM 1-2	100	3	
RM 1-2	100	4	20
RM 1-2	100	5	
RM 1-2	100	6	
RM 1-2	100	7	
RM 1-2	100	8	12
RM 1-2	100	9	2
(Sheet 2 of 15)			

Table D1 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
RM 1-2	100	10	
LM 0-1	6.25	1	
LM 0-1	6.25	2	7
LM 0-1	6.25	3	
LM 0-1	6.25	4	
LM 0-1	6.25	5	4
LM 0-1	6.25	6	9
LM 0-1	6.25	7	9
LM 0-1	6.25	8	
LM 0-1	6.25	9	2
LM 0-1	6.25	10	
LM 0-1	12.5	1	
LM 0-1	12.5	2	
LM 0-1	12.5	3	
LM 0-1	12.5	4	8
LM 0-1	12.5	5	
LM 0-1	12.5	6	8
LM 0-1	12.5	7	
LM 0-1	12.5	8	
LM 0-1	12.5	9	20
LM 0-1	12.5	10	
LM 0-1	25	1	
LM 0-1	25	2	
LM 0-1	25	3	
LM 0-1	25	4	
LM 0-1	25	5	
LM 0-1	25	6	
LM 0-1	25	7	
(Sheet 3 of 15)			

Table D1 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
LM 0-1	25	8	2
LM 0-1	25	9	15
LM 0-1	25	10	
LM 0-1	50	1	17
LM 0-1	50	2	21
LM 0-1	50	3	
LM 0-1	50	4	
LM 0-1	50	5	
LM 0-1	50	6	
LM 0-1	50	7	15
LM 0-1	50	8	
LM 0-1	50	9	
LM 0-1	50	10	
LM 0-1	100	1	7
LM 0-1	100	2	
LM 0-1	100	3	
LM 0-1	100	4	
LM 0-1	100	5	7
LM 0-1	100	6	20
LM 0-1	100	7	17
LM 0-1	100	8	
LM 0-1	100	9	
LM 0-1	100	10	2
LM 1-2	6.25	1	
LM 1-2	6.25	2	
LM 1-2	6.25	3	
LM 1-2	6.25	4	
LM 1-2	6.25	5	20
(Sheet 4 of 15)			

Table D1 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
LM 1-2	6.25	6	
LM 1-2	6.25	7	
LM 1-2	6.25	8	
LM 1-2	6.25	9	
LM 1-2	6.25	10	
LM 1-2	12.5	1	
LM 1-2	12.5	2	
LM 1-2	12.5	3	
LM 1-2	12.5	4	
LM 1-2	12.5	5	
LM 1-2	12.5	6	
LM 1-2	12.5	7	
LM 1-2	12.5	8	
LM 1-2	12.5	9	
LM 1-2	12.5	10	
LM 1-2	25	1	
LM 1-2	25	2	15
LM 1-2	25	3	
LM 1-2	25	4	
LM 1-2	25	5	
LM 1-2	25	6	
LM 1-2	25	7	
LM 1-2	25	8	
LM 1-2	25	9	
LM 1-2	25	10	18
LM 1-2	50	1	
LM 1-2	50	2	
LM 1-2	50	3	
(Sheet 5 of 15)			

Table D1 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
LM 1-2	50	4	
LM 1-2	50	5	9
LM 1-2	50	6	
LM 1-2	50	7	
LM 1-2	50	8	
LM 1-2	50	9	
LM 1-2	50	10	
LM 1-2	100	1	
LM 1-2	100	2	
LM 1-2	100	3	9
LM 1-2	100	4	
LM 1-2	100	5	
LM 1-2	100	6	
LM 1-2	100	7	
LM 1-2	100	8	
LM 1-2	100	9	
LM 1-2	100	10	17
LM 2-3	6.25	1	
LM 2-3	6.25	2	
LM 2-3	6.25	3	
LM 2-3	6.25	4	
LM 2-3	6.25	5	
LM 2-3	6.25	6	
LM 2-3	6.25	7	
LM 2-3	6.25	8	
LM 2-3	6.25	9	
LM 2-3	6.25	10	
LM 2-3	12.5	1	
(Sheet 6 of 15)			

Table D1 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
LM 2-3	12.5	2	
LM 2-3	12.5	3	
LM 2-3	12.5	4	
LM 2-3	12.5	5	
LM 2-3	12.5	6	
LM 2-3	12.5	7	
LM 2-3	12.5	8	
LM 2-3	12.5	9	
LM 2-3	12.5	10	
LM 2-3	25	1	
LM 2-3	25	2	
LM 2-3	25	3	
LM 2-3	25	4	
LM 2-3	25	5	10
LM 2-3	25	6	
LM 2-3	25	7	
LM 2-3	25	8	
LM 2-3	25	9	
LM 2-3	25	10	
LM 2-3	50	1	
LM 2-3	50	2	
LM 2-3	50	3	12
LM 2-3	50	4	
LM 2-3	50	5	
LM 2-3	50	6	
LM 2-3	50	7	
LM 2-3	50	8	
LM 2-3	50	9	
(Sheet 7 of 15)			

Table D1 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
LM 2-3	50	10	
LM 2-3	100	1	
LM 2-3	100	2	
LM 2-3	100	3	
LM 2-3	100	4	
LM 2-3	100	5	
LM 2-3	100	6	
LM 2-3	100	7	
LM 2-3	100	8	
LM 2-3	100	9	
LM 2-3	100	10	
LM 3-4	6.25	1	
LM 3-4	6.25	2	
LM 3-4	6.25	3	
LM 3-4	6.25	4	
LM 3-4	6.25	5	
LM 3-4	6.25	6	19
LM 3-4	6.25	7	
LM 3-4	6.25	8	
LM 3-4	6.25	9	
LM 3-4	6.25	10	
LM 3-4	12.5	1	
LM 3-4	12.5	2	
LM 3-4	12.5	3	8
LM 3-4	12.5	4	
LM 3-4	12.5	5	
LM 3-4	12.5	6	
LM 3-4	12.5	7	11
(Sheet 8 of 15)			

Table D1 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
LM 3-4	12.5	8	
LM 3-4	12.5	9	
LM 3-4	12.5	10	
LM 3-4	25	1	
LM 3-4	25	2	
LM 3-4	25	3	
LM 3-4	25	4	
LM 3-4	25	5	
LM 3-4	25	6	
LM 3-4	25	7	
LM 3-4	25	8	
LM 3-4	25	9	
LM 3-4	25	10	
LM 3-4	50	1	
LM 3-4	50	2	
LM 3-4	50	3	
LM 3-4	50	4	8
LM 3-4	50	5	
LM 3-4	50	6	
LM 3-4	50	7	
LM 3-4	50	8	
LM 3-4	50	9	
LM 3-4	50	10	
LM 3-4	100	1	
LM 3-4	100	2	
LM 3-4	100	3	
LM 3-4	100	4	
LM 3-4	100	5	
(Sheet 9 of 15)			

Table D1 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
LM 3-4	100	6	
LM 3-4	100	7	
LM 3-4	100	8	
LM 3-4	100	9	
LM 3-4	100	10	
LM 4-5	6.25	1	
LM 4-5	6.25	2	
LM 4-5	6.25	3	
LM 4-5	6.25	4	4
LM 4-5	6.25	5	6
LM 4-5	6.25	6	
LM 4-5	6.25	7	
LM 4-5	6.25	8	
LM 4-5	6.25	9	
LM 4-5	6.25	10	
LM 4-5	12.5	1	
LM 4-5	12.5	2	
LM 4-5	12.5	3	
LM 4-5	12.5	4	
LM 4-5	12.5	5	
LM 4-5	12.5	6	
LM 4-5	12.5	7	
LM 4-5	12.5	8	
LM 4-5	12.5	9	
LM 4-5	12.5	10	
LM 4-5	12.5	1	
LM 4-5	12.5	2	
LM 4-5	12.5	3	

(Sheet 10 of 15)

Table D1 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
LM 4-5	12.5	4	
LM 4-5	12.5	5	
LM 4-5	25	6	
LM 4-5	25	7	
LM 4-5	25	8	
LM 4-5	25	9	
LM 4-5	25	10	
LM 4-5	50	1	
LM 4-5	50	2	
LM 4-5	50	3	
LM 4-5	50	4	
LM 4-5	50	5	
LM 4-5	50	6	
LM 4-5	50	7	20
LM 4-5	50	8	
LM 4-5	50	9	
LM 4-5	50	10	
LM 4-5	100	1	
LM 4-5	100	2	
LM 4-5	100	3	
LM 4-5	100	4	
LM 4-5	100	5	
LM 4-5	100	6	
LM 4-5	100	7	
LM 4-5	100	8	
LM 4-5	100	9	
LM 4-5	100	10	
LM 7-8	6.25	1	
(Sheet 11 of 15)			

Table D1 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
LM 7-8	6.25	2	2
LM 7-8	6.25	3	
LM 7-8	6.25	4	
LM 7-8	6.25	5	15
LM 7-8	6.25	6	
LM 7-8	6.25	7	
LM 7-8	6.25	8	
LM 7-8	6.25	9	
LM 7-8	6.25	10	
LM 7-8	12.5	1	
LM 7-8	12.5	2	
LM 7-8	12.5	3	
LM 7-8	12.5	4	
LM 7-8	12.5	5	
LM 7-8	12.5	6	
LM 7-8	12.5	7	
LM 7-8	12.5	8	17
LM 7-8	12.5	9	
LM 7-8	12.5	10	
LM 7-8	25	1	
LM 7-8	25	2	
LM 7-8	25	3	
LM 7-8	25	4	
LM 7-8	25	5	
LM 7-8	25	6	
LM 7-8	25	7	
LM 7-8	25	8	
LM 7-8	25	9	
(Sheet 12 of 15)			

Table D1 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
LM 7-8	25	10	
LM 7-8	50	1	
LM 7-8	50	2	
LM 7-8	50	3	
LM 7-8	50	4	
LM 7-8	50	5	
LM 7-8	50	6	
LM 7-8	50	7	
LM 7-8	50	8	
LM 7-8	50	9	
LM 7-8	50	10	
LM 7-8	100	1	
LM 7-8	100	2	
LM 7-8	100	3	
LM 7-8	100	4	
LM 7-8	100	5	
LM 7-8	100	6	
LM 7-8	100	7	
LM 7-8	100	8	
LM 7-8	100	9	
LM 7-8	100	10	15
LM 11-12	6.25	1	6
LM 11-12	6.25	2	4
LM 11-12	6.25	3	7
LM 11-12	6.25	4	15
LM 11-12	6.25	5	6
LM 11-12	6.25	6	
LM 11-12	6.25	7	
(Sheet 13 of 15)			

Table D1 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
LM 11-12	6.25	8	
LM 11-12	6.25	9	
LM 11-12	6.25	10	
LM 11-12	12.5	1	
LM 11-12	12.5	2	
LM 11-12	12.5	3	6
LM 11-12	12.5	4	
LM 11-12	12.5	5	
LM 11-12	12.5	6	
LM 11-12	12.5	7	6
LM 11-12	12.5	8	
LM 11-12	12.5	9	
LM 11-12	12.5	10	
LM 11-12	25	1	
LM 11-12	25	2	
LM 11-12	25	3	
LM 11-12	25	4	
LM 11-12	25	5	
LM 11-12	25	6	
LM 11-12	25	7	15
LM 11-12	25	8	
LM 11-12	25	9	6
LM 11-12	25	10	
LM 11-12	50	1	
LM 11-12	50	2	
LM 11-12	50	3	
LM 11-12	50	4	
LM 11-12	50	5	
(Sheet 14 of 15)			

Table D1 (Concluded)			
Sediment	Percent Elutriate	Replicate	Day of Death
LM 11-12	50	6	
LM 11-12	50	7	
LM 11-12	50	8	
LM 11-12	50	9	
LM 11-12	50	10	
LM 11-12	100	1	
LM 11-12	100	2	11
LM 11-12	100	3	
LM 11-12	100	4	
LM 11-12	100	5	
LM 11-12	100	6	
LM 11-12	100	7	
LM 11-12	100	8	
LM 11-12	100	9	
LM 11-12	100	10	
(Sheet 15 of 15)			

Table D2
Time Course for Survival of *D. magna* Exposed to Elutriates of Chicago District - Michigan City Harbor Sediments

Sediment	Percent Elutriate	Replicate	Day of Death
Control-1	0	1	
Control-1	0	2	
Control-1	0	3	
Control-1	0	4	
Control-1	0	5	
Control-1	0	6	
Control-1	0	7	
Control-1	0	8	
Control-1	0	9	
Control-1	0	10	
Control-2	0	1	20
Control-2	0	2	
Control-2	0	3	
Control-2	0	4	
Control-2	0	5	
Control-2	0	6	
Control-2	0	7	15
Control-2	0	8	
Control-2	0	9	
Control-2	0	10	
MC-1	6.25	1	
MC-1	6.25	2	
MC-1	6.25	3	
MC-1	6.25	4	
MC-1	6.25	5	
MC-1	6.25	6	12
MC-1	6.25	7	
MC-1	6.25	8	
MC-1	6.25	9	
MC-1	6.25	10	

(Sheet 1 of 5)

Table D2 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
MC-1	12.5	1	
MC-1	12.5	2	
MC-1	12.5	3	
MC-1	12.5	4	
MC-1	12.5	5	
MC-1	12.5	6	18
MC-1	12.5	7	
MC-1	12.5	8	
MC-1	12.5	9	
MC-1	12.5	10	
MC-1	25	1	7
MC-1	25	2	
MC-1	25	3	
MC-1	25	4	
MC-1	25	5	
MC-1	25	6	
MC-1	25	7	
MC-1	25	8	
MC-1	25	9	
MC-1	25	10	
MC-1	50	1	
MC-1	50	2	
MC-1	50	3	
MC-1	50	4	6
MC-1	50	5	
MC-1	50	6	
MC-1	50	7	9
MC-1	50	8	
MC-1	50	9	
MC-1	50	10	8
MC-1	100	1	
(Sheet 2 of 5)			

Table D2 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
MC-1	100	2	
MC-1	100	3	
MC-1	100	4	
MC-1	100	5	
MC-1	100	6	
MC-1	100	7	
MC-1	100	8	
MC-1	100	9	
MC-1	100	10	
MC-2	6.25	1	
MC-2	6.25	2	5
MC-2	6.25	3	14
MC-2	6.25	4	18
MC-2	6.25	5	
MC-2	6.25	6	
MC-2	6.25	7	
MC-2	6.25	8	
MC-2	6.25	9	
MC-2	6.25	10	
MC-2	12.5	1	
MC-2	12.5	2	
MC-2	12.5	3	
MC-2	12.5	4	
MC-2	12.5	5	
MC-2	12.5	6	
MC-2	12.5	7	
MC-2	12.5	8	5
MC-2	12.5	9	
MC-2	12.5	10	
MC-2	25	1	
MC-2	25	2	7
(Sheet 3 of 5)			

Table D2 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
MC-2	25	3	
MC-2	25	4	
MC-2	25	5	
MC-2	25	6	18
MC-2	25	7	
MC-2	25	8	
MC-2	25	9	9
MC-2	25	10	
MC-2	50	1	18
MC-2	50	2	
MC-2	50	3	
MC-2	50	4	
MC-2	50	5	
MC-2	50	6	
MC-2	50	7	
MC-2	50	8	
MC-2	50	9	
MC-2	50	10	2
MC-2	100	1	
MC-2	100	2	
MC-2	100	3	
MC-2	100	4	
MC-2	100	5	
MC-2	100	6	
MC-2	100	7	
MC-2	100	8	
MC-2	100	9	
MC-2	100	10	
MC-3	100	1	
MC-3	100	3	
MC-3	100	5	
(Sheet 4 of 5)			

Table D2 (Concluded)			
Sediment	Percent Elutriate	Replicate	Day of Death
MC-3	100	7	
MC-3	100	10	
(Sheet 5 of 5)			

Table D3**Time Course for Survival of *D. magna* Exposed to Elutriates of Detroit District - Grand Haven Harbor Sediments**

Sediment	Percent Elutriate	Replicate	Day of Death
Control-2	0	1	20
Control-2	0	2	
Control-2	0	3	
Control-2	0	4	
Control-2	0	5	
Control-2	0	6	
Control-2	0	7	15
Control-2	0	8	
Control-2	0	9	
Control-2	0	10	
GH-1	6.25	1	
GH-1	6.25	2	
GH-1	6.25	3	19
GH-1	6.25	4	
GH-1	6.25	5	
GH-1	6.25	6	
GH-1	6.25	7	
GH-1	6.25	8	
GH-1	6.25	9	
GH-1	6.25	10	
GH-1	12.5	1	
GH-1	12.5	2	
GH-1	12.5	3	
GH-1	12.5	4	
GH-1	12.5	5	
GH-1	12.5	6	
GH-1	12.5	7	
GH-1	12.5	8	
GH-1	12.5	9	
GH-1	12.5	10	

(Sheet 1 of 6)

Table D3 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
GH-1	25	1	
GH-1	25	2	
GH-1	25	3	3
GH-1	25	4	
GH-1	25	5	
GH-1	25	6	
GH-1	25	7	
GH-1	25	8	
GH-1	25	9	
GH-1	25	10	
GH-1	50	1	
GH-1	50	2	2
GH-1	50	3	
GH-1	50	4	
GH-1	50	5	
GH-1	50	6	
GH-1	50	7	
GH-1	50	8	
GH-1	50	9	
GH-1	50	10	
GH-1	100	1	
GH-1	100	2	
GH-1	100	3	
GH-1	100	4	
GH-1	100	5	1
GH-1	100	6	
GH-1	100	7	
GH-1	100	8	
GH-1	100	9	
GH-1	100	10	
GH-2	6.25	1	
(Sheet 2 of 6)			

Table D3 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
GH-2	6.25	2	
GH-2	6.25	3	
GH-2	6.25	4	
GH-2	6.25	5	
GH-2	6.25	6	
GH-2	6.25	7	
GH-2	6.25	8	
GH-2	6.25	9	
GH-2	6.25	10	
GH-2	12.5	1	
GH-2	12.5	2	
GH-2	12.5	3	
GH-2	12.5	4	
GH-2	12.5	5	
GH-2	12.5	6	
GH-2	12.5	7	
GH-2	12.5	8	
GH-2	12.5	9	
GH-2	12.5	10	
GH-2	25	1	
GH-2	25	2	
GH-2	25	3	
GH-2	25	4	
GH-2	25	5	
GH-2	25	6	
GH-2	25	7	
GH-2	25	8	
GH-2	25	9	
GH-2	25	10	
GH-2	50	1	
GH-2	50	2	
(Sheet 3 of 6)			

Table D3 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
GH-2	50	3	
GH-2	50	4	
GH-2	50	5	20
GH-2	50	6	2
GH-2	50	7	
GH-2	50	8	
GH-2	50	9	
GH-2	50	10	
GH-2	100	1	3
GH-2	100	2	
GH-2	100	3	
GH-2	100	4	
GH-2	100	5	
GH-2	100	6	
GH-2	100	7	
GH-2	100	8	
GH-2	100	9	
GH-2	100	10	
GH-4	6.25	1	
GH-4	6.25	2	
GH-4	6.25	3	
GH-4	6.25	4	
GH-4	6.25	5	
GH-4	6.25	6	
GH-4	6.25	7	
GH-4	6.25	8	
GH-4	6.25	9	
GH-4	6.25	10	
GH-4	12.5	1	
GH-4	12.5	2	
GH-4	12.5	3	
(Sheet 4 of 6)			

Table D3 (Continued)			
Sediment	Percent Elutriate	Replicate	Day of Death
GH-4	12.5	4	
GH-4	12.5	5	
GH-4	12.5	6	
GH-4	12.5	7	
GH-4	12.5	8	15
GH-4	12.5	9	
GH-4	12.5	10	
GH-4	25	1	
GH-4	25	2	
GH-4	25	3	
GH-4	25	4	
GH-4	25	5	
GH-4	25	6	
GH-4	25	7	
GH-4	25	8	
GH-4	25	9	
GH-4	25	10	
GH-4	50	1	
GH-4	50	2	
GH-4	50	3	
GH-4	50	4	
GH-4	50	5	
GH-4	50	6	
GH-4	50	7	
GH-4	50	8	
GH-4	50	9	
GH-4	50	10	
GH-4	100	1	
GH-4	100	2	
GH-4	100	3	
GH-4	100	4	
(Sheet 5 of 6)			

Table D3 (Concluded)			
Sediment	Percent Elutriate	Replicate	Day of Death
GH-4	100	5	
GH-4	100	6	
GH-4	100	7	
GH-4	100	8	
GH-4	100	9	
GH-4	100	10	
(Sheet 6 of 6)			

Table D4**Time Course for Survival of *D. magna* Exposed to Elutriates of Detroit District - St. Joseph Sediments**

Sediment	Percent Elutriate	Replicate	Day of Death
Control-2	0	1	20
Control-2	0	2	
Control-2	0	3	
Control-2	0	4	
Control-2	0	5	
Control-2	0	6	
Control-2	0	7	15
Control-2	0	8	
Control-2	0	9	
Control-2	0	10	
SJ-2	50	1	
SJ-2	50	2	
SJ-2	50	3	
SJ-2	50	4	
SJ-2	50	5	
SJ-2	50	6	
SJ-2	50	7	
SJ-2	50	8	
SJ-2	50	9	
SJ-2	50	10	
SJ-2	100	1	
SJ-2	100	2	
SJ-2	100	3	7
SJ-2	100	4	
SJ-2	100	5	4
SJ-2	100	6	
SJ-2	100	7	
SJ-2	100	8	
SJ-2	100	9	

(Continued)

Table D4 (Concluded)			
Sediment	Percent Elutriate	Replicate	Day of Death
SJ-2	100	10	
SJ-3	6.25	1	
SJ-3	6.25	2	
SJ-3	6.25	3	
SJ-3	6.25	4	
SJ-3	6.25	5	
SJ-3	6.25	6	
SJ-3	6.25	7	
SJ-3	6.25	8	
SJ-3	6.25	9	
SJ-3	6.25	10	
SJ-3	100	1	
SJ-3	100	2	
SJ-3	100	3	
SJ-3	100	4	
SJ-3	100	5	
SJ-3	100	6	
SJ-3	100	7	
SJ-3	100	8	
SJ-3	100	9	
SJ-3	100	10	
SJ-4	100	1	
SJ-4	100	2	
SJ-4	100	4	
SJ-4	100	5	
SJ-4	100	8	

Table D5
Reproduction in *D. magna* Exposed to Elutriates of Buffalo
District - Toledo Harbor Sediments

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
Control-1	100	1	2	10	10
Control-1	100	1	2	14	21
Control-1	100	1	2	16	36
Control-1	100	1	2	19	48
Control-1	100	2	2	14	14
Control-1	100	2	2	16	21
Control-1	100	2	2	19	50
Control-1	100	3	2	14	11
Control-1	100	3	2	16	28
Control-1	100	3	2	19	44
Control-1	100	3	2	20	46
Control-1	100	4	2	14	11
Control-1	100	4	2	16	32
Control-1	100	4	2	19	47
Control-1	100	5	2	11	10
Control-1	100	5	2	15	29
Control-1	100	5	2	18	39
Control-1	100	5	2	20	37
Control-1	100	6	1	10	19
Control-1	100	6	1	15	27
Control-1	100	6	1	18	27
Control-1	100	6	1	21	40
Control-1	100	7	1	10	7
Control-1	100	7	1	13	18
Control-1	100	7	1	16	36
Control-1	100	7	1	20	38
Control-1	100	8	1	14	10
Control-1	100	8	1	17	71
Control-1	100	9	1	11	9

(Sheet 1 of 51)

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
Control-1	100	9	1	14	20
Control-1	100	9	1	15	36
Control-1	100	9	1	18	20
Control-1	100	9	1	21	28
Control-1	100	10	1	11	5
Control-1	100	10	1	13	18
Control-1	100	10	1	17	37
Control-1	100	10	1	20	39
RM 1-2	6.25	1	1	0	0
RM 1-2	12.5	1	2	9	5
RM 1-2	12.5	1	2	10	20
RM 1-2	12.5	1	2	15	36
RM 1-2	12.5	1	2	18	38
RM 1-2	12.5	1	2	20	29
RM 1-2	25	1	1	0	0
RM 1-2	50	1	2	13	19
RM 1-2	50	1	2	16	14
RM 1-2	50	1	2	19	40
RM 1-2	100	1	2	11	15
RM 1-2	100	1	2	15	28
RM 1-2	100	1	2	18	22
RM 1-2	6.25	2	2	10	6
RM 1-2	6.25	2	2	14	15
RM 1-2	6.25	2	2	16	26
RM 1-2	6.25	2	2	19	36
RM 1-2	12.5	2	1	8	3
RM 1-2	12.5	2	1	11	17
RM 1-2	12.5	2	1	14	27
RM 1-2	12.5	2	1	17	32
RM 1-2	12.5	2	1	20	12
(Sheet 2 of 51)					

Table D5 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
RM 1-2	25	2	2	12	16
RM 1-2	25	2	2	15	43
RM 1-2	25	2	2	19	41
RM 1-2	25	2	2	21	29
RM 1-2	50	2	1	10	10
RM 1-2	50	2	1	13	20
RM 1-2	50	2	1	17	24
RM 1-2	50	2	1	20	33
RM 1-2	100	2	1	10	13
RM 1-2	100	2	1	13	16
RM 1-2	100	2	1	16	25
RM 1-2	100	2	1	18	21
RM 1-2	100	2	1	21	31
RM 1-2	6.25	3	2	15	18
RM 1-2	6.25	3	2	18	32
RM 1-2	6.25	3	2	21	38
RM 1-2	12.5	3	1	0	0
RM 1-2	25	3	1	10	6
RM 1-2	25	3	1	13	20
RM 1-2	25	3	1	16	27
RM 1-2	25	3	1	19	31
RM 1-2	50	3	1	9	8
RM 1-2	50	3	1	11	18
RM 1-2	50	3	1	15	16
RM 1-2	50	3	1	18	23
RM 1-2	50	3	1	20	18
RM 1-2	100	3	2	11	10
RM 1-2	100	3	2	14	27
RM 1-2	100	3	2	17	39
RM 1-2	100	3	2	20	25

(Sheet 3 of 51)

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
RM 1-2	6.25	4	2	10	7
RM 1-2	6.25	4	2	13	16
RM 1-2	6.25	4	2	17	57
RM 1-2	12.5	4	2	14	10
RM 1-2	12.5	4	2	15	26
RM 1-2	12.5	4	2	18	46
RM 1-2	12.5	4	2	21	35
RM 1-2	25	4	2	11	10
RM 1-2	25	4	2	14	22
RM 1-2	25	4	2	17	35
RM 1-2	25	4	2	20	40
RM 1-2	50	4	2	0	0
RM 1-2	100	4	1	11	5
RM 1-2	100	4	1	13	18
RM 1-2	100	4	1	19	2
RM 1-2	6.25	5	1	9	6
RM 1-2	6.25	5	1	11	13
RM 1-2	6.25	5	1	15	34
RM 1-2	6.25	5	1	17	42
RM 1-2	6.25	5	1	20	49
RM 1-2	12.5	5	2	10	9
RM 1-2	12.5	5	2	14	23
RM 1-2	12.5	5	2	16	35
RM 1-2	12.5	5	2	19	48
RM 1-2	25	5	1	9	7
RM 1-2	25	5	1	12	16
RM 1-2	25	5	1	15	28
RM 1-2	25	5	1	18	39
RM 1-2	25	5	1	20	35
RM 1-2	50	5	1	14	5
RM 1-2	100	5	2	10	8
(Sheet 4 of 51)					

Table D5 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
RM 1-2	100	5	2	13	20
RM 1-2	100	5	2	16	10
RM 1-2	100	5	2	17	37
RM 1-2	6.25	6	2	14	6
RM 1-2	6.25	6	2	16	12
RM 1-2	6.25	6	2	17	30
RM 1-2	6.25	6	2	21	38
RM 1-2	12.5	6	1	11	4
RM 1-2	12.5	6	1	14	19
RM 1-2	12.5	6	1	16	3
RM 1-2	12.5	6	1	19	12
RM 1-2	12.5	6	1	21	30
RM 1-2	25	6	1	12	9
RM 1-2	25	6	1	15	19
RM 1-2	25	6	1	18	35
RM 1-2	25	6	1	20	32
RM 1-2	50	6	1	10	11
RM 1-2	50	6	1	13	12
RM 1-2	50	6	1	16	22
RM 1-2	50	6	1	19	32
RM 1-2	100	6	1	11	8
RM 1-2	100	6	1	17	28
RM 1-2	100	6	1	20	43
RM 1-2	6.25	7	2	11	9
RM 1-2	6.25	7	2	15	19
RM 1-2	6.25	7	2	18	31
RM 1-2	6.25	7	2	20	45
RM 1-2	12.5	7	1	12	14
RM 1-2	12.5	7	1	15	27
RM 1-2	12.5	7	1	18	25

(Sheet 5 of 51)

