

FINAL

Newark Bay Study Area

**Sediment Quality Triad and
Porewater Data Report**

Baseline Human Health and
Ecological Risk Assessment

Glenn Springs Holdings, Inc.

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Revision 2

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Acronyms and Abbreviations

B-IBI	Benthic Index of Biotic Integrity
BERA	baseline ecological risk assessment
BHHERA	baseline human health and ecological risk assessment
BHHRA	baseline human health risk assessment
COPEC	constituent of potential ecological concern
EA	EA Engineering, Science, and Technology, Inc.
ft bss	feet below sediment surface
g/m ²	grams per square meter
GSH	Glenn Springs Holdings, Inc.
L	liter
m ²	square meters
NBSA	Newark Bay Study Area
Normandeau	Normandeau Associates, Inc.
NY/NJ	New York/New Jersey
ORP	oxidation-reduction potential
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCDD	polychlorinated dibenzo- <i>p</i> -dioxin
PCDF	polychlorinated dibenzofuran
PE	polyethylene
PID	photoionization detector
POM	polyoxymethylene
ppt	parts per trillion
report	Sediment Quality Triad Porewater Data Report
SIM	selected ion monitoring
SOP	standard operating procedure
SQT	sediment quality triad
SQT Field Report	Sediment Quality Triad and Porewater Field Report
SQT QAPP	Sediment Quality Triad and Porewater Sampling and Analysis Quality Assurance Project Plan
SVOC	semivolatile organic compound
Tierra	Tierra Solutions, Inc.
USEPA	U.S. Environmental Protection Agency

1. Introduction

This Sediment Quality Triad and Porewater Data Report (report) presents the results from the sediment quality triad (SQT) and porewater sampling program conducted in the Newark Bay Study Area (NBSA; Figures 1-1 and 1-2) in September 2015. The SQT and porewater program was conducted in support of the baseline human health and ecological risk assessment (BHHERA) and in accordance with the Sediment Quality Triad and Porewater Sampling and Analysis Quality Assurance Project Plan (SQT QAPP; Tierra Solutions, Inc. (Tierra) 2015), as approved by the U.S. Environmental Protection Agency (USEPA) on September 3, 2015. Pursuant to the Administrative Order on Consent under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA Index 02-2004-2010; USEPA 2004), Glenn Springs Holdings, Inc. (GSH) is conducting a Remedial Investigation/Feasibility Study, on behalf of Occidental Chemical Corporation (the successor to Diamond Shamrock Chemicals Company [formerly known as Diamond Alkali Company]), for the NBSA.

The SQT QAPP (Tierra 2015) field program involved collecting sediment samples for the following analyses:

- Sediment chemistry for constituents of potential concern and constituents of potential ecological concern (COPECs) that include a suite of organic and inorganic analytes.
- Sediment toxicity testing in a laboratory using surface sediment collected during the SQT QAPP field program and laboratory-supplied standard amphipod test species, *Leptocheirus plumulosus*. Survival and growth were measured in the toxicity tests.
- Benthic invertebrate community analyses using surface sediment collected during the SQT QAPP field program. Specimens were identified and counted from bulk surface sediment samples.
- Sediment bioaccumulation testing in a laboratory using surface sediment collected during the SQT QAPP field program and laboratory-supplied polychaete test species, *Nereis virens*. Tissue samples of the polychaete were analyzed for COPECs.
- Porewater chemistry collected from surface sediment using passive samplers in the laboratory (i.e., *ex-situ*). Porewater samples were analyzed directly for inorganic COPECs and other select constituents (metals, methyl mercury, ammonia, and total sulfide, and dissolved organic carbon), and indirectly using passive samplers for a select group of organic COPECs for which porewater/passive sampler partitioning coefficients have been experimentally determined and reported in the literature. These include polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), pesticides, and polychlorinated dibenzo-*p*-dioxins/polychlorinated dibenzofurans (PCDDs/PCDFs).

1.1 Purpose

The data collected during the SQT QAPP field program will be used in the BHHERA for the following purposes:

1. SQT data support the baseline ecological risk assessment (BERA). The SQT assessment is an effects-based, weight-of-evidence approach used to evaluate risks to benthic invertebrate communities using three primary lines of evidence: 1) sediment chemistry, 2) sediment toxicity, and 3) benthic invertebrate community metrics. The SQT method incorporates a combination of both quantitative and qualitative analyses to identify potential cause-and-effect relationships between two or more of the components. The approach provides information needed for the BERA to identify degraded conditions and assess impacts of pollution-induced effects on benthic invertebrates.
2. Bioaccumulation data and porewater chemistry data provide additional lines of evidence to support the BERA.
3. Surface sediment chemistry analyses in shoreline (i.e., potential access) areas of the NBSA support the baseline human health risk assessment (BHHR).

This report documents the results of these investigations.

1.2 Document Overview

Section 1 of this report presents the introduction, Section 2 presents the sampling design and methodology, and Section 3 presents the results. References are provided in Section 4. The following appendices provide supporting documentation for this report:

- Appendix A – Newark Bay Study Area Ecotoxicological Evaluation of Sediments for Toxicity and Bioaccumulation Testing
- Appendix B – Summary on the Calculation of Porewater Concentrations of Organic Compounds from Passive Samplers
- Appendix C – Newark Bay Study Area Benthic Macroinvertebrate Sample Analysis
- Appendix D – Newark Bay Study Area Benthic Macroinvertebrate Sample Biomass
- Appendix E – Summary Tables of Chemistry Analysis Results
- Appendix F – Laboratory Data Reports (on USB drive)
- Appendix G – Data Verification/Validation Reports (on USB drive)
- Appendix H – Data Quality Usability Assessment Report
- Appendix I – Benthic Index of Biotic Integrity Threshold Values

2. Sampling Design and Methodology

This section summarizes the sampling design and methodology used during the September 2015 SQT and porewater sampling program. Detailed descriptions of the sampling design and methodology are presented in the SQT QAPP (Tierra 2015). Section 2.1 identifies the locations sampled during the SQT and porewater sampling program. Methods used to collect and process the samples are summarized in Sections 2.2 and 2.3, respectively. The NBSA Sediment Quality Triad and Porewater Field Report ([SQT Field Report]; GSH 2017) contains complete documentation of field activities, including deviations from the SQT QAPP.

2.1 Sampling Locations

Sediment grab samples were collected from 43 stations over 13 days (September 13 to 17, 2015, September 20 to 24, 2015, and September 28 to 30, 2015). SQT analyses (sediment chemistry, toxicity testing, and benthic invertebrate community analysis) and porewater chemistry analyses were conducted at 30 of these stations. The remaining 13 stations were only analyzed for sediment chemistry to support the BHHRA. Bioaccumulation tests were conducted at a subset of eight stations. Table 2-1 provides the list of sampling stations with coordinates, and Figure 2-1 presents the sediment station locations. Table 2-2 provides a summary of the sampling stations, sediment collection dates, sample processing dates, and identifies the analyses conducted on samples from each station. Also included in Table 2-2 are details regarding field duplicate samples and matrix spike/matrix spike duplicate samples collected.

In addition to the sediment grab samples, approximately 70 gallons of surface water were collected from one location in northern Newark Bay for use in the *ex-situ* porewater passive sampling study. Approximately 20 gallons of surface water was collected on September 13, 2015, approximately 20 gallons was collected on September 14, 2015, and approximately 30 gallons was collected on September 28, 2015. The surface water collection location is shown on Figure 2-1.

Additional details regarding sediment sampling and surface water collection activities are included in the SQT Field Report (GSH 2017).

2.2 Sampling Methods

Surface sediment and benthic invertebrate community samples were collected using grab sampling techniques, and surface water was collected using a peristaltic pump. Additional details regarding sediment sample collection activities are included in the SQT Field Report (GSH 2017).

2.3 Sample Handling and Processing

2.3.1 Sediment Chemistry

Sediment samples were processed at the temporary laboratory facility set up at 80 Lister Avenue in Newark, New Jersey. As shown on Table 2-2, sediment was processed over 13 days (September 14 to 18, 2015,

September 21 to 25, 2015, and September 29 to October 1, 2015) at the Lister Avenue facility in accordance with the SQT QAPP (Tierra 2015). Sediment collected from each sampling location was processed the day after collection. Details regarding sample processing are included in the SQT Field Report (GSH 2017).

2.3.2 Bioaccumulation Study

A 28-day laboratory bioaccumulation study was conducted by EA Engineering, Science, and Technology, Inc. (EA) of Hunt Valley, Maryland on NBSA sediment from October 22, 2015 through November 19, 2015 to provide data on the direct uptake of various chemical contaminants by a representative invertebrate organism that lives in the sediments of the NBSA, the polychaete worm *N. virens*. Test chambers were prepared using sediment from the eight bioaccumulation sampling stations identified in Table 2-2; artificial seawater was used as the overlying water in each test chamber. After a 7-day stabilization period, adult polychaete worms were loaded into each test chamber for a 28-day exposure period. During the 28-day exposure period, observations of mortality and abnormal organism behavior were recorded daily, and dead organisms, when observed, were removed. Measurements of temperature, pH, dissolved oxygen, and salinity of the overlying water were recorded at test initiation, termination, and three times per week. Organisms were not fed during the exposure period. After 28 days of exposure, the organisms were recovered from the test chambers and placed into clean artificial sea water for 24 hours to purge their digestive tracts. Tissue samples of the polychaete worms were then prepared and submitted for analytical chemistry analysis. Additional details regarding the bioaccumulation study are provided in Appendix A.

2.3.3 Ex-Situ Porewater Passive Sampler Study

The University of Maryland Baltimore County conducted an *ex-situ* (i.e., laboratory) porewater passive sampler study from September 23, 2016 through November 6, 2015 on the sediment samples collected from the 30 SQT stations identified in Table 2-2 to measure concentrations of a subset of COPECs in sediment porewater from the NBSA. Hydrophobic organic compounds were measured using polyethylene (PE; PCB congeners, pesticides, and semivolatile organic compounds via select ion monitoring [SVOC SIM]) and polyoxymethylene (POM; PCDDs/PCDFs) passive samplers. Dialysis (i.e., diffusion) samplers were used to measure metals and other inorganics (i.e., mercury, methylmercury, dissolved organic carbon, ammonia, and total sulfide). These sampling procedures are discussed further below.

2.3.3.1 Hydrophobic Organic Compounds

As described in the SQT QAPP (Tierra 2015), passive equilibrium sampling for hydrophobic organic compounds (PCDDs/PCDFs, PCB congeners, pesticides, and SVOC SIM) was conducted by placing PE and POM passive samplers in test chambers containing site sediment and site water and allowing the sediment slurry to mix via tumbling for 30 days. Before contact with the sediment slurry, each passive sampler was cleaned. Passive samplers for analysis of PCB congeners and SVOC SIM were impregnated with a set of performance reference compounds that allow the assessment of the extent of equilibrium achieved during the contact period. After the period of contact, the passive samplers were removed from the sediment slurry and cleaned to remove any attached sediment particles. The passive samplers were placed

into laboratory-supplied sample bottles and placed on ice in a cooler for shipment to the analytical laboratory for extraction and analysis.

The analytical laboratories reported the concentrations of organic compounds in the extract from the passive samplers, which were then corrected using site-specific partition coefficients. Passive sampler partition coefficients were used, as described in Ghosh et al. (2014), to calculate the aqueous concentration in equilibrium with the sediment. Site-specific partition coefficients for the compounds were then calculated by dividing the sediment-phase concentration by the equilibrium aqueous-phase concentration. Because some of the strongly hydrophobic compounds did not achieve equilibrium during the period of contact due to slow mass transfer, a mathematical correction using performance reference compounds was performed to calculate the true equilibrium concentrations (Fernandez et al. 2009).

Porewater concentrations of all pesticides were measured using PE passive sampling. For some pesticides (i.e., DDx), partition coefficients are available in the literature (e.g., Fernandez et al. 2014) and were used to estimate the freely dissolved porewater concentrations. For the remaining pesticides, for which polymer partition coefficients (K_{pe}) are not available, the freely dissolved porewater concentrations were estimated based on a correlation between the known pesticide partitioning coefficient and compound log K_{ow} . Performance reference compounds used for PCBs were also used for corrections of non-equilibrium for all pesticides.

A memorandum summarizing the methodology used to calculate porewater concentrations of organic compounds based on the *ex-situ* exposure of the PE and POM passive samplers is provided in Appendix B. The risk assessment will address the uncertainty associated with the porewater concentrations.

2.3.3.2 *Metals and Other Inorganics*

Dialysis samplers were used for the sampling of metals and other inorganics (mercury, methylmercury, dissolved organic carbon, ammonia, and total sulfide) in porewater. *Ex-situ* laboratory equilibrium studies were conducted in 5-gallon buckets (one bucket for each sampling location). After the buckets were allowed to reconsolidate in the laboratory for 2 weeks, dialysis samplers containing deionized water with matching site salinity were placed in each bucket. Multiple dialysis devices were placed within the top 12 inches of sediment in each bucket to allow the final collection of 1.5 liters (L) of dialyzed porewater. The dialysis samplers were allowed to equilibrate in the sediments for a period of 2 weeks. After removal, the water sample within the dialysis chambers was emptied into analytical laboratory-supplied sample bottles without headspace and placed on ice in a cooler for shipment to the analytical laboratory.

2.3.4 Toxicity Testing

EA conducted two toxicity tests on the sediment samples collected from the 30 SQT stations using *Leptocheirus plumulosus*: a short-term 10-day exposure for survival and a longer-term 28-day exposure for survival, growth, and reproduction. The 10-day toxicity test was conducted using USEPA (1994) *Methods for Assessing the Toxicity of Sediment-associated Contaminants with Estuarine and Marine Amphipods*

(EPA/600/R-94/025) and ASTM International (2008) *Standard Guide for Measuring the Toxicity of Sediment-Associated Contaminants with Marine and Estuarine Amphipods* (E-1267-03). The 28-day toxicity study was conducted using USEPA (2001) *Methods for Assessing the Chronic Toxicity of Marine and Estuarine Sediment-associated Contaminants with the Amphipod, *Leptocheirus plumulosus** (EPA/600/R-01/0250).

The 10-day toxicity test was conducted from October 30, 2015 through November 9, 2015. Test chambers were prepared using sediment from the 30 SQT sampling stations identified in Table 2-2; artificial seawater was used as the overlying water in each test chamber. After a 7-day stabilization period, test organisms (*Leptocheirus plumulosus*) were loaded into each test chamber for a 10-day exposure period. During the 10-day exposure period, the test chambers were not aerated and the test organisms were not fed. The test chambers were visually inspected daily for abnormal organism behavior or lack of burrowing, and water quality measurements of temperature, pH, dissolved oxygen, oxidation-reduction potential (ORP), and salinity were recorded daily. At the end of the 10-day exposure period, the test organisms were retrieved from the test chambers and the number of live organisms in each chamber was recorded. The 10-day mean percent survival was then calculated.