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
RM 1-2	12.5	7	1	21	29
RM 1-2	25	7	2	9	7
RM 1-2	25	7	2	11	17
RM 1-2	25	7	2	15	38
RM 1-2	25	7	2	18	36
RM 1-2	25	7	2	20	41
RM 1-2	50	7	2	0	0
RM 1-2	100	7	2	10	7
RM 1-2	100	7	2	14	21
RM 1-2	100	7	2	16	41
RM 1-2	100	7	2	18	30
RM 1-2	100	7	2	20	1
RM 1-2	6.25	8	1	0	0
RM 1-2	12.5	8	2	0	0
RM 1-2	25	8	2	0	0
RM 1-2	50	8	2	11	14
RM 1-2	50	8	2	14	22
RM 1-2	50	8	2	17	38
RM 1-2	50	8	2	20	20
RM 1-2	100	8	2	0	0
RM 1-2	6.25	9	1	0	0
RM 1-2	12.5	9	1	10	8
RM 1-2	12.5	9	1	13	20
RM 1-2	12.5	9	1	17	43
RM 1-2	25	9	1	9	12
RM 1-2	25	9	1	11	24
RM 1-2	25	9	1	15	26
RM 1-2	25	9	1	18	26
RM 1-2	25	9	1	21	35
RM 1-2	50	9	1	10	13
RM 1-2	50	9	1	13	25
(Sheet 6 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
RM 1-2	50	9	1	19	32
RM 1-2	100	9	1	0	0
RM 1-2	6.25	10	1	0	0
RM 1-2	12.5	10	2	10	9
RM 1-2	12.5	10	2	13	18
RM 1-2	12.5	10	2	16	29
RM 1-2	12.5	10	2	19	37
RM 1-2	12.5	10	2	21	20
RM 1-2	25	10	2	0	0
RM 1-2	50	10	2	13	14
RM 1-2	50	10	2	17	18
RM 1-2	50	10	2	20	25
RM 1-2	100	10	1	10	10
RM 1-2	100	10	1	13	14
RM 1-2	100	10	1	16	24
RM 1-2	100	10	1	18	42
RM 1-2	100	10	1	21	15
LM 0-1	6.25	1	1	12	2
LM 0-1	6.25	1	1	15	19
LM 0-1	6.25	1	1	17	33
LM 0-1	6.25	1	1	20	28
LM 0-1	12.5	1	1	12	5
LM 0-1	12.5	1	1	15	13
LM 0-1	12.5	1	1	17	29
LM 0-1	12.5	1	1	20	35
LM 0-1	25	1	1	10	9
LM 0-1	25	1	1	15	19
LM 0-1	25	1	1	18	19
LM 0-1	25	1	1	21	9
LM 0-1	50	1	2	10	8
(Sheet 7 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 0-1	100	1	2	0	0
LM 0-1	6.25	2	1	0	0
LM 0-1	12.5	2	2	15	9
LM 0-1	12.5	2	2	19	15
LM 0-1	12.5	2	2	20	27
LM 0-1	25	2	1	10	10
LM 0-1	25	2	1	13	18
LM 0-1	25	2	1	15	38
LM 0-1	25	2	1	18	17
LM 0-1	25	2	1	21	15
LM 0-1	50	2	1	10	8
LM 0-1	50	2	1	15	20
LM 0-1	50	2	1	18	17
LM 0-1	50	2	1	20	9
LM 0-1	100	2	2	21	0
LM 0-1	6.25	3	2	12	7
LM 0-1	6.25	3	2	15	25
LM 0-1	6.25	3	2	18	33
LM 0-1	6.25	3	2	21	30
LM 0-1	12.5	3	1	14	10
LM 0-1	12.5	3	1	17	26
LM 0-1	12.5	3	1	21	45
LM 0-1	25	3	2	13	9
LM 0-1	25	3	2	15	28
LM 0-1	25	3	2	18	37
LM 0-1	25	3	2	21	18
LM 0-1	50	3	1	10	11
LM 0-1	50	3	1	14	15
LM 0-1	50	3	1	17	37
LM 0-1	100	3	2	10	10
LM 0-1	100	3	2	17	20
(Sheet 8 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 0-1	6.25	4	2	14	7
LM 0-1	6.25	4	2	15	24
LM 0-1	6.25	4	2	18	44
LM 0-1	6.25	4	2	21	34
LM 0-1	12.5	4	2	0	0
LM 0-1	25	4	2	11	7
LM 0-1	25	4	2	16	3
LM 0-1	25	4	2	17	34
LM 0-1	25	4	2	20	30
LM 0-1	50	4	2	11	12
LM 0-1	50	4	2	14	16
LM 0-1	50	4	2	17	26
LM 0-1	50	4	2	20	32
LM 0-1	100	4	2	12	5
LM 0-1	6.25	5	1	0	0
LM 0-1	12.5	5	1	13	16
LM 0-1	12.5	5	1	16	30
LM 0-1	12.5	5	1	18	42
LM 0-1	25	5	2	13	10
LM 0-1	25	5	2	16	5
LM 0-1	25	5	2	18	32
LM 0-1	50	5	1	11	11
LM 0-1	50	5	1	13	10
LM 0-1	50	5	1	15	25
LM 0-1	50	5	1	19	21
LM 0-1	50	5	1	21	7
LM 0-1	100	5	2	0	0
LM 0-1	6.25	6	1	0	0
LM 0-1	12.5	6	2	0	0
LM 0-1	25	6	1	12	8
(Sheet 9 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 0-1	25	6	1	13	16
LM 0-1	25	6	1	19	12
LM 0-1	25	6	1	21	11
LM 0-1	50	6	2	11	2
LM 0-1	50	6	2	15	17
LM 0-1	50	6	2	18	22
LM 0-1	50	6	2	20	13
LM 0-1	100	6	1	10	18
LM 0-1	100	6	1	15	26
LM 0-1	100	6	1	18	16
LM 0-1	6.25	7	1	0	0
LM 0-1	12.5	7	1	11	11
LM 0-1	12.5	7	1	14	30
LM 0-1	12.5	7	1	17	33
LM 0-1	12.5	7	1	20	38
LM 0-1	25	7	1	10	7
LM 0-1	25	7	1	13	13
LM 0-1	25	7	1	16	30
LM 0-1	25	7	1	19	24
LM 0-1	25	7	1	21	9
LM 0-1	50	7	1	12	9
LM 0-1	50	7	1	14	8
LM 0-1	100	7	1	12	13
LM 0-1	100	7	1	15	26
LM 0-1	6.25	8	2	14	10
LM 0-1	6.25	8	2	17	36
LM 0-1	6.25	8	2	20	62
LM 0-1	12.5	8	1	16	12
LM 0-1	12.5	8	1	18	14
LM 0-1	12.5	8	1	20	21
LM 0-1	25	8	2	0	0
(Sheet 10 of 51)					

Table D5 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 0-1	50	8	2	15	21
LM 0-1	50	8	2	18	8
LM 0-1	50	8	2	21	19
LM 0-1	100	8	1	12	25
LM 0-1	100	8	1	15	29
LM 0-1	100	8	1	18	7
LM 0-1	6.25	9	2	0	0
LM 0-1	12.5	9	2	13	13
LM 0-1	12.5	9	2	16	17
LM 0-1	12.5	9	2	18	27
LM 0-1	25	9	2	11	12
LM 0-1	25	9	2	14	9
LM 0-1	50	9	2	13	10
LM 0-1	50	9	2	16	24
LM 0-1	50	9	2	18	16
LM 0-1	50	9	2	21	24
LM 0-1	100	9	1	10	14
LM 0-1	100	9	1	14	16
LM 0-1	100	9	1	17	24
LM 0-1	6.25	10	2	20	17
LM 0-1	12.5	10	2	13	5
LM 0-1	12.5	10	2	15	20
LM 0-1	12.5	10	2	18	30
LM 0-1	12.5	10	2	21	31
LM 0-1	25	10	1	11	7
LM 0-1	25	10	1	13	14
LM 0-1	25	10	1	16	16
LM 0-1	25	10	1	19	25
LM 0-1	50	10	1	10	12
LM 0-1	50	10	1	14	18

(Sheet 11 of 51)

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 0-1	50	10	1	17	14
LM 0-1	50	10	1	20	40
LM 0-1	100	10	1	0	0
LM 1-2	6.25	1	1	11	1
LM 1-2	6.25	1	1	13	8
LM 1-2	6.25	1	1	16	23
LM 1-2	6.25	1	1	19	44
LM 1-2	12.5	1	1	13	14
LM 1-2	12.5	1	1	15	38
LM 1-2	12.5	1	1	18	44
LM 1-2	12.5	1	1	21	40
LM 1-2	25	1	1	9	15
LM 1-2	25	1	1	12	19
LM 1-2	25	1	1	15	25
LM 1-2	25	1	1	17	24
LM 1-2	25	1	1	21	36
LM 1-2	50	1	1	10	28
LM 1-2	50	1	1	14	1
LM 1-2	50	1	1	15	22
LM 1-2	50	1	1	18	32
LM 1-2	50	1	1	21	31
LM 1-2	100	1	2	10	22
LM 1-2	100	1	2	13	23
LM 1-2	100	1	2	15	39
LM 1-2	100	1	2	18	34
LM 1-2	100	1	2	21	34
LM 1-2	6.25	2	2	12	16
LM 1-2	6.25	2	2	15	27
LM 1-2	6.25	2	2	18	33
LM 1-2	6.25	2	2	21	44
LM 1-2	12.5	2	2	13	18
(Sheet 12 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 1-2	12.5	2	2	16	26
LM 1-2	12.5	2	2	19	40
LM 1-2	12.5	2	2	21	15
LM 1-2	25	2	1	8	11
LM 1-2	25	2	1	11	24
LM 1-2	25	2	1	14	27
LM 1-2	50	2	1	9	18
LM 1-2	50	2	1	11	29
LM 1-2	50	2	1	15	42
LM 1-2	50	2	1	18	47
LM 1-2	50	2	1	20	47
LM 1-2	100	2	2	9	12
LM 1-2	100	2	2	11	20
LM 1-2	100	2	2	13	41
LM 1-2	100	2	2	17	65
LM 1-2	100	2	2	20	46
LM 1-2	6.25	3	2	10	6
LM 1-2	6.25	3	2	13	13
LM 1-2	6.25	3	2	18	6
LM 1-2	6.25	3	2	20	16
LM 1-2	12.5	3	2	10	4
LM 1-2	12.5	3	2	13	15
LM 1-2	12.5	3	2	15	16
LM 1-2	12.5	3	2	19	21
LM 1-2	25	3	1	9	9
LM 1-2	25	3	1	12	21
LM 1-2	25	3	1	16	39
LM 1-2	25	3	1	18	20
LM 1-2	25	3	1	21	30
LM 1-2	50	3	1	9	18
(Sheet 13 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 1-2	50	3	1	10	24
LM 1-2	50	3	1	14	14
LM 1-2	50	3	1	18	34
LM 1-2	50	3	1	20	49
LM 1-2	100	3	2	0	0
LM 1-2	6.25	4	2	13	14
LM 1-2	6.25	4	2	16	30
LM 1-2	6.25	4	2	18	41
LM 1-2	12.5	4	2	9	12
LM 1-2	12.5	4	2	12	22
LM 1-2	12.5	4	2	16	28
LM 1-2	12.5	4	2	19	44
LM 1-2	25	4	2	10	11
LM 1-2	25	4	2	13	28
LM 1-2	25	4	2	16	1
LM 1-2	25	4	2	17	34
LM 1-2	25	4	2	20	32
LM 1-2	50	4	2	9	13
LM 1-2	50	4	2	12	22
LM 1-2	50	4	2	14	1
LM 1-2	50	4	2	16	28
LM 1-2	50	4	2	18	42
LM 1-2	50	4	2	21	53
LM 1-2	100	4	2	9	14
LM 1-2	100	4	2	11	26
LM 1-2	100	4	2	15	26
LM 1-2	100	4	2	18	55
LM 1-2	100	4	2	21	50
LM 1-2	6.25	5	2	12	5
LM 1-2	6.25	5	2	15	12
LM 1-2	6.25	5	2	17	30
(Sheet 14 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 1-2	12.5	5	1	9	11
LM 1-2	12.5	5	1	13	24
LM 1-2	12.5	5	1	16	27
LM 1-2	12.5	5	1	19	43
LM 1-2	12.5	5	1	21	54
LM 1-2	25	5	2	10	14
LM 1-2	25	5	2	13	27
LM 1-2	25	5	2	16	33
LM 1-2	25	5	2	19	41
LM 1-2	25	5	2	21	1
LM 1-2	50	5	2	0	0
LM 1-2	100	5	1	9	10
LM 1-2	100	5	1	10	20
LM 1-2	100	5	1	13	31
LM 1-2	100	5	1	18	43
LM 1-2	100	5	1	20	60
LM 1-2	6.25	6	1	10	7
LM 1-2	6.25	6	1	13	15
LM 1-2	6.25	6	1	16	19
LM 1-2	6.25	6	1	19	34
LM 1-2	12.5	6	2	12	7
LM 1-2	12.5	6	2	13	1
LM 1-2	12.5	6	2	15	27
LM 1-2	12.5	6	2	18	41
LM 1-2	12.5	6	2	20	51
LM 1-2	25	6	2	10	7
LM 1-2	25	6	2	13	21
LM 1-2	25	6	2	15	32
LM 1-2	25	6	2	19	57
LM 1-2	25	6	2	21	45
(Sheet 15 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 1-2	50	6	1	10	18
LM 1-2	50	6	1	13	26
LM 1-2	50	6	1	16	22
LM 1-2	50	6	1	19	29
LM 1-2	100	6	1	9	15
LM 1-2	100	6	1	10	31
LM 1-2	100	6	1	14	32
LM 1-2	100	6	1	18	2
LM 1-2	100	6	1	20	37
LM 1-2	6.25	7	2	10	2
LM 1-2	6.25	7	2	13	21
LM 1-2	6.25	7	2	17	69
LM 1-2	6.25	7	2	20	4
LM 1-2	12.5	7	1	9	2
LM 1-2	12.5	7	1	10	16
LM 1-2	12.5	7	1	13	22
LM 1-2	12.5	7	1	16	33
LM 1-2	12.5	7	1	19	39
LM 1-2	25	7	1	9	13
LM 1-2	25	7	1	11	21
LM 1-2	25	7	1	15	29
LM 1-2	25	7	1	18	36
LM 1-2	25	7	1	20	36
LM 1-2	50	7	2	9	3
LM 1-2	50	7	2	12	18
LM 1-2	50	7	2	15	30
LM 1-2	50	7	2	18	36
LM 1-2	50	7	2	21	56
LM 1-2	100	7	2	10	17
LM 1-2	100	7	2	13	29
LM 1-2	100	7	2	16	24
(Sheet 16 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 1-2	100	7	2	19	39
LM 1-2	100	7	2	21	39
LM 1-2	6.25	8	1	13	1
LM 1-2	6.25	8	1	19	43
LM 1-2	6.25	8	1	20	4
LM 1-2	12.5	8	1	9	11
LM 1-2	12.5	8	1	12	20
LM 1-2	12.5	8	1	16	19
LM 1-2	12.5	8	1	18	24
LM 1-2	12.5	8	1	21	17
LM 1-2	25	8	2	9	8
LM 1-2	25	8	2	12	20
LM 1-2	25	8	2	15	30
LM 1-2	25	8	2	18	38
LM 1-2	25	8	2	21	37
LM 1-2	50	8	2	9	13
LM 1-2	50	8	2	12	24
LM 1-2	50	8	2	15	34
LM 1-2	50	8	2	18	54
LM 1-2	50	8	2	21	53
LM 1-2	100	8	1	9	23
LM 1-2	100	8	1	11	27
LM 1-2	100	8	1	15	26
LM 1-2	100	8	1	18	26
LM 1-2	100	8	1	21	49
LM 1-2	6.25	9	1	10	8
LM 1-2	6.25	9	1	14	20
LM 1-2	6.25	9	1	16	1
LM 1-2	6.25	9	1	17	72
LM 1-2	6.25	9	1	20	5
(Sheet 17 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 1-2	12.5	9	1	11	10
LM 1-2	12.5	9	1	14	18
LM 1-2	12.5	9	1	17	23
LM 1-2	12.5	9	1	20	32
LM 1-2	25	9	1	9	13
LM 1-2	25	9	1	11	15
LM 1-2	25	9	1	15	37
LM 1-2	25	9	1	18	39
LM 1-2	25	9	1	21	16
LM 1-2	50	9	1	9	13
LM 1-2	50	9	1	12	23
LM 1-2	50	9	1	15	26
LM 1-2	50	9	1	18	24
LM 1-2	50	9	1	21	46
LM 1-2	100	9	1	9	19
LM 1-2	100	9	1	11	21
LM 1-2	100	9	1	15	30
LM 1-2	100	9	1	18	37
LM 1-2	100	9	1	20	39
LM 1-2	6.25	10	1	10	8
LM 1-2	6.25	10	1	13	17
LM 1-2	6.25	10	1	16	26
LM 1-2	6.25	10	1	19	34
LM 1-2	6.25	10	1	21	20
LM 1-2	12.5	10	2	9	10
LM 1-2	12.5	10	2	12	18
LM 1-2	12.5	10	2	16	30
LM 1-2	12.5	10	2	19	41
LM 1-2	12.5	10	2	21	29
LM 1-2	25	10	2	11	1
LM 1-2	25	10	2	13	24
(Sheet 18 of 51)					

Table D5 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 1-2	25	10	2	16	1
LM 1-2	50	10	2	10	12
LM 1-2	50	10	2	13	25
LM 1-2	50	10	2	16	38
LM 1-2	50	10	2	19	39
LM 1-2	50	10	2	21	24
LM 1-2	100	10	1	9	1
LM 1-2	100	10	1	10	31
LM 1-2	100	10	1	13	12
LM 1-2	100	10	1	16	24
LM 2-3	6.25	1	2	11	5
LM 2-3	6.25	1	2	13	20
LM 2-3	6.25	1	2	15	23
LM 2-3	6.25	1	2	18	27
LM 2-3	6.25	1	2	20	32
LM 2-3	12.5	1	1	9	2
LM 2-3	12.5	1	1	11	22
LM 2-3	12.5	1	1	15	33
LM 2-3	12.5	1	1	18	42
LM 2-3	12.5	1	1	20	53
LM 2-3	25	1	1	8	12
LM 2-3	25	1	1	11	21
LM 2-3	25	1	1	14	23
LM 2-3	25	1	1	17	48
LM 2-3	25	1	1	20	31
LM 2-3	50	1	2	10	16
LM 2-3	50	1	2	13	24
LM 2-3	50	1	2	16	31
LM 2-3	50	1	2	19	49
LM 2-3	50	1	2	20	3

(Sheet 19 of 51)

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 2-3	100	1	2	9	6
LM 2-3	100	1	2	12	22
LM 2-3	100	1	2	13	2
LM 2-3	100	1	2	15	45
LM 2-3	100	1	2	18	50
LM 2-3	100	1	2	20	17
LM 2-3	6.25	2	1	12	10
LM 2-3	6.25	2	1	15	23
LM 2-3	6.25	2	1	18	18
LM 2-3	6.25	2	1	20	50
LM 2-3	12.5	2	1	10	10
LM 2-3	12.5	2	1	14	10
LM 2-3	12.5	2	1	16	22
LM 2-3	12.5	2	1	18	35
LM 2-3	12.5	2	1	21	35
LM 2-3	25	2	1	10	9
LM 2-3	25	2	1	13	32
LM 2-3	25	2	1	17	55
LM 2-3	50	2	2	10	35
LM 2-3	50	2	2	15	30
LM 2-3	50	2	2	18	56
LM 2-3	50	2	2	20	16
LM 2-3	100	2	2	9	13
LM 2-3	100	2	2	11	30
LM 2-3	100	2	2	14	33
LM 2-3	100	2	2	17	34
LM 2-3	100	2	2	20	30
LM 2-3	6.25	3	1	8	11
LM 2-3	6.25	3	1	11	20
LM 2-3	6.25	3	1	15	11
LM 2-3	6.25	3	1	18	21
(Sheet 20 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 2-3	6.25	3	1	20	31
LM 2-3	12.5	3	2	9	10
LM 2-3	12.5	3	2	12	19
LM 2-3	12.5	3	2	15	31
LM 2-3	12.5	3	2	18	32
LM 2-3	12.5	3	2	21	38
LM 2-3	25	3	1	9	13
LM 2-3	25	3	1	12	20
LM 2-3	25	3	1	15	33
LM 2-3	25	3	1	18	42
LM 2-3	25	3	1	20	57
LM 2-3	50	3	1	8	15
LM 2-3	100	3	2	9	15
LM 2-3	100	3	2	12	28
LM 2-3	100	3	2	15	41
LM 2-3	100	3	2	18	45
LM 2-3	100	3	2	21	25
LM 2-3	6.25	4	1	12	6
LM 2-3	6.25	4	1	13	4
LM 2-3	6.25	4	1	15	41
LM 2-3	6.25	4	1	18	43
LM 2-3	6.25	4	1	20	74
LM 2-3	12.5	4	1	10	18
LM 2-3	12.5	4	1	13	30
LM 2-3	12.5	4	1	16	35
LM 2-3	12.5	4	1	19	43
LM 2-3	25	4	2	10	14
LM 2-3	25	4	2	13	24
LM 2-3	25	4	2	15	41
LM 2-3	25	4	2	18	41
(Sheet 21 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 2-3	25	4	2	21	16
LM 2-3	50	4	2	8	11
LM 2-3	50	4	2	11	16
LM 2-3	50	4	2	14	36
LM 2-3	50	4	2	16	1
LM 2-3	50	4	2	17	40
LM 2-3	50	4	2	20	35
LM 2-3	100	4	1	9	10
LM 2-3	100	4	1	11	35
LM 2-3	100	4	1	13	45
LM 2-3	100	4	1	17	37
LM 2-3	100	4	1	20	27
LM 2-3	6.25	5	2	13	11
LM 2-3	6.25	5	2	15	27
LM 2-3	6.25	5	2	18	46
LM 2-3	6.25	5	2	21	52
LM 2-3	12.5	5	1	12	2
LM 2-3	12.5	5	1	13	13
LM 2-3	12.5	5	1	16	23
LM 2-3	12.5	5	1	19	39
LM 2-3	12.5	5	1	20	5
LM 2-3	25	5	2	9	9
LM 2-3	50	5	2	9	15
LM 2-3	50	5	2	12	28
LM 2-3	50	5	2	15	35
LM 2-3	50	5	2	18	59
LM 2-3	50	5	2	21	47
LM 2-3	100	5	1	9	17
LM 2-3	100	5	1	10	31
LM 2-3	100	5	1	13	35
LM 2-3	100	5	1	17	45
(Sheet 22 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 2-3	100	5	1	21	32
LM 2-3	6.25	6	1	8	10
LM 2-3	6.25	6	1	10	23
LM 2-3	6.25	6	1	15	26
LM 2-3	6.25	6	1	18	31
LM 2-3	6.25	6	1	20	52
LM 2-3	12.5	6	1	10	19
LM 2-3	12.5	6	1	15	25
LM 2-3	12.5	6	1	18	39
LM 2-3	12.5	6	1	20	42
LM 2-3	25	6	1	9	12
LM 2-3	25	6	1	12	21
LM 2-3	25	6	1	15	39
LM 2-3	25	6	1	18	48
LM 2-3	25	6	1	21	38
LM 2-3	50	6	1	9	15
LM 2-3	50	6	1	11	24
LM 2-3	50	6	1	13	2
LM 2-3	50	6	1	15	45
LM 2-3	50	6	1	18	34
LM 2-3	50	6	1	20	38
LM 2-3	100	6	1	8	18
LM 2-3	100	6	1	10	28
LM 2-3	100	6	1	13	34
LM 2-3	100	6	1	17	29
LM 2-3	100	6	1	20	14
LM 2-3	6.25	7	2	9	8
LM 2-3	6.25	7	2	12	24
LM 2-3	6.25	7	2	15	30
LM 2-3	6.25	7	2	18	42
(Sheet 23 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 2-3	6.25	7	2	21	41
LM 2-3	12.5	7	2	9	11
LM 2-3	12.5	7	2	12	17
LM 2-3	12.5	7	2	16	35
LM 2-3	12.5	7	2	18	37
LM 2-3	12.5	7	2	21	50
LM 2-3	25	7	2	10	18
LM 2-3	25	7	2	13	29
LM 2-3	25	7	2	16	42
LM 2-3	25	7	2	19	49
LM 2-3	50	7	1	8	16
LM 2-3	50	7	1	11	28
LM 2-3	50	7	1	13	31
LM 2-3	50	7	1	17	50
LM 2-3	50	7	1	20	57
LM 2-3	100	7	1	9	17
LM 2-3	100	7	1	11	37
LM 2-3	100	7	1	14	41
LM 2-3	100	7	1	18	42
LM 2-3	100	7	1	20	32
LM 2-3	6.25	8	1	10	8
LM 2-3	6.25	8	1	13	19
LM 2-3	6.25	8	1	16	21
LM 2-3	6.25	8	1	19	38
LM 2-3	6.25	8	1	21	34
LM 2-3	12.5	8	2	12	5
LM 2-3	12.5	8	2	13	1
LM 2-3	12.5	8	2	15	6
LM 2-3	12.5	8	2	18	30
LM 2-3	12.5	8	2	20	39
LM 2-3	25	8	2	9	15
(Sheet 24 of 51)					

Table D5 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 2-3	25	8	2	12	24
LM 2-3	25	8	2	16	32
LM 2-3	25	8	2	19	36
LM 2-3	25	8	2	21	1
LM 2-3	50	8	2	10	5
LM 2-3	50	8	2	13	8
LM 2-3	50	8	2	15	14
LM 2-3	50	8	2	18	36
LM 2-3	50	8	2	21	3
LM 2-3	100	8	2	10	11
LM 2-3	100	8	2	13	30
LM 2-3	100	8	2	16	35
LM 2-3	100	8	2	18	43
LM 2-3	100	8	2	21	25
LM 2-3	6.25	9	2	10	6
LM 2-3	6.25	9	2	14	18
LM 2-3	6.25	9	2	17	26
LM 2-3	6.25	9	2	20	34
LM 2-3	12.5	9	2	9	13
LM 2-3	12.5	9	2	12	20
LM 2-3	12.5	9	2	16	30
LM 2-3	12.5	9	2	19	37
LM 2-3	25	9	1	9	14
LM 2-3	25	9	1	12	25
LM 2-3	25	9	1	15	42
LM 2-3	25	9	1	18	44
LM 2-3	25	9	1	20	35
LM 2-3	50	9	1	8	12
LM 2-3	50	9	1	10	24
LM 2-3	50	9	1	13	28

(Sheet 25 of 51)

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 2-3	50	9	1	17	77
LM 2-3	50	9	1	20	14
LM 2-3	100	9	1	8	12
LM 2-3	100	9	1	11	22
LM 2-3	100	9	1	13	48
LM 2-3	100	9	1	17	52
LM 2-3	100	9	1	20	42
LM 2-3	6.25	10	2	10	9
LM 2-3	6.25	10	2	13	19
LM 2-3	6.25	10	2	16	36
LM 2-3	6.25	10	2	19	46
LM 2-3	6.25	10	2	21	43
LM 2-3	12.5	10	2	9	14
LM 2-3	12.5	10	2	14	3
LM 2-3	12.5	10	2	16	26
LM 2-3	12.5	10	2	19	41
LM 2-3	12.5	10	2	20	3
LM 2-3	25	10	2	9	7
LM 2-3	25	10	2	10	23
LM 2-3	25	10	2	16	40
LM 2-3	25	10	2	18	53
LM 2-3	25	10	2	20	75
LM 2-3	50	10	1	9	13
LM 2-3	50	10	1	11	21
LM 2-3	50	10	1	13	33
LM 2-3	50	10	1	17	31
LM 2-3	50	10	1	20	19
LM 2-3	100	10	2	9	15
LM 2-3	100	10	2	11	28
LM 2-3	100	10	2	13	1
LM 2-3	100	10	2	15	30
(Sheet 26 of 51)					

Table D5 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 2-3	100	10	2	18	55
LM 2-3	100	10	2	21	17
LM 3-4	6.25	1	2	14	11
LM 3-4	6.25	1	2	16	28
LM 3-4	6.25	1	2	19	1
LM 3-4	6.25	1	2	20	35
LM 3-4	12.5	1	1	10	15
LM 3-4	12.5	1	1	14	15
LM 3-4	12.5	1	1	17	34
LM 3-4	12.5	1	1	20	42
LM 3-4	25	1	2	10	15
LM 3-4	25	1	2	13	34
LM 3-4	25	1	2	16	28
LM 3-4	25	1	2	19	47
LM 3-4	50	1	1	9	1
LM 3-4	50	1	1	12	26
LM 3-4	50	1	1	15	45
LM 3-4	50	1	1	18	39
LM 3-4	50	1	1	21	46
LM 3-4	100	1	2	9	13
LM 3-4	100	1	2	11	29
LM 3-4	100	1	2	13	41
LM 3-4	100	1	2	17	34
LM 3-4	100	1	2	20	34
LM 3-4	6.25	2	2	10	2
LM 3-4	6.25	2	2	13	19
LM 3-4	6.25	2	2	17	56
LM 3-4	6.25	2	2	20	2
LM 3-4	12.5	2	1	10	7
LM 3-4	12.5	2	1	13	23

(Sheet 27 of 51)

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 3-4	12.5	2	1	16	32
LM 3-4	12.5	2	1	19	38
LM 3-4	12.5	2	1	20	10
LM 3-4	25	2	1	9	7
LM 3-4	25	2	1	11	23
LM 3-4	25	2	1	13	35
LM 3-4	25	2	1	17	45
LM 3-4	25	2	1	20	38
LM 3-4	50	2	1	10	22
LM 3-4	50	2	1	14	37
LM 3-4	50	2	1	16	48
LM 3-4	50	2	1	19	40
LM 3-4	100	2	1	9	18
LM 3-4	100	2	1	12	32
LM 3-4	100	2	1	15	42
LM 3-4	100	2	1	18	46
LM 3-4	100	2	1	21	39
LM 3-4	6.25	3	1	10	1
LM 3-4	6.25	3	1	13	3
LM 3-4	6.25	3	1	18	20
LM 3-4	6.25	3	1	20	9
LM 3-4	12.5	3	1	0	0
LM 3-4	25	3	2	10	9
LM 3-4	25	3	2	14	20
LM 3-4	25	3	2	16	31
LM 3-4	25	3	2	18	37
LM 3-4	25	3	2	21	39
LM 3-4	50	3	2	10	15
LM 3-4	50	3	2	14	24
LM 3-4	50	3	2	16	22
LM 3-4	50	3	2	19	40
(Sheet 28 of 51)					

Table D5 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 3-4	100	3	1	8	14
LM 3-4	100	3	1	10	29
LM 3-4	100	3	1	14	37
LM 3-4	100	3	1	17	34
LM 3-4	100	3	1	20	30
LM 3-4	6.25	4	1	13	9
LM 3-4	6.25	4	1	19	10
LM 3-4	12.5	4	2	10	10
LM 3-4	12.5	4	2	13	25
LM 3-4	12.5	4	2	16	37
LM 3-4	12.5	4	2	19	37
LM 3-4	25	4	2	10	14
LM 3-4	25	4	2	14	33
LM 3-4	25	4	2	16	35
LM 3-4	25	4	2	19	37
LM 3-4	25	4	2	20	4
LM 3-4	50	4	1	0	0
LM 3-4	100	4	2	10	11
LM 3-4	100	4	2	13	17
LM 3-4	100	4	2	16	28
LM 3-4	100	4	2	19	35
LM 3-4	6.25	5	1	14	10
LM 3-4	6.25	5	1	16	10
LM 3-4	6.25	5	1	19	22
LM 3-4	12.5	5	1	10	4
LM 3-4	12.5	5	1	13	5
LM 3-4	12.5	5	1	16	26
LM 3-4	12.5	5	1	18	43
LM 3-4	12.5	5	1	21	41
LM 3-4	25	5	1	9	8

(Sheet 29 of 51)

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 3-4	25	5	1	12	15
LM 3-4	25	5	1	15	28
LM 3-4	25	5	1	18	33
LM 3-4	25	5	1	20	36
LM 3-4	50	5	2	9	15
LM 3-4	50	5	2	12	24
LM 3-4	50	5	2	15	30
LM 3-4	50	5	2	18	55
LM 3-4	50	5	2	21	55
LM 3-4	100	5	2	10	13
LM 3-4	100	5	2	13	35
LM 3-4	100	5	2	16	30
LM 3-4	100	5	2	19	24
LM 3-4	100	5	2	21	4
LM 3-4	6.25	6	1	11	1
LM 3-4	6.25	6	1	13	13
LM 3-4	6.25	6	1	16	23
LM 3-4	12.5	6	2	11	17
LM 3-4	12.5	6	2	13	1
LM 3-4	12.5	6	2	15	29
LM 3-4	12.5	6	2	18	32
LM 3-4	12.5	6	2	21	38
LM 3-4	25	6	1	8	5
LM 3-4	25	6	1	11	25
LM 3-4	25	6	1	14	17
LM 3-4	25	6	1	17	38
LM 3-4	25	6	1	20	43
LM 3-4	50	6	2	10	11
LM 3-4	50	6	2	13	32
LM 3-4	50	6	2	16	30
LM 3-4	50	6	2	19	43
(Sheet 30 of 51)					

Table D5 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 3-4	100	6	1	9	14
LM 3-4	100	6	1	11	23
LM 3-4	100	6	1	13	45
LM 3-4	100	6	1	17	47
LM 3-4	100	6	1	20	37
LM 3-4	6.25	7	2	10	6
LM 3-4	6.25	7	2	13	9
LM 3-4	6.25	7	2	16	30
LM 3-4	6.25	7	2	19	33
LM 3-4	12.5	7	2	10	9
LM 3-4	25	7	1	13	26
LM 3-4	25	7	1	17	34
LM 3-4	25	7	1	20	44
LM 3-4	50	7	2	9	20
LM 3-4	50	7	2	12	25
LM 3-4	50	7	2	15	43
LM 3-4	50	7	2	18	51
LM 3-4	50	7	2	21	55
LM 3-4	100	7	1	9	16
LM 3-4	100	7	1	11	29
LM 3-4	100	7	1	14	36
LM 3-4	100	7	1	17	32
LM 3-4	100	7	1	20	38
LM 3-4	6.25	8	2	13	4
LM 3-4	6.25	8	2	16	20
LM 3-4	6.25	8	2	18	45
LM 3-4	6.25	8	2	20	30
LM 3-4	12.5	8	2	10	7
LM 3-4	12.5	8	2	13	20
LM 3-4	12.5	8	2	16	33
(Sheet 31 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 3-4	12.5	8	2	19	39
LM 3-4	12.5	8	2	20	6
LM 3-4	25	8	1	10	37
LM 3-4	25	8	1	15	30
LM 3-4	25	8	1	18	38
LM 3-4	25	8	1	21	29
LM 3-4	50	8	2	10	9
LM 3-4	50	8	2	13	29
LM 3-4	50	8	2	16	29
LM 3-4	50	8	2	19	45
LM 3-4	50	8	2	21	45
LM 3-4	100	8	1	8	14
LM 3-4	100	8	1	11	32
LM 3-4	100	8	1	14	41
LM 3-4	100	8	1	17	41
LM 3-4	100	8	1	20	43
LM 3-4	6.25	9	1	10	9
LM 3-4	6.25	9	1	13	9
LM 3-4	6.25	9	1	17	41
LM 3-4	6.25	9	1	20	4
LM 3-4	12.5	9	1	10	20
LM 3-4	12.5	9	1	16	28
LM 3-4	12.5	9	1	19	27
LM 3-4	25	9	2	10	12
LM 3-4	25	9	2	13	24
LM 3-4	25	9	2	16	37
LM 3-4	25	9	2	19	40
LM 3-4	50	9	1	9	16
LM 3-4	50	9	1	11	22
LM 3-4	50	9	1	13	23
LM 3-4	50	9	1	17	48
(Sheet 32 of 51)					

Table D5 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 3-4	50	9	1	20	49
LM 3-4	100	9	2	10	22
LM 3-4	100	9	2	13	23
LM 3-4	100	9	2	16	25
LM 3-4	100	9	2	19	32
LM 3-4	100	9	2	20	1
LM 3-4	6.25	10	2	12	3
LM 3-4	6.25	10	2	15	27
LM 3-4	6.25	10	2	18	28
LM 3-4	6.25	10	2	21	35
LM 3-4	12.5	10	2	10	6
LM 3-4	12.5	10	2	13	20
LM 3-4	12.5	10	2	15	1
LM 3-4	12.5	10	2	19	1
LM 3-4	12.5	10	2	20	27
LM 3-4	25	10	2	12	14
LM 3-4	25	10	2	15	31
LM 3-4	25	10	2	18	43
LM 3-4	25	10	2	20	49
LM 3-4	50	10	1	8	8
LM 3-4	50	10	1	10	20
LM 3-4	50	10	1	14	39
LM 3-4	50	10	1	17	42
LM 3-4	50	10	1	20	54
LM 3-4	100	10	2	10	18
LM 3-4	100	10	2	13	36
LM 3-4	100	10	2	16	28
LM 3-4	100	10	2	19	28
LM 3-4	100	10	2	20	2
LM 4-5	6.25	1	2	14	6

(Sheet 33 of 51)

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 4-5	6.25	1	2	16	22
LM 4-5	6.25	1	2	19	38
LM 4-5	12.5	1	2	10	6
LM 4-5	12.5	1	2	13	20
LM 4-5	12.5	1	2	15	45
LM 4-5	12.5	1	2	19	32
LM 4-5	25	1	2	12	1
LM 4-5	25	1	2	15	35
LM 4-5	25	1	2	18	45
LM 4-5	50	1	1	9	11
LM 4-5	50	1	1	11	23
LM 4-5	50	1	1	14	33
LM 4-5	50	1	1	18	14
LM 4-5	50	1	1	21	27
LM 4-5	100	1	2	9	5
LM 4-5	100	1	2	12	15
LM 4-5	100	1	2	17	8
LM 4-5	100	1	2	20	32
LM 4-5	6.25	2	2	12	3
LM 4-5	6.25	2	2	15	13
LM 4-5	6.25	2	2	18	28
LM 4-5	6.25	2	2	20	40
LM 4-5	12.5	2	1	10	8
LM 4-5	12.5	2	1	13	13
LM 4-5	12.5	2	1	18	1
LM 4-5	12.5	2	1	21	3
LM 4-5	25	2	2	10	4
LM 4-5	25	2	2	14	10
LM 4-5	25	2	2	16	21
LM 4-5	25	2	2	18	42
LM 4-5	25	2	2	20	3
(Sheet 34 of 51)					

Table D5 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 4-5	50	2	1	9	14
LM 4-5	50	2	1	12	26
LM 4-5	50	2	1	15	48
LM 4-5	50	2	1	19	37
LM 4-5	50	2	1	20	45
LM 4-5	100	2	2	10	10
LM 4-5	100	2	2	14	24
LM 4-5	100	2	2	16	21
LM 4-5	100	2	2	19	43
LM 4-5	6.25	3	2	10	14
LM 4-5	6.25	3	2	15	21
LM 4-5	6.25	3	2	18	40
LM 4-5	6.25	3	2	21	39
LM 4-5	12.5	3	2	0	0
LM 4-5	25	3	2	10	7
LM 4-5	25	3	2	13	19
LM 4-5	25	3	2	16	29
LM 4-5	25	3	2	19	39
LM 4-5	25	3	2	20	1
LM 4-5	50	3	2	10	16
LM 4-5	50	3	2	13	32
LM 4-5	50	3	2	16	29
LM 4-5	50	3	2	19	52
LM 4-5	100	3	1	9	7
LM 4-5	100	3	1	12	22
LM 4-5	100	3	1	15	27
LM 4-5	100	3	1	18	35
LM 4-5	100	3	1	21	30
LM 4-5	6.25	4	2	0	0
LM 4-5	12.5	4	2	12	12

(Sheet 35 of 51)

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 4-5	12.5	4	2	16	26
LM 4-5	12.5	4	2	18	29
LM 4-5	12.5	4	2	21	27
LM 4-5	25	4	1	12	16
LM 4-5	25	4	1	15	30
LM 4-5	25	4	1	18	24
LM 4-5	25	4	1	21	33
LM 4-5	50	4	1	12	27
LM 4-5	50	4	1	15	38
LM 4-5	50	4	1	18	35
LM 4-5	50	4	1	21	45
LM 4-5	100	4	1	9	12
LM 4-5	100	4	1	12	28
LM 4-5	100	4	1	16	31
LM 4-5	100	4	1	18	38
LM 4-5	100	4	1	21	24
LM 4-5	6.25	5	1	0	0
LM 4-5	12.5	5	2	13	7
LM 4-5	12.5	5	2	15	25
LM 4-5	12.5	5	2	18	11
LM 4-5	12.5	5	2	21	30
LM 4-5	25	5	2	10	7
LM 4-5	25	5	2	14	22
LM 4-5	25	5	2	17	68
LM 4-5	25	5	2	20	3
LM 4-5	50	5	1	9	7
LM 4-5	50	5	1	11	19
LM 4-5	50	5	1	14	12
LM 4-5	50	5	1	15	1
LM 4-5	50	5	1	18	49
LM 4-5	50	5	1	20	49
(Sheet 36 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 4-5	100	5	1	9	16
LM 4-5	100	5	1	12	16
LM 4-5	100	5	1	15	32
LM 4-5	100	5	1	18	24
LM 4-5	100	5	1	21	29
LM 4-5	6.25	6	1	12	4
LM 4-5	6.25	6	1	16	1
LM 4-5	6.25	6	1	19	7
LM 4-5	6.25	6	1	20	24
LM 4-5	12.5	6	2	13	12
LM 4-5	12.5	6	2	16	24
LM 4-5	12.5	6	2	19	43
LM 4-5	12.5	6	2	20	2
LM 4-5	25	6	1	10	8
LM 4-5	25	6	1	14	26
LM 4-5	25	6	1	18	22
LM 4-5	25	6	1	20	14
LM 4-5	50	6	2	10	14
LM 4-5	50	6	2	13	29
LM 4-5	50	6	2	16	28
LM 4-5	50	6	2	19	46
LM 4-5	50	6	2	20	1
LM 4-5	100	6	2	10	10
LM 4-5	100	6	2	13	10
LM 4-5	100	6	2	16	44
LM 4-5	100	6	2	18	35
LM 4-5	100	6	2	21	29
LM 4-5	6.25	7	1	12	7
LM 4-5	6.25	7	1	15	15
LM 4-5	6.25	7	1	19	2
(Sheet 37 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 4-5	12.5	7	1	12	17
LM 4-5	12.5	7	1	15	40
LM 4-5	12.5	7	1	18	36
LM 4-5	12.5	7	1	21	44
LM 4-5	25	7	2	10	5
LM 4-5	25	7	2	13	25
LM 4-5	25	7	2	15	8
LM 4-5	25	7	2	17	47
LM 4-5	25	7	2	20	1
LM 4-5	50	7	1	10	6
LM 4-5	50	7	1	13	17
LM 4-5	50	7	1	16	29
LM 4-5	50	7	1	19	47
LM 4-5	100	7	2	10	22
LM 4-5	100	7	2	16	31
LM 4-5	100	7	2	19	46
LM 4-5	6.25	8	2	10	4
LM 4-5	6.25	8	2	13	11
LM 4-5	6.25	8	2	16	23
LM 4-5	6.25	8	2	19	40
LM 4-5	12.5	8	1	9	8
LM 4-5	12.5	8	1	11	2
LM 4-5	12.5	8	1	20	2
LM 4-5	25	8	1	9	7
LM 4-5	25	8	1	11	19
LM 4-5	25	8	1	14	32
LM 4-5	25	8	1	17	36
LM 4-5	25	8	1	20	42
LM 4-5	50	8	2	10	13
LM 4-5	50	8	2	13	33
LM 4-5	50	8	2	16	43
(Sheet 38 of 51)					

Table D5 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 4-5	50	8	2	19	52
LM 4-5	50	8	2	20	1
LM 4-5	100	8	1	9	13
LM 4-5	100	8	1	12	14
LM 4-5	100	8	1	15	30
LM 4-5	100	8	1	18	48
LM 4-5	100	8	1	21	26
LM 4-5	6.25	9	1	12	2
LM 4-5	6.25	9	1	13	20
LM 4-5	6.25	9	1	16	35
LM 4-5	6.25	9	1	19	35
LM 4-5	6.25	9	1	20	1
LM 4-5	12.5	9	1	12	13
LM 4-5	12.5	9	1	15	18
LM 4-5	12.5	9	1	18	23
LM 4-5	12.5	9	1	20	43
LM 4-5	25	9	1	10	10
LM 4-5	25	9	1	13	21
LM 4-5	25	9	1	16	29
LM 4-5	25	9	1	19	28
LM 4-5	25	9	1	21	1
LM 4-5	50	9	2	9	10
LM 4-5	50	9	2	12	11
LM 4-5	50	9	2	13	25
LM 4-5	50	9	2	15	38
LM 4-5	50	9	2	18	48
LM 4-5	50	9	2	20	2
LM 4-5	100	9	2	10	4
LM 4-5	100	9	2	13	26
LM 4-5	100	9	2	16	40

(Sheet 39 of 51)

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 4-5	100	9	2	19	29
LM 4-5	6.25	10	1	9	3
LM 4-5	6.25	10	1	12	15
LM 4-5	6.25	10	1	16	20
LM 4-5	6.25	10	1	18	30
LM 4-5	12.5	10	1	12	7
LM 4-5	12.5	10	1	20	2
LM 4-5	25	10	1	10	11
LM 4-5	25	10	1	13	22
LM 4-5	25	10	1	16	40
LM 4-5	25	10	1	19	39
LM 4-5	50	10	2	10	6
LM 4-5	50	10	2	13	13
LM 4-5	50	10	2	16	30
LM 4-5	50	10	2	19	35
LM 4-5	100	10	1	9	16
LM 4-5	100	10	1	12	26
LM 7-8	6.25	1	2	21	1
LM 7-8	12.5	1	2	19	12
LM 7-8	25	1	1	9	6
LM 7-8	25	1	1	11	17
LM 7-8	25	1	1	15	33
LM 7-8	25	1	1	18	23
LM 7-8	25	1	1	20	50
LM 7-8	50	1	1	9	5
LM 7-8	50	1	1	12	10
LM 7-8	50	1	1	16	1
LM 7-8	50	1	1	19	20
LM 7-8	100	1	1	9	10
LM 7-8	100	1	1	11	20
LM 7-8	100	1	1	13	37
(Sheet 40 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 7-8	100	1	1	17	39
LM 7-8	100	1	1	20	51
LM 7-8	6.25	2	1	0	0
LM 7-8	12.5	2	1	11	10
LM 7-8	12.5	2	1	14	21
LM 7-8	12.5	2	1	17	32
LM 7-8	12.5	2	1	20	32
LM 7-8	25	2	1	14	10
LM 7-8	25	2	1	17	49
LM 7-8	50	2	1	9	4
LM 7-8	50	2	1	11	12
LM 7-8	50	2	1	15	27
LM 7-8	50	2	1	18	15
LM 7-8	50	2	1	21	27
LM 7-8	100	2	2	10	9
LM 7-8	100	2	2	13	25
LM 7-8	100	2	2	16	40
LM 7-8	100	2	2	19	27
LM 7-8	6.25	3	1	9	2
LM 7-8	6.25	3	1	12	10
LM 7-8	6.25	3	1	18	7
LM 7-8	6.25	3	1	21	15
LM 7-8	12.5	3	2	12	4
LM 7-8	12.5	3	2	13	18
LM 7-8	12.5	3	2	16	13
LM 7-8	12.5	3	2	19	37
LM 7-8	12.5	3	2	20	40
LM 7-8	25	3	2	10	7
LM 7-8	25	3	2	13	20
LM 7-8	25	3	2	16	34
(Sheet 41 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 7-8	25	3	2	19	38
LM 7-8	25	3	2	20	2
LM 7-8	50	3	2	10	11
LM 7-8	50	3	2	13	22
LM 7-8	50	3	2	16	37
LM 7-8	50	3	2	19	31
LM 7-8	100	3	1	9	9
LM 7-8	100	3	1	11	23
LM 7-8	100	3	1	14	42
LM 7-8	100	3	1	18	8
LM 7-8	100	3	1	20	48
LM 7-8	6.25	4	2	18	3
LM 7-8	6.25	4	2	20	33
LM 7-8	12.5	4	2	10	7
LM 7-8	12.5	4	2	13	16
LM 7-8	12.5	4	2	16	29
LM 7-8	12.5	4	2	19	38
LM 7-8	25	4	1	18	10
LM 7-8	25	4	1	21	18
LM 7-8	50	4	2	10	8
LM 7-8	50	4	2	13	20
LM 7-8	50	4	2	17	54
LM 7-8	100	4	1	9	1
LM 7-8	100	4	1	12	26
LM 7-8	100	4	1	15	35
LM 7-8	100	4	1	18	29
LM 7-8	100	4	1	20	20
LM 7-8	6.25	5	1	0	0
LM 7-8	12.5	5	1	9	9
LM 7-8	12.5	5	1	11	15
LM 7-8	12.5	5	1	14	22
(Sheet 42 of 51)					

Table D5 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 7-8	12.5	5	1	19	3
LM 7-8	12.5	5	1	21	34
LM 7-8	25	5	1	11	7
LM 7-8	25	5	1	14	19
LM 7-8	25	5	1	18	29
LM 7-8	25	5	1	20	16
LM 7-8	50	5	1	9	5
LM 7-8	50	5	1	12	14
LM 7-8	50	5	1	15	21
LM 7-8	50	5	1	18	21
LM 7-8	50	5	1	21	33
LM 7-8	100	5	1	9	5
LM 7-8	100	5	1	11	19
LM 7-8	100	5	1	13	4
LM 7-8	100	5	1	15	17
LM 7-8	100	5	1	18	32
LM 7-8	100	5	1	20	38
LM 7-8	6.25	6	2	18	14
LM 7-8	6.25	6	2	21	22
LM 7-8	12.5	6	1	13	2
LM 7-8	12.5	6	1	17	12
LM 7-8	12.5	6	1	20	26
LM 7-8	25	6	2	12	6
LM 7-8	25	6	2	13	21
LM 7-8	25	6	2	16	28
LM 7-8	25	6	2	19	23
LM 7-8	25	6	2	20	2
LM 7-8	50	6	2	10	8
LM 7-8	50	6	2	13	20
LM 7-8	50	6	2	16	29
<i>(Sheet 43 of 51)</i>					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 7-8	50	6	2	19	31
LM 7-8	100	6	2	9	7
LM 7-8	100	6	2	12	22
LM 7-8	100	6	2	13	3
LM 7-8	100	6	2	15	49
LM 7-8	100	6	2	18	42
LM 7-8	100	6	2	21	40
LM 7-8	6.25	7	2	17	11
LM 7-8	6.25	7	2	20	23
LM 7-8	12.5	7	2	9	6
LM 7-8	12.5	7	2	12	16
LM 7-8	12.5	7	2	15	33
LM 7-8	12.5	7	2	18	40
LM 7-8	12.5	7	2	20	47
LM 7-8	25	7	2	13	10
LM 7-8	25	7	2	16	14
LM 7-8	25	7	2	19	22
LM 7-8	25	7	2	21	35
LM 7-8	50	7	1	9	8
LM 7-8	50	7	1	12	16
LM 7-8	50	7	1	15	33
LM 7-8	50	7	1	18	41
LM 7-8	50	7	1	20	57
LM 7-8	100	7	2	10	7
LM 7-8	100	7	2	13	22
LM 7-8	100	7	2	16	32
LM 7-8	100	7	2	19	27
LM 7-8	100	7	2	20	28
LM 7-8	6.25	8	1	12	3
LM 7-8	6.25	8	1	15	11
LM 7-8	6.25	8	1	18	18
(Sheet 44 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 7-8	6.25	8	1	21	25
LM 7-8	12.5	8	1	12	7
LM 7-8	12.5	8	1	15	18
LM 7-8	25	8	2	16	10
LM 7-8	25	8	2	19	34
LM 7-8	50	8	1	9	1
LM 7-8	50	8	1	12	4
LM 7-8	50	8	1	15	7
LM 7-8	50	8	1	18	24
LM 7-8	50	8	1	21	15
LM 7-8	100	8	2	10	8
LM 7-8	100	8	2	13	19
LM 7-8	100	8	2	16	39
LM 7-8	100	8	2	19	31
LM 7-8	100	8	2	20	2
LM 7-8	6.25	9	2	14	11
LM 7-8	6.25	9	2	18	38
LM 7-8	12.5	9	1	10	6
LM 7-8	12.5	9	1	13	18
LM 7-8	12.5	9	1	16	25
LM 7-8	12.5	9	1	19	36
LM 7-8	25	9	2	11	8
LM 7-8	25	9	2	15	2
LM 7-8	25	9	2	18	25
LM 7-8	25	9	2	20	30
LM 7-8	50	9	2	10	2
LM 7-8	50	9	2	13	14
LM 7-8	50	9	2	16	24
LM 7-8	50	9	2	19	37
LM 7-8	50	9	2	20	5
(Sheet 45 of 51)					

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 7-8	100	9	2	10	11
LM 7-8	100	9	2	13	26
LM 7-8	100	9	2	16	22
LM 7-8	100	9	2	19	29
LM 7-8	6.25	10	1	9	5
LM 7-8	6.25	10	1	12	7
LM 7-8	6.25	10	1	15	28
LM 7-8	6.25	10	1	18	36
LM 7-8	6.25	10	1	21	31
LM 7-8	12.5	10	2	16	1
LM 7-8	12.5	10	2	18	13
LM 7-8	12.5	10	2	21	27
LM 7-8	25	10	1	12	12
LM 7-8	25	10	1	16	27
LM 7-8	25	10	1	19	24
LM 7-8	25	10	1	20	38
LM 7-8	50	10	2	11	4
LM 7-8	50	10	2	14	20
LM 7-8	50	10	2	17	32
LM 7-8	50	10	2	20	39
LM 7-8	100	10	2	10	8
LM 7-8	100	10	2	13	20
LM 11-12	6.25	1	1	0	0
LM 11-12	12.5	1	2	10	15
LM 11-12	12.5	1	2	16	32
LM 11-12	12.5	1	2	18	32
LM 11-12	12.5	1	2	21	42
LM 11-12	25	1	1	10	7
LM 11-12	25	1	1	13	6
LM 11-12	25	1	1	20	13
LM 11-12	50	1	1	10	6
(Sheet 46 of 51)					

Table D5 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 11-12	50	1	1	13	17
LM 11-12	50	1	1	16	19
LM 11-12	50	1	1	19	19
LM 11-12	100	1	1	8	5
LM 11-12	100	1	1	10	11
LM 11-12	100	1	1	14	25
LM 11-12	100	1	1	17	41
LM 11-12	100	1	1	20	49
LM 11-12	6.25	2	1	0	0
LM 11-12	12.5	2	2	11	4
LM 11-12	12.5	2	2	14	16
LM 11-12	12.5	2	2	17	16
LM 11-12	12.5	2	2	20	32
LM 11-12	25	2	1	14	6
LM 11-12	25	2	1	16	5
LM 11-12	25	2	1	19	8
LM 11-12	50	2	1	15	2
LM 11-12	50	2	1	19	7
LM 11-12	100	2	2	0	0
LM 11-12	6.25	3	1	0	0
LM 11-12	12.5	3	2	0	0
LM 11-12	25	3	2	10	8
LM 11-12	25	3	2	14	22
LM 11-12	25	3	2	16	9
LM 11-12	25	3	2	18	25
LM 11-12	50	3	2	10	6
LM 11-12	50	3	2	13	19
LM 11-12	50	3	2	16	28
LM 11-12	50	3	2	18	33
LM 11-12	100	3	1	10	8

(Sheet 47 of 51)

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 11-12	100	3	1	13	23
LM 11-12	100	3	1	16	45
LM 11-12	100	3	1	19	35
LM 11-12	6.25	4	2	13	4
LM 11-12	12.5	4	1	13	8
LM 11-12	12.5	4	1	16	26
LM 11-12	12.5	4	1	19	41
LM 11-12	25	4	1	11	5
LM 11-12	25	4	1	13	17
LM 11-12	25	4	1	17	31
LM 11-12	25	4	1	20	31
LM 11-12	50	4	2	12	8
LM 11-12	50	4	2	15	19
LM 11-12	50	4	2	18	38
LM 11-12	50	4	2	21	36
LM 11-12	100	4	1	10	9
LM 11-12	100	4	1	13	12
LM 11-12	100	4	1	16	26
LM 11-12	100	4	1	19	29
LM 11-12	6.25	5	1	0	0
LM 11-12	12.5	5	1	14	8
LM 11-12	12.5	5	1	17	32
LM 11-12	25	5	2	15	8
LM 11-12	25	5	2	18	20
LM 11-12	25	5	2	20	38
LM 11-12	50	5	1	9	2
LM 11-12	50	5	1	10	8
LM 11-12	50	5	1	14	26
LM 11-12	50	5	1	17	48
LM 11-12	100	5	2	10	8
LM 11-12	100	5	2	13	7
(Sheet 48 of 51)					

Table D5 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 11-12	100	5	2	16	15
LM 11-12	100	5	2	19	25
LM 11-12	6.25	6	2	14	16
LM 11-12	6.25	6	2	16	25
LM 11-12	6.25	6	2	19	40
LM 11-12	12.5	6	2	12	5
LM 11-12	12.5	6	2	15	20
LM 11-12	12.5	6	2	18	24
LM 11-12	12.5	6	2	21	31
LM 11-12	25	6	1	15	8
LM 11-12	25	6	1	18	17
LM 11-12	50	6	2	15	7
LM 11-12	50	6	2	18	16
LM 11-12	50	6	2	21	12
LM 11-12	100	6	2	10	6
LM 11-12	100	6	2	13	14
LM 11-12	100	6	2	16	21
LM 11-12	100	6	2	19	31
LM 11-12	6.25	7	2	17	9
LM 11-12	6.25	7	2	20	21
LM 11-12	12.5	7	1	0	0
LM 11-12	25	7	2	10	4
LM 11-12	25	7	2	13	13
LM 11-12	50	7	1	9	4
LM 11-12	50	7	1	11	12
LM 11-12	50	7	1	14	10
LM 11-12	50	7	1	15	2
LM 11-12	50	7	1	18	35
LM 11-12	50	7	1	20	40
LM 11-12	100	7	2	10	9

(Sheet 49 of 51)

Table D5 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 11-12	100	7	2	13	21
LM 11-12	100	7	2	19	32
LM 11-12	6.25	8	2	10	3
LM 11-12	6.25	8	2	13	15
LM 11-12	6.25	8	2	16	24
LM 11-12	6.25	8	2	19	37
LM 11-12	12.5	8	1	14	15
LM 11-12	12.5	8	1	17	23
LM 11-12	12.5	8	1	20	33
LM 11-12	25	8	2	18	22
LM 11-12	50	8	2	14	8
LM 11-12	50	8	2	17	24
LM 11-12	50	8	2	20	40
LM 11-12	100	8	2	10	5
LM 11-12	100	8	2	13	16
LM 11-12	100	8	2	17	34
LM 11-12	6.25	9	2	10	9
LM 11-12	6.25	9	2	15	18
LM 11-12	6.25	9	2	18	29
LM 11-12	6.25	9	2	21	25
LM 11-12	12.5	9	1	14	8
LM 11-12	12.5	9	1	18	31
LM 11-12	12.5	9	1	20	42
LM 11-12	25	9	1	0	0
LM 11-12	50	9	2	13	12
LM 11-12	50	9	2	16	20
LM 11-12	50	9	2	19	30
LM 11-12	100	9	1	10	8
LM 11-12	100	9	1	13	4
LM 11-12	100	9	1	16	28
LM 11-12	100	9	1	19	28
(Sheet 50 of 51)					

Table D5 (Concluded)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
LM 11-12	6.25	10	1	13	6
LM 11-12	6.25	10	1	17	16
LM 11-12	6.25	10	1	20	24
LM 11-12	12.5	10	2	12	9
LM 11-12	12.5	10	2	15	23
LM 11-12	12.5	10	2	19	25
LM 11-12	12.5	10	2	21	2
LM 11-12	25	10	2	14	19
LM 11-12	25	10	2	17	52
LM 11-12	50	10	1	12	12
LM 11-12	50	10	1	14	20
LM 11-12	50	10	1	18	49
LM 11-12	50	10	1	20	45
LM 11-12	100	10	1	9	4
LM 11-12	100	10	1	12	21
LM 11-12	100	10	1	18	23
LM 11-12	100	10	1	21	28
(Sheet 51 of 51)					

Table D6
Reproduction in *D. magna* Exposed to Elutriates of Chicago District - Michigan City Harbor Sediments