The 28-day toxicity test was conducted from October 22, 2015 through November 19, 2015; however, due to unacceptable control mortality (25%), the test was considered invalid and was re-run. Additional details regarding the initial invalid test can be found in Appendix A. A second, successful test was conducted from November 25, 2015 through December 23, 2015. Test chambers were prepared using sediment from the 30 SQT sampling stations identified in Table 2-2; artificial seawater was used as the overlying water in each test chamber. After a 7-day stabilization period, test organisms (*Leptocheirus plumulosus*) were loaded into each test chamber for a 28-day exposure period. During the 28-day exposure period, the overlying water in each test chamber was gently aerated at a rate of 100 bubbles per minute throughout the exposure period and the organisms were fed three times a week. The test chambers were visually inspected daily for abnormal organism behavior or lack of burrowing, and water quality measurements of temperature, pH, dissolved oxygen, ORP, and salinity were recorded daily. Ammonia measurements were also recorded during the 28-day exposure period at test initiation and termination. At the end of the 28-day exposure period, the test organisms were retrieved from the test chambers and the number of live organisms (parent and offspring) in each chamber was recorded. The organisms were then dried and weighed. The mean percent survival, growth rate, and mean reproduction as young per surviving adult were calculated.

Additional details regarding the toxicity testing processes and procedures are provided in Appendix A.

2.3.5 Benthic Invertebrate Community

Normandeau Associates, Inc. (Normandeau) of Bedford, New Hampshire conducted benthic invertebrate community analyses on samples collected from the 30 SQT stations identified in Table 2-2. Three replicate samples were collected from each sampling station using a petite PONAR dredge (area of 0.023 square meters [m²]) or a standard PONAR dredge (area of 0.052 m²), as described in the SQT Field Report (GSH 2017). The samples were immediately sieved through a standard No. 30 (600 micron) sieve on the boat and the retained invertebrates were preserved with isopropyl alcohol (90%). Preserved samples were

transported to Normandeau's laboratory for analysis at the end of the sampling program. Organisms were identified to the genus/species (lowest practicable) phylogenetic endpoint using dissection and compound microscopes. Normandeau calculated metrics of taxonomic richness, population and community density, and Shannon-Weiner Diversity based on the sample results. Additional details regarding the benthic invertebrate community analysis are provided in Appendix C.

In addition to the taxonomic analysis, Normandeau also measured the dry-weight (shell-free) biomass of the 30 benthic invertebrate samples. Biomass for each sample was determined using *Standard Methods for the Examination of Water and Wastewater: Method 209 A – Total Residue Dried at 103-105 C* (American Public Health Association, American Water Works Association, and Water Pollution Control Federation 1980). All organisms were included in each sample weight. Shelled organisms (i.e., mollusks) had the tissue removed from the shell; shells were not included in the dry weight. Samples were weighed to 0.0001 gram using an analytical balance. Additional details regarding the biomass measurement are provided in Appendix D.

3. Results

This section presents the field data and results from the September 2015 SQT and porewater sampling program. Table 3-1 provides the list of sediment, tissue, and porewater samples analyzed for the target parameter groups. The target parameter groups are consistent with the parameters analyzed in sediment and tissue under the Cooperating Parties Group Lower Passaic River Restoration Project and Phases I and II of the Newark Bay sediment investigations. Appendix E includes summary tables of analytical chemistry results by matrix (sediment, tissue, and porewater), and Appendix F provides the laboratory data reports for the analytical chemistry results. In addition to the chemical analyses, a bioaccumulation study, two toxicity tests, and a benthic invertebrate community analysis were conducted. Appendix A includes the bioaccumulation study and toxicity testing laboratory reports, and Appendices C and D include the benthic invertebrate community and biomass laboratory reports, respectively.

Data verification/validation was completed in accordance with the SQT QAPP (Tierra 2015) for data collected under this program. Detailed information regarding all qualified samples can be found in the data verification/validation reports provided in Appendix G. An evaluation of the data quality and usability is provided in Appendix H.

For sediment chemistry, tissue chemistry, and porewater chemistry, statistical summaries of analytical chemistry data were prepared for each matrix and geographic area (see Sections 3.1, 3.2, and 3.3). For all statistical summaries, non-detect results were excluded from the calculations. For any given analyte, field duplicate sample results were evaluated with parent sample (i.e., corresponding sample) results to generate a single sample result for subsequent statistical analysis. When both the field duplicate and parent sample results were reported as detected concentrations, the sample concentrations were averaged to generate a single concentration value. When either the field duplicate sample or parent sample result was reported as a detected concentration and the corresponding sample result was not detected, only the detected concentration was used to represent the concentration of that analyte in that sample.

3.1 Sediment Chemistry

Forty-three surface sediment samples were collected from locations throughout Newark Bay and analyzed for the parameter groups and by the laboratories listed in Table 3-1. The analytical chemistry results for sediment samples are provided in Appendix E, Table E-1. Table 3-2 provides a list of constituents not detected in sediment samples. A statistical summary of detected constituents is provided in Table 3-3 for the 43 sediment samples. Results were also categorized by geographic area within Newark Bay (north, central, and south). Statistical summaries of samples by geographic area are provided in Tables 3-4 through 3-6. Concentrations of select constituents of interest are presented on Figures 3-1 through 3-9. These nine constituents were selected for summary presentation in this data report based on their high frequency of detection (i.e., occurrence in the majority of samples collected), and the USEPA's focus on this list for risk management considerations and calculation of preliminary remedial goals in the Focused Feasibility Study and Record of Decision for the lower eight miles of the Passaic River. These constituents have also been the subject of historical studies and concerns in various investigations conducted throughout the New

York/New Jersey Harbor Estuary, such as the USEPA's Regional Estuarine Monitoring and Assessment Program.

3.2 Bioaccumulation Study

Eight polychaete tissue samples were analyzed for the parameter groups listed in Table 3-1. The analytical results for polychaete tissue samples are provided in Appendix E, Table E-2. Table 3-7 provides a list of constituents not detected in polychaete tissue samples. A statistical summary of detected constituents is provided in Table 3-8 for the eight polychaete tissue samples. Results were also categorized by geographic area within Newark Bay (north, central, and south). Statistical summaries of samples by geographic area are provided in Tables 3-9 through 3-11. Concentrations of the same nine constituents of interest are presented on Figures 3-10 through 3-18. The laboratory data report for the bioaccumulation study is provided in Appendix A.

3.3 Porewater

Thirty porewater samples were analyzed for the parameter groups listed in Table 3-1. The analytical results for porewater samples are provided in Appendix E, Table E-3. Table 3-12 provides a list of constituents not detected in porewater samples. A statistical summary of detected constituents is provided in Table 3-13 for the 30 porewater samples. Results were also categorized by geographic area within Newark Bay (north, central, and south). Statistical summaries of samples by geographic area are provided in Tables 3-14 through 3-16. Concentrations of the same nine constituents of interest are presented on Figures 3-19 through 3-27.

While removing the dialysis bags from the sediment in the 5-gallon bucket in the laboratory for Location 155, one of the dialysis bags broke and the contents were lost. As such, there was not enough sample volume in the remaining dialysis bag to run all of the inorganics analyses. It was decided that samples would only be sent for analysis of total sulfide, mercury, and methylmercury for this sample.

A memorandum summarizing the methodology used in the calculation of porewater concentrations of organic compounds based on the *ex-situ* exposure of the PE and POM passive samplers is provided in Appendix B.

3.4 Toxicity Testing

Two toxicity tests were conducted on the sediment samples collected from the 30 SQT stations using *Leptocheirus plumulosus*: a short-term 10-day exposure for survival and a longer-term 28-day exposure for survival, growth, and reproduction. Toxicity results are summarized in Table 3-17 and are presented on Figure 3-28. The laboratory data report for toxicity testing is provided in Appendix A.

3.5 Benthic Invertebrate Community Analysis

Benthic invertebrate communities were characterized by identifying and enumerating the benthic invertebrates from sediment grab samples collected at the 30 SQT locations. The benthic community samples were identified to the lowest practicable taxonomic level and conducted in a manner consistent with other surveys performed in the New York/New Jersey (NY/NJ) Harbor Estuary (Weisberg et al. 1997). The taxonomic data are presented in Appendix C.

3.5.1 Calculation of Benthic Invertebrate Community Metrics

The benthic invertebrate community structure in the NBSA was characterized quantitatively using the following descriptive statistics and standardized metrics:

- Total Mean Density (Abundance)
- Taxonomic richness (number of species [or higher order taxa, if not identified to species] in a sample)
- Shannon-Wiener diversity index
- Pielou's evenness index
- Swartz's dominance index
- Benthic Index of Biotic Integrity (B-IBI).

These metrics were calculated using the mean of the three replicate samples collected at each sampling station. The equations and basis for the indices used to describe the community are presented below. Collectively, these indices will be used in the BHHERA to help evaluate the overall health and function of the benthic invertebrate community in the NBSA.

3.5.1.1 *Abundance and Taxonomic Richness*

Abundance is the number of individual organisms found per sample area. The mean abundance of organisms collected from the 30 SQT stations ranged from 406 to 11,237 per m² (Figure 3-29). Species richness is the total number of species represented in a sample, which does not take into account the abundance of organisms within a species. The mean species richness ranged from eight to 46 species per sample. A summary of the species abundance and richness is presented in Table 3-18 and on Figure 3-29.

Polychaeta were the dominant family overall at 61.2%, followed by Crustacea at 18.3%, as presented on Figure 3-30. Polychaeta were also the dominant group for each geographic zone of the NBSA, as presented on Figure 3-30.

The species that contributed to the top 10 most abundant taxa by region of the NBSA are presented in Table 3-19. Polychaetes comprised the most dominant taxa in the NBSA, with *Streblospio benedicti* as the most abundant species in each geographic region.

3.5.1.2 Shannon-Wiener Diversity Index

The Shannon-Wiener diversity index (Shannon 1948) is a measure of the species diversity of a sample and takes into account species richness and evenness of each species within the community. The number of species (or higher order taxa, if not identified to species) and the number of individuals within each taxa are combined to calculate the diversity index. The lowest index value is 0.0 and the highest, or maximum possible, is 4.0. The greater the value, the greater the sample diversity and the more evenly the organisms are distributed among the taxa present. It is calculated as follows:

$$H' = -\sum p_i \ln p_i$$

Where:

H' = the diversity index

ln = the natural logarithm

Σ = summation

p_i = the number of individuals within a taxon (n_i) divided by the total number of individuals (N) present in the entire sample

Shannon-Wiener diversity index values calculated from samples collected from 30 stations during the SQT program ranged from 1.5 to 3.0, with an average of 2.2 for the NBSA. A summary of Shannon-Wiener diversity index values for each station and geographic region is presented in Table 3-18 and on Figure 3-31.

3.5.1.3 Pielou's Evenness Index

Pielou's evenness index (Pielou 1966) is related to the Shannon-Wiener diversity index in that it also examines the distribution of individuals among taxa relative to an idealized distribution. Pielou's evenness index ranges from 0.0 to 1.0, with higher values indicating a more even distribution of organisms among the species present in the sample.

$$J = H' / H(\max)$$

Where:

J = the evenness index

H' = the Shannon-Wiener diversity index

H(max) = the theoretical maximum value for H if all species in the sample were equitably distributed (i.e., natural logarithm S, where S is the total number of taxa in a sample)

The mean Pielou's evenness index calculated from samples collected from 30 stations during the SQT field program ranged from 0.5 to 0.9 for the NBSA. A summary of the Pielou's evenness index values for each station and geographic region is presented in Table 3-18 and on Figure 3-31.

3.5.1.4 *Swartz's Dominance Index*

Swartz's dominance index (Swartz et al. 1985) is an indicator of whether a small number of taxa dominate the sample. The index represents the number of taxa that constitute 75% of the total number of organisms in a sample. A higher index value (i.e., more species) indicates lower dominance, and a lower index value (i.e., fewer species) indicates higher dominance. The majority of locations sampled during the SQT program (67%) were dominated by five or more species based on the mean Swartz's dominance index. A summary of the Swartz dominance index values for each station and geographic region is presented in Table 3-18 and on Figure 3-31.

3.5.1.5 *Biomass*

Biomass is the dry weight of all species per sample. A statistical summary of biomass by geographic region is presented in Table 3-20. Biomass was calculated per square meter for each station based on the size PONAR (petite or standard) used to collect the sample. Biomass of samples collected from the 30 SQT stations ranged from 0.49 to 33.91 grams per square meter (g/m^2), with an average of 7.88 g/m^2 . A summary of the biomass data collected for each triplicate sample is included as Appendix D.

3.5.1.6 *Field Water Quality Measurements*

Water quality measurements (i.e., temperature, dissolved oxygen, salinity, conductivity, pH, and ORP) were collected during sediment collection activities at the 43 SQT sampling stations at mid-water level, and within 1 foot below the water surface and 1 foot above the sediment. The individual water quality measurements recorded at each sampling station are provided in Table 3-21.

3.5.2 Benthic Index of Biotic Integrity

A B-IBI is a quantitative method that uses biological activity to assess water body conditions between sites experiencing anthropogenic stress as compared to non-stressed reference locations across different habitat types. The B-IBI evaluates existing conditions by evaluating field metrics that, when combined, can effectively describe benthic communities (Weisberg et al. 1998). Although a number of metrics may be individually used to describe benthic communities, a combination multi-metric B-IBI is more effectively used to distinguish normal and abnormal conditions. A multi-metric B-IBI, similar to the freshwater B-IBI (Karr 1991; Kerans and Karr 1994) was developed for the saline environment of the NY/NJ Harbor area, hereafter referred to as the NY/NJ B-IBI (Weisberg et al. 1998), and is commonly used within the NY/NJ Harbor Estuary Program and its component agencies as a tool to assess benthic invertebrate community status at sites throughout the Harbor, including the NBSA.

The individual NY/NJ Harbor B-IBI metrics retained as part of the NBSA B-IBI assessment include the following:

- Species Diversity: A measure of community structure/site biodiversity, expressed as the total number of taxa (i.e., species richness).
- Biomass: A measure of total biological activity at a site, expressed as the ash-free dry weight of each species summed over all species present in the sample.
- Abundance: A measure of total biological activity at a site, used as an indicator for contaminant effects (Becker et al. 1990), expressed as total number of organisms.
- Composition – Percent Abundance of Pollution-Sensitive Taxa: A measure of undisturbed, mature communities, expressed as the percent abundance of taxa classified as pollution-sensitive to the total abundance of organisms in a sample.
- Composition – Percent Abundance of Pollution-Indicative Taxa: A measure of disturbed communities, expressed as the percent abundance of taxa classified as pollution-indicative (or tolerant) to the total abundance of organisms in a sample.

Threshold values for each metric are based on the NY/NJ B-IBI (Weisberg et al. 1998), which compared the metrics from samples to the metrics for reference stations. The data were divided into three percentile ranges, and a score (i.e., 1, 3, or 5) was assigned to each threshold value range. The scores indicate whether the metric was similar to (threshold value of 1), deviated slightly from (threshold value of 3), or deviated greatly from (threshold value of 5) conditions at the reference sites (Weisberg et al. 1998).

The metrics collected as part of the NBSA B-IBI assessment were scored using the threshold values from the NY/NJ B-IBI. The threshold values for the 30 SQT samples are presented in Table 3-22. The NY/NJ B-IBI thresholds used to score each metric for the NBSA B-IBI are included in Appendix I.

To calculate the B-IBI scores for the NBSA, samples were first categorized by habitat according to salinity and grain size. As shown in Table 3-21, salinity throughout the bay averaged approximately 24 ppt, indicating a polyhaline environment. Grain size varied throughout the NBSA. Six sampling locations were categorized as sand and the remaining 24 locations were categorized as mud, based on the amount of silt and clay in each sample. Based on these results, B-IBI metrics were compared against the threshold scoring values for polyhaline mud and polyhaline sand.