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
Control-1	100	1	2	10	10
Control-1	100	1	2	14	21
Control-1	100	1	2	16	36
Control-1	100	1	2	19	48
Control-1	100	2	2	14	14
Control-1	100	2	2	16	21
Control-1	100	2	2	19	50
Control-1	100	3	2	14	11
Control-1	100	3	2	16	28
Control-1	100	3	2	19	44
Control-1	100	3	2	20	46
Control-1	100	4	2	14	11
Control-1	100	4	2	16	32
Control-1	100	4	2	19	47
Control-1	100	5	2	11	10
Control-1	100	5	2	15	29
Control-1	100	5	2	18	39
Control-1	100	5	2	20	37
Control-1	100	6	1	10	19
Control-1	100	6	1	15	27
Control-1	100	6	1	18	27
Control-1	100	6	1	21	40
Control-1	100	7	1	10	7
Control-1	100	7	1	13	18
Control-1	100	7	1	16	36
Control-1	100	7	1	20	38
Control-1	100	8	1	14	10
Control-1	100	8	1	17	71
Control-1	100	9	1	11	9

(Sheet 1 of 16)

Table D6 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
Control-1	100	9	1	14	20
Control-1	100	9	1	15	36
Control-1	100	9	1	18	20
Control-1	100	9	1	21	28
Control-1	100	10	1	11	5
Control-1	100	10	1	13	18
Control-1	100	10	1	17	37
Control-1	100	10	1	20	39
Control-2	100	1	1	9	6
Control-2	100	1	1	12	26
Control-2	100	1	1	15	51
Control-2	100	1	1	19	32
Control-2	100	2	2	9	16
Control-2	100	2	2	13	34
Control-2	100	2	2	15	21
Control-2	100	2	2	19	18
Control-2	100	3	2	9	4
Control-2	100	3	2	11	7
Control-2	100	3	2	14	2
Control-2	100	3	2	17	15
Control-2	100	3	2	20	25
Control-2	100	4	2	10	13
Control-2	100	4	2	11	1
Control-2	100	4	2	13	34
Control-2	100	4	2	15	45
Control-2	100	4	2	18	26
Control-2	100	5	1	0	0
Control-2	100	6	2	9	9
Control-2	100	6	2	12	23
Control-2	100	6	2	15	25

(Sheet 2 of 16)

Table D6 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
Control-2	100	6	2	19	26
Control-2	100	7	2	9	17
Control-2	100	7	2	12	40
Control-2	100	8	1	9	13
Control-2	100	8	1	12	35
Control-2	100	8	1	15	45
Control-2	100	8	1	19	2
Control-2	100	9	2	10	12
Control-2	100	9	2	13	26
Control-2	100	9	2	16	30
Control-2	100	9	2	21	2
Control-2	100	10	1	11	11
Control-2	100	10	1	13	41
Control-2	100	10	1	16	43
Control-2	100	10	1	20	40
MC-1	6.25	1	2	15	1
MC-1	6.25	1	2	17	32
MC-1	6.25	1	2	20	62
MC-1	12.5	1	2	15	24
MC-1	12.5	1	2	19	48
MC-1	12.5	1	2	21	60
MC-1	25	1	1	0	0
MC-1	50	1	2	10	11
MC-1	50	1	2	13	24
MC-1	50	1	2	16	42
MC-1	50	1	2	19	54
MC-1	100	1	2	10	10
MC-1	100	1	2	14	1
MC-1	100	1	2	16	29
(Sheet 3 of 16)					

Table D6 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
MC-1	100	1	2	19	21
MC-1	6.25	2	1	12	6
MC-1	6.25	2	1	15	12
MC-1	6.25	2	1	18	19
MC-1	6.25	2	1	21	7
MC-1	12.5	2	2	10	8
MC-1	12.5	2	2	13	19
MC-1	12.5	2	2	17	8
MC-1	12.5	2	2	20	23
MC-1	25	2	1	10	9
MC-1	25	2	1	13	18
MC-1	25	2	1	16	28
MC-1	25	2	1	17	1
MC-1	25	2	1	21	2
MC-1	50	2	1	11	10
MC-1	50	2	1	15	16
MC-1	50	2	1	18	10
MC-1	50	2	1	21	14
MC-1	100	2	1	9	10
MC-1	100	2	1	11	18
MC-1	100	2	1	16	51
MC-1	100	2	1	18	42
MC-1	100	2	1	20	67
MC-1	6.25	3	2	11	6
MC-1	6.25	3	2	13	14
MC-1	6.25	3	2	16	16
MC-1	6.25	3	2	19	20
MC-1	6.25	3	2	20	25
MC-1	12.5	3	2	14	18

(Sheet 4 of 16)

Table D6 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
MC-1	12.5	3	2	15	16
MC-1	12.5	3	2	18	44
MC-1	25	3	2	10	6
MC-1	25	3	2	14	14
MC-1	25	3	2	16	31
MC-1	25	3	2	19	27
MC-1	25	3	2	20	42
MC-1	50	3	2	10	14
MC-1	50	3	2	14	17
MC-1	50	3	2	17	52
MC-1	50	3	2	21	1
MC-1	100	3	1	11	11
MC-1	100	3	1	14	29
MC-1	100	3	1	15	1
MC-1	100	3	1	18	29
MC-1	100	3	1	20	34
MC-1	6.25	4	1	14	17
MC-1	6.25	4	1	18	28
MC-1	6.25	4	1	20	47
MC-1	12.5	4	1	10	6
MC-1	12.5	4	1	13	19
MC-1	12.5	4	1	16	12
MC-1	12.5	4	1	20	19
MC-1	25	4	1	10	8
MC-1	25	4	1	13	18
MC-1	25	4	1	16	20
MC-1	25	4	1	19	32
MC-1	50	4	1	0	0
MC-1	100	4	1	9	9
MC-1	100	4	1	12	18
(Sheet 5 of 16)					

Table D6 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
MC-1	100	4	1	15	42
MC-1	100	4	1	18	38
MC-1	100	4	1	20	36
MC-1	6.25	5	2	12	8
MC-1	6.25	5	2	16	12
MC-1	6.25	5	2	19	4
MC-1	12.5	5	1	9	6
MC-1	12.5	5	1	12	14
MC-1	12.5	5	1	15	32
MC-1	12.5	5	1	18	31
MC-1	12.5	5	1	20	54
MC-1	25	5	1	14	4
MC-1	25	5	1	17	15
MC-1	25	5	1	20	45
MC-1	50	5	2	9	7
MC-1	50	5	2	12	19
MC-1	50	5	2	15	28
MC-1	50	5	2	18	33
MC-1	50	5	2	21	40
MC-1	100	5	2	9	11
MC-1	100	5	2	11	18
MC-1	100	5	2	14	26
MC-1	100	5	2	17	46
MC-1	100	5	2	20	59
MC-1	6.25	6	1	0	0
MC-1	12.5	6	1	10	6
MC-1	12.5	6	1	13	47
MC-1	12.5	6	1	16	22
MC-1	25	6	2	12	7

(Sheet 6 of 16)

Table D6 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
MC-1	25	6	2	15	14
MC-1	25	6	2	17	34
MC-1	25	6	2	20	18
MC-1	50	6	2	12	7
MC-1	50	6	2	15	12
MC-1	50	6	2	18	30
MC-1	50	6	2	20	47
MC-1	100	6	2	11	7
MC-1	100	6	2	14	29
MC-1	100	6	2	17	28
MC-1	100	6	2	20	42
MC-1	6.25	7	1	10	2
MC-1	6.25	7	1	13	10
MC-1	6.25	7	1	16	15
MC-1	6.25	7	1	18	30
MC-1	12.5	7	1	12	8
MC-1	12.5	7	1	15	12
MC-1	12.5	7	1	18	15
MC-1	12.5	7	1	21	25
MC-1	25	7	2	15	15
MC-1	25	7	2	18	34
MC-1	25	7	2	20	38
MC-1	50	7	1	0	0
MC-1	100	7	1	9	9
MC-1	100	7	1	12	19
MC-1	100	7	1	15	30
MC-1	100	7	1	18	40
MC-1	100	7	1	20	48
MC-1	6.25	8	2	10	7
(Sheet 7 of 16)					

Table D6 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
MC-1	6.25	8	2	14	9
MC-1	6.25	8	2	17	37
MC-1	6.25	8	2	20	1
MC-1	12.5	8	1	11	9
MC-1	12.5	8	1	14	32
MC-1	12.5	8	1	17	38
MC-1	12.5	8	1	20	49
MC-1	25	8	1	0	0
MC-1	50	8	1	11	1
MC-1	50	8	1	13	2
MC-1	50	8	1	16	16
MC-1	50	8	1	19	18
MC-1	100	8	2	18	16
MC-1	100	8	2	21	24
MC-1	6.25	9	2	11	16
MC-1	6.25	9	2	15	32
MC-1	6.25	9	2	18	18
MC-1	6.25	9	2	21	39
MC-1	12.5	9	2	10	7
MC-1	12.5	9	2	14	22
MC-1	12.5	9	2	16	30
MC-1	12.5	9	2	19	36
MC-1	25	9	1	10	23
MC-1	25	9	1	15	34
MC-1	25	9	1	18	30
MC-1	25	9	1	21	29
MC-1	50	9	2	10	28
MC-1	50	9	2	15	33
MC-1	50	9	2	18	56
MC-1	50	9	2	21	20
(Sheet 8 of 16)					

Table D6 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
MC-1	100	9	1	8	5
MC-1	100	9	1	11	16
MC-1	100	9	1	14	30
MC-1	100	9	1	17	32
MC-1	100	9	1	20	25
MC-1	6.25	10	1	9	4
MC-1	6.25	10	1	12	18
MC-1	6.25	10	1	15	25
MC-1	6.25	10	1	18	23
MC-1	6.25	10	1	20	40
MC-1	12.5	10	2	13	4
MC-1	12.5	10	2	16	16
MC-1	12.5	10	2	18	40
MC-1	12.5	10	2	21	45
MC-1	25	10	2	11	6
MC-1	25	10	2	15	26
MC-1	25	10	2	18	26
MC-1	25	10	2	21	35
MC-1	50	10	1	0	0
MC-1	100	10	2	9	6
MC-1	100	10	2	12	14
MC-1	100	10	2	13	1
MC-1	100	10	2	15	24
MC-1	100	10	2	18	19
MC-2	6.25	1	1	10	6
MC-2	6.25	1	1	13	16
MC-2	6.25	1	1	16	23
MC-2	6.25	1	1	18	25
MC-2	6.25	1	1	21	64
(Sheet 9 of 16)					

Table D6 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
MC-2	12.5	1	2	10	7
MC-2	12.5	1	2	14	22
MC-2	12.5	1	2	16	25
MC-2	12.5	1	2	19	18
MC-2	25	1	1	12	13
MC-2	25	1	1	15	33
MC-2	25	1	1	18	45
MC-2	25	1	1	21	64
MC-2	50	1	1	9	13
MC-2	50	1	1	9	9
MC-2	50	1	1	12	22
MC-2	50	1	1	15	40
MC-2	100	1	2	9	13
MC-2	100	1	2	12	26
MC-2	100	1	2	15	33
MC-2	100	1	2	18	37
MC-2	100	1	2	21	66
MC-2	6.25	2	1	0	0
MC-2	12.5	2	1	9	2
MC-2	12.5	2	1	12	8
MC-2	12.5	2	1	15	16
MC-2	12.5	2	1	19	36
MC-2	12.5	2	1	20	44
MC-2	25	2	2	0	0
MC-2	50	2	2	12	12
MC-2	50	2	2	15	19
MC-2	50	2	2	19	28
MC-2	50	2	2	21	48
MC-2	100	2	2	9	8
(Sheet 10 of 16)					

Table D6 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
MC-2	100	2	2	11	5
MC-2	100	2	2	15	3
MC-2	100	2	2	19	30
MC-2	100	2	2	21	28
MC-2	6.25	3	1	12	2
MC-2	12.5	3	2	12	5
MC-2	12.5	3	2	14	13
MC-2	12.5	3	2	17	43
MC-2	25	3	2	14	13
MC-2	25	3	2	16	27
MC-2	25	3	2	19	35
MC-2	25	3	2	20	20
MC-2	50	3	1	12	11
MC-2	50	3	1	15	38
MC-2	50	3	1	20	56
MC-2	100	3	2	9	6
MC-2	100	3	2	10	20
MC-2	100	3	2	15	40
MC-2	100	3	2	18	11
MC-2	100	3	2	21	33
MC-2	6.25	4	2	11	23
MC-2	6.25	4	2	16	17
MC-2	12.5	4	2	13	14
MC-2	12.5	4	2	16	19
MC-2	12.5	4	2	19	23
MC-2	12.5	4	2	20	8
MC-2	25	4	2	13	9
MC-2	25	4	2	16	23
MC-2	25	4	2	19	22
MC-2	50	4	2	9	1
(Sheet 11 of 16)					

Table D6 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
MC-2	50	4	2	10	10
MC-2	50	4	2	14	20
MC-2	50	4	2	16	31
MC-2	50	4	2	19	26
MC-2	100	4	1	9	14
MC-2	100	4	1	11	24
MC-2	100	4	1	15	26
MC-2	100	4	1	19	15
MC-2	100	4	1	21	43
MC-2	6.25	5	2	14	8
MC-2	6.25	5	2	16	23
MC-2	6.25	5	2	19	29
MC-2	12.5	5	2	9	5
MC-2	12.5	5	1	12	15
MC-2	12.5	5	1	14	7
MC-2	12.5	5	1	16	30
MC-2	12.5	5	1	18	46
MC-2	12.5	5	1	21	52
MC-2	25	5	1	12	7
MC-2	25	5	1	15	33
MC-2	25	5	1	18	45
MC-2	25	5	1	20	49
MC-2	50	5	2	12	17
MC-2	50	5	2	15	30
MC-2	50	5	2	18	30
MC-2	50	5	2	21	57
MC-2	100	5	1	9	9
MC-2	100	5	1	11	22
MC-2	100	5	1	14	28

(Sheet 12 of 16)

Table D6 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
MC-2	100	5	1	17	36
MC-2	100	5	1	20	65
MC-2	6.25	6	1	12	13
MC-2	6.25	6	1	15	26
MC-2	6.25	6	1	18	32
MC-2	6.25	6	1	20	24
MC-2	12.5	6	1	11	5
MC-2	12.5	6	1	13	21
MC-2	12.5	6	1	16	33
MC-2	12.5	6	1	19	39
MC-2	25	6	1	14	22
MC-2	25	6	1	16	37
MC-2	50	6	2	10	10
MC-2	50	6	2	13	18
MC-2	50	6	2	16	23
MC-2	50	6	2	19	29
MC-2	50	6	2	21	58
MC-2	100	6	1	10	20
MC-2	100	6	1	15	24
MC-2	100	6	1	18	44
MC-2	100	6	1	21	57
MC-2	6.25	7	2	10	5
MC-2	6.25	7	2	14	21
MC-2	6.25	7	2	16	38
MC-2	6.25	7	2	19	49
MC-2	12.5	7	2	11	3
MC-2	12.5	7	2	14	24
MC-2	12.5	7	2	17	39
MC-2	12.5	7	2	20	60
(Sheet 13 of 16)					

Table D6 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
MC-2	25	7	1	11	7
MC-2	50	7	2	10	23
MC-2	50	7	2	13	36
MC-2	50	7	2	16	35
MC-2	50	7	2	19	32
MC-2	100	7	1	9	9
MC-2	100	7	1	12	30
MC-2	100	7	1	15	37
MC-2	100	7	1	18	36
MC-2	100	7	1	20	64
MC-2	6.25	8	2	12	9
MC-2	6.25	8	2	15	21
MC-2	6.25	8	2	18	32
MC-2	12.5	8	2	0	0
MC-2	25	8	2	13	12
MC-2	25	8	2	16	30
MC-2	25	8	2	19	38
MC-2	50	8	1	10	7
MC-2	50	8	1	13	22
MC-2	50	8	1	16	32
MC-2	50	8	1	18	36
MC-2	50	8	1	21	49
MC-2	100	8	1	9	16
MC-2	100	8	1	12	25
MC-2	100	8	1	15	45
MC-2	100	8	1	19	28
MC-2	100	8	1	20	42
MC-2	6.25	9	1	11	8
MC-2	6.25	9	1	14	23
MC-2	6.25	9	1	18	24
(Sheet 14 of 16)					

Table D6 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
MC-2	6.25	9	1	21	16
MC-2	12.5	9	1	14	14
MC-2	12.5	9	1	17	33
MC-2	12.5	9	1	20	5
MC-2	25	9	1	0	0
MC-2	50	9	1	12	12
MC-2	50	9	1	15	13
MC-2	50	9	1	17	2
MC-2	100	9	2	10	5
MC-2	100	9	2	13	35
MC-2	100	9	2	16	32
MC-2	100	9	2	19	22
MC-2	6.25	10	2	10	6
MC-2	6.25	10	2	13	19
MC-2	6.25	10	2	16	20
MC-2	6.25	10	2	19	46
MC-2	12.5	10	1	16	4
MC-2	12.5	10	1	18	15
MC-2	12.5	10	1	21	28
MC-2	25	10	1	12	14
MC-2	25	10	1	15	28
MC-2	25	10	1	18	51
MC-2	25	10	1	20	69
MC-2	50	10	1	0	0
MC-2	100	10	2	9	5
MC-2	100	10	2	10	14
MC-2	100	10	2	13	33
MC-2	100	10	2	16	47
MC-2	100	10	2	19	25
(Sheet 15 of 16)					

Table D6 (Concluded)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
MC-3	100	1	1	9	11
MC-3	100	1	1	13	17
MC-3	100	1	1	16	46
MC-3	100	1	1	19	52
MC-3	100	3	1	10	7
MC-3	100	3	1	13	43
MC-3	100	3	1	15	40
MC-3	100	3	1	19	30
MC-3	100	5	1	0	0
MC-3	100	7	1	9	12
MC-3	100	7	1	12	25
MC-3	100	7	1	14	41
MC-3	100	7	1	15	30
MC-3	100	7	1	21	35
MC-3	100	10	1	10	13
MC-3	100	10	1	16	24
MC-3	100	10	1	19	34

(Sheet 16 of 16)

Table D7
Reproduction in *D. magna* Exposed to Elutriates of Detroit
District - Grand Haven Harbor Sediments

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
Control-2	0	1	1	9	6
Control-2	0	1	1	12	26
Control-2	0	1	1	15	51
Control-2	0	1	1	19	32
Control-2	0	2	2	9	16
Control-2	0	2	2	13	34
Control-2	0	2	2	15	21
Control-2	0	2	2	19	18
Control-2	0	3	1	9	4
Control-2	0	3	1	11	7
Control-2	0	3	1	14	2
Control-2	0	3	1	17	15
Control-2	0	3	1	20	25
Control-2	0	4	2	10	13
Control-2	0	4	2	11	1
Control-2	0	4	2	13	34
Control-2	0	4	2	15	45
Control-2	0	4	2	18	26
Control-2	0	5	1	0	0
Control-2	0	6	2	9	9
Control-2	0	6	2	12	23
Control-2	0	6	2	15	25
Control-2	0	6	2	19	26
Control-2	0	7	2	9	17
Control-2	0	7	2	12	40
Control-2	0	8	1	9	13
Control-2	0	8	1	12	35
Control-2	0	8	1	15	45
Control-2	0	8	1	19	2
Control-2	0	9	2	10	12

(Sheet 1 of 23)

Table D7 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
Control-2	0	9	2	13	26
Control-2	0	9	2	16	30
Control-2	0	9	2	21	2
Control-2	0	10	1	11	11
Control-2	0	10	1	13	41
Control-2	0	10	1	16	43
Control-2	0	10	1	20	40
GH-1	6.25	1	2	9	12
GH-1	6.25	1	2	12	45
GH-1	6.25	1	2	13	3
GH-1	6.25	1	2	15	46
GH-1	6.25	1	2	18	40
GH-1	6.25	2	1	9	21
GH-1	6.25	2	1	12	28
GH-1	6.25	2	1	15	36
GH-1	6.25	2	1	18	21
GH-1	6.25	2	1	21	15
GH-1	6.25	3	1	10	16
GH-1	6.25	3	1	13	38
GH-1	6.25	3	1	16	52
GH-1	6.25	4	2	10	21
GH-1	6.25	4	2	13	45
GH-1	6.25	4	2	15	48
GH-1	6.25	4	2	20	35
GH-1	6.25	5	2	9	22
GH-1	6.25	5	2	12	25
GH-1	6.25	5	2	15	47
GH-1	6.25	5	2	19	8
GH-1	6.25	6	1	9	10

(Sheet 2 of 23)

Table D7 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-1	6.25	6	1	12	31
GH-1	6.25	6	1	15	38
GH-1	6.25	6	1	18	49
GH-1	6.25	7	1	9	17
GH-1	6.25	7	1	12	31
GH-1	6.25	7	1	15	9
GH-1	6.25	7	1	18	35
GH-1	6.25	7	1	21	30
GH-1	6.25	8	2	9	8
GH-1	6.25	8	2	12	41
GH-1	6.25	8	2	15	50
GH-1	6.25	8	2	18	36
GH-1	6.25	8	2	21	20
GH-1	6.25	9	1	9	17
GH-1	6.25	9	1	12	32
GH-1	6.25	9	1	15	61
GH-1	6.25	9	1	19	22
GH-1	6.25	10	2	6	2
GH-1	6.25	10	2	9	29
GH-1	6.25	10	2	12	36
GH-1	6.25	10	2	14	3
GH-1	6.25	10	2	15	32
GH-1	6.25	10	2	18	19
GH-1	12.5	1	2	9	33
GH-1	12.5	1	2	15	41
GH-1	12.5	1	2	18	42
GH-1	12.5	2	1	9	14
GH-1	12.5	2	1	12	29
GH-1	12.5	2	1	15	38
(Sheet 3 of 23)					

Table D7 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-1	12.5	2	1	18	56
GH-1	12.5	2	1	21	31
GH-1	12.5	3	1	9	11
GH-1	12.5	3	1	12	23
GH-1	12.5	3	1	15	48
GH-1	12.5	3	1	18	38
GH-1	12.5	3	1	21	29
GH-1	12.5	4	2	8	28
GH-1	12.5	4	2	12	37
GH-1	12.5	4	2	15	33
GH-1	12.5	4	2	18	37
GH-1	12.5	5	1	9	16
GH-1	12.5	5	1	12	24
GH-1	12.5	5	1	15	50
GH-1	12.5	5	1	19	46
GH-1	12.5	6	2	9	24
GH-1	12.5	6	2	12	35
GH-1	12.5	6	2	15	29
GH-1	12.5	6	2	19	31
GH-1	12.5	7	2	6	10
GH-1	12.5	7	2	9	30
GH-1	12.5	7	2	12	50
GH-1	12.5	7	2	15	36
GH-1	12.5	7	2	18	39
GH-1	12.5	8	1	9	34
GH-1	12.5	8	1	13	37
GH-1	12.5	8	1	16	56
GH-1	12.5	8	1	19	46
GH-1	12.5	9	1	13	24
(Sheet 4 of 23)					

Table D7 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-1	12.5	9	1	15	30
GH-1	12.5	9	1	19	21
GH-1	12.5	9	1	20	1
GH-1	12.5	10	2	6	3
GH-1	12.5	10	2	9	25
GH-1	12.5	10	2	12	49
GH-1	12.5	10	2	15	39
GH-1	12.5	10	2	18	28
GH-1	25	1	2	10	23
GH-1	25	1	2	12	30
GH-1	25	1	2	15	64
GH-1	25	1	2	21	1
GH-1	25	2	1	10	17
GH-1	25	2	1	13	24
GH-1	25	2	1	16	21
GH-1	25	2	1	19	36
GH-1	25	3	2	0	0
GH-1	25	4	1	0	0
GH-1	25	5	2	8	15
GH-1	25	5	2	11	36
GH-1	25	5	2	13	42
GH-1	25	5	2	17	27
GH-1	25	5	2	21	19
GH-1	25	6	1	9	16
GH-1	25	6	1	12	38
GH-1	25	6	1	15	39
GH-1	25	6	1	18	48
GH-1	25	7	2	9	18
GH-1	25	7	2	12	30
(Sheet 5 of 23)					

Table D7 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-1	25	7	2	15	49
GH-1	25	7	2	19	51
GH-1	25	7	2	21	1
GH-1	25	8	2	12	21
GH-1	25	8	2	15	11
GH-1	25	8	2	18	35
GH-1	25	8	2	21	21
GH-1	25	9	1	9	7
GH-1	25	9	1	11	26
GH-1	25	9	1	14	34
GH-1	25	9	1	16	32
GH-1	25	9	1	20	32
GH-1	25	10	1	9	12
GH-1	25	10	1	12	17
GH-1	25	10	1	15	43
GH-1	25	10	1	18	49
GH-1	50	1	2	9	9
GH-1	50	1	2	12	32
GH-1	50	1	2	15	32
GH-1	50	1	2	19	36
GH-1	50	2	1	0	0
GH-1	50	3	2	9	8
GH-1	50	3	2	11	40
GH-1	50	3	2	14	47
GH-1	50	3	2	18	39
GH-1	50	3	2	21	38
GH-1	50	4	1	9	19
GH-1	50	4	1	12	32
(Sheet 6 of 23)					

Table D7 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-1	50	4	1	15	36
GH-1	50	4	1	18	44
GH-1	50	5	2	9	32
GH-1	50	5	2	12	43
GH-1	50	5	2	15	42
GH-1	50	5	2	19	19
GH-1	50	6	1	9	17
GH-1	50	6	1	12	41
GH-1	50	6	1	15	28
GH-1	50	6	1	18	35
GH-1	50	7	2	9	19
GH-1	50	7	2	12	33
GH-1	50	7	2	14	45
GH-1	50	7	2	15	3
GH-1	50	7	2	18	48
GH-1	50	7	2	21	57
GH-1	50	8	1	10	19
GH-1	50	8	1	13	43
GH-1	50	8	1	15	26
GH-1	50	8	1	19	27
GH-1	50	9	1	9	36
GH-1	50	9	1	13	59
GH-1	50	9	1	16	27
GH-1	50	9	1	20	31
GH-1	50	10	2	9	14
GH-1	50	10	2	12	32
GH-1	50	10	2	15	30
GH-1	50	10	2	18	26
GH-1	100	1	2	9	15
(Sheet 7 of 23)					

Table D7 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-1	100	1	2	15	44
GH-1	100	1	2	18	40
GH-1	100	2	1	9	19
GH-1	100	2	1	12	44
GH-1	100	2	1	15	41
GH-1	100	2	1	18	37
GH-1	100	3	1	10	17
GH-1	100	3	1	13	60
GH-1	100	3	1	16	32
GH-1	100	4	2	8	20
GH-1	100	4	2	11	42
GH-1	100	4	2	14	40
GH-1	100	4	2	17	34
GH-1	100	4	2	21	28
GH-1	100	5	2	0	0
GH-1	100	6	1	0	0
GH-1	100	7	2	9	29
GH-1	100	7	2	12	46
GH-1	100	7	2	15	32
GH-1	100	7	2	19	26
GH-1	100	8	1	9	14
GH-1	100	8	1	12	28
GH-1	100	8	1	15	40
GH-1	100	8	1	18	53
GH-1	100	8	1	21	24
GH-1	100	9	2	10	14
GH-1	100	9	2	13	53
GH-1	100	9	2	16	31

(Sheet 8 of 23)

Table D7 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-1	100	9	2	20	10
GH-1	100	10	1	9	17
GH-1	100	10	1	12	48
GH-1	100	10	1	14	52
GH-1	100	10	1	18	28
GH-1	100	10	1	21	29
GH-2	6.25	1	1	9	18
GH-2	6.25	1	1	12	32
GH-2	6.25	1	1	15	31
GH-2	6.25	1	1	19	42
GH-2	6.25	2	1	9	14
GH-2	6.25	2	1	12	38
GH-2	6.25	2	1	15	37
GH-2	6.25	2	1	19	10
GH-2	6.25	3	1	9	24
GH-2	6.25	3	1	12	56
GH-2	6.25	3	1	15	68
GH-2	6.25	3	1	18	43
GH-2	6.25	4	1	9	9
GH-2	6.25	4	1	11	28
GH-2	6.25	4	1	14	16
GH-2	6.25	4	1	18	9
GH-2	6.25	5	2	9	15
GH-2	6.25	5	2	12	28
GH-2	6.25	5	2	15	41
GH-2	6.25	5	2	19	37
GH-2	6.25	6	2	11	32
GH-2	6.25	6	2	14	20
(Sheet 9 of 23)					

Table D7 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-2	6.25	6	2	18	15
GH-2	6.25	6	2	21	26
GH-2	6.25	7	2	9	16
GH-2	6.25	7	2	12	33
GH-2	6.25	7	2	13	47
GH-2	6.25	7	2	18	33
GH-2	6.25	8	1	9	15
GH-2	6.25	8	1	12	33
GH-2	6.25	8	1	15	35
GH-2	6.25	8	1	19	52
GH-2	6.25	9	2	9	7
GH-2	6.25	9	2	12	27
GH-2	6.25	9	2	16	9
GH-2	6.25	9	2	20	15
GH-2	6.25	10	2	9	14
GH-2	6.25	10	2	11	30
GH-2	6.25	10	2	14	42
GH-2	6.25	10	2	15	3
GH-2	6.25	10	2	18	17
GH-2	6.25	10	2	21	26
GH-2	12.5	1	1	9	12
GH-2	12.5	1	1	11	30
GH-2	12.5	1	1	14	49
GH-2	12.5	1	1	15	43
GH-2	12.5	1	1	21	17
GH-2	12.5	2	1	9	2
GH-2	12.5	2	1	11	23
GH-2	12.5	2	1	13	44
(Sheet 10 of 23)					

Table D7 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-2	12.5	2	1	16	39
GH-2	12.5	2	1	20	24
GH-2	12.5	3	1	0	0
GH-2	12.5	4	2	10	5
GH-2	12.5	4	2	13	31
GH-2	12.5	4	2	15	46
GH-2	12.5	4	2	19	21
GH-2	12.5	5	2	0	0
GH-2	12.5	6	1	9	18
GH-2	12.5	6	1	12	36
GH-2	12.5	6	1	15	52
GH-2	12.5	6	1	18	56
GH-2	12.5	6	1	21	28
GH-2	12.5	7	1	9	11
GH-2	12.5	7	1	12	26
GH-2	12.5	7	1	15	30
GH-2	12.5	7	1	18	38
GH-2	12.5	8	2	9	20
GH-2	12.5	8	2	12	29
GH-2	12.5	8	2	15	29
GH-2	12.5	8	2	19	30
GH-2	12.5	9	2	8	7
GH-2	12.5	9	2	11	34
GH-2	12.5	9	2	14	46
GH-2	12.5	9	2	17	39
GH-2	12.5	9	2	20	29
GH-2	12.5	10	2	9	18
GH-2	12.5	10	2	13	36
GH-2	12.5	10	2	16	14
(Sheet 11 of 23)					

Table D7 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-2	25	1	1	9	22
GH-2	25	1	1	12	32
GH-2	25	1	1	15	47
GH-2	25	1	1	18	43
GH-2	25	1	1	20	65
GH-2	25	2	1	9	15
GH-2	25	2	1	12	10
GH-2	25	2	1	13	3
GH-2	25	2	1	15	46
GH-2	25	2	1	18	59
GH-2	25	3	1	10	15
GH-2	25	3	1	13	35
GH-2	25	3	1	15	28
GH-2	25	3	1	19	51
GH-2	25	4	2	9	17
GH-2	25	4	2	12	36
GH-2	25	4	2	15	62
GH-2	25	4	2	18	34
GH-2	25	5	2	9	19
GH-2	25	5	2	12	30
GH-2	25	5	2	15	49
GH-2	25	5	2	18	42
GH-2	25	6	1	9	8
GH-2	25	6	1	12	31
GH-2	25	6	1	14	59
GH-2	25	6	1	18	37
GH-2	25	6	1	21	31
GH-2	25	7	2	9	16

(Sheet 12 of 23)

Table D7 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-2	25	7	2	13	35
GH-2	25	7	2	15	33
GH-2	25	7	2	19	37
GH-2	25	8	1	9	20
GH-2	25	8	1	12	40
GH-2	25	8	1	15	51
GH-2	25	8	1	19	43
GH-2	25	9	2	9	20
GH-2	25	9	2	12	36
GH-2	25	9	2	15	34
GH-2	25	9	2	18	67
GH-2	25	10	2	11	33
GH-2	25	10	2	14	49
GH-2	25	10	2	17	47
GH-2	25	10	2	20	28
GH-2	50	1	2	9	14
GH-2	50	1	2	12	33
GH-2	50	1	2	15	38
GH-2	50	1	2	21	12
GH-2	50	2	1	10	16
GH-2	50	2	1	13	31
GH-2	50	2	1	15	37
GH-2	50	2	1	19	59
GH-2	50	3	1	10	25
GH-2	50	3	1	13	34
GH-2	50	3	1	16	41
GH-2	50	3	1	19	48
GH-2	50	4	1	9	15
(Sheet 13 of 23)					

Table D7 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-2	50	4	1	12	30
GH-2	50	4	1	14	61
GH-2	50	4	1	16	48
GH-2	50	4	1	21	33
GH-2	50	5	2	9	11
GH-2	50	5	2	12	34
GH-2	50	5	2	15	37
GH-2	50	5	2	19	41
GH-2	50	6	2	0	0
GH-2	50	7	1	10	17
GH-2	50	7	1	13	45
GH-2	50	7	1	15	60
GH-2	50	7	1	19	47
GH-2	50	8	2	0	0
GH-2	50	9	2	9	12
GH-2	50	9	2	12	5
GH-2	50	9	2	13	3
GH-2	50	9	2	15	51
GH-2	50	9	2	19	25
GH-2	50	10	1	9	20
GH-2	50	10	1	12	42
GH-2	50	10	1	15	51
GH-2	50	10	1	18	49
GH-2	50	10	1	21	28
GH-2	100	1	1	0	0
GH-2	100	2	1	10	34
GH-2	100	2	1	13	59
GH-2	100	2	1	15	38

(Sheet 14 of 23)

Table D7 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-2	100	2	1	19	36
GH-2	100	3	1	10	28
GH-2	100	3	1	13	49
GH-2	100	3	1	16	41
GH-2	100	3	1	20	44
GH-2	100	4	2	9	10
GH-2	100	4	2	12	35
GH-2	100	4	2	15	50
GH-2	100	4	2	18	39
GH-2	100	4	2	21	2
GH-2	100	5	2	9	24
GH-2	100	5	2	12	30
GH-2	100	5	2	14	1
GH-2	100	5	2	15	59
GH-2	100	5	2	18	48
GH-2	100	6	1	9	20
GH-2	100	6	1	12	25
GH-2	100	6	1	15	49
GH-2	100	6	1	18	65
GH-2	100	7	2	9	15
GH-2	100	7	2	12	52
GH-2	100	7	2	15	46
GH-2	100	7	2	18	49
GH-2	100	8	2	9	9
GH-2	100	8	2	12	41
GH-2	100	8	2	14	51
GH-2	100	8	2	18	42
GH-2	100	8	2	21	34

(Sheet 15 of 23)

Table D7 (Continued)

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-2	100	9	1	14	9
GH-2	100	10	2	9	11
GH-2	100	10	2	12	34
GH-2	100	10	2	14	1
GH-2	100	10	2	15	47
GH-2	100	10	2	18	54
GH-4	6.25	1	2	9	23
GH-4	6.25	1	2	12	40
GH-4	6.25	1	2	15	41
GH-4	6.25	1	2	19	46
GH-4	6.25	2	1	9	20
GH-4	6.25	2	1	12	37
GH-4	6.25	2	1	15	26
GH-4	6.25	2	1	18	32
GH-4	6.25	3	2	9	21
GH-4	6.25	3	2	13	27
GH-4	6.25	3	2	15	36
GH-4	6.25	3	2	19	45
GH-4	6.25	4	2	10	25
GH-4	6.25	4	2	13	37
GH-4	6.25	4	2	16	39
GH-4	6.25	4	2	19	24
GH-4	6.25	4	2	21	2
GH-4	6.25	5	1	10	7
GH-4	6.25	5	1	12	28
GH-4	6.25	5	1	17	2
GH-4	6.25	5	1	19	19
GH-4	6.25	6	1	10	20

(Sheet 16 of 23)

Table D7 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-4	6.25	6	1	13	45
GH-4	6.25	6	1	16	32
GH-4	6.25	6	1	19	26
GH-4	6.25	7	2	9	18
GH-4	6.25	7	2	13	28
GH-4	6.25	7	2	15	27
GH-4	6.25	7	2	19	36
GH-4	6.25	8	2	8	13
GH-4	6.25	8	2	12	29
GH-4	6.25	8	2	15	25
GH-4	6.25	8	2	18	40
GH-4	6.25	9	1	9	19
GH-4	6.25	9	1	12	34
GH-4	6.25	9	1	15	32
GH-4	6.25	9	1	19	25
GH-4	6.25	10	1	12	17
GH-4	6.25	10	1	14	35
GH-4	6.25	10	1	15	38
GH-4	6.25	10	1	20	36
GH-4	12.5	1	2	10	29
GH-4	12.5	1	2	13	40
GH-4	12.5	1	2	16	49
GH-4	12.5	1	2	19	37
GH-4	12.5	2	2	9	18
GH-4	12.5	2	2	12	38
GH-4	12.5	2	2	14	54
GH-4	12.5	2	2	18	46
GH-4	12.5	2	2	21	44
(Sheet 17 of 23)					

Table D7 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-4	12.5	3	1	9	5
GH-4	12.5	3	1	12	32
GH-4	12.5	3	1	13	16
GH-4	12.5	3	1	15	52
GH-4	12.5	3	1	18	63
GH-4	12.5	4	2	8	19
GH-4	12.5	4	2	11	1
GH-4	12.5	4	2	13	53
GH-4	12.5	4	2	16	43
GH-4	12.5	4	2	20	18
GH-4	12.5	5	1	9	13
GH-4	12.5	5	1	12	42
GH-4	12.5	5	1	15	36
GH-4	12.5	5	1	18	37
GH-4	12.5	6	2	9	22
GH-4	12.5	6	2	12	42
GH-4	12.5	6	2	15	46
GH-4	12.5	6	2	18	43
GH-4	12.5	7	2	8	16
GH-4	12.5	7	2	11	30
GH-4	12.5	7	2	14	51
GH-4	12.5	7	2	17	48
GH-4	12.5	7	2	20	36
GH-4	12.5	8	1	9	9
GH-4	12.5	8	1	12	37
GH-4	12.5	9	1	8	28
GH-4	12.5	9	1	13	49
GH-4	12.5	9	1	16	34
(Sheet 18 of 23)					

Table D7 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-4	12.5	9	1	19	34
GH-4	12.5	10	1	9	16
GH-4	12.5	10	1	11	8
GH-4	12.5	10	1	13	43
GH-4	12.5	10	1	16	56
GH-4	12.5	10	1	20	38
GH-4	25	1	1	11	16
GH-4	25	1	1	13	34
GH-4	25	1	1	16	32
GH-4	25	1	1	20	39
GH-4	25	2	1	9	25
GH-4	25	2	1	13	52
GH-4	25	2	1	16	36
GH-4	25	2	1	21	14
GH-4	25	3	2	8	17
GH-4	25	3	2	11	41
GH-4	25	3	2	14	64
GH-4	25	3	2	17	40
GH-4	25	3	2	21	3
GH-4	25	4	2	8	18
GH-4	25	4	2	11	43
GH-4	25	4	2	14	54
GH-4	25	4	2	17	29
GH-4	25	4	2	20	42
GH-4	25	5	1	9	14
GH-4	25	5	1	11	40
GH-4	25	5	1	14	40
GH-4	25	5	1	17	42
GH-4	25	5	1	20	38
GH-4	25	6	2	9	31
GH-4	25	6	2	12	1
(Sheet 19 of 23)					

Table D7 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-4	25	6	2	13	28
GH-4	25	6	2	15	45
GH-4	25	6	2	19	53
GH-4	25	7	1	9	30
GH-4	25	7	1	13	43
GH-4	25	7	1	15	38
GH-4	25	7	1	20	24
GH-4	25	8	2	7	9
GH-4	25	8	2	8	39
GH-4	25	8	2	12	44
GH-4	25	8	2	15	49
GH-4	25	8	2	18	56
GH-4	25	9	1	9	20
GH-4	25	9	1	12	36
GH-4	25	9	1	15	38
GH-4	25	9	1	18	39
GH-4	25	10	2	8	29
GH-4	25	10	2	12	40
GH-4	25	10	2	15	26
GH-4	25	10	2	19	33
GH-4	50	1	2	8	19
GH-4	50	1	2	11	43
GH-4	50	1	2	14	52
GH-4	50	1	2	17	29
GH-4	50	2	1	9	10
GH-4	50	2	1	12	25
GH-4	50	2	1	15	63
GH-4	50	2	1	18	53
GH-4	50	2	1	21	24
GH-4	50	3	2	8	14
GH-4	50	3	2	11	29
(Sheet 20 of 23)					

Table D7 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-4	50	3	2	17	56
GH-4	50	4	1	9	20
GH-4	50	4	1	12	38
GH-4	50	4	1	15	38
GH-4	50	4	1	18	27
GH-4	50	4	1	21	32
GH-4	50	5	2	8	17
GH-4	50	5	2	11	42
GH-4	50	5	2	14	59
GH-4	50	5	2	15	49
GH-4	50	5	2	21	29
GH-4	50	6	1	9	12
GH-4	50	6	1	12	34
GH-4	50	6	1	15	38
GH-4	50	6	1	18	56
GH-4	50	6	1	21	9
GH-4	50	7	1	11	24
GH-4	50	7	1	14	68
GH-4	50	7	1	17	45
GH-4	50	7	1	20	33
GH-4	50	8	2	8	20
GH-4	50	8	2	11	35
GH-4	50	8	2	14	62
GH-4	50	8	2	17	34
GH-4	50	8	2	21	5
GH-4	50	9	1	9	22
GH-4	50	9	1	12	37
GH-4	50	9	1	14	47
GH-4	50	9	1	18	44
GH-4	50	9	1	21	48
GH-4	50	10	2	6	9
(Sheet 21 of 23)					

Table D7 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-4	50	10	2	8	29
GH-4	50	10	2	12	52
GH-4	50	10	2	15	28
GH-4	50	10	2	19	31
GH-4	100	1	1	9	27
GH-4	100	1	1	12	58
GH-4	100	1	1	15	8
GH-4	100	1	1	19	35
GH-4	100	2	2	8	39
GH-4	100	2	2	11	3
GH-4	100	2	2	14	56
GH-4	100	2	2	17	45
GH-4	100	2	2	21	4
GH-4	100	3	2	9	18
GH-4	100	3	2	11	31
GH-4	100	3	2	14	34
GH-4	100	3	2	18	30
GH-4	100	3	2	21	40
GH-4	100	4	1	9	26
GH-4	100	4	1	12	32
GH-4	100	4	1	14	26
GH-4	100	4	1	15	12
GH-4	100	4	1	18	48
GH-4	100	4	1	21	34
GH-4	100	5	2	7	8
GH-4	100	5	2	9	26
GH-4	100	5	2	13	58
GH-4	100	5	2	15	30
GH-4	100	5	2	19	33
GH-4	100	6	1	9	3
GH-4	100	6	1	12	23
(Sheet 22 of 23)					

Table D7 (Concluded)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
GH-4	100	6	1	19	36
GH-4	100	7	2	7	3
GH-4	100	7	2	9	24
GH-4	100	7	2	13	17
GH-4	100	7	2	15	34
GH-4	100	7	2	19	36
GH-4	100	8	2	6	10
GH-4	100	8	2	9	28
GH-4	100	8	2	12	62
GH-4	100	8	2	18	47
GH-4	100	9	1	8	20
GH-4	100	9	1	13	57
GH-4	100	9	1	16	20
GH-4	100	9	1	21	6
GH-4	100	10	1	8	22
GH-4	100	10	1	13	62
GH-4	100	10	1	17	36
GH-4	100	10	1	21	26
(Sheet 23 of 23)					

Table D8
Reproduction in *D. magna* Exposed to Elutriates of Detroit
District - St. Joseph Harbor Sediments

Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
Control-2	0	1	1	9	6
Control-2	0	1	1	12	26
Control-2	0	1	1	15	51
Control-2	0	1	1	19	32
Control-2	0	2	2	9	16
Control-2	0	2	2	13	34
Control-2	0	2	2	15	21
Control-2	0	2	2	19	18
Control-2	0	3	1	9	4
Control-2	0	3	1	11	7
Control-2	0	3	1	14	2
Control-2	0	3	1	17	15
Control-2	0	3	1	20	25
Control-2	0	4	2	10	13
Control-2	0	4	2	11	1
Control-2	0	4	2	13	34
Control-2	0	4	2	15	45
Control-2	0	4	2	18	26
Control-2	0	5	1	0	0
Control-2	0	6	2	9	9
Control-2	0	6	2	12	23
Control-2	0	6	2	15	25
Control-2	0	6	2	19	26
Control-2	0	7	2	9	17
Control-2	0	7	2	12	40
Control-2	0	8	1	9	13
Control-2	0	8	1	12	35
Control-2	0	8	1	15	45
Control-2	0	8	1	19	2
Control-2	0	9	2	10	12

(Sheet 1 of 8)

Table D8 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
Control-2	0	9	2	13	26
Control-2	0	9	2	16	30
Control-2	0	9	2	21	2
Control-2	0	10	1	11	11
Control-2	0	10	1	13	41
Control-2	0	10	1	16	43
Control-2	0	10	1	20	40
SJ-2	50	1	2	7	2
SJ-2	50	1	2	10	22
SJ-2	50	1	2	13	60
SJ-2	50	1	2	15	25
SJ-2	50	1	2	19	42
SJ-2	50	2	1	12	18
SJ-2	50	2	1	14	42
SJ-2	50	2	1	16	25
SJ-2	50	2	1	21	36
SJ-2	50	3	1	9	15
SJ-2	50	3	1	12	22
SJ-2	50	3	1	15	38
SJ-2	50	3	1	18	33
SJ-2	50	4	2	8	21
SJ-2	50	4	2	12	28
SJ-2	50	4	2	14	31
SJ-2	50	4	2	17	52
SJ-2	50	4	2	20	38
SJ-2	50	5	1	9	20
SJ-2	50	5	1	12	40
SJ-2	50	5	1	15	26
SJ-2	50	5	1	18	41
SJ-2	50	6	2	9	19
SJ-2	50	6	2	12	25
(Sheet 2 of 8)					

Table D8 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
SJ-2	50	6	2	15	36
SJ-2	50	6	2	18	34
SJ-2	50	7	1	9	22
SJ-2	50	7	1	12	49
SJ-2	50	7	1	15	27
SJ-2	50	7	1	19	32
SJ-2	50	8	2	7	1
SJ-2	50	8	2	10	28
SJ-2	50	8	2	13	54
SJ-2	50	8	2	15	40
SJ-2	50	8	2	19	43
SJ-2	50	9	1	9	18
SJ-2	50	9	1	12	46
SJ-2	50	9	1	14	47
SJ-2	50	9	1	18	49
SJ-2	50	9	1	21	26
SJ-2	50	10	2	8	46
SJ-2	50	10	2	13	68
SJ-2	50	10	2	16	61
SJ-2	50	10	2	20	31
SJ-2	100	1	2	7	1
SJ-2	100	1	2	10	38
SJ-2	100	1	2	13	49
SJ-2	100	1	2	16	30
SJ-2	100	1	2	19	43
SJ-2	100	2	2	8	19
SJ-2	100	2	2	11	51
SJ-2	100	2	2	14	59
SJ-2	100	2	2	17	55
SJ-2	100	2	2	20	47
SJ-2	100	3	1	0	0
(Sheet 3 of 8)					

Table D8 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
SJ-2	100	4	1	9	23
SJ-2	100	4	1	12	29
SJ-2	100	4	1	15	36
SJ-2	100	4	1	18	47
SJ-2	100	4	1	21	23
SJ-2	100	5	2	0	0
SJ-2	100	6	1	10	15
SJ-2	100	6	1	13	32
SJ-2	100	6	1	15	26
SJ-2	100	6	1	18	41
SJ-2	100	7	2	11	25
SJ-2	100	7	2	14	40
SJ-2	100	7	2	17	23
SJ-2	100	7	2	20	21
SJ-2	100	8	1	0	0
SJ-2	100	9	1	9	26
SJ-2	100	9	1	12	32
SJ-2	100	9	1	15	57
SJ-2	100	9	1	18	39
SJ-2	100	9	1	21	32
SJ-2	100	10	2	7	4
SJ-2	100	10	2	9	31
SJ-2	100	10	2	12	45
SJ-2	100	10	2	15	27
SJ-2	100	10	2	19	51
SJ-3	6.25	1	1	10	20
SJ-3	6.25	1	1	13	42
SJ-3	6.25	1	1	15	35
SJ-3	6.25	1	1	19	11
SJ-3	6.25	2	2	9	19
SJ-3	6.25	2	2	12	26
(Sheet 4 of 8)					

Table D8 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
SJ-3	6.25	2	2	15	26
SJ-3	6.25	2	2	18	38
SJ-3	6.25	2	2	21	29
SJ-3	6.25	3	1	11	13
SJ-3	6.25	3	1	14	32
SJ-3	6.25	3	1	16	36
SJ-3	6.25	3	1	20	56
SJ-3	6.25	4	2	9	9
SJ-3	6.25	4	2	12	19
SJ-3	6.25	4	2	15	43
SJ-3	6.25	4	2	18	42
SJ-3	6.25	4	2	21	15
SJ-3	6.25	5	1	9	16
SJ-3	6.25	5	1	15	15
SJ-3	6.25	6	2	8	12
SJ-3	6.25	6	2	11	40
SJ-3	6.25	6	2	17	36
SJ-3	6.25	6	2	20	39
SJ-3	6.25	7	1	9	17
SJ-3	6.25	7	1	12	34
SJ-3	6.25	7	1	15	42
SJ-3	6.25	7	1	18	28
SJ-3	6.25	8	2	10	29
SJ-3	6.25	8	2	13	52
SJ-3	6.25	8	2	16	43
SJ-3	6.25	8	2	19	39
SJ-3	6.25	9	2	9	14
SJ-3	6.25	9	2	11	42
SJ-3	6.25	9	2	14	50
SJ-3	6.25	9	2	17	30
SJ-3	6.25	9	2	21	36
(Sheet 5 of 8)					

Table D8 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
SJ-3	6.25	10	1	9	13
SJ-3	6.25	10	1	11	38
SJ-3	6.25	10	1	14	58
SJ-3	6.25	10	1	18	21
SJ-3	6.25	10	1	21	46
SJ-3	100	1	1	9	20
SJ-3	100	1	1	11	56
SJ-3	100	1	1	14	18
SJ-3	100	1	1	17	22
SJ-3	100	2	1	8	32
SJ-3	100	2	1	13	63
SJ-3	100	2	1	16	29
SJ-3	100	3	2	7	6
SJ-3	100	3	2	9	32
SJ-3	100	3	2	13	69
SJ-3	100	3	2	15	36
SJ-3	100	3	2	19	37
SJ-3	100	4	2	7	13
SJ-3	100	4	2	9	29
SJ-3	100	4	2	12	48
SJ-3	100	4	2	15	41
SJ-3	100	4	2	19	25
SJ-3	100	5	2	7	8
SJ-3	100	5	2	9	33
SJ-3	100	5	2	13	61
SJ-3	100	5	2	15	34
SJ-3	100	5	2	18	37
SJ-3	100	6	1	8	24
SJ-3	100	6	1	13	60
SJ-3	100	6	1	16	37
SJ-3	100	6	1	19	39
(Sheet 6 of 8)					

Table D8 (Continued)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
SJ-3	100	7	1	9	12
SJ-3	100	7	1	12	45
SJ-3	100	7	1	21	26
SJ-3	100	8	2	7	8
SJ-3	100	8	2	9	29
SJ-3	100	8	2	13	52
SJ-3	100	8	2	15	48
SJ-3	100	8	2	19	46
SJ-3	100	9	1	8	20
SJ-3	100	9	1	12	4
SJ-3	100	9	1	13	52
SJ-3	100	9	1	15	38
SJ-3	100	9	1	20	13
SJ-3	100	10	2	9	27
SJ-3	100	10	2	12	48
SJ-3	100	10	2	15	37
SJ-3	100	10	2	18	49
SJ-3	100	10	2	21	52
SJ-4	100	1	2	7	10
SJ-4	100	1	2	9	28
SJ-4	100	1	2	12	46
SJ-4	100	1	2	14	56
SJ-4	100	1	2	18	46
SJ-4	100	1	2	21	47
SJ-4	100	2	2	6	15
SJ-4	100	2	2	9	38
SJ-4	100	2	2	12	46
SJ-4	100	2	2	15	34
SJ-4	100	2	2	18	28
SJ-4	100	2	2	21	28
SJ-4	100	4	2	8	18
(Sheet 7 of 8)					

Table D8 (Concluded)					
Sediment	Percent Elutriate	Replicate	Module	Day Neonates Released	No. Neonates Released
SJ-4	100	4	2	11	36
SJ-4	100	4	2	14	61
SJ-4	100	4	2	17	53
SJ-4	100	5	2	8	15
SJ-4	100	5	2	11	36
SJ-4	100	5	2	14	61
SJ-4	100	5	2	17	58
SJ-4	100	5	2	20	26
SJ-4	100	8	2	7	11
SJ-4	100	8	2	9	30
SJ-4	100	8	2	12	42
SJ-4	100	8	2	15	42
SJ-4	100	8	2	18	45
SJ-4	100	8	2	21	40
(Sheet 8 of 8)					

Table D9
Water Quality for *D. magna* Test with Elutriates of Buffalo District - Toledo Harbor Sediments

Sediment	Day ¹	Treatment ²	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
Control-1	0	C	20	7.8	8.11	197	107	588	0.08	9.6
Control-1	1	C	20	9.0	7.85					
Control-1	2b	C	20	8.9	7.75					
Control-1	2a	C	20	9.0	7.60					
Control-1	3	C	20	9.9	8.28					
Control-1	4	C	20	9.2	8.13					
Control-1	5b	C	20	8.5	8.15					
Control-1	5a	C	20	8.2	7.91					
Control-1	6	C	20	8.3	7.94					
Control-1	7b	C	20	8.3	7.90	220	133	603	0.06	
Control-1	7a	C	20	8.4	7.91			568		
Control-1	8	C	20	8.8	7.79					
Control-1	9b	C	20	8.4	7.69					
Control-1	9a	C	20	9.4	8.47					
Control-1	10	C	20	9.6	8.06					
Control-1	11	C	20	10.4	8.31					

(Sheet 1 of 40)

¹ "b" = before renewal; "a" = after renewal.

² C = control; L = 6.25-percent elutriate; M = either 12.5-, 25-, or 50-percent elutriate; and H = 100-percent elutriate as per protocols prescribed by Call et al. (1993).
 (References cited in this appendix are located at the end of the main text.)

Table D9 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
Control-1	12b	C	20	10.0	8.57					
Control-1	12a	C	20	9.4	8.07					
Control-1	13	C	20	9.3	8.19					
Control-1	14b	C	20	9.4	8.00	187	147		0.01	
Control-1	14a	C	20	7.8	8.27					
Control-1	15	C	20	8.4	7.84					
Control-1	16b	C	20	8.0	7.99					
Control-1	16a	C	20	8.5	8.17					
Control-1	17	C	21	7.9	7.59					
Control-1	18	C	22	8.3	8.16					
Control-1	19b	C	21	7.4	7.80					
Control-1	19a	C	21		8.06					
Control-1	20	C	21	7.2	7.96					
Control-1	21	C	20	7.4	7.56	167	143	468	0.13	1.6
RM 1-2	0	L	20	8.1	8.14	153	143	555	1.29	
RM 1-2		M		8.3	7.90	187	153	574	4.90	
RM 1-2		H		7.3	7.61	217	130	676	20.50	39.6
RM 1-2	1	L	20	8.6	7.95					
RM 1-2		M		8.7	7.92					
(Sheet 2 of 40)										

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
RM 1-2		H		8.7	7.96					
RM 1-2	2b	L	20	9.0	7.95					
RM 1-2		M		9.0	7.99					
RM 1-2		H		9.0	8.03					
RM 1-2	2a	L	20	8.9	8.10					
RM 1-2		M		9.1	8.21					
RM 1-2		H		8.8	8.15					
RM 1-2	3	L	20	10.0	8.38					
RM 1-2		M		10.0	8.33					
RM 1-2		H		9.5	8.19					
RM 1-2	4	L	20	9.3	8.29					
RM 1-2		M		9.8	8.34					
RM 1-2		H		9.6	8.28					
RM 1-2	5b	L	20	8.7	8.27					
RM 1-2		M		8.7	8.24					
RM 1-2		H		8.8	8.04					
RM 1-2	5a	L	20	8.1	7.98					
RM 1-2		M		8.2	7.81					
RM 1-2		H		8.2	7.67					

(Sheet 3 of 40)

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
RM 1-2	6	L	20	8.3	7.90					
RM 1-2		M		8.3	7.93					
RM 1-2		H		8.3	7.75					
RM 1-2	7b	L	20	8.3	7.97	170	187	573	1.09	
RM 1-2		M		8.4	7.97	193	120	589	3.75	
RM 1-2		H		8.4	7.85	190	157	512	15.80	
RM 1-2	7a	L	20	8.3	8.01	173	147	563	1.88	
RM 1-2		M		8.3	7.88	213	157	574	6.50	
RM 1-2		H		8.2	7.69	243	83	623	22.30	
RM 1-2	8	L	20	7.8	7.75					
RM 1-2		M		8.3	7.81					
RM 1-2		H		7.1	7.73					
RM 1-2	9b	L	20	8.9	7.75					
RM 1-2		M		8.3	7.79					
RM 1-2		H		8.1	7.80					
RM 1-2	9a	L	20	8.3	8.50					
RM 1-2		M		9.0	8.50					
RM 1-2		H		9.3	8.38					
RM 1-2	10	L	20	9.1	8.56					

(Sheet 4 of 40)

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
RM 1-2		M		8.7	8.05					
RM 1-2		H		8.2	7.96					
RM 1-2	11	L	20	10.7	8.41					
RM 1-2		M		9.2	8.05					
RM 1-2		H		8.2	8.32					
RM 1-2	12b	L	20	10.4	8.57					
RM 1-2		M		9.8	8.27					
RM 1-2		H		9.8	8.21					
RM 1-2	12a	L	20	9.0	8.22					
RM 1-2		M		9.2	8.17					
RM 1-2		H		9.2	7.85					
RM 1-2	13	L	20	9.0	8.23					
RM 1-2		M		8.7	8.06					
RM 1-2		H		9.1	7.96					
RM 1-2	14b	L	20	9.2	7.62	183	133		0.20	
RM 1-2		M		9.6	6.94		130		0.65	
RM 1-2		H		8.8	8.00	213	93		3.24	
RM 1-2	14a	L	20	7.6	8.27	160	87		0.30	
RM 1-2		M		7.6	8.21	217	100		1.83	

(Sheet 5 of 40)

Table D9 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
RM 1-2		H		7.8	8.01	220	107		7.20	
RM 1-2	15	L	20	8.5	8.01					
RM 1-2		M		8.6	7.94					
RM 1-2		H		6.5	7.75					
RM 1-2	16b	L	20	8.8	7.93					
RM 1-2		M		7.0	7.89					
RM 1-2		H		8.0	7.98					
RM 1-2	16a	L	20	8.3	8.22					
RM 1-2		M		7.9	8.26					
RM 1-2		H		8.2	8.22					
RM 1-2	17	L	21	8.1	7.62					
RM 1-2		M		8.1	7.69					
RM 1-2		H		5.2	7.55					
RM 1-2	18	L	22	8.0	8.18					
RM 1-2		M		8.3	8.25					
RM 1-2		H		8.2	7.64					
RM 1-2	19b	L	21	7.9	7.89					
RM 1-2		M		8.0	8.02					
RM 1-2		H		7.0	7.55					