The individual scores for all metrics were combined into the B-IBI by computing the average across all five metrics. Samples with index values of 3.0 or greater are considered to have good benthic condition, indicative of good habitat quality. Communities with an index score less than 3.0 are considered stressed. Scores for individual metrics are presented in Table 3-22.

B-IBI scores for the NBSA ranged from 1.8 to 4.2, with an overall average of 3.1. A summary of the B-IBI scores for each station and geographic region is presented in Table 3-22 and on Figure 3-32. B-IBI scores will be evaluated further once the Phase III surface sediment sampling results are available.

4. References

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Tables

Table 2-1
SQT Sampling Stations

Station	Date Sediment Collected ¹	PONAR Used To Collect Sediment ²	Northing (NAD83)	Easting (NAD83)	Geographic Area	Sampled Geomorphic Area
136	9/14/2015	Petite	681135	601799	North	Intertidal Area
137	9/14/2015	Petite	680935	600448	North	Subtidal Flats
138	9/14/2015	Petite	679668	599218	North	Subtidal Flats
139	9/15/2015	Petite	674973	597445	North	Subtidal Flats
140	9/29/2015	Petite	686503	599390	North	Intertidal Area
141	9/16/2015	Petite	670947	595954	Central	Subtidal Flats
142	9/28/2015	Standard	670005	596486	Central	Intertidal Area
143	9/29/2015	Petite	668400	595258	Central	Subtidal Flats
144	9/17/2015	Petite	666937	592990	Central	Subtidal Flats
145	9/29/2015	Petite	665489	593617	Central	Subtidal Flats
146	9/21/2015	Standard	660460	589829	South	Transitional Slopes
147	9/21/2015	Petite	657473	588745	South	Intertidal Area
148	9/21/2015	Petite	657978	587445	South	Subtidal Flats
149	9/22/2015	Standard	659186	583305	South	Intertidal Area
150	9/22/2015	Petite	659366	585546	South	Transitional Slopes
151	9/20/2015	Petite	661397	582469	South	Subtidal Flats
152	9/29/2015	Standard	663446	584459	South	Intertidal Area
153	9/23/2015	Petite	663689	587675	South	Subtidal Flats
154	9/20/2015	Standard	663935	585937	South	Subtidal Flats
155	9/20/2015	Standard	665442	586321	South	Intertidal Area
156	9/17/2015	Petite	669963	593889	Central	Transitional Slopes
157	9/16/2015	Petite	674688	593261	Central	Subtidal Flats
158	9/24/2015	Standard	675427	596016	North	Subtidal Flats
159	9/24/2015	Standard	676931	595916	North	Navigation Channels
160	9/28/2015	Standard	678968	595729	North	Intertidal Area
161	9/15/2015	Petite	680822	596884	North	Subtidal Flats
162	9/21/2015	Petite	681975	598454	North	Navigation Channels
163	9/22/2015	Petite	683444	598470	North	Navigation Channels
164	9/13/2015	Petite	686860	600335	North	Intertidal Area
165	9/13/2015	Petite	683469	600942	North	Subtidal Flats
166	9/13/2015	Petite	684599	601798	North	NA
167	9/14/2015	Petite	677867	600221	North	NA
168	9/15/2015	Petite	677071	599928	North	NA
169	9/15/2015	Petite	675559	599355	North	NA
170	9/16/2015	Petite	669350	595489	Central	NA
171	9/17/2015	Petite	668454	595309	Central	NA
172	9/23/2015	Petite	664204	592141	Central	NA
173	9/23/2015	Petite	662628	591214	South	NA
174	9/20/2015	Petite	661860	590655	South	NA
175	9/21/2015	Petite	658096	590879	South	NA
176	9/23/2015	Petite	659960	584955	South	NA
177	9/29/2015	Petite	659787	579784	South	NA
178	9/23/2015	Petite	660174	590293	South	NA
Surface Water ³	9/13/2015; 9/14/2015; 9/28/2015	NA	685568	601084	NA	NA

Notes:

¹Sample processing was completed the day after sediment collection. The sample date on sample bottles and chain of custody forms is the processing date.

²Petite PONAR measures 6 inches square and a standard PONAR measures 9 inches square.

³Surface water was not a targeted sampling matrix. Surface water was collected and used in the field facility for the shipment of sediment for porewater chemistry analyses.

NA = not applicable

NAD83 = North American Datum of 1983, New Jersey State Plane in feet

SQT = sediment quality triad

**Table 2-2
Sampling Detail**

Station	Date Sediment Collected ¹	Date Samples Processed ¹	Sediment Chemistry	Toxicity	Porewater Chemistry	Bioaccumulation Test using <i>N. virens</i>	BHRA Sediment Chemistry	Notes
136	9/14/2015	9/15/2015	X	X	X	X	X	
137	9/14/2015	9/15/2015	X	X	X			
138	9/14/2015	9/15/2015	X	X	X	X		
139	9/15/2015	9/16/2015	X	X	X			
140	9/29/2015	9/30/2015	X	X	X		X	
141	9/16/2015	9/17/2015	X	X	X	X		
142	9/28/2015	9/29/2015	X	X	X		X	
143	9/29/2015	9/30/2015	X	X	X		X	
144	9/17/2015	9/18/2015	X	X	X			
145	9/29/2015	9/30/2015	X	X	X		X	
146	9/21/2015	9/22/2015	X	X	X	X		
147	9/21/2015	9/22/2015	X FD, MS/MSD	X	X FD	X		Collected field duplicates for chemistry and porewater (NB03SEDDUP-04)
148	9/21/2015	9/22/2015	X	X	X			
149	9/22/2015	9/23/2015	X	X	X	X FD, MS/MSD	X	Collected field duplicate for bioaccumulation (NB03SEDDUP-05)
150	9/22/2015	9/23/2015	X	X	X			
151	9/20/2015	9/21/2015	X	X FD	X			Collected field duplicate for toxicity (NB03SEDDUP-02)
152	9/29/2015	9/30/2015	X FD, MS/MSD	X	X FD, MS/MSD			Collected field duplicate for chemistry and porewater (NB03SEDDUP-06)
153	9/23/2015	9/24/2015	X	X	X MS/MSD			
154	9/20/2015	9/21/2015	X	X FD	X			Collected field duplicate for toxicity (NB03SEDDUP-03)
155	9/20/2015	9/21/2015	X	X	X		X	
156	9/17/2015	9/18/2015	X	X	X			
157	9/16/2015	9/17/2015	X	X	X			
158	9/24/2015	9/25/2015	X	X	X			
159	9/24/2015	9/25/2015	X	X	X			
160	9/28/2015	9/29/2015	X	X	X	X	X	
161	9/15/2015	9/16/2015	X	X	X	X	X	
162	9/21/2015	9/22/2015	X	X	X			
163	9/22/2015	9/23/2015	X	X	X			
164	9/13/2015	9/14/2015	X	X	X		X	
165	9/13/2015	9/14/2015	X	X	X			
166	9/13/2015	9/14/2015					X	
167	9/14/2015	9/15/2015					X	
168	9/15/2015	9/16/2015					X FD, MS/MSD	Collected field duplicate for sediment chemistry (NB03SEDDUP-01)

**Table 2-2
Sampling Detail**

Station	Date Sediment Collected ¹	Date Samples Processed ¹	Sediment Chemistry	Toxicity	Porewater Chemistry	Bioaccumulation Test using <i>N. virens</i>	BHHRA Sediment Chemistry	Notes
169	9/15/2015	9/16/2015					X	
170	9/16/2015	9/17/2015					X	
171	9/17/2015	9/18/2015					X	
172	9/23/2015	9/24/2015					X	
173	9/23/2015	9/24/2015					X	
174	9/20/2015	9/21/2015					X	
175	9/21/2015	9/22/2015					X	
176	9/23/2015	9/24/2015					X	
177	9/29/2015	9/30/2015					X	
178	9/23/2015	9/24/2015					X	

Notes:

¹Sample processing was completed the day after sediment collection. The sample date on sample bottles and chain of custody forms is the processing date.

BHHRA = baseline human health risk assessment

FD = field duplicate

MS/MSD = matrix spike/matrix spike duplicate

Table 3-1
Chemistry Analyses Conducted on Sediment, Tissue, and Porewater Samples

Analytical Laboratory	Chemistry Analysis	Sediment	Tissue	Porewater
TestAmerica Burlington	Butyltins	X	X	
Vista Analytical	Pesticides	X	X	X
Eurofins Frontier Global Sciences	Mercury and Methylmercury	X	X	X
Eurofins Lancaster	Dioxins/Furans	X	X	X
	Lipids		X	
	Congener PCBs	X	X	X
	Aroclor PCBs	X	X	
	Metals (including titanium)	X	X	X
	SVOCs (including phthalates and alkylated PAHs)	X	X	X
	Percent Moisture	X	X	
	Hexavalent Chromium	X		
	VOCs	X		
	Herbicides	X		
	Total Petroleum Hydrocarbons	X		
	Total Organic Carbon	X		
	Oxidation Reduction Potential	X		
	Total Phosphorus	X		
	Total Kjeldahl Nitrogen	X		
	AVS/SEM	X		
	Ammonia	X		X
	Cyanide	X		
	Grain Size	X		
	Dissolved Organic Carbon			
Total Sulfide				X
	pH	X		
Val Associates Laboratory	Total Sulfide	X		

Notes:

AVS/SEM = acid volatile sulfide/simultaneously extracted metals

PAHs = polycyclic aromatic hydrocarbons

PCBs = polychlorinated biphenyls

SVOCs = semivolatile organic compounds

VOCs = volatile organic compounds

Table 3-2
List of Constituents Not Detected in Sediment Samples

Analyte
Herbicides
2,4,5-TP (Silvex)
2,4-D
TEPH Alkanes
n-Decane
Butyltins
Monobutyltin
Tetrabutyltin
PCB Congeners
PCB-161
PCB-204
Aroclor PCBs
Aroclor-1016
Aroclor-1221
Aroclor-1232
Pesticides
Aldrin
Endosulfan II
Endosulfan Sulfate
Endrin
Endrin Aldehyde
Endrin Ketone
Semivolatiles
1,2,4,5-Tetrachlorobenzene
1,2-Diphenylhydrazine
2,2'-oxybis(1-Chloropropane)
2,3,4,6-Tetrachlorophenol
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
2-Chloronaphthalene
2-Chlorophenol
2-Methylphenol
2-Nitrophenol
3,3'-Dichlorobenzidine
3-Nitroaniline
4,6-Dinitro-2-methylphenol
4-Bromophenyl phenyl ether
4-Chloro-3-Methylphenol
4-Chloroaniline
4-Chlorophenyl phenyl ether
4-Nitroaniline

Table 3-2
List of Constituents Not Detected in Sediment Samples

Analyte
4-Nitrophenol
Atrazine
Benzaldehyde
Benzidine
Benzoic Acid
bis(2-Chloroethoxy)methane
bis(2-Chloroethyl)ether
Butyl benzyl phthalate
Caprolactam
Diethyl phthalate
Dimethylphthalate
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Isophorone
Nitrobenzene
N-Nitroso-di-n-propylamine
N-Nitrosodiphenylamine
Pentachlorophenol
Pyridine
Volatiles
1,2,4-Trichlorobenzene
1,2-Dichlorobenzene
1,3-Dichlorobenzene

Notes:

PCB = polychlorinated biphenyl

Table 3-3
Statistical Summary of Detected Analytes - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Dioxins/Furans									
1,2,3,4,6,7,8-HpCDD	ng/kg	43	43	100%	20	1780	252	292	305
1,2,3,4,6,7,8-HpCDF	ng/kg	43	43	100%	11.2	1880	212	319	341
1,2,3,4,7,8,9-HpCDF	ng/kg	43	43	100%	1.04	49.4	9.78	13.1	11.0
1,2,3,4,7,8-HxCDD	ng/kg	43	43	100%	0.32	9.96	3.63	3.69	2.00
1,2,3,4,7,8-HxCDF	ng/kg	43	43	100%	2.14	433	48.5	79.7	90.1
1,2,3,6,7,8-HxCDD	ng/kg	43	43	100%	1.23	69.1	15.0	16.0	12.2
1,2,3,6,7,8-HxCDF	ng/kg	43	43	100%	1.21	95.2	15.2	19.5	17.8
1,2,3,7,8,9-HxCDD	ng/kg	43	43	100%	0.685	32.2	9.07	9.27	6.03
1,2,3,7,8,9-HxCDF	ng/kg	43	24	56%	0.452	5.45	2.30	2.57	1.60
1,2,3,7,8-PeCDD	ng/kg	43	43	100%	0.222	12	3.85	3.94	2.36
1,2,3,7,8-PeCDF	ng/kg	43	43	100%	0.728	40.7	8.12	9.23	7.63
2,3,4,6,7,8-HxCDF	ng/kg	43	43	100%	1.05	32	8.05	9.87	7.15
2,3,4,7,8-PeCDF	ng/kg	43	43	100%	1.04	45.8	15.1	16.7	11.6
2,3,7,8-TCDD	ng/kg	43	43	100%	1.76	413	58.6	81.1	86.7
2,3,7,8-TCDF	ng/kg	43	43	100%	1.28	57.3	13.8	14.2	9.41
OCDD	ng/kg	38	38	100%	212	3820	2300	2130	1010
OCDF	ng/kg	43	43	100%	18.9	2820	326	564	637
Herbicides									
2,4,5-T	ug/kg	41	12	29%	1.7	12	6.30	6.05	3.27
2,4-DB	ug/kg	43	2	5%	78	89	83.5	83.5	7.78
Metals									
Aluminum	mg/kg	43	43	100%	4670	23300	13000	13600	5150
Antimony	mg/kg	43	42	98%	0.226	4.43	0.681	1.16	1.11
Arsenic	mg/kg	43	43	100%	2.39	61.5	11.2	14.7	11.7
Barium	mg/kg	43	43	100%	32.1	1260	116	169	193
Beryllium	mg/kg	43	43	100%	0.311	1.78	0.789	0.823	0.335
Cadmium	mg/kg	43	43	100%	0.137	17.8	1.04	1.91	3.09
Calcium	mg/kg	42	42	100%	2210	27400	7090	7650	4730
Chromium	mg/kg	43	43	100%	20.8	397	104	110	74.2
Cobalt	mg/kg	43	43	100%	4.25	18.8	10.3	10.7	3.88
Copper	mg/kg	43	43	100%	19	567	108	148	125
Hexavalent Chromium	mg/kg	43	3	7%	1.1	2	1.20	1.43	0.493
Iron	mg/kg	43	43	100%	9060	47600	25900	26600	9780
Lead	mg/kg	43	43	100%	38.8	875	116	163	149
Magnesium	mg/kg	43	43	100%	2290	14000	7700	7690	2800
Manganese	mg/kg	43	43	100%	76.8	676	297	326	145
Mercury	ng/g	43	43	100%	169	8380	1580	1830	1480
Methyl Mercury	ng/g	43	43	100%	0.334	4.99	1.66	2.01	1.18

Table 3-3
Statistical Summary of Detected Analytes - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Nickel	mg/kg	43	43	100%	16.8	182	39.5	47.2	31.4
Potassium	mg/kg	43	43	100%	1070	6170	3140	3480	1430
Selenium	mg/kg	43	43	100%	0.148	3.74	0.725	0.868	0.698
Silver	mg/kg	43	43	100%	0.188	5.61	1.71	1.88	1.30
Sodium	mg/kg	43	43	100%	3380	18400	10200	9990	3850
Thallium	mg/kg	43	43	100%	0.0587	0.717	0.202	0.248	0.132
Titanium	mg/kg	43	43	100%	200	718	467	470	139
Vanadium	mg/kg	43	43	100%	12	78.5	34.3	37.0	14.8
Zinc	mg/kg	43	43	100%	79.6	752	236	276	166
AVS/SEM									
Acid Volatile Sulfide (AVS)	umol/g	43	41	95%	0.66	85.9	11.3	14.5	16.2
Cadmium	umol/g	43	43	100%	0.000632	0.0591	0.00299	0.00629	0.0114
Copper	umol/g	43	42	98%	0.133	1.1	0.320	0.381	0.176
Lead	umol/g	43	43	100%	0.0137	0.592	0.171	0.223	0.127
Mercury	umol/g	43	4	9%	7.4E-06	0.000019	0.0000128	0.0000130	0.0000639
Nickel	umol/g	43	43	100%	0.0231	0.369	0.123	0.155	0.0898
Zinc	umol/g	43	43	100%	0.242	4.13	0.960	1.17	0.706
TEPH Alkanes									
2,6,10,14-Tetramethyl Pentadecane	mg/kg	43	9	21%	0.0316	0.694	0.161	0.202	0.203
2,6,10,14-Tetramethylhexadecane	mg/kg	43	14	33%	0.022	0.491	0.0620	0.137	0.153
Dotriacontane	mg/kg	43	32	74%	0.0327	0.691	0.164	0.220	0.166
Heneicosane	mg/kg	43	25	58%	0.0292	0.171	0.0540	0.0680	0.0396
Heptacosane	mg/kg	43	8	19%	0.066	0.312	0.145	0.168	0.0887
Heptadecane	mg/kg	43	27	63%	0.0433	0.688	0.0925	0.143	0.146
Heptatriacontane, -n	mg/kg	43	23	53%	0.0188	0.441	0.0478	0.0851	0.0972
Hexatriacontane	mg/kg	43	19	44%	0.0279	0.964	0.0875	0.191	0.224
Hhentriacontane	mg/kg	43	30	70%	0.0448	0.835	0.148	0.211	0.188
n-Docosane	mg/kg	43	30	70%	0.0227	3.23	0.195	0.369	0.601
n-Dodecane	mg/kg	43	3	7%	0.0437	0.278	0.0452	0.122	0.135
n-Eicosane	mg/kg	43	12	28%	0.0235	0.264	0.0537	0.0762	0.0667
n-Hexacosane	mg/kg	43	12	28%	0.0527	1.04	0.108	0.210	0.287
n-Hexadecane	mg/kg	43	19	44%	0.0227	0.697	0.0633	0.165	0.223
n-Nonane	mg/kg	43	3	7%	0.0291	0.0371	0.0308	0.0323	0.00421
n-Octacosane	mg/kg	42	38	90%	0.0264	2.07	0.368	0.529	0.511
n-Octadecane	mg/kg	43	20	47%	0.0322	0.0948	0.0489	0.0546	0.0192
Nonacosane	mg/kg	43	39	91%	0.0195	1.15	0.212	0.252	0.237
Nonadecane	mg/kg	43	5	12%	0.0509	0.235	0.160	0.150	0.0828
Nonatriacontane	mg/kg	43	7	16%	0.0317	0.304	0.0740	0.0979	0.0932
n-Tetracosane	mg/kg	42	25	60%	0.024	0.751	0.0974	0.146	0.158

Table 3-3 Stat Summary of Detected Analytes_Sediment

Table 3-3
Statistical Summary of Detected Analytes - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
n-Tetradecane	mg/kg	43	7	16%	0.0262	0.0847	0.0597	0.0602	0.0224
n-Triacontane	mg/kg	43	30	70%	0.0488	1.24	0.192	0.267	0.292
n-Tridecane	mg/kg	43	1	2%	0.0317	0.0317	0.0317	0.0317	2010
n-Undecane	mg/kg	43	1	2%	0.0494	0.0494	0.0494	0.0494	2010
Octatriacontane	mg/kg	43	8	19%	0.0266	0.648	0.0445	0.121	0.214
Pentacosane	mg/kg	43	24	56%	0.02	1.03	0.106	0.181	0.219
Pentadecane	mg/kg	43	8	19%	0.0243	0.108	0.0427	0.0562	0.0323
Pentatriacontane	mg/kg	43	25	58%	0.0156	0.36	0.0571	0.0888	0.0833
Tetracontane	mg/kg	43	20	47%	0.0232	0.348	0.0452	0.0710	0.0740
Tetratriacontane	mg/kg	43	3	7%	0.0255	0.0428	0.0291	0.0325	0.00913
Tricosane	mg/kg	43	37	86%	0.0249	0.95	0.0995	0.183	0.216
Tritriacontane	mg/kg	43	7	16%	0.0476	0.242	0.114	0.110	0.0667
Butyltins									
Dibutyltin	ug/kg	43	6	14%	2.7	15	4.98	6.73	4.48
Tributyltin	ug/kg	43	7	16%	2.8	16	6.00	6.83	4.51
PCB Congeners									
PCB-1	ng/kg	39	39	100%	25.3	1030	261	285	198
PCB-2	ng/kg	43	42	98%	5.03	330	40.0	48.6	51.9
PCB-3	ng/kg	33	33	100%	10.6	803	103	128	131
PCB-4	ng/kg	43	43	100%	34.2	4850	422	655	774
PCB-5	ng/kg	43	37	86%	1.3	87.8	4.64	8.75	14.9
PCB-6	ng/kg	43	41	95%	15.2	1820	121	208	319
PCB-7	ng/kg	43	26	60%	2.89	63.6	14.8	21.0	16.6
PCB-8	ng/kg	43	42	98%	70.3	6260	494	787	1050
PCB-9	ng/kg	43	29	67%	4.65	297	21.6	43.3	57.1
PCB-10	ng/kg	43	43	100%	3.92	378	40.0	50.1	55.5
PCB-11	ng/kg	43	43	100%	34.7	8970	293	592	1350
PCB-12/13	ng/kg	43	43	100%	14.7	3200	142	237	481
PCB-14	ng/kg	43	7	16%	0.799	8.95	1.71	2.72	2.85
PCB-15	ng/kg	42	42	100%	75	14800	700	1140	2210
PCB-16	ng/kg	34	33	97%	72.3	3370	235	478	656
PCB-17	ng/kg	43	43	100%	21.2	9890	313	740	1540
PCB-18/30	ng/kg	43	43	100%	29	15500	470	1240	2490
PCB-19	ng/kg	43	42	98%	29.2	2280	121	216	362
PCB-20/28	ng/kg	43	43	100%	125	56300	1220	3380	8530
PCB-21/33	ng/kg	43	43	100%	19.9	11100	301	827	1740
PCB-22	ng/kg	43	43	100%	25.2	12600	288	827	1930
PCB-23	ng/kg	43	21	49%	0.695	30.3	1.42	3.68	6.37
PCB-24	ng/kg	43	25	58%	2.11	174	5.59	16.3	34.5

Table 3-3
Statistical Summary of Detected Analytes - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-25	ng/kg	43	43	100%	14.8	4990	145	315	750
PCB-26/29	ng/kg	43	43	100%	27.5	8530	288	542	1280
PCB-27	ng/kg	43	43	100%	6.74	2130	76.4	155	322
PCB-31	ng/kg	43	43	100%	70.6	31800	833	2140	4820
PCB-32	ng/kg	43	43	100%	17.7	8090	261	581	1230
PCB-34	ng/kg	43	43	100%	0.823	275	6.96	16.1	41.2
PCB-35	ng/kg	43	43	100%	3.85	1340	36.2	78.5	201
PCB-36	ng/kg	43	29	67%	0.802	41.1	1.65	3.67	7.34
PCB-37	ng/kg	43	43	100%	37	14000	331	830	2120
PCB-38	ng/kg	43	11	26%	0.73	18.1	1.45	3.10	5.04
PCB-39	ng/kg	43	43	100%	1.04	264	7.11	15.3	39.5
PCB-40/71	ng/kg	43	43	100%	34.1	17900	535	1150	2730
PCB-41	ng/kg	43	42	98%	9.21	1960	54.9	143	318
PCB-42	ng/kg	43	43	100%	22.7	12200	395	792	1860
PCB-43	ng/kg	43	42	98%	3.04	1810	41.1	110	280
PCB-44/47/65	ng/kg	43	43	100%	81.6	37500	1190	2520	5730
PCB-45	ng/kg	43	42	98%	8.34	5030	119	329	792
PCB-46	ng/kg	43	43	100%	3.62	1760	51.0	126	275
PCB-48	ng/kg	43	43	100%	10.8	7730	203	467	1190
PCB-49/69	ng/kg	43	43	100%	63.9	27000	881	1770	4090
PCB-50/53	ng/kg	43	42	98%	11.2	4820	138	341	753
PCB-51	ng/kg	43	43	100%	4.95	1630	77.6	155	277
PCB-52	ng/kg	43	43	100%	161	39000	1310	2660	5980
PCB-54	ng/kg	43	36	84%	2.1	121	10.2	16.3	20.9
PCB-55	ng/kg	43	39	91%	2.84	1849.85	10.4	106	331
PCB-56	ng/kg	43	43	100%	32.4	20500	539	1220	3120
PCB-57	ng/kg	43	39	91%	2.29	271	8.49	17.8	43.2
PCB-58	ng/kg	43	40	93%	1.83	191	5.11	11.0	29.8
PCB-60	ng/kg	43	43	100%	11.3	5970	210	425	947
PCB-61/70/74/76	ng/kg	43	43	100%	95.3	67500	1880	3980	10300
PCB-62/75	ng/kg	43	43	100%	8.48	3780	110	238	576
PCB-63	ng/kg	43	42	98%	2.93	1950	45.8	105	297
PCB-64	ng/kg	43	43	100%	28.5	16900	575	1120	2590
PCB-66	ng/kg	43	41	95%	67.3	42800	1170	2620	6730
PCB-67	ng/kg	43	43	100%	2.17	1300	32.3	73.9	196
PCB-68	ng/kg	43	40	93%	4.59	342	10.3	21.9	52.9
PCB-72	ng/kg	43	42	98%	1.83	538	14.9	31.0	81.4
PCB-73	ng/kg	43	17	40%	1.89	83	3.79	11.9	20.3
PCB-77	ng/kg	25	25	100%	10.2	5350	141	409	1060

Table 3-3
Statistical Summary of Detected Analytes - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-78	ng/kg	43	1	2%	18.9	18.9	18.9	18.9	2010
PCB-79	ng/kg	43	39	91%	2.38	317	9.70	22.7	51.3
PCB-80	ng/kg	43	4	9%	2.72	7.68	3.89	4.55	2.34
PCB-81	ng/kg	43	36	84%	1.88	152	4.68	11.1	25.7
PCB-82	ng/kg	43	43	100%	8.25	4170	139	311	659
PCB-83	ng/kg	43	42	98%	4.8	1800	59.7	133	281
PCB-84	ng/kg	43	40	93%	11.5	7130	263	558	1140
PCB-85/116/117	ng/kg	43	43	100%	15	6450	224	476	1010
PCB-86/87/97/109/119/125	ng/kg	43	43	100%	47.7	20400	755	1570	3200
PCB-88	ng/kg	43	1	2%	349	349	349	349	2010
PCB-89	ng/kg	43	41	95%	2.96	495	15.1	33.3	77.1
PCB-90/101/113	ng/kg	43	42	98%	81.7	29700	1140	2270	4650
PCB-91	ng/kg	43	43	100%	10.2	4840	194	387	750
PCB-92	ng/kg	43	42	98%	14.4	5790	213	409	887
PCB-93/100	ng/kg	43	40	93%	12.2	475	28.5	57.2	91.4
PCB-94	ng/kg	43	41	95%	2.63	236	9.80	19.7	36.6
PCB-95	ng/kg	21	21	100%	60.8	23200	997	2600	5030
PCB-96	ng/kg	42	41	98%	1.91	267	10.1	22.7	42.5
PCB-98/102	ng/kg	43	42	98%	10.7	1300	48.8	102	201
PCB-99	ng/kg	43	43	100%	45.9	16600	636	1310	2580
PCB-103	ng/kg	43	42	98%	4.09	326	16.8	31.5	52.6
PCB-104	ng/kg	43	23	53%	1.43	47.5	4.64	7.48	9.75
PCB-105	ng/kg	43	40	93%	26.7	12800	434	946	2090
PCB-106	ng/kg	43	1	2%	3850	3850	3850	3850	2010
PCB-107	ng/kg	43	43	100%	6.67	2650	77.5	175	411
PCB-108/124	ng/kg	43	43	100%	3.15	1260	40.0	90.3	199
PCB-110/115	ng/kg	43	43	100%	92.8	37300	1390	2910	5870
PCB-111	ng/kg	43	6	14%	1.49	24.8	1.95	6.39	9.21
PCB-112	ng/kg	43	21	49%	1.42	65.1	3.43	8.14	14.0
PCB-114	ng/kg	43	42	98%	1.76	800	26.1	57.1	128
PCB-118	ng/kg	43	43	100%	80.8	31500	1040	2270	4990
PCB-120	ng/kg	43	39	91%	1.6	141	5.02	10.2	22.3
PCB-121	ng/kg	43	4	9%	1.37	2.845	1.74	1.92	0.653
PCB-122	ng/kg	43	41	95%	2.3	463	14.8	33.3	74.9
PCB-123	ng/kg	41	40	98%	3.8	623	23.7	49.8	102
PCB-126	ng/kg	41	28	68%	1.62	176	4.18	12.9	32.8
PCB-127	ng/kg	35	21	60%	1.44	30.6	5.53	8.05	7.51
PCB-128/166	ng/kg	43	43	100%	11.1	5160	153	374	818
PCB-129/138/163	ng/kg	43	43	100%	85.5	41700	1160	2770	6440