(Sheet 6 of 40)

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
RM 1-2	19a	L	21	8.2	7.90					
RM 1-2		M		7.5	7.61					
RM 1-2		H		6.2	7.17					
RM 1-2	20	L	21	5.7	7.83					
RM 1-2		M		6.2	7.76					
RM 1-2		H		2.9	7.61					
RM 1-2	21	L	20	6.0	7.88	200	160	465	0.33	
RM 1-2		M		6.0	8.00	200	203	408	2.14	
RM 1-2		H		4.6	7.46	200	150	488	0.17	10.6
LM 0-1	0	L	20	7.8	8.03	173	150	560	1.29	
LM 0-1		M		7.9	7.68	217	163	675	3.39	
LM 0-1		H		7.9	7.55	327	220	814	0.01	14.8
LM 0-1	1	L	20	8.6	7.93					
LM 0-1		M		8.6	7.90					
LM 0-1		H		8.6	7.91					
LM 0-1	2b	L	20	8.9	8.23					
LM 0-1		M		8.9	8.14					
LM 0-1		H		8.9	8.13					
LM 0-1	2a	L	20	7.8	7.92					

(Sheet 7 of 40)

Table D9 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 0-1		M		7.9	7.90					
LM 0-1		H		8.1	7.88					
LM 0-1	3	L	20	10.6	8.42					
LM 0-1		M		10.8	8.39					
LM 0-1		H		9.2	8.29					
LM 0-1	4	L	20	9.0	8.29					
LM 0-1		M		9.5	8.39					
LM 0-1		H		9.2	8.15					
LM 0-1	5b	L	20	8.3	8.25					
LM 0-1		M		8.4	8.23					
LM 0-1		H		8.5	8.15					
LM 0-1	5a	L	20	8.4	7.92					
LM 0-1		M		8.3	7.75					
LM 0-1		H		8.1	7.53					
LM 0-1	6	L	20	8.4	8.04					
LM 0-1		M		8.4	7.98					
LM 0-1		H		8.4	7.80					
LM 0-1	7b	L	20	8.2	8.06	190	150	581	0.74	
LM 0-1		M		8.2	8.09	210	190	618	3.99	
(Sheet 8 of 40)										

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 0-1		H		8.3	7.93	333	210	748	0.08	
LM 0-1	7a	L	20	8.3	7.88	177	123	554	1.62	
LM 0-1		M		8.2	7.67	197	150	630	6.50	
LM 0-1		H		8.1	7.61	310	190	773	0.10	
LM 0-1	8	L	20	8.3	7.84					
LM 0-1		M		8.3	7.75					
LM 0-1		H		6.6	7.57					
LM 0-1	9b	L	20	8.8	8.20					
LM 0-1		M		8.7	8.10					
LM 0-1		H		7.6	8.00					
LM 0-1	9a	L	20	9.2	8.50					
LM 0-1		M		8.4	8.50					
LM 0-1		H		7.6	8.43					
LM 0-1	10	L	20	9.8	8.43					
LM 0-1		M		8.6	7.99					
LM 0-1		H		4.8	7.57					
LM 0-1	11	L	20	10.1	8.52					
LM 0-1		M		9.5	8.22					
LM 0-1		H		7.8	7.97					

(Sheet 9 of 40)

Table D9 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 0-1	12b	L	20	9.8	8.17					
LM 0-1		M		9.8	8.05					
LM 0-1		H		9.8	8.19					
LM 0-1	12a	L	20	9.6	8.17					
LM 0-1		M		9.6	7.85					
LM 0-1		H		9.8	7.45					
LM 0-1	13	L	20	9.2	8.26					
LM 0-1		M		8.0	7.90					
LM 0-1		H		8.4	7.49					
LM 0-1	14b	L	20	9.2	8.10	167	103		0.01	
LM 0-1		M		9.2	8.12	180	150		0.33	
LM 0-1		H		9.4	8.06	263	117		0.01	
LM 0-1	14a	L	20	8.1	7.99	173	150		0.70	
LM 0-1		M		7.6	8.01	210	150		0.01	
LM 0-1		H		7.6	7.95	323	200		8.32	
LM 0-1	15	L	20	8.8	7.91					
LM 0-1		M		9.0	7.71					
LM 0-1		H		6.5	7.58					
LM 0-1	16b	L	20	7.7	8.25					
(Sheet 10 of 40)										

D138

Appendix D Elutriate Tests, *Daphnia magna*

(Sheet 11 of 40)

Table D9 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 0-1		H		6.4	7.62					
LM 0-1	21	L	20	7.2	8.26	170	147	498	0.43	
LM 0-1		M		7.0	7.99	213	140	523	0.41	
LM 0-1		H		6.8	7.87	290	207	540	0.19	29.0
LM 1-2	0	L	20	8.0	7.91	170	127	597		
LM 1-2		M		8.1	7.76	193	147	639		
LM 1-2		H		8.2	7.50	313	180	730		26.4
LM 1-2	1	L	20	8.5	8.03					
LM 1-2		M		8.9	8.01					
LM 1-2		H		8.9	7.95					
LM 1-2	2b	L	20	8.9	9.00					
LM 1-2		M		9.0	9.10					
LM 1-2		H		8.8	8.90					
LM 1-2	2a	L	20	9.1	8.16					
LM 1-2		M		9.1	8.12					
LM 1-2		H		9.0	8.11					
LM 1-2	3	L	20	9.7	8.35					
LM 1-2		M		9.6	8.27					
LM 1-2		H		9.0	7.99					
(Sheet 12 of 40)										

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 1-2	4	L	20	9.7	8.31					
LM 1-2		M		9.5	8.36					
LM 1-2		H		8.7	8.17					
LM 1-2	5b	L	20	8.4	8.35					
LM 1-2		M		8.4	8.31					
LM 1-2		H		8.4	8.20					
LM 1-2	5a	L	20	8.2	7.86					
LM 1-2		M		8.2	7.86					
LM 1-2		H		8.2	7.50					
LM 1-2	6	L	20	8.5	8.04					
LM 1-2		M		8.4	8.02					
LM 1-2		H		8.4	7.85					
LM 1-2	7b	L	20	8.2	8.26	223	167	597	0.62	
LM 1-2		M		8.2	8.16	210	157	613	1.86	
LM 1-2		H		8.3	8.09	283	210	675	0.08	
LM 1-2	7a	L	20	8.3	7.49	173	143	554	0.63	
LM 1-2		M		8.3	7.67	180	150	608	3.14	
LM 1-2		H		8.2	7.87	213	138	643	11.60	
LM 1-2	8	L	20	8.6	7.79					

(Sheet 13 of 40)

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 1-2		M		8.0	7.81					
LM 1-2		H		7.9	7.72					
LM 1-2	9b	L	20	8.7	8.12					
LM 1-2		M		8.6	8.15					
LM 1-2		H		8.5	8.14					
LM 1-2	9a	L	20	8.8	8.80					
LM 1-2		M		8.8	8.75					
LM 1-2		H		8.6	8.52					
LM 1-2	10	L	20	9.7	7.92					
LM 1-2		M		9.5	7.79					
LM 1-2		H		8.2	7.82					
LM 1-2	11	L	20	9.3	8.04					
LM 1-2		M		8.9	7.90					
LM 1-2		H		8.6	7.62					
LM 1-2	12b	L	20	9.8	7.82					
LM 1-2		M		9.6	7.86					
LM 1-2		H		7.6	7.84					
LM 1-2	12a	L	20	9.6	8.16					
LM 1-2		M		9.6	8.16					

(Sheet 14 of 40)

Table D9 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 1-2		H		9.6	7.71					
LM 1-2	13	L	20	9.9	8.33					
LM 1-2		M		8.8	8.09					
LM 1-2		H		8.2	7.88					
LM 1-2	14b	L	20	9.0	8.15	187	100		0.01	
LM 1-2		M		9.4	8.05	183	203		0.50	
LM 1-2		H		8.8	8.60	227	210		0.21	
LM 1-2	14a	L	20	8.2	8.06	187	150		0.08	
LM 1-2		M		7.5	8.15	207	127		1.19	
LM 1-2		H		7.5	7.93	227	150		5.19	
LM 1-2	15	L	20	9.4	7.99					
LM 1-2		M		7.5	7.90					
LM 1-2		H		6.4	7.73					
LM 1-2	16b	L	20	8.0	7.76					
LM 1-2		M		5.0	7.80					
LM 1-2		H		6.2	7.97					
LM 1-2	16a	L	20	8.0	7.77					
LM 1-2		M		8.0	7.76					
LM 1-2		H		6.3	7.75					

(Sheet 15 of 40)

Table D9 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 1-2	17	L	21	8.0	7.95					
LM 1-2		M		6.5	7.94					
LM 1-2		H		4.8	7.70					
LM 1-2	18	L	22	7.9	8.02					
LM 1-2		M		7.5	7.76					
LM 1-2		H		5.4	7.86					
LM 1-2	19b	L	21	8.5	8.20					
LM 1-2		M		7.6	8.13					
LM 1-2		H		7.0	7.92					
LM 1-2	19a	L	21	8.0	7.96					
LM 1-2		M		8.0	7.80					
LM 1-2		H		7.0	7.27					
LM 1-2	20	L	21	6.7	7.84					
LM 1-2		M		5.5	7.70					
LM 1-2		H		2.9	7.55					
LM 1-2	21	L	20	6.5	8.16	177	83	528	0.08	
LM 1-2		M		5.8	7.99	213	100	546	0.31	
LM 1-2		H		3.2	7.23	273	176	468	0.14	29.0
LM 2-3	0	L	20	8.3	7.95	190	113	589	0.48	
(Sheet 16 of 40)										

Table D9 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 2-3		M		8.4	7.72	207	173	680	2.79	
LM 2-3		H		8.5	7.67	300	240	790	3.31	17.2
LM 2-3	1	L	20	8.9	8.07					
LM 2-3		M		8.9	8.01					
LM 2-3		H		8.9	8.01					
LM 2-3	2b	L	20	8.9	8.16					
LM 2-3		M		8.8	8.11					
LM 2-3		H		8.8	8.13					
LM 2-3	2a	L	20	8.1	7.92					
LM 2-3		M		8.0	7.99					
LM 2-3		H		8.1	7.40					
LM 2-3	3	L	20	10.4	8.24					
LM 2-3		M		9.9	8.37					
LM 2-3		H		10.2	8.05					
LM 2-3	4	L	20	9.6	8.19					
LM 2-3		M		9.6	8.36					
LM 2-3		H		8.2	8.07					
LM 2-3	5b	L	20	8.5	8.13					
LM 2-3		M		8.5	8.23					
(Sheet 17 of 40)										

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 2-3		H		8.5	8.08					
LM 2-3	5a	L	20	8.2	7.89					
LM 2-3		M		8.1	7.54					
LM 2-3		H		8.1	7.37					
LM 2-3	6	L	20	8.3	8.12					
LM 2-3		M		8.3	7.98					
LM 2-3		H		8.2	7.70					
LM 2-3	7b	L	20	8.0	8.08	217	160	560	0.06	
LM 2-3		M		8.1	8.06	223	130	564	1.65	
LM 2-3		H		8.2	7.91	247	180	650	0.09	
LM 2-3	7a	L	20	8.1	7.82	187	163	560	0.52	
LM 2-3		M		8.1	7.69	203	183	615	0.01	
LM 2-3		H		8.1	7.36	307	233	764	0.01	
LM 2-3	8	L	20	7.9	7.85					
LM 2-3		M		7.5	7.83					
LM 2-3		H		6.5	7.75					
LM 2-3	9b	L	20	8.7	8.17					
LM 2-3		M		8.7	8.05					
LM 2-3		H		6.8	7.98					

(Sheet 18 of 40)

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 2-3	9a	L	20	7.8	8.67					
LM 2-3		M		8.8	8.58					
LM 2-3		H		9.0	8.45					
LM 2-3	10	L	20	9.2	8.38					
LM 2-3		M		7.7	8.22					
LM 2-3		H		7.1	7.89					
LM 2-3	11	L	20	10.5	8.43					
LM 2-3		M		10.2	8.02					
LM 2-3		H		4.5	8.05					
LM 2-3	12b	L	20	10.8	8.13					
LM 2-3		M		9.6	8.05					
LM 2-3		H		7.8	7.80					
LM 2-3	12a	L	20	7.8	8.60					
LM 2-3		M		8.6	8.15					
LM 2-3		H		5.8	7.76					
LM 2-3	13	L	20	9.0	8.15					
LM 2-3		M		8.7	8.09					
LM 2-3		H		7.9	7.43					
LM 2-3	14b	L	20	8.8	8.29	173	163		0.01	

(Sheet 19 of 40)

Table D9 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 2-3		M		8.6	8.22	180	177		0.87	
LM 2-3		H		8.6	8.04	277	208		0.01	
LM 2-3	14a	L	20	8.0	8.01	203	150		0.41	
LM 2-3		M		8.0	8.00	253	140		2.17	
LM 2-3		H		7.2	7.83	297	150		4.30	
LM 2-3	15	L	20	8.5	7.92					
LM 2-3		M		8.5	7.73					
LM 2-3		H		5.0	7.61					
LM 2-3	16b	L	20	7.8	7.90					
LM 2-3		M		7.6	7.84					
LM 2-3		H		6.0	8.00					
LM 2-3	16a	L	20	7.4	7.86					
LM 2-3		M		7.0	7.47					
LM 2-3		H		7.8	7.33					
LM 2-3	17	L	21	8.0	7.92					
LM 2-3		M		7.2	7.58					
LM 2-3		H		5.0	7.49					
LM 2-3	18	L	22	7.2	8.05					
LM 2-3		M		7.0	8.07					
(Sheet 20 of 40)										

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 2-3		H		3.8	7.70					
LM 2-3	19b	L	21	8.0	7.97					
LM 2-3		M		7.7	7.86					
LM 2-3		H		7.9	7.96					
LM 2-3	19a	L	21	8.0	7.90					
LM 2-3		M		7.0	7.38					
LM 2-3		H		7.0	7.11					
LM 2-3	20	L	21	7.1	7.84					
LM 2-3		M		6.0	7.71					
LM 2-3		H		2.4	7.54					
LM 2-3	21	L	20	7.4	7.66	180	147	470	0.40	
LM 2-3		M		5.7	7.81	207	153	513	0.43	
LM 2-3		H		3.0	7.99	260	240	582	0.55	15.4
LM 3-4	0	L	20	8.1	7.92	197	147	601	1.30	
LM 3-4		M		8.1	7.64	220	150	719	3.90	
LM 3-4		H		8.2	7.52	320	253	910	0.01	27.8
LM 3-4	1	L	20	8.9	8.11					
LM 3-4		M		8.9	8.04					
LM 3-4		H		9.0	8.02					

(Sheet 21 of 40)

Table D9 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 3-4	2b	L	20	8.7	8.06					
LM 3-4		M		8.5	8.08					
LM 3-4		H		8.8	7.96					
LM 3-4	2a	L	20	7.8	7.77					
LM 3-4		M		7.9	7.53					
LM 3-4		H		8.1	7.58					
LM 3-4	3	L	20	9.2	8.33					
LM 3-4		M		9.8	8.34					
LM 3-4		H		9.4	8.27					
LM 3-4	4	L	20	9.3	8.37					
LM 3-4		M		9.7	8.40					
LM 3-4		H		9.8	8.19					
LM 3-4	5b	L	20	8.6	8.31					
LM 3-4		M		8.6	8.23					
LM 3-4		H		8.6	8.15					
LM 3-4	5a	L	20	8.1	7.71					
LM 3-4		M		8.1	7.66					
LM 3-4		H		8.1	7.36					
LM 3-4	6	L	20	8.2	8.08					
(Sheet 22 of 40)										

Table D9 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 3-4		M		8.3	7.97					
LM 3-4		H		8.3	7.83					
LM 3-4	7b	L	20	8.2	8.24	197	176	550	0.00	
LM 3-4		M		8.3	8.18	227	167	641	0.00	
LM 3-4		H		8.4	7.97	367	240	828	0.05	
LM 3-4	7a	L	20	8.2	8.86	197	123	605	0.01	
LM 3-4		M		8.7	8.82	227	147	695	0.01	
LM 3-4		H		8.2	8.80	423	213	715	0.01	
LM 3-4	8	L	20	8.9	8.02					
LM 3-4		M		7.0	7.95					
LM 3-4		H		4.0	7.81					
LM 3-4	9b	L	20	8.6	8.12					
LM 3-4		M		8.6	8.09					
LM 3-4		H		8.6	8.00					
LM 3-4	9a	L	20	9.0	8.87					
LM 3-4		M		9.0	8.65					
LM 3-4		H		8.6	8.60					
LM 3-4	10	L	20	9.1	8.15					
LM 3-4		M		8.3	8.14					

(Sheet 23 of 40)

Table D9 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 3-4		H		7.6	7.93					
LM 3-4	11	L	20	9.7	8.17					
LM 3-4		M		9.5	8.19					
LM 3-4		H		6.2	8.03					
LM 3-4	12b	L	20	9.2	8.01					
LM 3-4		M		7.6	7.70					
LM 3-4		H		7.6	7.51					
LM 3-4	12a	L	20							
LM 3-4		M								
LM 3-4		H								
LM 3-4	13	L	20	8.3	8.32					
LM 3-4		M		8.8	7.89					
LM 3-4		H		9.0	7.83					
LM 3-4	14b	L	20	8.8	8.05	217	213		0.01	
LM 3-4		M		8.8	8.00	220	190		0.10	
LM 3-4		H		8.6	7.75	270	150		0.01	
LM 3-4	14a	L	20	8.6	8.08	170	137		0.01	
LM 3-4		M		7.2	7.93	250	203		0.48	
LM 3-4		H		7.2	7.69	323	233		0.01	
(Sheet 24 of 40)										

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 3-4	15	L	20	9.8	7.95					
LM 3-4		M		7.3	7.85					
LM 3-4		H		5.2	7.58					
LM 3-4	16b	L	20	8.9	7.77					
LM 3-4		M		7.4	7.79					
LM 3-4		H		7.6	7.87					
LM 3-4	16a	L	20	7.8	7.84					
LM 3-4		M		7.0	7.52					
LM 3-4		H		7.3	7.31					
LM 3-4	17	L	21	8.7	8.06					
LM 3-4		M		6.7	8.01					
LM 3-4		H		2.7	7.67					
LM 3-4	18	L	22	8.3	8.25					
LM 3-4		M		7.8	7.88					
LM 3-4		H		4.2	7.73					
LM 3-4	19b	L	21	8.1	8.07					
LM 3-4		M		7.5	7.99					
LM 3-4		H		8.0	8.09					
LM 3-4	19a	L	21	7.8	8.01					

(Sheet 25 of 40)

Table D9 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 3-4		M		7.9	7.64					
LM 3-4		H		7.0	7.23					
LM 3-4	20	L	21	6.5	7.79					
LM 3-4		M		5.2	7.63					
LM 3-4		H		2.1	7.48					
LM 3-4	21	L	20	6.3	7.99	367	226	485	0.48	
LM 3-4		M		4.8	8.16	233	153	513	0.09	
LM 3-4		H		2.8	7.92	267	263	613	0.11	20.2
LM 4-5	0	L	20	8.3	7.95	190	143	586	4.32	
LM 4-5		M		8.3	7.78	210	157	738	15.60	
LM 4-5		H		8.2	7.68	470	180	929	62.10	21.2
LM 4-5	1	L	20	8.9	8.15					
LM 4-5		M		8.9	8.07					
LM 4-5		H		9.0	8.07					
LM 4-5	2b	L	20	9.4	8.05					
LM 4-5		M		9.1	8.01					
LM 4-5		H		9.1	7.95					
LM 4-5	2a	L	20	9.0	7.83					
LM 4-5		M		9.1	7.50					
(Sheet 26 of 40)										

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 4-5		H		9.0	7.51					
LM 4-5	3	L	20	10.2	8.36					
LM 4-5		M		9.1	8.25					
LM 4-5		H		8.5	8.15					
LM 4-5	4	L	20	9.8	8.45					
LM 4-5		M		9.1	8.25					
LM 4-5		H		8.1	8.09					
LM 4-5	5b	L	20	8.4	8.23					
LM 4-5		M		8.4	8.30					
LM 4-5		H		8.4	8.09					
LM 4-5	5a	L	20	8.3	7.84					
LM 4-5		M		8.3	7.61					
LM 4-5		H		8.2	7.43					
LM 4-5	6	L	20	8.2	8.04					
LM 4-5		M		8.3	7.97					
LM 4-5		H		8.3	7.89					
LM 4-5	7b	L	20	8.0	8.14	207	126	581	0.60	
LM 4-5		M		8.2	8.18	230	183	633	0.01	
LM 4-5		H		8.2	8.10	327	240	800	0.01	

(Sheet 27 of 40)

Table D9 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 4-5	7a	L	20	8.3	7.90	187	133	518	0.01	
LM 4-5		M		8.4	7.68	217	147	591	0.51	
LM 4-5		H		8.4	7.52	263	247	837	0.00	
LM 4-5	8	L	20	9.2	8.14					
LM 4-5		M		9.7	7.97					
LM 4-5		H		9.2	7.75					
LM 4-5	9b	L	20	8.8	8.50					
LM 4-5		M		8.8	8.50					
LM 4-5		H		9.1	8.35					
LM 4-5	9a	L	20	8.8	8.88					
LM 4-5		M		8.8	8.67					
LM 4-5		H		8.6	8.64					
LM 4-5	10	L	20	8.9	8.00					
LM 4-5		M		9.7	8.18					
LM 4-5		H		7.6	7.95					
LM 4-5	11	L	20	9.8	8.15					
LM 4-5		M		8.2	8.32					
LM 4-5		H		6.7	7.95					
LM 4-5	12b	L	20	9.2	8.29					
(Sheet 28 of 40)										

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 4-5		M		9.2	8.13					
LM 4-5		H		8.8	7.75					
LM 4-5	12a	L	20	9.0	8.01					
LM 4-5		M		8.8	7.74					
LM 4-5		H		7.8	7.44					
LM 4-5	13	L	20	9.2	8.19					
LM 4-5		M		8.0	7.93					
LM 4-5		H		6.0	7.85					
LM 4-5	14b	L	20	9.0	8.09	200	167		0.01	
LM 4-5		M		9.0	7.90	197	163		0.75	
LM 4-5		H		8.8	7.95	257	197		0.01	
LM 4-5	14a	L	20	7.5	7.96	190	167		0.81	
LM 4-5		M		7.7	7.99	217	130		2.87	
LM 4-5		H		7.6	7.78	374	177		18.70	
LM 4-5	15	L	20	8.5	7.94					
LM 4-5		M		8.7	7.80					
LM 4-5		H		5.4	7.52					
LM 4-5	16b	L	20	7.7	7.88					
LM 4-5		M		8.6	7.65					

(Sheet 29 of 40)

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 4-5		H		4.6	7.61					
LM 4-5	16a	L	20	7.9	7.79					
LM 4-5		M		8.1	7.57					
LM 4-5		H		7.7	7.22					
LM 4-5	17	L	21	8.0	7.98					
LM 4-5		M		7.4	7.52					
LM 4-5		H		3.7	7.47					
LM 4-5	18	L	22	8.4	8.03					
LM 4-5		M		6.8	8.07					
LM 4-5		H		4.2	7.74					
LM 4-5	19b	L	21	8.0	8.01					
LM 4-5		M		8.1	7.85					
LM 4-5		H		8.1	7.98					
LM 4-5	19a	L	21	7.4	7.72					
LM 4-5		M		7.3	7.52					
LM 4-5		H		7.0	7.15					
LM 4-5	20	L	21	6.4	7.86					
LM 4-5		M		5.2	7.74					
LM 4-5		H		2.7	7.55					

(Sheet 30 of 40)

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 4-5	21	L	20	6.3	7.99	183	143	488	1.67	
LM 4-5		M		5.0	8.14	210	150	500	0.13	
LM 4-5		H		3.2	7.88	287	233	701	5.00	24.6
LM 7-8	0	L	20	8.4	8.02	123	153	577	2.17	
LM 7-8		M		8.4	7.91	147	148	615	7.04	
LM 7-8		H		8.4	7.66	163	176	683	25.20	19.6
LM 7-8	1	L	20	9.0	8.15					
LM 7-8		M		9.0	8.06					
LM 7-8		H		8.9	8.03					
LM 7-8	2b	L	20	9.0	8.25					
LM 7-8		M		9.1	8.10					
LM 7-8		H		8.9	8.05					
LM 7-8	2a	L	20	8.2	8.05					
LM 7-8		M		8.3	8.97					
LM 7-8		H		8.1	7.50					
LM 7-8	3	L	20	10.2	8.36					
LM 7-8		M		10.3	8.12					
LM 7-8		H		8.9	8.25					
LM 7-8	4	L	20	9.5	8.37					

(Sheet 31 of 40)

Table D9 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 7-8		M		9.5	8.30					
LM 7-8		H		8.6	8.18					
LM 7-8	5b	L	20	8.1	8.42					
LM 7-8		M		8.1	8.37					
LM 7-8		H		8.4	8.25					
LM 7-8	5a	L	20	8.1	7.74					
LM 7-8		M		8.1	7.60					
LM 7-8		H		8.1	7.40					
LM 7-8	6	L	20	8.3	8.05					
LM 7-8		M		8.3	7.95					
LM 7-8		H		8.3	8.12					
LM 7-8	7b	L	20	8.4	8.31	173	157	513	0.00	
LM 7-8		M		8.4	8.28	240	150	584	0.69	
LM 7-8		H		8.5	8.18	277	183	628	0.01	
LM 7-8	7a	L	20	8.4	7.77	183	163	614	0.01	
LM 7-8		M		8.3	7.65	183	127	595	1.29	
LM 7-8		H		8.3	7.43	217	147	642	0.01	
LM 7-8	8	L	20	9.1	8.04					
LM 7-8		M		8.2	7.81					
(Sheet 32 of 40)										

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 7-8		H		7.9	7.80					
LM 7-8	9b	L	20	9.6	8.48					
LM 7-8		M		9.6	8.43					
LM 7-8		H		9.7	8.39					
LM 7-8	9a	L	20	8.8	8.87					
LM 7-8		M		8.8	8.83					
LM 7-8		H		9.0	8.63					
LM 7-8	10	L	20	8.8	8.56					
LM 7-8		M		8.4	8.14					
LM 7-8		H		8.7	8.12					
LM 7-8	11	L	20	9.5	8.30					
LM 7-8		M		9.3	8.07					
LM 7-8		H		7.6	8.13					
LM 7-8	12b	L	20	9.8	8.07					
LM 7-8		M		10.0	8.15					
LM 7-8		H		9.0	8.17					
LM 7-8	12a	L	20	8.6	8.01					
LM 7-8		M		8.8	7.98					
LM 7-8		H		8.6	7.99					

(Sheet 33 of 40)

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 7-8	13	L	20	9.0	8.25					
LM 7-8		M		9.2	8.09					
LM 7-8		H		9.0	7.49					
LM 7-8	14b	L	20	8.8	7.99	207	140		0.01	
LM 7-8		M		9.2	8.01	187	120		0.01	
LM 7-8		H		9.0	7.53	183	140		0.01	
LM 7-8	14a	L	20	8.0	7.85	183	110		0.13	
LM 7-8		M		7.8	7.80	210	150		1.92	
LM 7-8		H		7.8	7.78	223	143		7.33	
LM 7-8	15	L	20	9.5	8.05					
LM 7-8		M		9.5	8.08					
LM 7-8		H		7.7	7.90					
LM 7-8	16b	L	20	8.1	7.92					
LM 7-8		M		7.8	7.83					
LM 7-8		H		7.9	7.88					
LM 7-8	16a	L	20	7.9	7.55					
LM 7-8		M		8.0	7.77					
LM 7-8		H		7.9	7.89					
LM 7-8	17	L	21	9.0	8.07					

(Sheet 34 of 40)

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 7-8		M		7.5	7.91					
LM 7-8		H		5.2	7.68					
LM 7-8	18	L	22	8.8	8.50					
LM 7-8		M		7.8	8.24					
LM 7-8		H		5.7	7.67					
LM 7-8	19b	L	21	7.4	8.38					
LM 7-8		M		7.8	8.76					
LM 7-8		H		7.2	7.89					
LM 7-8	19a	L	21	7.8	7.63					
LM 7-8		M		7.9	7.87					
LM 7-8		H		7.2	7.89					
LM 7-8	20	L	21	8.6	7.87					
LM 7-8		M		7.6	7.83					
LM 7-8		H		4.0	7.43					
LM 7-8	21	L	20	6.0	7.71	187	186	440	0.11	
LM 7-8		M		6.2	7.82	210	133	498	0.10	
LM 7-8		H		5.2	7.45	227	117	516	0.08	34.2
LM 11-12	0	L	20	8.3	8.29	160	110	556	0.93	
LM 11-12		M		8.3	8.14	187	130	572	3.21	

(Sheet 35 of 40)

Table D9 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 11-12		H		8.3	7.97	273	143	598	13.70	13.8
LM 11-12	1	L	20	9.0	8.08					
LM 11-12		M		8.9	8.08					
LM 11-12		H		8.8	8.04					
LM 11-12	2b	L	20	8.7	8.00					
LM 11-12		M		8.9	8.01					
LM 11-12		H		9.0	8.00					
LM 11-12	2a	L	20	9.2	8.06					
LM 11-12		M		9.1	8.13					
LM 11-12		H		8.9	8.20					
LM 11-12	3	L	20	9.2	8.29					
LM 11-12		M		9.3	8.23					
LM 11-12		H		9.3	8.37					
LM 11-12	4	L	20	9.2	8.34					
LM 11-12		M		8.9	8.22					
LM 11-12		H		9.5	8.29					
LM 11-12	5b	L	20	8.2	8.34					
LM 11-12		M		8.3	8.28					
LM 11-12		H		8.4	8.16					
(Sheet 36 of 40)										