Table 3-3
Statistical Summary of Detected Analytes - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-130	ng/kg	39	39	100%	6	2410	62.5	169	392
PCB-131	ng/kg	39	34	87%	2.11	460	15.1	37.4	80.9
PCB-132	ng/kg	43	43	100%	25.1	12100	324	812	1880
PCB-133	ng/kg	43	43	100%	1.92	599	17.4	39.7	92.6
PCB-134	ng/kg	39	39	100%	5.24	2050	58.8	148	334
PCB-135/151	ng/kg	43	43	100%	26.6	11200	341	775	1710
PCB-136	ng/kg	43	43	100%	8.02	3610	122	267	556
PCB-137	ng/kg	39	39	100%	3.61	1650	48.8	129	278
PCB-139/140	ng/kg	43	40	93%	4.52	570	18.5	44.3	93.2
PCB-141	ng/kg	39	39	100%	10.7	6210	171	430	1000
PCB-142	ng/kg	39	1	3%	3.02	3.02	3.02	3.02	2010
PCB-143	ng/kg	36	9	25%	3.34	81.6	8.17	18.4	25.4
PCB-144	ng/kg	43	43	100%	2.32	1470	44.6	101	227
PCB-145	ng/kg	43	5	12%	1.69	5.335	2.49	2.94	1.45
PCB-146	ng/kg	20	19	95%	15	5700	208	600	1280
PCB-147/149	ng/kg	43	43	100%	64.7	28600	830	1910	4380
PCB-148	ng/kg	43	21	49%	1.75	60.8	4.74	10.1	14.4
PCB-150	ng/kg	43	39	91%	1.67	137	4.67	11.8	24.2
PCB-152	ng/kg	43	20	47%	1.53	28.1	2.94	4.79	5.95
PCB-153/168	ng/kg	43	43	100%	80.2	34600	950	2240	5280
PCB-154	ng/kg	43	40	93%	5.29	467	22.0	53.7	97.2
PCB-155	ng/kg	43	36	84%	1.7	256	7.17	19.2	44.0
PCB-156/157	ng/kg	43	43	100%	8.52	4460	115	308	706
PCB-158	ng/kg	42	42	100%	7.55	3840	104	265	603
PCB-159	ng/kg	43	2	5%	4.59	61.4	33.0	33.0	40.2
PCB-160	ng/kg	43	1	2%	1550	1550	1550	1550	2010
PCB-162	ng/kg	36	28	78%	1.52	101.35	9.38	16.3	20.1
PCB-164	ng/kg	41	41	100%	5.59	2550	76.5	176	403
PCB-165	ng/kg	19	6	32%	1.44	17.8	1.84	5.15	6.50
PCB-167	ng/kg	34	34	100%	7.1	476.5	41.4	70.0	92.7
PCB-169	ng/kg	43	1	2%	15.4	15.4	15.4	15.4	2010
PCB-170	ng/kg	43	43	100%	13.6	11200	255	650	1720
PCB-171/173	ng/kg	20	20	100%	5.26	3560	84.7	323	784
PCB-172	ng/kg	43	43	100%	3.3	2170	44.7	119	330
PCB-174	ng/kg	21	21	100%	15.8	10700	249	937	2310
PCB-175	ng/kg	19	18	95%	2.98	513	13.9	51.5	118
PCB-176	ng/kg	43	43	100%	2.43	1390	33.9	80.6	212
PCB-177	ng/kg	20	20	100%	12.7	7260	166	658	1600
PCB-178	ng/kg	28	28	100%	6.84	2510	60.8	189	470

Table 3-3
Statistical Summary of Detected Analytes - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-179	ng/kg	43	43	100%	9.97	4820	121	282	734
PCB-180/193	ng/kg	43	42	98%	48.4	26900	600	1560	4160
PCB-181	ng/kg	20	14	70%	1.98	88.7	4.04	12.9	23.3
PCB-182	ng/kg	20	4	20%	4.96	52.9	11.8	20.4	22.6
PCB-183/185	ng/kg	25	25	100%	17.2	8990	209	688	1790
PCB-184	ng/kg	43	9	21%	1.75	25.1	2.69	5.49	7.49
PCB-186	ng/kg	43	1	2%	2.08	2.08	2.08	2.08	2010
PCB-187	ng/kg	28	28	100%	42.3	16000	414	1230	3000
PCB-188	ng/kg	43	17	40%	1.66	45.3	4.05	7.67	10.3
PCB-189	ng/kg	43	42	98%	2.01	424	10.3	26.2	65.8
PCB-190	ng/kg	43	43	100%	3.77	2420	55.8	142	371
PCB-191	ng/kg	43	41	95%	1.97	493	11.2	29.4	76.9
PCB-192	ng/kg	43	1	2%	1.4	1.4	1.40	1.40	2010
PCB-194	ng/kg	43	43	100%	17.7	6860	156	411	1060
PCB-195	ng/kg	43	43	100%	4.56	2450	49.0	139	379
PCB-196	ng/kg	43	43	100%	10.3	3450	87.6	212	534
PCB-197/200	ng/kg	31	31	100%	4.57	286.5	25.1	42.6	55.6
PCB-198/199	ng/kg	43	43	100%	39.5	8520	201	582	1370
PCB-201	ng/kg	43	43	100%	4.6	961	24.5	61.5	149
PCB-202	ng/kg	43	43	100%	15.1	2290	58.8	154	365
PCB-203	ng/kg	43	43	100%	22.8	5100	130	371	861
PCB-205	ng/kg	43	40	93%	2.08	340	7.90	20.9	54.4
PCB-206	ng/kg	43	43	100%	36.9	5700	168	477	1190
PCB-207	ng/kg	43	43	100%	3.44	475	14.4	40.9	96.2
PCB-208	ng/kg	43	43	100%	15.2	2120	59.8	168	432
PCB-209	ng/kg	39	39	100%	26.9	5090	117	370	834
Total PCB Congeners (209)	ng/kg	43	43	100%	2540	1070000	35100	71700	163000
Aroclor PCBs									
Aroclor-1242	ug/kg	43	1	2%	99	99	99.0	99.0	2010
Aroclor-1248	ug/kg	43	36	84%	22	1500	77.5	143	250
Aroclor-1254	ug/kg	43	41	95%	11	850	73.0	133	174
Aroclor-1260	ug/kg	43	24	56%	13	240	34.0	45.0	44.1
Aroclor-1262	ug/kg	43	9	21%	14	160	21.0	47.6	55.9
Aroclor-1268	ug/kg	43	1	2%	20	20	20.0	20.0	2010
Total Aroclor PCBs (Sum of 7 Aroclors)	ug/kg	43	42	98%	11	2400	170	281	387
Total Aroclor PCBs (Sum of 9 Aroclors)	ug/kg	43	42	98%	28	2500	180	290	405

Table 3-3
Statistical Summary of Detected Analytes - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Pesticides									
2,4'-DDD	pg/g	43	43	100%	243	43800	4390	7620	9070
2,4'-DDE	pg/g	43	43	100%	307	175000	3800	15000	33700
2,4'-DDT	pg/g	42	39	93%	19.3	2440	219	368	446
4,4'-DDD	pg/g	43	43	100%	863	125000	11400	21900	26400
4,4'-DDE	pg/g	43	43	100%	1050	336000	17300	42500	70200
4,4'-DDT	pg/g	43	43	100%	229	108000	1020	5380	17000
Alpha-BHC	pg/g	43	43	100%	8.06	1260	50.6	131	245
Alpha-Chlordane	pg/g	43	42	98%	203	7480	2720	3040	1810
Beta-BHC	pg/g	43	35	81%	6.63	1426	76.2	134	237
cis-Nonachlor	pg/g	43	41	95%	79.9	2470	980	1020	579
Delta-BHC	pg/g	43	8	19%	6.07	322	23.0	61.4	107
Dieldrin	pg/g	43	42	98%	106	7830	1170	1450	1290
Endosulfan I	pg/g	43	3	7%	68.3	247	222	179	96.8
Gamma-BHC (Lindane)	pg/g	43	20	47%	6.29	218	17.4	34.7	50.1
Heptachlor	pg/g	43	7	16%	14.2	153	29.8	48.5	48.3
Heptachlor Epoxide	pg/g	43	26	60%	40	552	118	148	110
Hexachlorobenzene	pg/g	43	43	100%	207	31200	1270	2390	4980
Methoxychlor	pg/g	28	1	4%	1420	1420	1420	1420	2010
Mirex	pg/g	37	5	14%	27.8	959	172	288	382
Nonachlor, trans-	pg/g	43	42	98%	139	3990	1590	1760	1070
Oxychlordane	pg/g	43	4	9%	29.5	41.8	36.1	35.9	6.85
trans-Chlordane	pg/g	43	42	98%	261	10900	3080	3500	2150
trans-Heptachlor Epoxide	pg/g	43	24	56%	88.4	626	300	332	175
Total Alpha + Gamma Chlordane	pg/g	43	42	98%	460	16000	5800	6570	3850
Total DDT (2,4)	pg/g	43	43	100%	550	180000	8400	23100	39600
Total DDT (4,4)	pg/g	43	43	100%	2300	490000	31000	69700	100000
Total DDT (2,4 & 4,4)	pg/g	43	43	100%	2800	600000	39000	92600	138000
Semivolatiles									
1-Methylnaphthalene	ug/kg	43	33	77%	1.4	46	4.10	9.39	10.5
2,4-Dimethylphenol	ug/kg	36	2	6%	92	130	111	111	26.9
2-Methylnaphthalene	ug/kg	43	42	98%	1.3	76	6.30	12.8	16.5
2-Nitroaniline	ug/kg	36	1	3%	33	33	33.0	33.0	2010
4-Methylphenol	ug/kg	38	24	63%	33	2500	57.5	176	497
Acenaphthene	ug/kg	43	39	91%	1.3	100	7.30	16.6	20.5
Acenaphthylene	ug/kg	43	42	98%	2.4	360	17.6	46.9	83.0
Acetophenone	ug/kg	42	22	52%	27	130	56.0	65.7	32.3
Anthracene	ug/kg	43	43	100%	2	530	30.0	57.3	89.8
Benzo(a)anthracene	ug/kg	43	43	100%	6.3	1600	82.0	187	299

Table 3-3
Statistical Summary of Detected Analytes - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Benzo(a)pyrene	ug/kg	43	43	100%	7.2	1500	99.0	234	372
Benzo(b)fluoranthene	ug/kg	43	43	100%	6.7	1000	74.0	168	240
Benzo(e)pyrene	ug/kg	43	43	100%	5.6	900	66.0	149	219
Benzo(g,h,i)perylene	ug/kg	43	43	100%	5.1	760	56.0	128	183
Benzo(j,k)fluoranthene	ug/kg	43	43	100%	5.9	1300	72.0	172	264
Biphenyl	ug/kg	36	5	14%	35	65	55.0	54.0	11.4
bis(2-Ethylhexyl)phthalate	ug/kg	42	36	86%	140	38000	665	1930	6250
C1-Chrysenes	ug/kg	43	43	100%	5.9	1600	63.0	181	330
C1-Fluoranthenes/Pyrenes	ug/kg	43	43	100%	9.2	2800	110	288	538
C1-Fluorenes	ug/kg	43	41	95%	1.3	150	10.0	21.6	31.9
C1-Naphthalenes	ug/kg	43	42	98%	1.6	110	7.70	17.5	24.3
C1-Phenanthrenes/Anthracenes	ug/kg	43	43	100%	3.8	770	49.0	107	151
C2-Chrysenes	ug/kg	43	43	100%	5.9	1100	57.0	129	223
C2-Fluoranthenes/Pyrenes	ug/kg	43	43	100%	5.9	1500	67.0	161	286
C2-Fluorenes	ug/kg	43	31	72%	2.3	260	17.0	36.0	56.2
C2-Naphthalenes	ug/kg	43	42	98%	2.3	150	16.0	29.7	37.4
C2-Phenanthrene/anthracenes	ug/kg	43	43	100%	6.7	1400	57.0	139	245
C3-Chrysenes	ug/kg	43	43	100%	2.9	420	32.0	60.7	90.3
C3-Fluoranthenes/Pyrenes	ug/kg	43	43	100%	4.3	610	42.0	88.1	134
C3-Fluorenes	ug/kg	43	18	42%	5.7	320	21.0	61.9	82.0
C3-Naphthalene	ug/kg	43	43	100%	2.7	170	16.0	35.6	43.6
C3-Phenanthrene/anthracenes	ug/kg	43	43	100%	6.6	1000	35.0	97.0	174
C4-Chrysenes	ug/kg	43	26	60%	4.7	130	23.5	32.5	33.8
C4-Naphthalene	ug/kg	43	43	100%	3	350	17.0	43.1	67.7
C4-Phenanthrenes/anthracenes	ug/kg	43	7	16%	30	370	150	156	116
Carbazole	ug/kg	37	15	41%	31	480	74.0	109	113
Chrysene	ug/kg	43	43	100%	6.7	1400	94.0	195	282
Dibenzo(a,h)anthracene	ug/kg	43	42	98%	2.7	230	16.0	39.4	58.8
Dibenzofuran	ug/kg	37	15	41%	29	240	56.0	89.4	67.8
Di-n-Butylphthalate	ug/kg	36	1	3%	170	170	170	170	2010
Di-n-Octylphthalate	ug/kg	36	1	3%	250	250	250	250	2010
Fluoranthene	ug/kg	43	43	100%	11	2600	130	273	434
Fluorene	ug/kg	43	39	91%	1.7	62	7.20	15.3	16.3
Indeno(1,2,3-cd)pyrene	ug/kg	43	43	100%	5.4	900	59.0	141	206
Naphthalene	ug/kg	43	43	100%	1.8	290	14.5	36.5	54.5
Perylene	ug/kg	43	43	100%	2.8	360	23.0	51.9	76.9
Phenanthrene	ug/kg	43	43	100%	2.8	810	55.0	110	148

Table 3-3
Statistical Summary of Detected Analytes - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Phenol	ug/kg	36	5	14%	35	140	46.0	69.8	44.5
Pyrene	ug/kg	43	43	100%	10	2300	140	302	453
Total HMW PAHs	ug/kg	43	43	100%	64	14000	860	1850	2780
Total LMW PAHs	ug/kg	43	43	100%	6.6	1900	150	291	373
TOTAL PAHs	ug/kg	43	43	100%	71	16000	1000	2140	3140
Volatiles									
1,4-Dichlorobenzene	ug/kg	43	1	2%	4	4	4.00	4.00	2010
TPH									
PHC AS GASOLINE	mg/kg	43	5	12%	5.8	100	7.20	36.0	42.6
Total Petroleum Hydrocarbons (C9-C40)	mg/kg	43	42	98%	9.35	1290	130	209	240
Miscellaneous Chemicals									
Total Kjeldahl Nitrogen	mg/kg	43	43	100%	274	8520	1550	1720	1270
Total Cyanide	mg/kg	43	3	7%	0.44	0.72	0.480	0.547	0.151
Ammonia Nitrogen	mg/kg	43	15	35%	94.4	235	144	155	46.4
Phosphorus	mg/kg	43	43	100%	158	2090	852	888	387
Physical Properties									
Moisture (water) Content	%	43	43	100%	26.5	63.6	53.1	50.2	10.4
Oxidation Reduction Potential	mV	43	43	100%	25.5	393	85.0	103	68.0
Percent Moisture	%	43	43	100%	23.2	66.6	49.8	47.2	12.0
Total Solids (Percent)	%	43	43	100%	37	79	49.0	51.4	11.0
Water Content	%	43	43	100%	36	175	113	109	40.0
Water Content ASTM D2216	%	43	43	100%	30.2	200	99.4	99.1	44.7
TOC by Lloyd Kahn	mg/kg	43	43	100%	3170	151000	34000	39100	23600
pH	pH Units	43	43	100%	7.3	8.6	7.68	7.74	0.265
Grain Size									
0.001 mm	% passing	43	34	79%	0.5	10	4.50	5.12	2.53
0.002 mm	% passing	43	42	98%	0.5	16	7.00	7.65	3.99
0.02 mm	% passing	43	43	100%	4	56	29.0	30.6	15.2
0.05 mm	% passing	43	43	100%	5	82	50.0	46.9	21.6
0.064 mm	% passing	43	43	100%	5	92	58.0	54.6	24.0
0.3 mm	% passing	43	43	100%	24.7	97.3	89.3	85.6	13.6
3.35 mm	% passing	43	43	100%	77.2	100	98.5	97.3	3.94
75000 um	% passing	43	43	100%	100	100	100	100	0
Hydrometer Reading, Percent Finer Than 0.0050 mm	% passing	43	43	100%	2	24	11.0	12.6	6.23
Sieve No. 4, Percent Passing	% passing	43	43	100%	80.1	100	99.6	98.4	3.34
Sieve No. 8, Percent Passing	% passing	43	43	100%	73.9	99.7	96.6	95.2	4.83
Sieve No. 16, Percent Passing	% passing	43	43	100%	69.2	99.1	95.4	93.8	5.59
Sieve No. 30, Percent Passing	% passing	43	43	100%	56	98.4	93.6	91.4	7.71

Table 3-3
Statistical Summary of Detected Analytes - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Sieve No. 100, Percent Passing	% passing	43	43	100%	10	96.6	79.4	74.1	19.5
Sieve No. 200, Percent Passing	% passing	43	43	100%	5.9	95.9	62.1	58.9	24.8
Sieve 19000 Microns, Percent Passing	% passing	43	43	100%	85	100	100	99.5	2.39
Sieve 37500 Microns, Percent Passing	% passing	43	43	100%	100	100	100	100	0

Footnotes:

¹Valid results are results that were found to be valid as a result of data validation. Only valid data are used in statistical analyses. Additional details regarding rejected data are provided in Appendix H of this report.

Notes:

1. Only detected values were included in the calculation of totals.
2. Non-detect ("U" qualified) data were excluded from the statistical analysis.
3. Field duplicate samples were averaged to create one result prior to statistical reporting. Additional details regarding field duplicate handling can be found in Section 3.0 of the report.

ASTM = American Society for Testing Materials

AVS/SEM = acid volatile sulfide/simultaneously extracted metals

DDD = dichlorodiphenyldichloroethane

DDE = dichlorodiphenyldichloroethylene

DDT = dichlorodiphenyltrichloroethane

HMW = high molecular weight

LMW = low molecular weight

PAH = polycyclic aromatic hydrocarbon

PCB = polychlorinated biphenyl

TCDD = tetrachlorodibenzo-p-dioxin

TEPH = total extractable petroleum hydrocarbons

NA = not applicable

% = percent

mg/kg = milligrams per kilogram

ng/g = nanograms per gram

ng/kg = nanograms per kilogram

pg/g = picograms per gram

ppb = parts per billion

ug/kg = micrograms per kilogram

umol/g = micromoles per gram

Table 3-4
Statistical Summary of Detected Analytes in the North Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Dioxins/Furans									
1,2,3,4,6,7,8-HpCDD	ng/kg	17	17	100%	44.2	486	218	213	115
1,2,3,4,6,7,8-HpCDF	ng/kg	17	17	100%	31.9	1880	405	507	456
1,2,3,4,7,8,9-HpCDF	ng/kg	17	17	100%	1.33	37.1	16.1	16.8	11.6
1,2,3,4,7,8-HxCDD	ng/kg	17	17	100%	0.633	6.82	3.43	3.51	1.66
1,2,3,4,7,8-HxCDF	ng/kg	17	17	100%	8.06	433	103	138	117
1,2,3,6,7,8-HxCDD	ng/kg	17	17	100%	1.97	24.2	13.3	13.6	6.75
1,2,3,6,7,8-HxCDF	ng/kg	17	17	100%	2.15	95.2	24.3	27.9	22.9
1,2,3,7,8,9-HxCDD	ng/kg	17	17	100%	1.23	21.9	8.33	8.54	4.98
1,2,3,7,8,9-HxCDF	ng/kg	17	7	41%	0.505	4.86	2.03	2.34	1.50
1,2,3,7,8-PeCDD	ng/kg	17	17	100%	0.466	7.68	3.95	3.97	2.06
1,2,3,7,8-PeCDF	ng/kg	17	17	100%	1.19	34.5	9.92	9.84	7.37
2,3,4,6,7,8-HxCDF	ng/kg	17	17	100%	1.47	29.4	11.9	11.3	7.15
2,3,4,7,8-PeCDF	ng/kg	17	17	100%	1.97	45.8	20.5	21.1	12.8
2,3,7,8-TCDD	ng/kg	17	17	100%	9.98	413	83.9	96.4	88.2
2,3,7,8-TCDF	ng/kg	17	17	100%	2.1	19.7	13.3	12.5	5.31
OCDD	ng/kg	16	16	100%	435	3190	2140	1990	928
OCDF	ng/kg	17	17	100%	50.2	2660	653	820	693
Herbicides									
2,4,5-T	ug/kg	16	1	6%	2.2	2.2	NA	NA	NA
Metals									
Aluminum	mg/kg	17	17	100%	4670	20700	11400	12000	4830
Antimony	mg/kg	17	16	94%	0.311	4.43	0.584	0.791	0.980
Arsenic	mg/kg	17	17	100%	2.39	14.1	9.64	9.62	2.95
Barium	mg/kg	17	17	100%	48.9	196	94.0	94.7	38.3
Beryllium	mg/kg	17	17	100%	0.311	1.1	0.712	0.683	0.250
Cadmium	mg/kg	17	17	100%	0.137	2.52	0.944	1.04	0.556
Calcium	mg/kg	16	16	100%	2790	21900	5230	7000	4860
Chromium	mg/kg	17	17	100%	25.3	159	107	92.9	35.2
Cobalt	mg/kg	17	17	100%	4.25	15.7	8.69	9.17	3.28
Copper	mg/kg	17	17	100%	34.5	155	100	93.1	36.2
Hexavalent Chromium	mg/kg	17	3	18%	1.1	2	1.20	1.43	0.493
Iron	mg/kg	17	17	100%	9060	38700	22000	23000	8870
Lead	mg/kg	17	17	100%	40.5	204	102	99.8	43.5
Magnesium	mg/kg	17	17	100%	2290	10400	6440	6470	2500
Manganese	mg/kg	17	17	100%	76.8	676	271	287	149
Mercury	ng/g	17	17	100%	254	3020	1660	1530	778
Methyl Mercury	ng/g	17	17	100%	0.624	4.43	1.66	2.02	1.07
Nickel	mg/kg	17	17	100%	16.8	52.7	31.7	32.6	12.1
Potassium	mg/kg	17	17	100%	1070	5300	2750	2900	1260
Selenium	mg/kg	17	17	100%	0.148	1.14	0.628	0.613	0.264

Table 3-4
Statistical Summary of Detected Analytes in the North Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Silver	mg/kg	17	17	100%	0.188	2.15	1.51	1.42	0.602
Sodium	mg/kg	17	17	100%	3380	14300	8280	9040	3640
Thallium	mg/kg	17	17	100%	0.0587	0.717	0.191	0.219	0.143
Titanium	mg/kg	17	17	100%	200	645	415	425	129
Vanadium	mg/kg	17	17	100%	12	51.1	30.9	30.4	11.9
Zinc	mg/kg	17	17	100%	81.8	346	214	201	76.5
AVS/SEM									
Acid Volatile Sulfide (AVS)	umol/g	17	17	100%	0.82	34	5.80	9.72	9.98
Cadmium	umol/g	17	17	100%	0.00113	0.00837	0.00299	0.00319	0.00159
Copper	umol/g	17	17	100%	0.205	0.473	0.315	0.324	0.0696
Lead	umol/g	17	17	100%	0.096	0.301	0.159	0.167	0.0510
Mercury	umol/g	17	2	12%	7.4E-06	0.000019	0.0000132	0.0000132	0.00000820
Nickel	umol/g	17	17	100%	0.0384	0.239	0.0954	0.120	0.0679
Zinc	umol/g	17	17	100%	0.598	1.84	0.878	0.943	0.298
TEPH Alkanes									
2,6,10,14-Tetramethyl Pentadecane	mg/kg	17	2	12%	0.161	0.214	0.188	0.188	0.0375
2,6,10,14-Tetramethylhexadecane	mg/kg	17	4	24%	0.0338	0.218	0.0967	0.111	0.0812
Dotriacontane	mg/kg	17	13	76%	0.0785	0.606	0.206	0.244	0.152
Heneicosane	mg/kg	17	8	47%	0.0348	0.105	0.0595	0.0616	0.0221
Heptacosane	mg/kg	17	5	29%	0.066	0.189	0.140	0.136	0.0445
Heptadecane	mg/kg	17	11	65%	0.0601	0.471	0.0959	0.132	0.117
Heptatriacontane, -n	mg/kg	17	10	59%	0.0188	0.131	0.0346	0.0502	0.0391
Hexatriacontane	mg/kg	17	9	53%	0.04	0.964	0.0870	0.251	0.305
Hhentriacontane	mg/kg	17	15	88%	0.0478	0.835	0.215	0.280	0.214
n-Docosane	mg/kg	17	10	59%	0.0227	3.23	0.382	0.662	0.961
n-Eicosane	mg/kg	17	1	6%	0.058	0.058	NA	NA	NA
n-Hexacosane	mg/kg	17	1	6%	0.207	0.207	NA	NA	NA
n-Hexadecane	mg/kg	17	5	29%	0.0279	0.1664	0.0633	0.0805	0.0555
n-Octacosane	mg/kg	16	14	88%	0.0657	2.07	0.427	0.658	0.623
n-Octadecane	mg/kg	17	8	47%	0.0322	0.0948	0.0389	0.0474	0.0202
Nonacosane	mg/kg	17	15	88%	0.0532	0.692	0.267	0.270	0.151
Nonadecane	mg/kg	17	1	6%	0.0509	0.0509	NA	NA	NA
Nonatriacontane	mg/kg	17	2	12%	0.0491	0.0955	0.0723	0.0723	0.0328
n-Tetracosane	mg/kg	16	13	81%	0.024	0.751	0.102	0.189	0.197
n-Tetradecane	mg/kg	17	4	24%	0.0262	0.0847	0.0794	0.0674	0.0276
n-Triacontane	mg/kg	17	8	47%	0.0488	0.234	0.163	0.160	0.0642
Octatriacontane	mg/kg	17	4	24%	0.0331	0.0595	0.0370	0.0417	0.0121
Pentacosane	mg/kg	17	8	47%	0.0405	0.461	0.103	0.162	0.151
Pentadecane	mg/kg	17	2	12%	0.0243	0.108	0.0662	0.0662	0.0592
Pentatriacontane	mg/kg	17	7	41%	0.0319	0.151	0.0571	0.0687	0.0406
Tetracontane	mg/kg	17	7	41%	0.02635	0.348	0.0409	0.0853	0.117

Table 3-4
Statistical Summary of Detected Analytes in the North Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Tricosane	mg/kg	17	16	94%	0.03	0.95	0.122	0.208	0.241
Tritriacontane	mg/kg	17	1	6%	0.242	0.242	NA	NA	NA
Butyltins									
Dibutyltin	ug/kg	17	1	6%	8.5	8.5	NA	NA	NA
Tributyltin	ug/kg	17	2	12%	6	16	11.0	11.0	7.07
PCB Congeners									
PCB-1	ng/kg	17	17	100%	103	534	274	286	123
PCB-2	ng/kg	17	17	100%	19.7	113	45.5	52.2	27.0
PCB-3	ng/kg	13	13	100%	68.15	172	114	122	35.0
PCB-4	ng/kg	17	17	100%	210	1440	524	621	328
PCB-5	ng/kg	17	14	82%	2.98	24.3	5.10	7.41	6.70
PCB-6	ng/kg	17	17	100%	70.9	291	139	158	69.3
PCB-7	ng/kg	17	15	88%	8.26	63.6	16.2	22.4	15.8
PCB-8	ng/kg	17	17	100%	262	1760	555	702	440
PCB-9	ng/kg	17	15	88%	12.5	87.2	24.3	33.5	23.2
PCB-10	ng/kg	17	17	100%	20.9	78	55.2	49.5	20.0
PCB-11	ng/kg	17	17	100%	151	1600	337	455	366
PCB-12/13	ng/kg	17	17	100%	90.3	295	173	177	70.1
PCB-14	ng/kg	17	4	24%	1.01	2.78	2.13	2.01	0.811
PCB-15	ng/kg	17	17	100%	456	1420	838	858	321
PCB-16	ng/kg	16	16	100%	128	1730	229	404	434
PCB-17	ng/kg	17	17	100%	162	1770	387	490	400
PCB-18/30	ng/kg	17	17	100%	265	3240	554	838	771
PCB-19	ng/kg	17	17	100%	62.5	455	128	164	107
PCB-20/28	ng/kg	17	17	100%	676	5190	1850	2010	1230
PCB-21/33	ng/kg	17	17	100%	146	1960	390	577	526
PCB-22	ng/kg	17	17	100%	162	1520	425	530	393
PCB-23	ng/kg	17	10	59%	0.812	5.29	1.37	1.98	1.40
PCB-24	ng/kg	17	12	71%	3.75	48.4	6.18	10.9	13.0
PCB-25	ng/kg	17	17	100%	77.3	462	178	198	104
PCB-26/29	ng/kg	17	17	100%	123	844	309	333	189
PCB-27	ng/kg	17	17	100%	40.5	312	88.0	104	66.5
PCB-31	ng/kg	17	17	100%	457	3810	1370	1400	901
PCB-32	ng/kg	17	17	100%	147	1260	354	400	286
PCB-34	ng/kg	17	17	100%	3.59	22	7.51	9.62	5.01
PCB-35	ng/kg	17	17	100%	17.2	118	45.4	49.2	28.5
PCB-36	ng/kg	17	13	76%	1.018	4.26	2.29	2.38	1.13
PCB-37	ng/kg	17	17	100%	183	1210	440	495	294
PCB-38	ng/kg	17	4	24%	0.863	1.45	1.19	1.17	0.241
PCB-39	ng/kg	17	17	100%	3.49	17	8.68	9.13	4.07
PCB-40/71	ng/kg	17	17	100%	243	1950	587	665	435