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 11-12	5a	L	20	8.3	7.70					
LM 11-12		M		8.3	7.70					
LM 11-12		H		8.2	7.31					
LM 11-12	6	L	20	8.2	8.11					
LM 11-12		M		8.2	7.89					
LM 11-12		H		8.2	7.77					
LM 11-12	7b	L	20	8.5	8.25	187	163	536	0.00	
LM 11-12		M		8.5	8.26	180	150	574	0.03	
LM 11-12		H		8.5	8.18	227	133	593	0.63	
LM 11-12	7a	L	20	8.4	7.71	183	140	573	0.17	
LM 11-12		M		8.3	7.61	240	110	558	0.01	
LM 11-12		H		8.2	7.60	190	127	619	2.12	
LM 11-12	8	L	20	9.2	7.92					
LM 11-12		M		8.3	7.80					
LM 11-12		H		8.0	7.87					
LM 11-12	9b	L	20	7.9	8.33					
LM 11-12		M		7.9	8.31					
LM 11-12		H		8.6	8.38					
LM 11-12	9a	L	20	8.6	8.28					

(Sheet 37 of 40)

Table D9 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 11-12		M		8.6	8.50					
LM 11-12		H		8.8	8.50					
LM 11-12	10	L	20	8.4	8.52					
LM 11-12		M		8.8	8.60					
LM 11-12		H		9.1	8.06					
LM 11-12	11	L	20	11.4	8.57					
LM 11-12		M		10.4	8.45					
LM 11-12		H		9.8	8.37					
LM 11-12	12b	L	20	10.8	8.57					
LM 11-12		M		10.8	8.43					
LM 11-12		H		10.8	7.98					
LM 11-12	12a	L	20	9.0	8.01					
LM 11-12		M		9.2	8.55					
LM 11-12		H		9.6	8.60					
LM 11-12	13	L	20	9.6	8.37					
LM 11-12		M		9.9	8.14					
LM 11-12		H		8.5	8.17					
LM 11-12	14b	L	20	9.0	8.50	233	117		1.58	
LM 11-12		M		9.2	8.30	203	117		0.01	
(Sheet 38 of 40)										

Table D9 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 11-12		H		9.2	8.23	192	106		0.01	
LM 11-12	14a	L	20	7.0	7.58	203	123		3.73	
LM 11-12		M		7.4	7.89	197	97		1.13	
LM 11-12		H		7.7	7.94	203	130		0.01	
LM 11-12	15	L	20	9.6	8.01					
LM 11-12		M		10.3	8.18					
LM 11-12		H		10.0	8.02					
LM 11-12	16b	L	20	7.9	8.17					
LM 11-12		M		8.2	8.29					
LM 11-12		H		8.0	8.10					
LM 11-12	16a	L	20	8.2	7.98					
LM 11-12		M		8.1	7.86					
LM 11-12		H		7.9	7.76					
LM 11-12	17	L	21	9.3	8.21					
LM 11-12		M		8.5	8.07					
LM 11-12		H		8.6	7.94					
LM 11-12	18	L	22	9.2	8.17					
LM 11-12		M		8.8	8.16					
LM 11-12		H		6.5	8.13					

(Sheet 39 of 40)

Table D9 (Concluded)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
LM 11-12	19b	L	21	8.2	8.05					
LM 11-12		M		8.5	8.27					
LM 11-12		H		8.0	7.95					
LM 11-12	19a	L	21	8.4	7.89					
LM 11-12		M		8.0	7.46					
LM 11-12		H		7.8	7.28					
LM 11-12	20	L	21	9.0	7.94					
LM 11-12		M		7.5	7.91					
LM 11-12		H		6.9	7.73					
LM 11-12	21	L	20	7.9	8.23	193	127	530	0.21	
LM 11-12		M		7.5	8.14	203	123	499	0.42	
LM 11-12		H		7.2	7.89	187	113	565	2.58	9.6
(Sheet 40 of 40)										

Table D10

Water Quality for *D. magna* Test with Elutriates of Chicago District - Michigan City Harbor Sediments

Sediment	Day ¹	Treatment ²	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
Control-1	0	C	20	7.8	8.11	197	107	588	0.08	9.6
Control-1	1	C	20	9.0	7.85					
Control-1	2b	C	20	8.9	7.75					
Control-1	2a	C	20	9.0	7.60					
Control-1	3	C	20	9.9	8.28					
Control-1	4	C	20	9.2	8.13					
Control-1	5b	C	20	8.5	8.15					
Control-1	5a	C	20	8.2	7.91					
Control-1	6	C	20	8.3	7.94					
Control-1	7b	C	20	8.3	7.90	220	133	603	0.06	
Control-1	7a	C	20	8.4	7.91			568		
Control-1	8	C	20	8.8	7.79					
Control-1	9b	C	20	8.4	7.69					
Control-1	9a	C	20	9.4	8.47					
Control-1	10	C	20	9.6	8.06					

(Sheet 1 of 20)

¹ "b" = before renewal; "a" = after renewal.² C = control; L = 6.25-percent elutriate; M = either 12.5-, 25-, or 50-percent elutriate; and H = 100-percent elutriate as per protocols prescribed by Call et al. (1993).

Table D10 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
Control-1	11	C	20	10.4	8.31					
Control-1	12b	C	20	10.0	8.57					
Control-1	12a	C	20	9.4	8.07					
Control-1	13	C	20	9.3	8.19					
Control-1	14b	C	20	9.4	8.00	187	147		0.01	
Control-1	14a	C	20	7.8	8.27					
Control-1	15	C	20	8.4	7.84					
Control-1	16b	C	20	8.0	7.99					
Control-1	16a	C	20	8.5	8.17					
Control-1	17	C	21	7.9	7.59					
Control-1	18	C	22	8.3	8.16					
Control-1	19b	C	21	7.4	7.80					
Control-1	19a	C	21		8.06					
Control-1	20	C	21	7.2	7.96					
Control-1	21	C	20	7.4	7.56	167	143	468	0.13	1.6
Control-2	0	C	20	7.9	7.85	197	133	558	0.01	0.8
Control-2	1	C	21	7.5	7.89					

(Sheet 2 of 20)

Table D10 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
Control-2	2	C	22	7.4	7.93					
Control-2	3b	C	21	7.3	7.88					
Control-2	3a	C	21	8.2	8.09					
Control-2	4	C	21	6.6	7.76					
Control-2	5b	C	20	4.7	7.68					
Control-2	5a	C	20	8.6	8.14					
Control-2	6	C	20	7.8	7.00					
Control-2	7b	C	21	5.5	7.20	197	157	447	0.01	
Control-2	7a	C	21	8.4	7.39		157	424	0.01	
Control-2	8	C	20	5.8	7.09					
Control-2	9	C	20	10.9	8.63					
Control-2	10b	C	20	9.6	7.87					
Control-2	10a	C	20	9.2	7.74					
Control-2	11	C	20	8.5	8.11					
Control-2	12b	C	20	8.0	7.75					
Control-2	12a	C	20	8.2	8.08					
Control-2	13	C	21	5.5	7.82					

(Sheet 3 of 20)

Table D10 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
Control-2	14b	C	21		8.50					
Control-2	14a	C	21	8.4	8.16					
Control-2	15	C	21	7.1	7.93					
Control-2	16	C	20	7.6	7.39					
Control-2	17b	C	19	8.9	7.80					
Control-2	17a	C	19	9.4	7.68					
Control-2	18	C	20	8.0	8.11					
Control-2	19b	C	20	8.2	7.54					
Control-2	19a	C	20	8.4	8.10					
Control-2	20	C	20	9.1	8.20					
Control-2	21	C	20	8.8	8.03	223	130	432	0.01	8.2
MC-1	0	L	20	7.9	8.03	183	143	582	0.01	
MC-1		M		8.0	8.07	217	167	578	0.01	
MC-1		H		8.1	8.10	217	190	557	0.01	2.0
MC-1	1	L	20	8.9	8.05					
MC-1		M		9.0	8.02					
MC-1		H		8.9	8.03					

(Sheet 4 of 20)

Table D10 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
MC-1	2b	L	20	9.2	8.09					
MC-1		M		9.2	8.12					
MC-1		H		9.3	8.10					
MC-1	2a	L	20	8.8	7.95					
MC-1		M		8.9	7.93					
MC-1		H		9.0	7.92					
MC-1	3	L	20	9.7	8.31					
MC-1		M		9.4	8.36					
MC-1		H		9.6	8.41					
MC-1	4	L	20	9.0	8.24					
MC-1		M		9.4	8.36					
MC-1		H		9.1	8.32					
MC-1	5b	L	20	8.2	8.27					
MC-1		M		8.3	8.22					
MC-1		H		8.3	8.28					
MC-1	5a	L	20	8.2	7.78					
MC-1		M		8.1	7.83					

(Sheet 5 of 20)

Table D10 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
MC-1		H		8.1	7.90					
MC-1	6	L	20	8.3	7.97					
MC-1		M		8.3	8.04					
MC-1		H		8.2	8.12					
MC-1	7b	L	20	8.1	8.10	210	127	537	0.01	
MC-1		M		8.1	8.15	223	147	578	0.01	
MC-1		H		8.3	8.18	210	150	584	0.01	
MC-1	7a	L	20	8.4	7.83	163	113	584	0.01	
MC-1		M		8.3	7.81	183	133	578	0.01	
MC-1		H		8.2	7.70	177	120	583	0.01	
MC-1	8	L	20	8.5	7.95					
MC-1		M		8.5	7.93					
MC-1		H		8.1	7.95					
MC-1	9b	L	20	8.8	7.97					
MC-1		M		8.5	7.98					
MC-1		H		6.0	8.01					
MC-1	9a	L	20	8.6	8.77					
(Sheet 6 of 20)										

Table D10 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
MC-1		M		6.0	8.5					
MC-1		H		8.6	8.55					
MC-1	10	L	20	9.2	8.24					
MC-1		M		9.0	8.32					
MC-1		H		9.1	8.06					
MC-1	11	L	20	9.8	8.52					
MC-1		M		10.0	8.01					
MC-1		H		9.5	8.47					
MC-1	12b	L	20	9.8	8.29					
MC-1		M		9.8	8.37					
MC-1		H		10.2	8.3					
MC-1	12a	L	20	8.0	8.05					
MC-1		M		8.8	8					
MC-1		H		8.8	8.01					
MC-1	13	L	20	8.0	7.85					
MC-1		M		8.7	7.98					

(Sheet 7 of 20)

Table D10 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
MC-1		H		8.3	8.01					
MC-1	14b	L	20	9.0	7.76	187	153		1.61	
MC-1		M		8.8	7.98	210	173		2.50	
MC-1		H		8.8	7.85	153	150		0.25	
MC-1	14a	L	20	7.3	8.11	207	140		0.01	
MC-1		M		7.3	8.11	157	140		0.01	
MC-1		H		7.4	8.17	183	123		0.01	
MC-1	15	L	20	7.4	7.96					
MC-1		M		8.1	7.88					
MC-1		H		8.8	7.85					
MC-1	16b	L	20	6.3	8.10					
MC-1		M		6.9	7.98					
MC-1		H		8.3	7.88					
MC-1	16a	L	20	7.4	8.11					
MC-1		M		7.7	8.05					
MC-1		H		8.5	8.03					
MC-1	17	L	21	8.0	7.96					
(Sheet 8 of 20)										

Table D10 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
MC-1		M		8.5	7.98					
MC-1		H		8.5	8.01					
MC-1	18	L	22	8.8	8.25					
MC-1		M		7.8	8.19					
MC-1		H		7.8	8.13					
MC-1	19b	L	21	8.2	8.05					
MC-1		M		8.5	8.27					
MC-1		H		8.0	7.95					
MC-1	19a	L	21	8.4	7.87					
MC-1		M		8.0	7.46					
MC-1		H		7.8	7.28					
MC-1	20	L	21	7.6	7.95					
MC-1		M		6.9	7.93					
MC-1		H		10.5	8.27					
MC-1	21	L	20	7.3	7.24	207	130	495	0.83	
MC-1		M		7.0	7.81	190	173	525	0.11	

(Sheet 9 of 20)

Table D10 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
MC-1		H		6.2	7.92	180	103	516	0.30	4.2
MC-2	0	L	20	7.9	8.03	193	150	588	0.01	
MC-2		M		7.9	8.19	240	150	589	0.01	
MC-2		H		8.1	7.96	190	167	597	0.10	4.4
MC-2	1	L	20	9.0	8.01					
MC-2		M		8.9	8.00					
MC-2		H		8.9	8.00					
MC-2	2b	L	20	9.0	8.41					
MC-2		M		9.1	8.19					
MC-2		H		8.9	8.18					
MC-2	2a	L	20	8.9	8.00					
MC-2		M		8.9	7.92					
MC-2		H		8.8	7.95					
MC-2	3	L	20	9.2	8.33					
MC-2		M		9.8	8.34					
MC-2		H		10.2	8.37					
MC-2	4	L	20	8.9	8.32					
(Sheet 10 of 20)										

Table D10 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
MC-2		M		9.2	8.36					
MC-2		H		9.0	8.35					
MC-2	5b	L	20	7.9	8.26					
MC-2		M		8.0	8.23					
MC-2		H		8.1	8.23					
MC-2	5a	L	20	8.5	7.87					
MC-2		M		8.3	7.88					
MC-2		H		8.3	7.87					
MC-2	6	L	20	8.3	8.08					
MC-2		M		8.3	8.04					
MC-2		H		8.2	8.02					
MC-2	7b	L	20	8.1	7.91	167	123	575	0.01	
MC-2		M		8.2	7.92	207	137	563	0.01	
MC-2		H		8.1	7.92	203	130	562	0.01	
MC-2	7a	L	20	8.4	7.90	157	107	591	0.01	
MC-2		M		8.1	7.99	180	133	588	0.01	
MC-2		H		8.1	7.94	177	120	581	0.01	

(Sheet 11 of 20)

Table D10 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
MC-2	8	L	20	8.1	7.97					
MC-2		M		7.8	7.88					
MC-2		H		7.8	7.87					
MC-2	9b	L	20	8.5	8.01					
MC-2		M		8.6	8.14					
MC-2		H		8.6	8.12					
MC-2	9a	L	20	8.6	8.50					
MC-2		M		8.6	8.77					
MC-2		H		8.6	9.05					
MC-2	10	L	20	8.0	8.18					
MC-2		M		9.2	8.02					
MC-2		H		8.2	7.67					
MC-2	11	L	20	9.2	8.29					
MC-2		M		8.2	8.22					
MC-2		H		8.7	8.14					
MC-2	12b	L	20	9.2	8.28					
MC-2		M		9.2	8.38					
(Sheet 12 of 20)										

Table D10 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
MC-2		H		9.8	8.21					
MC-2	12a	L	20	8.4	8.11					
MC-2		M		8.6	8.12					
MC-2		H		8.6	8.10					
MC-2	13	L	20	8.2	7.88					
MC-2		M		8.5	7.68					
MC-2		H		7.8	7.59					
MC-2	14b	L	20	7.0	8.10	180	173		2.71	
MC-2		M		8.0	8.10	177	133		1.19	
MC-2		H		8.2	7.98	190	93		1.73	
MC-2	14a	L	20	7.0	8.03	173	150		0.01	
MC-2		M		7.4	8.10	160	93		0.01	
MC-2		H		7.8	8.16	183	110		0.01	
MC-2	15	L	20	9.0	7.91					
MC-2		M		8.9	7.91					
MC-2		H		8.2	7.86					
MC-2	16b	L	20	8.0	7.81					

(Sheet 13 of 20)

Table D10 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
MC-2		M		7.3	7.90					
MC-2		H		7.6	7.86					
MC-2	16a	L	20	7.6	8.12					
MC-2		M		8.0	8.04					
MC-2		H		8.6	8.07					
MC-2	17	L	21	6.2	7.88					
MC-2		M		6.3	7.74					
MC-2		H		7.4	7.73					
MC-2	18	L	22	8.5	7.94					
MC-2		M		8.0	7.95					
MC-2		H		7.4	7.87					
MC-2	19b	L	21	7.3	8.02					
MC-2		M		8.2	7.94					
MC-2		H		8.1	7.88					
MC-2	19a	L	21	8.0	8.10					
MC-2		M		8.4	8.07					
MC-2		H		7.8	8.05					
(Sheet 14 of 20)										

Table D10 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
MC-2	20	L	21	8.0	7.95					
MC-2		M		7.5	7.93					
MC-2		H		7.1	7.82					
MC-2	21	L	20	7.6	7.42	197	147	526	0.37	
MC-2		M		7.2	7.11	183	153	499	0.19	
MC-2		H		7.8	8.02	183	130	545	0.37	10.2
MC-3	0	L	20	7.5	8.19	187	147	445	0.44	
MC-3		M		8.1	8.26	203	127	463	1.51	
MC-3		H		8.0	8.17	250	163	495	0.01	23.6
MC-3	1	L	21	7.6	7.92					
MC-3		M		7.0	7.91					
MC-3		H		7.3	7.94					
MC-3	2	L	22	8.0	8.09					
MC-3		M		7.6	8.10					
MC-3		H		7.8	8.22					
MC-3	3b	L	21	8.3	8.05					

(Sheet 15 of 20)

Table D10 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
MC-3		M		7.5	8.10					
MC-3		H		7.4	8.07					
MC-3	3a	L	21	8.3	7.89					
MC-3		M		8.0	7.51					
MC-3		H		7.6	7.24					
MC-3	4	L	21	8.6	8.00					
MC-3		M		8.7	7.99					
MC-3		H		7.5	7.83					
MC-3	5b	L	20	6.9	7.99					
MC-3		M		5.7	7.87					
MC-3		H		7.4	8.06					
MC-3	5a	L	20	8.1	7.84					
MC-3		M		7.9	7.69					
MC-3		H		6.7	7.38					
MC-3	6	L	20	7.8	7.89					
MC-3		M		6.8	7.82					
MC-3		H		7.2	7.63					
MC-3	7b	L	21	7.6	7.80	203	117	387	1.35	
MC-3		M		6.5	7.95			413	3.21	
(Sheet 16 of 20)										

Table D10 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
MC-3		H		5.8	7.96	283	190	517	7.56	
MC-3	7a	L	21	8.2	7.92	187	113	373	0.94	
MC-3		M		7.9	7.70	213	173	387	2.10	
MC-3		H		5.9	7.20	230	150	438	4.81	
MC-3	8	L	20	6.1	7.75					
MC-3		M		6.1	7.68					
MC-3		H		6.1	7.81					
MC-3	9	L	20	12.7	8.28					
MC-3		M		7.6	8.35					
MC-3		H		9.8	8.24					
MC-3	10b	L	20	8.8	8.01					
MC-3		M		9.2	8.02					
MC-3		H		8.6	8.05					
MC-3	10a	L	20							
MC-3		M								
MC-3		H		5.2	7.33					
MC-3	11	L	20							
MC-3		M								
MC-3		H		7.4	7.81					

(Sheet 17 of 20)

Table D10 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
MC-3	12b	L	20							
MC-3		M								
MC-3		H		8.4	7.97					
MC-3	12a	L	20							
MC-3		M								
MC-3		H		6.5	7.20					
MC-3	13	L	21							
MC-3		M								
MC-3		H		5.1	7.88					
MC-3	14b	L	21							
MC-3		M								
MC-3		H		6.1	7.52					
MC-3	14a	L	21							
MC-3		M								
MC-3		H		6.7	7.40					
MC-3	15	L	21							
MC-3		M								
MC-3		H		3.8	7.75					
MC-3	16	L	20							
(Sheet 18 of 20)										

Table D10 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
MC-3		M								
MC-3		H		7.6	7.49					
MC-3	17b	L	19							
MC-3		M								
MC-3		H		7.0	7.60					
MC-3	17a	L	19							
MC-3		M								
MC-3		H		7.8	7.38					
MC-3	18	L	20							
MC-3		M								
MC-3		H		5.0	7.40					
MC-3	19b	L	20							
MC-3		M								
MC-3		H		5.6	7.36					
MC-3	19a	L	20							
MC-3		M								
MC-3		H		8.0	7.50					
MC-3	20	L	20							
MC-3		M								

(Sheet 19 of 20)

Table D10 (Concluded)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
MC-3		H		7.9	7.60					
MC-3	21	L	20							
MC-3		M								
MC-3		H		8.0	7.54	247	127	501	0.37	11.4
(Sheet 20 of 20)										

Table D11
Water Quality for *D. magna* Test with Elutriates of Detroit District - Grand Haven Harbor Sediments

Sediment	Day ¹	Treatment ²	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
Control-2	0	C	20	7.9	7.85	197	133	558	0.01	0.8
Control-2	1	C	21	7.5	7.89					
Control-2	2	C	22	7.4	7.93					
Control-2	3b	C	21	7.3	7.88					
Control-2	3a	C	21	8.2	8.09					
Control-2	4	C	21	6.6	7.76					
Control-2	5b	C	20	4.7	7.68					
Control-2	5a	C	20	8.6	8.14					
Control-2	6	C	20	7.8	7.00					
Control-2	7b	C	21	5.5	7.20	197	157	447	0.01	
Control-2	7a	C	21	8.4	7.39		157	424	0.01	
Control-2	8	C	20	5.8	7.09					
Control-2	9	C	20	10.9	8.63					
Control-2	10b	C	20	9.6	7.87					
Control-2	10a	C	20	9.2	7.74					

(Sheet 1 of 18)

¹ "b" = before renewal; "a" = after renewal.² C = control; L = 6.25-percent elutriate; M = either 12.5-, 25-, or 50-percent elutriate; and H = 100-percent elutriate as per protocols prescribed by Call et al. (1993).

Table D11 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
Control-2	11	C	20	8.5	8.11					
Control-2	12b	C	20	8.0	7.75					
Control-2	12a	C	20	8.2	8.08					
Control-2	13	C	21	5.5	7.82					
Control-2	14b	C	21		8.50					
Control-2	14a	C	21	8.4	8.16					
Control-2	15	C	21	7.1	7.93					
Control-2	16	C	20	7.6	7.39					
Control-2	17b	C	19	8.9	7.80					
Control-2	17a	C	19	9.4	7.68					
Control-2	18	C	20	8.0	8.11					
Control-2	19b	C	20	8.2	7.54					
Control-2	19a	C	20	8.4	8.10					
Control-2	20	C	20	9.1	8.20					
Control-2	21	C	20	8.8	8.03	223	130	432	0.01	8.2
GH-1	0	L	20	8.5	8.11	193	150	568	1.32	
GH-1		M		8.7	8.14	237	167	565	3.13	
GH-1		H		8.7	7.94	320	293	768	0.01	39.2
(Sheet 2 of 18)										

Table D11 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
GH-1	1	L	21	7.5	7.91					
GH-1		M		7.5	8.05					
GH-1		H		7.2	8.20					
GH-1	2	L	22	8.0	7.98					
GH-1		M		7.8	8.25					
GH-1		H		7.5	8.31					
GH-1	3b	L	21	7.8	7.99					
GH-1		M		8.3	8.22					
GH-1		H		8.0	8.29					
GH-1	3a	L	21	7.2	7.77					
GH-1		M		7.2	7.59					
GH-1		H		6.9	7.29					
GH-1	4	L	21	8.5	8.12					
GH-1		M		8.6	8.06					
GH-1		H		6.6	7.90					
GH-1	5b	L	20	4.7	7.60					
GH-1		M		8.4	8.26					

(Sheet 3 of 18)

Table D11 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
GH-1		H		6.0	8.14					
GH-1	5a	L	20	8.0	8.04					
GH-1		M		7.9	7.84					
GH-1		H		6.3	7.35					
GH-1	6	L	20	8.0	7.31					
GH-1		M		7.2	7.42					
GH-1		H		6.9	7.22					
GH-1	7b	L	21	7.4	7.47	180	183	448	2.71	
GH-1		M		5.5	7.53	207	363	499	3.71	
GH-1		H		5.5	7.97	340	250	628	19.5	
GH-1	7a	L	21	8.9	7.75	190	127	440	2.51	
GH-1		M		7.8	7.72	193	120	475	6.50	
GH-1		H		6.5	7.59	363	183	638	17.30	
GH-1	8	L	20	5.1	7.22					
GH-1		M		4.6	7.25					
GH-1		H		5.0	7.50					
GH-1	9	L	20	7.7	8.38					
GH-1		M		9.1	8.45					

(Sheet 4 of 18)

Table D11 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
GH-1		H		8.2	8.24					
GH-1	10b	L	20	8.7	7.82					
GH-1		M		8.8	8.07					
GH-1		H		8.8	7.97					
GH-1	10a	L	20	9.3	7.82					
GH-1		M		8.4	7.62					
GH-1		H		6.5	7.33					
GH-1	11	L	20	8.3	8.04					
GH-1		M		6.2	8.14					
GH-1		H		5.3	7.87					
GH-1	12b	L	20	8.8	8.01					
GH-1		M		8.6	7.95					
GH-1		H		4.2	7.91					
GH-1	12a	L	20	7.7	7.94					
GH-1		M		7.6	7.89					
GH-1		H		5.1	7.50					
GH-1	13	L	21	6.0	8.10					
(Sheet 5 of 18)										

Table D11 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
GH-1		M		4.2	8.18					
GH-1		H		2.3	7.88					
GH-1	14b	L	21	8.4	8.28					
GH-1		M		6.0	7.92					
GH-1		H		4.4	7.70					
GH-1	14a	L	21	7.7	7.90					
GH-1		M		7.1	7.80					
GH-1		H		4.8	7.40					
GH-1	15	L	21	6.0	7.81					
GH-1		M		2.7	7.59					
GH-1		H		2.8	7.74					
GH-1	16	L	20	5.9	7.49					
GH-1		M		3.3	7.60					
GH-1		H		2.6	7.54					
GH-1	17b	L	19	6.6	7.68					
GH-1		M		5.1	7.56					
GH-1		H		7.6	7.74					
GH-1	17a	L	19	8.6	7.68					
(Sheet 6 of 18)										

Table D11 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
GH-1		M		8.6	7.58					
GH-1		H		7.5	7.28					
GH-1	18	L	20	7.9	7.94					
GH-1		M		6.8	7.40					
GH-1		H		2.1	7.60					
GH-1	19b	L	20	8.2	7.53					
GH-1		M		6.0	7.56					
GH-1		H		3.2	7.60					
GH-1	19a	L	20	8.7	8.10					
GH-1		M		8.0	8.00					
GH-1		H		5.5	7.50					
GH-1	20	L	20	9.0	8.20					
GH-1		M		7.8	7.90					
GH-1		H		3.0	7.60					
GH-1	21	L	20	8.5	8.10	183	143	456	0.20	
GH-1		M		8.3	7.62	157	113	523	0.01	
(Sheet 7 of 18)										

Table D11 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
GH-1		H		3.5	7.75	200	126	601	0.01	19.4
GH-2	0	L	20	8.6	8.15	173	130	464	1.14	
GH-2		M		8.0	8.07	247	173	482	0.08	
GH-2		H		8.7	8.00	250	277	617	0.12	30.8
GH-2	1	L	21	7.6	8.11					
GH-2		M		7.4	7.97					
GH-2		H		7.2	8.08					
GH-2	2	L	22	7.5	8.15					
GH-2		M		8.0	8.15					
GH-2		H		8.4	8.25					
GH-2	3b	L	21	8.2	8.07					
GH-2		M		8.4	8.19					
GH-2		H		8.1	8.20					
GH-2	3a	L	21	7.5	7.18					
GH-2		M		7.4	7.54					
GH-2		H		7.0	7.33					
GH-2	4	L	21	8.2	7.92					
GH-2		M		7.1	7.86					
(Sheet 8 of 18)										

Table D11 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
GH-2		H		7.0	7.90					
GH-2	5b	L	20	4.7	7.57					
GH-2		M		7.1	7.77					
GH-2		H		5.2	7.95					
GH-2	5a	L	20	8.0	8.00					
GH-2		M		7.7	7.69					
GH-2		H		6.5	7.70					
GH-2	6	L	20	7.9	7.99					
GH-2		M		7.6	8.00					
GH-2		H		7.4	7.92					
GH-2	7b	L	21	8.6	8.07	173	143	426	2.27	
GH-2		M		6.4	7.86	203	180	465	6.41	
GH-2		H		5.1	8.00	250	293	603	30.10	
GH-2	7a	L	21	8.0	7.72	170	117	443	1.96	
GH-2		M		7.9	7.71	197	167	460	0.01	
GH-2		H		7.2	7.64	207	170	557	24.41	

(Sheet 9 of 18)

Table D11 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
GH-2	8	L	20	5.0	7.79					
GH-2		M		4.3	7.64					
GH-2		H		5.5	7.67					
GH-2	9	L	20	10.8	8.46					
GH-2		M		10.4	8.38					
GH-2		H		8.6	8.27					
GH-2	10b	L	20	8.1	8.00					
GH-2		M		7.4	7.98					
GH-2		H		8.7	8.11					
GH-2	10a	L	20	9.0	7.95					
GH-2		M		8.5	7.83					
GH-2		H		7.1	7.33					
GH-2	11	L	20	6.5	8.25					
GH-2		M		7.7	8.11					
GH-2		H		6.1	7.96					
GH-2	12b	L	20	7.2	8.35					
GH-2		M		8.4	8.31					
GH-2		H		8.2	8.26					
(Sheet 10 of 18)										

Table D11 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
GH-2	12a	L	20	7.6	7.97					
GH-2		M		7.3	7.82					
GH-2		H		5.6	7.49					
GH-2	13	L	21	6.3	7.98					
GH-2		M		3.1	7.95					
GH-2		H		4.0	7.94					
GH-2	14b	L	21	11.9	8.02					
GH-2		M		6.5	8.51					
GH-2		H		3.0	8.15					
GH-2	14a	L	21	7.6	7.90					
GH-2		M		7.9	7.60					
GH-2		H		7.0	7.50					
GH-2	15	L	21	5.3	7.72					
GH-2		M		5.8	8.03					
GH-2		H		3.3	7.92					
GH-2	16	L	20	6.0	7.68					
GH-2		M		5.6	7.70					