Table 3-4
Statistical Summary of Detected Analytes in the North Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-41	ng/kg	17	17	100%	21.9	293	54.9	80.2	75.2
PCB-42	ng/kg	17	17	100%	170	1350	422	456	299
PCB-43	ng/kg	17	16	94%	16.2	204	40.8	57.6	46.7
PCB-44/47/65	ng/kg	17	17	100%	525	4040	1290	1470	921
PCB-45	ng/kg	17	16	94%	60.3	620	116	170	147
PCB-46	ng/kg	17	17	100%	24.6	230	51.0	72.2	53.8
PCB-48	ng/kg	17	17	100%	74.1	863	203	250	201
PCB-49/69	ng/kg	17	17	100%	361	2730	954	1010	601
PCB-50/53	ng/kg	17	16	94%	71.5	576	138	194	134
PCB-51	ng/kg	17	17	100%	34.6	943	87.5	156	213
PCB-52	ng/kg	17	17	100%	468	4180	1310	1450	933
PCB-54	ng/kg	17	15	88%	4.66	53.7	10.7	15.7	12.2
PCB-55	ng/kg	17	16	94%	3.92	765	15.0	106	245
PCB-56	ng/kg	17	17	100%	232	1580	539	662	395
PCB-57	ng/kg	17	16	94%	3.03	32.6	8.17	9.29	7.29
PCB-58	ng/kg	17	16	94%	2.51	10.4	4.79	5.72	2.70
PCB-60	ng/kg	17	17	100%	77.3	719	210	250	174
PCB-61/70/74/76	ng/kg	17	17	100%	756	5330	2050	2150	1300
PCB-62/75	ng/kg	17	17	100%	47.6	404	119	133	89.3
PCB-63	ng/kg	17	16	94%	20.7	144	50.1	55.3	34.0
PCB-64	ng/kg	17	17	100%	228	1990	623	646	447
PCB-66	ng/kg	17	15	88%	490	3060	1360	1390	769
PCB-67	ng/kg	17	17	100%	16.2	108	40.6	42.4	25.3
PCB-68	ng/kg	17	17	100%	6.14	21.5	10.8	12.3	4.91
PCB-72	ng/kg	17	17	100%	7.25	28.2	14.3	16.4	6.62
PCB-73	ng/kg	17	13	76%	1.89	34.9	3.52	6.92	8.94
PCB-77	ng/kg	9	9	100%	70.3	413	147	175	113
PCB-79	ng/kg	17	16	94%	3.62	27.1	10.5	11.1	6.09
PCB-80	ng/kg	17	3	18%	2.72	7.68	2.78	4.39	2.85
PCB-81	ng/kg	17	17	100%	1.98	13	4.44	5.03	3.10
PCB-82	ng/kg	17	17	100%	55.3	449	139	153	98.3
PCB-83	ng/kg	17	16	94%	21.9	152	56.6	61.7	34.3
PCB-84	ng/kg	17	14	82%	112	682	254	293	163
PCB-85/116/117	ng/kg	17	17	100%	79.1	708	224	239	152
PCB-89	ng/kg	17	17	100%	4.79	44.2	14.6	16.8	10.8
PCB-90/101/113	ng/kg	17	17	100%	376	2840	1120	1180	621
PCB-91	ng/kg	17	17	100%	64.3	648	194	235	150
PCB-92	ng/kg	17	17	100%	75.5	475	217	210	102
PCB-93/100	ng/kg	17	17	100%	15.6	385	36.1	58.6	86.8
PCB-94	ng/kg	17	17	100%	5.02	39.2	9.86	14.2	9.13
PCB-95	ng/kg	6	6	100%	446	2370	1020	1120	703
PCB-96	ng/kg	17	17	100%	4.1	48	10.1	14.3	11.2

Table 3-4
Statistical Summary of Detected Analytes in the North Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-98/102	ng/kg	17	17	100%	20.3	258	48.1	69.4	56.8
PCB-99	ng/kg	17	17	100%	235	1850	636	739	459
PCB-103	ng/kg	17	17	100%	8.59	133	21.3	27.3	28.8
PCB-104	ng/kg	17	15	88%	1.43	47.5	4.31	7.46	11.4
PCB-105	ng/kg	17	14	82%	154	1260	434	469	285
PCB-107	ng/kg	17	17	100%	30.1	199	77.5	81.8	44.1
PCB-108/124	ng/kg	17	17	100%	13.8	113	40.0	42.4	25.1
PCB-110/115	ng/kg	17	17	100%	482	3960	1370	1430	847
PCB-111	ng/kg	17	2	12%	1.49	2.08	1.79	1.79	0.417
PCB-112	ng/kg	17	12	71%	1.53	8.15	3.33	3.96	2.19
PCB-114	ng/kg	17	17	100%	7.93	78.7	24.0	27.4	17.7
PCB-118	ng/kg	17	17	100%	372	2860	1040	1090	629
PCB-120	ng/kg	17	16	94%	2.82	14.5	4.62	5.78	3.14
PCB-121	ng/kg	17	3	18%	1.37	1.9	1.57	1.61	0.268
PCB-122	ng/kg	17	16	94%	6.08	39.9	15.1	15.4	8.82
PCB-123	ng/kg	17	17	100%	7.29	54.9	20.7	22.7	13.6
PCB-126	ng/kg	16	13	81%	1.77	7.71	4.18	4.82	2.32
PCB-127	ng/kg	17	12	71%	1.55	11.7	4.92	5.68	3.10
PCB-128/166	ng/kg	17	17	100%	50.2	624	137	169	135
PCB-129/138/163	ng/kg	17	17	100%	394	4450	1130	1310	959
PCB-130	ng/kg	16	16	100%	24.3	242	62.6	76.5	53.0
PCB-131	ng/kg	16	16	100%	3.92	48.1	12.1	15.2	10.7
PCB-132	ng/kg	17	17	100%	107	1160	309	362	255
PCB-133	ng/kg	17	17	100%	7.68	53.6	17.4	19.8	11.7
PCB-134	ng/kg	16	16	100%	19.1	186	52.4	67.4	43.5
PCB-135/151	ng/kg	17	17	100%	120	1260	333	420	300
PCB-136	ng/kg	17	17	100%	39.2	572	114	152	134
PCB-137	ng/kg	16	16	100%	15	208	44.8	55.4	45.8
PCB-139/140	ng/kg	17	17	100%	6.6	64.5	15.9	20.6	14.3
PCB-141	ng/kg	14	14	100%	56.1	685	150	200	163
PCB-143	ng/kg	16	3	19%	3.34	10.4	3.48	5.74	4.04
PCB-144	ng/kg	17	17	100%	14.6	167	42.3	48.7	35.1
PCB-146	ng/kg	6	5	83%	96.2	515	252	263	166
PCB-147/149	ng/kg	17	17	100%	285	3230	768	1030	811
PCB-148	ng/kg	17	10	59%	1.75	34.3	3.76	7.03	9.75
PCB-150	ng/kg	17	17	100%	1.67	137	3.97	12.9	32.1
PCB-152	ng/kg	17	8	47%	1.65	6.92	2.64	3.01	1.68
PCB-153/168	ng/kg	17	17	100%	355	3300	936	1160	790
PCB-154	ng/kg	17	17	100%	9.52	424	21.3	50.3	97.8
PCB-155	ng/kg	17	17	100%	3.97	101	8.99	15.2	22.8
PCB-156/157	ng/kg	17	17	100%	43.1	539	113	142	116
PCB-158	ng/kg	17	17	100%	35.4	437	97.9	119	94.0

Table 3-4
Statistical Summary of Detected Analytes in the North Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-159	ng/kg	17	1	6%	4.59	4.59	NA	NA	NA
PCB-160	ng/kg	17	1	6%	1550	1550	NA	NA	NA
PCB-162	ng/kg	16	13	81%	1.97	42.5	7.97	9.97	10.4
PCB-164	ng/kg	17	17	100%	24.1	265	68.1	80.4	57.3
PCB-165	ng/kg	6	2	33%	1.44	1.46	1.45	1.45	0.0141
PCB-167	ng/kg	17	17	100%	13.8	152	40.8	45.7	32.8
PCB-170	ng/kg	17	17	100%	88.6	1390	226	332	317
PCB-171/173	ng/kg	6	6	100%	45.2	366	93.1	139	123
PCB-172	ng/kg	17	17	100%	16.5	242	41.7	58.0	53.6
PCB-174	ng/kg	7	7	100%	103	1170	196	384	387
PCB-175	ng/kg	6	6	100%	6.78	57.4	14.2	21.1	19.4
PCB-176	ng/kg	17	17	100%	12.2	145	30.8	39.5	32.3
PCB-177	ng/kg	6	6	100%	94	753	194	287	254
PCB-178	ng/kg	9	9	100%	33.4	286	79.8	97.4	78.2
PCB-179	ng/kg	17	17	100%	43.7	488	117	142	109
PCB-180/193	ng/kg	17	17	100%	219	3400	574	779	755
PCB-181	ng/kg	6	5	83%	2.01	12.1	2.33	4.90	4.35
PCB-182	ng/kg	6	1	17%	5.23	5.23	NA	NA	NA
PCB-183/185	ng/kg	10	10	100%	87.4	998	187	287	276
PCB-184	ng/kg	17	3	18%	1.85	6.17	2.29	3.44	2.38
PCB-187	ng/kg	9	9	100%	214	2030	440	643	562
PCB-188	ng/kg	17	7	41%	1.66	9.38	3.93	4.01	2.59
PCB-189	ng/kg	17	17	100%	4.46	51.4	9.43	13.8	11.7
PCB-190	ng/kg	17	17	100%	20.9	327	52.3	74.0	72.6
PCB-191	ng/kg	17	17	100%	4.47	59.2	10.2	14.3	13.1
PCB-192	ng/kg	17	1	6%	1.4	1.4	NA	NA	NA
PCB-194	ng/kg	17	17	100%	59.8	1190	156	215	264
PCB-195	ng/kg	17	17	100%	20.1	403	49.0	74.1	90.2
PCB-196	ng/kg	17	17	100%	31.4	579	81.7	111	128
PCB-197/200	ng/kg	14	14	100%	9.25	167	21.1	33.7	40.6
PCB-198/199	ng/kg	17	17	100%	81.2	1460	201	280	320
PCB-201	ng/kg	17	17	100%	10.3	139	21.3	29.7	30.0
PCB-202	ng/kg	17	17	100%	24.6	283	49.0	69.4	60.5
PCB-203	ng/kg	17	17	100%	54.7	900	129	174	197
PCB-205	ng/kg	17	15	88%	3.48	63.2	6.36	11.9	15.0
PCB-206	ng/kg	17	17	100%	69.1	627	136	170	132
PCB-207	ng/kg	17	17	100%	6.25	64.9	12.9	16.1	13.6

Table 3-4
Statistical Summary of Detected Analytes in the North Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-208	ng/kg	17	17	100%	24.3	162	40.9	55.3	32.9
PCB-209	ng/kg	17	17	100%	50.4	928	104	160	205
Total PCB Congeners (209)	ng/kg	17	17	100%	13700	119000	35100	39900	25600
Aroclor PCBs									
Aroclor-1242	ug/kg	17	1	6%	99	99	NA	NA	NA
Aroclor-1248	ug/kg	17	16	94%	26	170	67.5	71.6	30.4
Aroclor-1254	ug/kg	17	17	100%	29	170	69.0	74.1	32.9
Aroclor-1260	ug/kg	17	14	82%	13	240	33.0	46.0	56.6
Aroclor-1262	ug/kg	17	2	12%	14	16	15.0	15.0	1.41
Total Aroclor PCBs (Sum of 7 Aroclors)	ug/kg	17	17	100%	68	510	160	185	101
Total Aroclor PCBs (Sum of 9 Aroclors)	ug/kg	17	17	100%	68	510	160	187	100
Pesticides									
2,4'-DDD	pg/g	17	17	100%	695	23300	4390	5070	4950
2,4'-DDE	pg/g	17	17	100%	444	6950	3500	3580	1770
2,4'-DDT	pg/g	17	17	100%	55.6	458	222	245	129
4,4'-DDD	pg/g	17	17	100%	2350	53700	11400	13300	11100
4,4'-DDE	pg/g	17	17	100%	2740	39700	17200	19300	10300
4,4'-DDT	pg/g	17	17	100%	249	9920	1190	2270	2750
Alpha-BHC	pg/g	17	17	100%	9.17	80.8	44.8	45.8	17.4
Alpha-Chlordane	pg/g	17	17	100%	647	7480	3040	3610	1970
Beta-BHC	pg/g	17	16	94%	36.2	317	87.2	121	86.9
cis-Nonachlor	pg/g	17	16	94%	289	2050	1140	1170	554
Delta-BHC	pg/g	17	4	24%	9.52	29.2	23.0	21.2	8.31
Dieldrin	pg/g	17	17	100%	265	3600	1050	1280	788
Endosulfan I	pg/g	17	2	12%	68.3	222	145	145	109
Gamma-BHC (Lindane)	pg/g	17	10	59%	9.69	33.3	17.4	18.3	6.95
Heptachlor	pg/g	17	2	12%	14.2	19.2	16.7	16.7	3.54
Heptachlor Epoxide	pg/g	17	16	94%	40	552	118	155	136
Hexachlorobenzene	pg/g	17	17	100%	207	5170	1550	1760	1170
Methoxychlor	pg/g	8	1	13%	1420	1420	NA	NA	NA
Mirex	pg/g	14	1	7%	205	205	NA	NA	NA
Nonachlor, trans-	pg/g	17	17	100%	425	3990	1840	2070	1130
Oxychlordane	pg/g	17	2	12%	29.5	30.4	30.0	30.0	0.636
trans-Chlordane	pg/g	17	17	100%	652	6480	3490	3600	1800
trans-Heptachlor Epoxide	pg/g	17	14	82%	110	626	225	269	144
Total Alpha + Gamma Chlordane	pg/g	17	17	100%	1300	14000	7100	7280	3810
Total DDT (2,4)	pg/g	17	17	100%	1500	30000	7900	8930	6210
Total DDT (4,4)	pg/g	17	17	100%	11000	78000	31000	34900	16700
Total DDT (2,4 & 4,4)	pg/g	17	17	100%	12000	110000	39000	43900	23000

Table 3-4
Statistical Summary of Detected Analytes in the North Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Semivolatiles									
1-Methylnaphthalene	ug/kg	17	11	65%	1.9	46	11.0	16.0	14.7
2-Methylnaphthalene	ug/kg	17	17	100%	1.3	76	4.70	18.2	23.6
4-Methylphenol	ug/kg	14	8	57%	33	2500	48.0	353	867
Acenaphthene	ug/kg	17	17	100%	1.3	100	6.60	22.0	28.5
Acenaphthylene	ug/kg	17	17	100%	4.3	360	19.5	85.3	121
Acetophenone	ug/kg	17	13	76%	27	130	70.0	77.4	32.6
Anthracene	ug/kg	17	17	100%	5.1	530	37.0	90.8	135
Benzo(a)anthracene	ug/kg	17	17	100%	18	1600	130	313	441
Benzo(a)pyrene	ug/kg	17	17	100%	21	1500	150	405	542
Benzo(b)fluoranthene	ug/kg	17	17	100%	21	1000	130	277	344
Benzo(e)pyrene	ug/kg	17	17	100%	15	900	110	246	317
Benzo(g,h,i)perylene	ug/kg	17	17	100%	13	760	96.0	209	264
Benzo(i,j,k)fluoranthene	ug/kg	17	17	100%	17	1300	120	286	384
Biphenyl	ug/kg	13	2	15%	35	65	50.0	50.0	21.2
bis(2-Ethylhexyl)phthalate	ug/kg	17	16	94%	260	3100	485	677	690
C1-Chrysenes	ug/kg	17	17	100%	17	1600	84.0	318	493
C1-Fluoranthenes/Pyrenes	ug/kg	17	17	100%	29	2800	130	518	804
C1-Fluorenes	ug/kg	17	17	100%	1.9	150	15.0	33.7	46.4
C1-Naphthalenes	ug/kg	17	17	100%	1.6	110	7.60	26.7	34.8
C1-Phenanthrenes/Anthracenes	ug/kg	17	17	100%	11	770	63.0	159	222
C2-Chrysenes	ug/kg	17	17	100%	14	1100	62.5	207	335
C2-Fluoranthenes/Pyrenes	ug/kg	17	17	100%	17	1500	71.0	270	430
C2-Fluorenes	ug/kg	17	10	59%	5.4	260	31.5	75.8	86.8
C2-Naphthalenes	ug/kg	17	17	100%	2.3	150	10.3	41.5	53.5
C2-Phenanthrene/anthracenes	ug/kg	17	17	100%	13	1400	66.0	219	368
C3-Chrysenes	ug/kg	17	17	100%	6.7	420	35.0	86.5	132
C3-Fluoranthenes/Pyrenes	ug/kg	17	17	100%	7.6	610	42.0	124	195
C3-Fluorenes	ug/kg	17	7	41%	9.4	320	68.0	103	116
C3-Naphthalene	ug/kg	17	17	100%	2.7	150	14.0	39.0	50.6
C3-Phenanthrene/anthracenes	ug/kg	17	17	100%	9.1	1000	32.0	143	260
C4-Chrysenes	ug/kg	17	4	24%	4.7	120	31.5	46.9	50.7
C4-Naphthalene	ug/kg	17	17	100%	3	210	12.0	38.6	58.1
C4-Phenanthrenes/anthracenes	ug/kg	17	1	6%	370	370	NA	NA	NA
Carbazole	ug/kg	13	4	31%	31	130	57.0	68.8	42.6
Chrysene	ug/kg	17	17	100%	20	1400	150	313	409
Dibenzo(a,h)anthracene	ug/kg	17	17	100%	3.8	230	24.0	64.4	84.7
Dibenzofuran	ug/kg	13	5	38%	29	220	47.0	87.6	80.9
Di-n-Octylphthalate	ug/kg	13	1	8%	250	250	NA	NA	NA
Fluoranthene	ug/kg	17	17	100%	34	2600	150	417	644
Fluorene	ug/kg	17	15	88%	1.7	62	7.50	19.3	21.2