(Sheet 11 of 18)

Table D11 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₄ mg/L	Total Suspended Solids, mg/L
GH-2		H		2.7	7.97					
GH-2	17b	L	19	7.1	7.76					
GH-2		M		7.8	7.82					
GH-2		H		5.2	7.91					
GH-2	17a	L	19	8.6	7.81					
GH-2		M		6.5	7.54					
GH-2		H		6.5	7.28					
GH-2	18	L	20	7.5	8.00					
GH-2		M		6.9	7.90					
GH-2		H		2.3	7.50					
GH-2	19b	L	20		7.71					
GH-2		M			7.65					
GH-2		H			7.74					
GH-2	19a	L	20	8.3	8.00					
GH-2		M		7.6	7.70					
GH-2		H		3.6	7.40					
GH-2	20	L	20	7.5	8.00					
GH-2		M		8.2	7.90					
(Sheet 12 of 18)										

Table D11 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
GH-2		H		5.9	7.50					
GH-2	21	L	20	6.8	8.11	183	117	434	1.18	
GH-2		M		7.9	7.89	200	143	458	1.32	
GH-2		H		6.3	7.52	197	107	591	6.54	28.8
GH-4	0	L	20	8.3	8.12	177	150	446	1.58	
GH-4		M		8.2	8.08	230	147	465	4.76	
GH-4		H		8.6	7.94	157	217	550	7.43	38.6
GH-4	1	L	21	8.5	8.14					
GH-4		M		8.7	8.12					
GH-4		H		8.3	8.17					
GH-4	2	L	22	9.0	8.06					
GH-4		M		9.2	8.11					
GH-4		H		8.8	8.31					
GH-4	3b	L	21	8.3	8.22					
GH-4		M		7.2	8.11					
GH-4		H		7.1	8.14					
GH-4	3a	L	21	7.5	8.05					

(Sheet 13 of 18)

Table D11 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
GH-4		M		6.8	7.86					
GH-4		H		7.7	7.22					
GH-4	4	L	21	7.2	7.85					
GH-4		M		7.5	7.88					
GH-4		H		6.9	7.95					
GH-4	5b	L	20	6.0	8.05					
GH-4		M		6.0	7.89					
GH-4		H		4.2	7.96					
GH-4	5a	L	20	8.0	7.84					
GH-4		M		7.4	7.63					
GH-4		H		8.7	7.30					
GH-4	6	L	20	7.8	7.99					
GH-4		M		8.0	7.34					
GH-4		H		8.0	7.85					
GH-4	7b	L	21	7.1	7.90	170	157	412	3.15	
GH-4		M		5.5	7.88	210	123	448	6.84	
GH-4		H		5.2	7.93	277	279	486	10.30	
GH-4	7a	L	21	8.0	7.75	187	167	440	2.41	

(Sheet 14 of 18)

Table D11 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
GH-4		M		7.7	7.65	170	140	465	8.45	
GH-4		H		6.5	7.44	253	153	580	31.60	
GH-4	8	L	20	5.8	7.85					
GH-4		M		6.0	7.75					
GH-4		H		5.0	7.67					
GH-4	9	L	20	8.7	8.17					
GH-4		M		8.9	8.13					
GH-4		H		4.6	8.00					
GH-4	10b	L	20	7.9	8.02					
GH-4		M		8.9	8.09					
GH-4		H		4.2	7.75					
GH-4	10a	L	20	9.0	7.92					
GH-4		M		8.5	7.80					
GH-4		H		6.2	7.44					
GH-4	11	L	20	6.9	7.95					
GH-4		M		6.8	7.93					

(Sheet 15 of 18)

Table D11 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
GH-4		H		3.8	7.67					
GH-4	12b	L	20	8.8	8.21					
GH-4		M		6.2	8.23					
GH-4		H		3.7	8.39					
GH-4	12a	L	20	7.7	8.13					
GH-4		M		7.4	8.02					
GH-4		H		5.5	7.81					
GH-4	13	L	21	3.3	7.77					
GH-4		M		4.3	8.03					
GH-4		H		2.8	7.73					
GH-4	14b	L	21	7.5	7.76					
GH-4		M		4.5	7.75					
GH-4		H		2.4	7.41					
GH-4	14a	L	21	8.3	8.00					
GH-4		M		7.0	7.80					
GH-4		H		3.6	7.30					
GH-4	15	L	21	6.7	7.90					
GH-4		M		2.7	7.73					
GH-4		H		1.9	7.47					
(Sheet 16 of 18)										

Table D11 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
GH-4	16	L	20	7.3	7.79					
GH-4		M		4.8	7.68					
GH-4		H		3.4	7.37					
GH-4	17b	L	19	6.8	7.80					
GH-4		M		6.8	7.38					
GH-4		H		4.2	7.47					
GH-4	17a	L	19	8.7	7.87					
GH-4		M		8.7	7.60					
GH-4		H		7.0	7.34					
GH-4	18	L	20	7.4	7.90					
GH-4		M		6.9	7.80					
GH-4		H		1.7	7.30					
GH-4	19b	L	20	7.6	7.92					
GH-4		M		7.0	7.52					
GH-4		H		2.8	7.21					
GH-4	19a	L	20	9.0	7.90					
GH-4		M		8.5	7.70					
GH-4		H		5.2	7.50					
GH-4	20	L	20	8.6	7.80					

(Sheet 17 of 18)

Table D11 (Concluded)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
GH-4		M		7.5	7.50					
GH-4		H		2.5	7.30					
GH-4	21	L	20	8.5	7.87	187	133	451	20.00	
GH-4		M		7.5	7.48	197	140	438	0.01	
GH-4		H		1.8	7.58	240	120	562	0.01	41.6
(Sheet 18 of 18)										

Table D12
Water Quality for *D. magna* Test with Elutriates of Detroit District - St. Joseph Harbor Sediments

Sediment	Day ¹	Treatment ²	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
Control-2	0	C	20	7.9	7.85	197	133	558	0.01	0.8
Control-2	1	C	21	7.5	7.89					
Control-2	2	C	22	7.4	7.93					
Control-2	3b	C	21	7.3	7.88					
Control-2	3a	C	21	8.2	8.09					
Control-2	4	C	21	6.6	7.76					
Control-2	5b	C	20	4.7	7.68					
Control-2	5a	C	20	8.6	8.14					
Control-2	6	C	20	7.8	7.00					
Control-2	7b	C	21	5.5	7.20	197	157	447	0.01	
Control-2	7a	C	21	8.4	7.39		157	424	0.01	
Control-2	8	C	20	5.8	7.09					
Control-2	9	C	20	10.9	8.63					
Control-2	10b	C	20	9.6	7.87					
Control-2	10a	C	20	9.2	7.74					

(Sheet 1 of 17)

¹ "b" = before renewal; "a" = after renewal.² C = control; L = 6.25-percent elutriate; M = either 12.5-, 25-, or 50-percent elutriate; and H = 100-percent elutriate as per protocols prescribed by Call et al. (1993).

Table D12 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
Control-2	11	C	20	8.5	8.11					
Control-2	12b	C	20	8.0	7.75					
Control-2	12a	C	20	8.2	8.08					
Control-2	13	C	21	5.5	7.82					
Control-2	14b	C	21		8.50					
Control-2	14a	C	21	8.4	8.16					
Control-2	15	C	21	7.1	7.93					
Control-2	16	C	20	7.6	7.39					
Control-2	17b	C	19	8.9	7.80					
Control-2	17a	C	19	9.4	7.68					
Control-2	18	C	20	8.0	8.11					
Control-2	19b	C	20	8.2	7.54					
Control-2	19a	C	20	8.4	8.10					
Control-2	20	C	20	9.1	8.20					
Control-2	21	C	20	8.8	8.03	223	130	432	0.01	8.2
SJ-2	0	L	20	8.6	8.12	207	127	441	1.06	
SJ-2		M		8.3	8.14	220	150	463	2.29	
SJ-2		H		8.4	8.20	277	200	546	0.63	24.6
(Sheet 2 of 17)										

Table D12 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
SJ-2	1	L	21	8.6	8.16					
SJ-2		M		8.5	8.05					
SJ-2		H		8.2	8.06					
SJ-2	2	L	22	9.0	8.38					
SJ-2		M		8.0	8.42					
SJ-2		H		7.6	8.24					
SJ-2	3b	L	21	8.2	8.11					
SJ-2		M		8.0	8.19					
SJ-2		H		7.6	8.19					
SJ-2	3a	L	21	8.7	8.33					
SJ-2		M		9.0	8.11					
SJ-2		H		8.2	7.79					
SJ-2	4	L	21	7.9	7.95					
SJ-2		M		8.6	7.90					
SJ-2		H		7.0	7.91					
SJ-2	5b	L	20	6.1	7.86					
SJ-2		M		4.7	7.74					

(Sheet 3 of 17)

Table D12 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
SJ-2		H		6.6	8.18					
SJ-2	5a	L	20	7.8	7.99					
SJ-2		M		7.5	7.80					
SJ-2		H		6.2	7.41					
SJ-2	6	L	20	6.9	7.62					
SJ-2		M		7.2	7.88					
SJ-2		H		7.2	8.00					
SJ-2	7b	L	21	6.1	7.81	200	133	425	0.05	
SJ-2		M		6.0	7.77	237	163	395	3.49	
SJ-2		H		5.4	7.96	313	260	497	0.01	
SJ-2	7a	L	21	9.0	7.88	193	167	435	1.45	
SJ-2		M		8.7	7.87	233	150	474	0.01	
SJ-2		H		6.1	7.46	247	207	526	4.85	
SJ-2	8	L	20	7.1	7.82					
SJ-2		M		5.2	7.69					
SJ-2		H		5.1	7.53					
SJ-2	9	L	20	11.7	8.58					
SJ-2		M		9.3	8.29					
(Sheet 4 of 17)										

Table D12 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
SJ-2		H		7.3	8.12					
SJ-2	10b	L	20	11.6	8.21					
SJ-2		M		8.0	8.20					
SJ-2		H		7.1	8.00					
SJ-2	10a	L	20							
SJ-2		M		7.7	7.66					
SJ-2		H		6.0	7.35					
SJ-2	11	L	20							
SJ-2		M		4.9	7.72					
SJ-2		H		6.6	7.66					
SJ-2	12b	L	20							
SJ-2		M		5.4	8.01					
SJ-2		H		4.8	7.84					
SJ-2	12a	L	20							
SJ-2		M		7.7	7.61					
SJ-2		H		5.5	7.49					
SJ-2	13	L	21							

(Sheet 5 of 17)

Table D12 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
SJ-2		M		3.9	8.21					
SJ-2		H		3.2	7.80					
SJ-2	14b	L	21							
SJ-2		M		5.1	8.22					
SJ-2		H		3.6	7.65					
SJ-2	14a	L	21							
SJ-2		M		5.9	7.50					
SJ-2		H		5.8	7.40					
SJ-2	15	L	21							
SJ-2		M		6.1	7.59					
SJ-2		H		4.6	7.57					
SJ-2	16	L	20							
SJ-2		M		6.6	7.49					
SJ-2		H		5.0	7.51					
SJ-2	17b	L	19							
SJ-2		M		6.6	7.65					
SJ-2		H		5.4	7.50					
SJ-2	17a	L	19							
(Sheet 6 of 17)										

Table D12 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
SJ-2		M		7.9	7.57					
SJ-2		H		7.0	7.36					
SJ-2	18	L	20							
SJ-2		M		4.0	7.50					
SJ-2		H		3.8	7.40					
SJ-2	19b	L	20							
SJ-2		M		5.0	7.43					
SJ-2		H		3.7	7.44					
SJ-2	19a	L	20							
SJ-2		M		7.9	7.80					
SJ-2		H		6.7	7.50					
SJ-2	20	L	20							
SJ-2		M		6.6	7.80					
SJ-2		H		5.0	7.50					
SJ-2	21	L	20							
SJ-2		M		6.8	7.52	210	166	438	0.01	

(Sheet 7 of 17)

Table D12 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
SJ-2		H		5.2	7.45	270	123	532	0.01	31.8
SJ-3	0	L	20	8.7	8.18	210	137	460	2.15	
SJ-3		M		8.6	8.15	233	137	564	0.05	
SJ-3		H		8.5	8.20	367	476	725	0.01	70.8
SJ-3	1	L	21	8.9	8.15					
SJ-3		M		7.0	8.03					
SJ-3		H		5.5	8.06					
SJ-3	2	L	22	9.0	8.42					
SJ-3		M		8.4	8.26					
SJ-3		H		7.7	8.32					
SJ-3	3b	L	21	8.1	8.10					
SJ-3		M		8.0	8.21					
SJ-3		H		7.2	8.18					
SJ-3	3a	L	21	8.8	7.89					
SJ-3		M		8.6	7.66					
SJ-3		H		8.0	7.61					
SJ-3	4	L	21	8.1	8.02					
SJ-3		M		7.5	7.95					
(Sheet 8 of 17)										

Table D12 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
SJ-3		H		6.6	7.98					
SJ-3	5b	L	20	5.9	7.84					
SJ-3		M		6.7	8.10					
SJ-3		H		3.7	8.13					
SJ-3	5a	L	20	9.0	7.84					
SJ-3		M		8.1	7.73					
SJ-3		H		6.7	7.41					
SJ-3	6	L	20	7.1	7.87					
SJ-3		M		7.0	7.94					
SJ-3		H		6.5	8.00					
SJ-3	7b	L	21	7.6	7.99	190	183	353	0.10	
SJ-3		M		7.5	7.84	193	153	410	2.01	
SJ-3		H		6.1	7.72	260	260	479	7.59	
SJ-3	7a	L	21	8.4	7.92	177	110	444	3.37	
SJ-3		M		8.2	7.77	200	240	487	4.53	
SJ-3		H		5.6	7.50	293	167	694	11.60	

(Sheet 9 of 17)

Table D12 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₄ mg/L	Total Suspended Solids, mg/L
SJ-3	8	L	20	5.3	7.70					
SJ-3		M		6.4	7.65					
SJ-3		H		4.4	7.63					
SJ-3	9	L	20	10.4	8.43					
SJ-3		M		10.1	8.29					
SJ-3		H		6.5	8.01					
SJ-3	10b	L	20	9.6	8.16					
SJ-3		M		8.6	8.07					
SJ-3		H		5.9	7.93					
SJ-3	10a	L	20	9.0	7.91					
SJ-3		M								
SJ-3		H		5.4	7.35					
SJ-3	11	L	20	7.8	8.23					
SJ-3		M								
SJ-3		H		3.2	7.79					
SJ-3	12b	L	20	8.4	8.05					
SJ-3		M								
SJ-3		H		4.6	7.76					
(Sheet 10 of 17)										

Table D12 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
SJ-3	12a	L	20	7.7	7.83					
SJ-3		M								
SJ-3		H		5.7	7.63					
SJ-3	13	L	21	6.3	8.23					
SJ-3		M								
SJ-3		H		3.3	7.86					
SJ-3	14b	L	21	7.5	8.00					
SJ-3		M								
SJ-3		H		6.7	7.77					
SJ-3	14a	L	21	7.8	7.90					
SJ-3		M								
SJ-3		H		6.1	7.60					
SJ-3	15	L	21	7.0	7.95					
SJ-3		M								
SJ-3		H		3.1	7.58					
SJ-3	16	L	20	6.2	7.45					
SJ-3		M								

(Sheet 11 of 17)

Table D12 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
SJ-3		H		5.7	7.77					
SJ-3	17b	L	19	6.8	7.74					
SJ-3		M								
SJ-3		H		3.4	7.50					
SJ-3	17a	L	19	8.6	7.50					
SJ-3		M								
SJ-3		H		8.0	7.34					
SJ-3	18	L	20	7.3	7.90					
SJ-3		M								
SJ-3		H		4.9	7.70					
SJ-3	19b	L	20	7.5	7.85					
SJ-3		M								
SJ-3		H		6.0	7.48					
SJ-3	19a	L	20	9.1	7.90					
SJ-3		M								
SJ-3		H		5.1	7.50					
SJ-3	20	L	20	9.0	7.90					
SJ-3		M								
(Sheet 12 of 17)										

Table D12 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
SJ-3		H		4.0	7.50					
SJ-3	21	L	20	8.8	7.87	223	110	453	0.01	
SJ-3		M								
SJ-3		H		4.0	7.52	283	173	692	0.01	33.8
SJ-4	0	L	20	7.5	8.33	177	133	463	1.41	
SJ-4		M		8.0	8.20	183	200	582	4.32	
SJ-4		H		7.5	8.19	203	223	722	9.00	65.4
SJ-4	1	L	21	7.2	8.02					
SJ-4		M		7.7	7.95					
SJ-4		H		6.8	7.91					
SJ-4	2	L	22	8.0	8.15					
SJ-4		M		8.2	8.04					
SJ-4		H		8.0	8.14					
SJ-4	3b	L	21	8.4	8.07					
SJ-4		M		8.4	8.11					
SJ-4		H		7.7	8.15					
SJ-4	3a	L	21	8.1	7.75					

(Sheet 13 of 17)

Table D12 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₄ mg/L	Total Suspended Solids, mg/L
SJ-4		M		7.8	7.67					
SJ-4		H		8.0	7.17					
SJ-4	4	L	21	7.8	8.03					
SJ-4		M		7.5	7.90					
SJ-4		H		7.5	7.98					
SJ-4	5b	L	20	6.5	7.91					
SJ-4		M		5.1	7.91					
SJ-4		H		6.4	8.06					
SJ-4	5a	L	20	8.3	7.87					
SJ-4		M		7.8	7.79					
SJ-4		H		6.3	7.37					
SJ-4	6	L	20	7.0	7.93					
SJ-4		M		6.8	7.88					
SJ-4		H		6.8	7.61					
SJ-4	7b	L	21	7.3	7.85	207	117	398	2.39	
SJ-4		M		7.6	7.84	170	147	437	4.98	
SJ-4		H		7.5	7.84	180	170	475	24.40	
SJ-4	7a	L	21	8.5	7.87	193	143	421		
(Sheet 14 of 17)										

Table D12 (Continued)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
SJ-4		M		8.5	7.75			432		
SJ-4		H		6.9	7.32	187	207	475	26.70	
SJ-4	8	L	20	7.4	7.93					
SJ-4		M		6.7	7.81					
SJ-4		H		6.2	7.68					
SJ-4	9	L	20	8.2	8.47					
SJ-4		M		10.2	8.56					
SJ-4		H		7.6	8.12					
SJ-4	10b	L	20	10.2	8.00					
SJ-4		M		9.0	8.01					
SJ-4		H		8.1	8.04					
SJ-4	10a	L	20							
SJ-4		M								
SJ-4		H		5.9	7.38					
SJ-4	11	L	20							
SJ-4		M								

(Sheet 15 of 17)

Table D12 (Continued)										
Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
SJ-4		H		6.6	7.93					
SJ-4	12b	L	20							
SJ-4		M								
SJ-4		H		7.6	7.94					
SJ-4	12a	L	20							
SJ-4		M								
SJ-4		H		6.7	7.35					
SJ-4	13	L	21							
SJ-4		M								
SJ-4		H		4.6	8.05					
SJ-4	14b	L	21							
SJ-4		M								
SJ-4		H		5.9	7.78					
SJ-4	14a	L	21							
SJ-4		M								
SJ-4		H		6.9	7.50					
SJ-4	15	L	21							
SJ-4		M								
SJ-4		H		5.4	7.66					
(Sheet 16 of 17)										

Table D12 (Concluded)

Sediment	Day	Treatment	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids, mg/L
SJ-4	16	L	20							
SJ-4		M								
SJ-4		H		6.1	7.63					
SJ-4	17b	L	19							
SJ-4		M								
SJ-4		H		5.4	7.47					
SJ-4	17a	L	19							
SJ-4		M								
SJ-4		H		7.4	7.43					
SJ-4	18	L	20							
SJ-4		M								
SJ-4		H		5.3	7.60					
SJ-4	19b	L	20							
SJ-4		M								
SJ-4		H		6.2	7.45					

(Sheet 17 of 17)

Table D13

Mean (S.E.) Water Quality for *D. magna* Tests with Elutriates of Great Lakes Sediments (n = 30 for temperature, dissolved oxygen, pH; n = 4 for all other parameters)

Project	Sediment	Elutriate ¹	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₄ mg/L	Total Suspended Solids mg/L
Buffalo District - Toledo Harbor	Control	N.A.	20.17 (0.08)	8.37 (0.32)	8.00 (0.05)	193 (11)	133 (9)	557 (30)	0.07 (0.02)	5.6 (4.0)
	RM 1-2	L	20.17 (0.08)	8.50 (0.19)	8.08 (0.05)	173 (7)	143 (14)	539 (25)	0.85 (0.28)	
	RM 1-2	M		8.43 (0.17)	7.99 (0.05)	202 (6)	144 (15)	536 (43)	3.30 (0.89)	
	RM 1-2	H		7.91 (0.28)	7.88 (0.05)	214 (7)	120 (12)	575 (45)	11.54 (3.79)	25.1 (14.5)
	LM 0-1	L	20.17 (0.08)	8.65 (0.16)	8.13 (0.04)	175 (3)	137 (8)	548 (18)	0.80 (0.24)	
	LM 0-1	M		8.37 (0.17)	7.98 (0.05)	205 (6)	157 (7)	612 (32)	2.44 (1.07)	
	LM 0-1	H		7.56 (0.29)	7.81 (0.06)	308 (11)	191 (15)	719 (61)	1.45 (1.37)	21.9 (7.1)
	LM 1-2	L	20.17 (0.08)	8.60 (0.15)	8.09 (0.05)	186 (8)	128 (13)	569 (17)	0.29 (0.14)	
	LM 1-2	M		8.19 (0.22)	8.04 (0.06)	198 (6)	147 (14)	602 (20)	1.40 (0.51)	
	LM 1-2	H		7.56 (0.30)	7.90 (0.07)	256 (16)	177 (12)	629 (57)	3.45 (2.26)	27.7 (1.3)
	LM 2-3	L	20.17 (0.08)	8.44 (0.17)	8.08 (0.04)	192 (7)	149 (8)	545 (26)	0.31 (0.09)	
	LM 2-3	M		8.16 (0.19)	7.94 (0.05)	212 (10)	159 (9)	593 (36)	1.32 (0.44)	
	LM 2-3	H		7.10 (0.34)	7.78 (0.06)	281 (10)	209 (15)	697 (49)	1.38 (0.78)	16.3 (0.9)
	LM 3-4	L	20.17 (0.08)	8.47 (0.15)	8.11 (0.05)	224 (29)	170 (17)	560 (28)	0.30 (0.21)	

(Sheet 1 of 4)

¹ N.A. = not applicable; L = 6.25-percent elutriate; M = 12.5- or 50-percent elutriate; H = 100-percent elutriate (as per protocol of Brooke et al. 1993b).

Table D13 (Continued)

Project	Sediment	Elutriate	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₃ mg/L	Total Suspended Solids mg/L
Buffalo District - Toledo Harbor (Continued)										
Chicago District - Michigan City Harbor	LM 3-4	M		7.98 (0.21)	8.00 (0.06)	230 (5)	168 (9)	642 (46)	0.76 (0.63)	
	LM 3-4	H		7.21 (0.39)	7.85 (0.07)	328 (24)	225 (17)	767 (65)	0.03 (0.02)	24.0 (3.8)
	LM 4-5	L	20.17 (0.08)	8.49 (0.16)	8.08 (0.04)	193 (4)	147 (7)	543 (24)	1.23 (0.67)	
	LM 4-5	M		8.28 (0.20)	7.96 (0.05)	214 (4)	155 (7)	616 (49)	3.31 (2.49)	
	LM 4-5	H		7.34 (0.35)	7.80 (0.06)	330 (33)	212 (13)	817 (47)	14.30 (10.01)	22.9 (1.7)
	LM 7-8	L	20.17 (0.08)	8.62 (0.15)	8.12 (0.06)	176 (12)	152 (10)	536 (38)	0.40 (0.35)	
	LM 7-8	M		8.51 (0.16)	8.09 (0.06)	196 (13)	138 (5)	573 (26)	1.84 (1.08)	
	LM 7-8	H		7.92 (0.24)	7.89 (0.06)	215 (16)	151 (10)	617 (36)	5.44 (4.13)	26.9 (7.3)
	LM 11-12	L	20.17 (0.08)	8.79 (0.16)	8.15 (0.05)	193 (10)	130 (8)	549 (10)	1.10 (0.58)	
	LM 11-12	M		8.70 (0.15)	8.13 (0.05)	202 (9)	121 (7)	551 (18)	0.80 (0.51)	
	LM 11-12	H		8.54 (0.17)	8.03 (0.06)	212 (14)	125 (6)	594 (11)	3.17 (2.15)	11.7 (2.1)
	Control	N.A.	20.17 (0.08)	8.37 (0.32)	8.00 (0.05)	193 (11)	133 (9)	557 (30)	0.07 (0.02)	5.6 (4.0)
	MC-1	L	20.17 (0.08)	8.37 (0.15)	8.05 (0.05)	193 (8)	134 (6)	550 (21)	0.41 (0.28)	
	MC-1	M		8.33 (0.16)	8.05 (0.04)	197 (10)	156 (7)	565 (13)	0.43 (0.41)	
	MC-1	H		8.48 (0.17)	8.06 (0.04)	187 (10)	139 (13)	560 (16)	0.09 (0.06)	3.1 (1.1)
	MC-2	L	20.17 (0.08)	8.22 (0.13)	8.05 (0.04)	178 (6)	142 (9)	570 (15)	0.51 (0.44)	
(Sheet 2 of 4)										

Table D13 (Continued)										
Project	Sediment	Elutriate	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₄ mg/L	Total Suspended Solids mg/L
Chicago District - Michigan City Harbor (Continued)										
	MC-2	M		8.29 (0.13)	8.04 (0.05)	191 (12)	133 (9)	560 (21)	0.23 (0.19)	
	MC-2	H		8.29 (0.12)	8.03 (0.05)	188 (4)	125 (10)	571 (11)	0.36 (0.28)	7.3 (2.9)
	MC-3	L	20.21 (0.11)	8.18 (0.39)	7.97 (0.04)	192 (5)	126 (11)	402 (22)	0.71 (0.32)	
	MC-3	M		7.47 (0.26)	7.93 (0.06)	208 (5)	150 (23)	421 (22)	2.27 (0.50)	
	MC-3	H		6.97 (0.23)	7.68 (0.06)	253 (11)	158 (13)	488 (17)	3.19 (1.82)	17.5 (6.1)
	Control	N.A.	20.21 (0.11)	7.65 (0.36)	7.84 (0.07)	206 (9)	144 (7)	465 (31)	0.00 (0.00)	4.5 (3.7)
Detroit District - Grand Haven Harbor	GH-1	L	20.21 (0.11)	7.72 (0.21)	7.87 (0.05)	187 (3)	151 (12)	478 (30)	1.69 (0.58)	
	GH-1	M		7.07 (0.31)	7.84 (0.06)	199 (17)	191 (59)	516 (19)	3.34 (1.33)	
	GH-1	H		5.62 (0.36)	7.73 (0.06)	306 (36)	213 (37)	659 (37)	9.20 (5.33)	29.3 (9.9)
	GH-2	L	20.21 (0.11)	7.65 (0.28)	7.95 (0.04)	175 (3)	127 (6)	442 (8)	1.64 (0.28)	
	GH-2	M		7.27 (0.25)	7.90 (0.04)	212 (12)	166 (8)	466 (5)	1.95 (1.52)	
	GH-2	H		6.12 (0.35)	7.81 (0.06)	226 (14)	212 (44)	592 (13)	15.29 (7.12)	29.8 (1.0)
	GH-4	L	20.21 (0.11)	7.67 (0.22)	7.95 (0.03)	180 (4)	152 (7)	437 (9)	6.79 (4.42)	
	GH-4	M		7.04 (0.28)	7.82 (0.04)	202 (13)	138 (5)	454 (7)	5.01 (1.83)	
	GH-4	H		5.08 (0.41)	7.66 (0.06)	232 (26)	192 (35)	545 (20)	12.33 (6.78)	40.1 (1.5)
(Sheet 3 of 4)										

Project	Sediment	Elutriate	Temp. °C	Dissolved Oxygen mg/L	pH	Hardness mg/L	Alkalinity mg/L	Specific Conductivity µmhos/cm	Total NH ₄ mg/L	Total Suspended Solids mg/L
Detroit District - St. Joseph Harbor	Control	N.A.	20.21 (0.11)	7.65 (0.36)	7.84 (0.07)	206 (9)	144 (7)	465 (31)	0.00 (0.00)	4.5 (3.7)
	SJ-2	L	20.21 (0.11)	8.38 (0.45)	8.06 (0.07)	200 (4)	142 (12)	434 (5)	0.85 (0.42)	
	SJ-2	M		6.84 (0.28)	7.84 (0.05)	225 (6)	157 (4)	443 (18)	1.45 (0.87)	
	SJ-2	H		6.00 (0.26)	7.72 (0.05)	277 (14)	198 (28)	525 (10)	1.37 (1.17)	28.2 (3.6)
	SJ-3	L	20.21 (0.11)	7.99 (0.21)	7.96 (0.04)	200 (10)	135 (17)	428 (25)	1.40 (0.82)	
	SJ-3	M		7.91 (0.26)	7.98 (0.06)	209 (12)	177 (32)	487 (44)	2.20 (1.30)	
	SJ-3	H		5.60 (0.28)	7.74 (0.05)	301 (23)	269 (72)	648 (57)	4.80 (2.89)	52.3 (18.5)
	SJ-4	L	20.21 (0.11)	7.89 (0.24)	8.01 (0.05)	192 (9)	131 (8)	427 (19)	1.90 (0.49)	
	SJ-4	M		7.81 (0.31)	7.96 (0.06)	177 (7)	174 (27)	484 (49)	4.65 (0.33)	
	SJ-4	H		6.64 (0.17)	7.71 (0.05)	198 (10)	186 (18)	593 (68)	16.03 (5.61)	44.6 (20.8)

(Sheet 4 of 4)

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