Table 3-4
Statistical Summary of Detected Analytes in the North Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Indeno(1,2,3-cd)pyrene	ug/kg	17	17	100%	14	900	100	232	298
Naphthalene	ug/kg	17	17	100%	3.2	290	15.0	60.2	79.0
Perylene	ug/kg	17	17	100%	5	360	43.0	86.4	112
Phenanthrene	ug/kg	17	17	100%	11	810	61.0	131	200
Phenol	ug/kg	13	2	15%	35	140	87.5	87.5	74.2
Pyrene	ug/kg	17	17	100%	35	2300	200	474	666
Total HMW PAHs	ug/kg	17	17	100%	200	14000	1400	3020	4060
Total LMW PAHs	ug/kg	17	17	100%	33	1900	200	425	532
TOTAL PAHs	ug/kg	17	17	100%	230	16000	1600	3440	4570
Volatiles									
1,4-Dichlorobenzene	ug/kg	17	1	6%	4	4	NA	NA	NA
TPH									
PHC AS GASOLINE	mg/kg	17	1	6%	7.2	7.2	NA	NA	NA
Total Petroleum Hydrocarbons (C9-C40)	mg/kg	17	17	100%	9.35	360	129	134	91.5
Miscellaneous Chemicals									
Total Kjeldahl Nitrogen	mg/kg	17	17	100%	510	8520	1410	1950	1870
Ammonia Nitrogen	mg/kg	17	3	18%	137	235	157	176	51.8
Phosphorus	mg/kg	17	17	100%	389	1590	786	852	351
Physical Properties									
Moisture (water) Content	%	17	17	100%	26.9	63.6	49.1	48.9	10.4
Oxidation Reduction Potential	mV	17	17	100%	27	393	97.0	114	82.7
Percent Moisture	%	17	17	100%	28.1	60.2	46.8	46.7	10.4
Total Solids (Percent)	%	17	17	100%	40.2	75.3	50.9	52.1	9.88
Water Content	%	17	17	100%	36.8	175	96.5	103	40.2
Water Content ASTM D2216	%	17	17	100%	39.1	151	87.9	94.4	37.2
TOC by Lloyd Kahn	mg/kg	17	17	100%	9200	73200	34000	37100	16800
pH	pH Units	17	17	100%	7.3	8.6	7.63	7.68	0.355
Grain Size									
0.001 mm	% passing	17	13	76%	3	8	6.00	5.23	1.96
0.002 mm	% passing	17	17	100%	2	13	7.00	7.24	3.19
0.02 mm	% passing	17	17	100%	6	56	28.0	30.8	14.9
0.05 mm	% passing	17	17	100%	9	82	41.0	48.3	22.7
0.064 mm	% passing	17	17	100%	11	92	50.0	57.3	25.5
0.3 mm	% passing	17	17	100%	53.3	97.3	92.1	89.0	10.5
3.35 mm	% passing	17	17	100%	93.2	100	99.2	98.2	2.09
75000 um	% passing	17	17	100%	100	100	100	100	0
Hydrometer Reading, Percent Finer Than 0.0050 mm	% passing	17	17	100%	3	23	11.0	12.5	5.65
Sieve No. 4, Percent Passing	% passing	17	17	100%	94.7	100	99.7	99.1	1.53
Sieve No. 8, Percent Passing	% passing	17	17	100%	87.7	99.7	97.8	96.1	3.29
Sieve No. 16, Percent Passing	% passing	17	17	100%	87	99.1	97.1	95.1	3.50
Sieve No. 30, Percent Passing	% passing	17	17	100%	85.1	98.4	96.0	93.5	4.26

Table 3-4 Stat Summary of Detected Analytes_Sediment_North

Table 3-4
Statistical Summary of Detected Analytes in the North Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Sieve No. 100, Percent Passing	% passing	17	17	100%	18.8	96.5	84.8	78.6	19.8
Sieve No. 200, Percent Passing	% passing	17	17	100%	12	95.9	56.8	62.0	26.2
Sieve 19000 Microns, Percent Passing	% passing	17	17	100%	95.2	100	100	99.7	1.16
Sieve 37500 Microns, Percent Passing	% passing	17	17	100%	100	100	100	100	0

Footnotes:

¹Valid results are results that were found to be valid as a result of data validation. Only valid data are used in statistical analyses. Additional details regarding rejected data are provided in Appendix H of this report.

Notes:

1. Only detected values were included in the calculation of totals.
2. Non-detect ("U" qualified) data were excluded from the statistical analysis.
3. Field duplicate samples were averaged to create one result prior to statistical reporting. Additional details regarding field duplicate handling can be found in Section 3.0 of the report.

ASTM = American Society for Testing Materials
AVS/SEM = acid volatile sulfide/simultaneously extracted metals
DDD = dichlorodiphenyldichloroethane
DDE = dichlorodiphenyldichloroethylene
DDT = dichlorodiphenyltrichloroethane
HMW = high molecular weight
LMW = low molecular weight
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
TCDD = tetrachlorodibenzo-p-dioxin
TEPH = total extractable petroleum hydrocarbons
NA = not applicable

% = percent
mg/kg = milligrams per kilogram
ng/g = nanograms per gram
ng/kg = nanograms per kilogram
pg/g = picograms per gram
ppb = parts per billion
ug/kg = micrograms per kilogram
umol/g = micromoles per gram

Table 3-5
Statistical Summary of Detected Analytes in the Central Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Dioxins/Furans									
1,2,3,4,6,7,8-HpCDD	ng/kg	10	10	100%	58.3	383	255	249	89.7
1,2,3,4,6,7,8-HpCDF	ng/kg	10	10	100%	45.1	414	184	212	112
1,2,3,4,7,8,9-HpCDF	ng/kg	10	10	100%	1.95	16.2	8.40	8.98	4.11
1,2,3,4,7,8-HxCDD	ng/kg	10	10	100%	1.07	4.86	3.72	3.58	1.15
1,2,3,4,7,8-HxCDF	ng/kg	10	10	100%	11	111	41.3	50.0	29.7
1,2,3,6,7,8-HxCDD	ng/kg	10	10	100%	3.53	23.5	14.9	14.8	5.66
1,2,3,6,7,8-HxCDF	ng/kg	10	10	100%	3.38	24.4	13.5	13.6	6.23
1,2,3,7,8,9-HxCDD	ng/kg	10	10	100%	2.2	14.7	9.05	9.03	3.46
1,2,3,7,8,9-HxCDF	ng/kg	10	7	70%	2.06	5.44	3.86	3.54	1.24
1,2,3,7,8-PeCDD	ng/kg	10	10	100%	0.999	5.57	3.62	3.60	1.25
1,2,3,7,8-PeCDF	ng/kg	10	10	100%	2.21	11.4	7.50	7.52	2.83
2,3,4,6,7,8-HxCDF	ng/kg	10	10	100%	2.97	12.7	7.47	7.77	3.16
2,3,4,7,8-PeCDF	ng/kg	10	10	100%	3.73	19.9	13.2	12.8	5.17
2,3,7,8-TCDD	ng/kg	10	10	100%	14.3	96.8	53.7	56.8	24.6
2,3,7,8-TCDF	ng/kg	10	10	100%	4.01	22.3	13.5	13.8	5.42
OCDD	ng/kg	10	10	100%	729	3470	2490	2450	835
OCDF	ng/kg	10	10	100%	66.7	690	276	332	180
Herbicides									
2,4,5-T	ug/kg	10	4	40%	2.3	7.5	5.90	5.40	2.21
2,4-DB	ug/kg	10	2	20%	78	89	83.5	83.5	7.78
Metals									
Aluminum	mg/kg	10	10	100%	5840	18200	13700	13100	4310
Antimony	mg/kg	10	10	100%	0.264	1.74	0.659	0.773	0.478
Arsenic	mg/kg	10	10	100%	5.59	29.7	10.9	12.1	6.59
Barium	mg/kg	10	10	100%	54	302	106	123	70.7
Beryllium	mg/kg	10	10	100%	0.385	1.04	0.790	0.734	0.228
Cadmium	mg/kg	10	10	100%	0.292	2.28	1.04	1.17	0.660
Calcium	mg/kg	10	10	100%	2210	10500	5790	6240	2450
Chromium	mg/kg	10	10	100%	60.7	194	78.3	96.7	41.7
Cobalt	mg/kg	10	10	100%	5	15.1	10.4	9.75	3.15
Copper	mg/kg	10	10	100%	42.6	282	102	121	67.8
Iron	mg/kg	10	10	100%	12600	38000	26500	24800	7790
Lead	mg/kg	10	10	100%	66.8	213	110	123	49.9
Magnesium	mg/kg	10	10	100%	4160	10500	8040	7530	2170
Manganese	mg/kg	10	10	100%	114	541	325	307	138
Mercury	ng/g	10	10	100%	336	2820	1350	1400	662
Methyl Mercury	ng/g	10	10	100%	0.829	2.3	1.59	1.54	0.449
Nickel	mg/kg	10	10	100%	17.7	182	38.7	49.1	47.8
Potassium	mg/kg	10	10	100%	1310	4860	3330	3270	1190
Selenium	mg/kg	10	10	100%	0.243	1.25	0.674	0.698	0.286
Silver	mg/kg	10	10	100%	0.36	3.38	1.46	1.79	0.921
Sodium	mg/kg	10	10	100%	4600	12800	10400	9750	2660
Thallium	mg/kg	10	10	100%	0.0841	0.3	0.220	0.203	0.0672
Titanium	mg/kg	10	10	100%	252	642	468	462	145

Table 3-5
Statistical Summary of Detected Analytes in the Central Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Vanadium	mg/kg	10	10	100%	17.5	55.1	36.4	34.2	11.1
Zinc	mg/kg	10	10	100%	139	353	221	231	69.1
AVS/SEM									
Acid Volatile Sulfide (AVS)	umol/g	10	9	90%	1.1	28.3	15.9	14.1	8.37
Cadmium	umol/g	10	10	100%	0.00137	0.00981	0.00298	0.00470	0.00316
Copper	umol/g	10	10	100%	0.233	0.676	0.291	0.349	0.139
Lead	umol/g	10	10	100%	0.122	0.592	0.192	0.236	0.135
Nickel	umol/g	10	10	100%	0.038	0.315	0.126	0.151	0.0898
Zinc	umol/g	10	10	100%	0.685	2.01	1.01	1.12	0.401
TEPH Alkanes									
2,6,10,14-Tetramethyl Pentadecane	mg/kg	10	2	20%	0.0685	0.0821	0.0753	0.0753	0.00962
2,6,10,14-Tetramethylhexadecane	mg/kg	10	1	10%	0.0451	0.0451	NA	NA	NA
Dotriacontane	mg/kg	10	7	70%	0.109	0.404	0.157	0.203	0.116
Heneicosane	mg/kg	10	8	80%	0.0294	0.148	0.0733	0.0839	0.0472
Heptacosane	mg/kg	10	3	30%	0.0736	0.312	0.279	0.222	0.129
Heptadecane	mg/kg	10	5	50%	0.0433	0.246	0.0735	0.0995	0.0838
Heptatriacontane, -n	mg/kg	10	4	40%	0.0269	0.269	0.0779	0.113	0.107
Hexatriacontane	mg/kg	10	5	50%	0.0279	0.205	0.0633	0.0913	0.0708
Hhentriacontane	mg/kg	10	7	70%	0.0478	0.259	0.117	0.130	0.0688
n-Docosane	mg/kg	10	6	60%	0.0562	0.303	0.152	0.159	0.0971
n-Eicosane	mg/kg	10	4	40%	0.0275	0.128	0.0631	0.0704	0.0434
n-Hexacosane	mg/kg	10	5	50%	0.0527	0.478	0.0891	0.160	0.180
n-Hexadecane	mg/kg	10	3	30%	0.0227	0.697	0.0321	0.251	0.387
n-Nonane	mg/kg	10	1	10%	0.0291	0.0291	NA	NA	NA
n-Octacosane	mg/kg	10	8	80%	0.0451	0.826	0.334	0.387	0.272
n-Octadecane	mg/kg	10	4	40%	0.0428	0.0756	0.0581	0.0586	0.0155
Nonacosane	mg/kg	10	10	100%	0.042	1.15	0.223	0.358	0.377
Nonadecane	mg/kg	10	1	10%	0.224	0.224	NA	NA	NA
Nonatriacontane	mg/kg	10	3	30%	0.074	0.304	0.0757	0.151	0.132
n-Tetracosane	mg/kg	10	5	50%	0.0469	0.125	0.0502	0.0770	0.0390
n-Tetradecane	mg/kg	10	3	30%	0.0389	0.0597	0.0534	0.0507	0.0107
n-Triacontane	mg/kg	10	8	80%	0.0692	1.24	0.186	0.298	0.385
Octatriacontane	mg/kg	10	3	30%	0.0266	0.648	0.0752	0.250	0.346
Pentacosane	mg/kg	10	7	70%	0.0462	0.396	0.0624	0.118	0.127
Pentadecane	mg/kg	10	3	30%	0.0253	0.0447	0.0407	0.0369	0.0102
Pentatriacontane	mg/kg	10	7	70%	0.0238	0.36	0.0447	0.101	0.119
Tetracontane	mg/kg	10	9	90%	0.0232	0.137	0.0513	0.0636	0.0411
Tetratriacontane	mg/kg	10	1	10%	0.0291	0.0291	NA	NA	NA
Tricosane	mg/kg	10	8	80%	0.0429	0.171	0.0632	0.0775	0.0419
Tritriacontane	mg/kg	10	3	30%	0.054	0.129	0.118	0.100	0.0405
Butyltins									
Dibutyltin	ug/kg	10	2	20%	2.7	5.2	3.95	3.95	1.77
Tributyltin	ug/kg	10	2	20%	3	4.7	3.85	3.85	1.20
PCB Congeners									

Table 3-5
Statistical Summary of Detected Analytes in the Central Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-1	ng/kg	8	8	100%	78.2	803	361	378	218
PCB-2	ng/kg	10	10	100%	6.42	96.1	43.0	45.9	29.8
PCB-3	ng/kg	6	6	100%	99	177	159	153	28.6
PCB-4	ng/kg	10	10	100%	65.3	2020	624	674	574
PCB-5	ng/kg	10	9	90%	1.64	10.5	3.74	4.53	2.87
PCB-6	ng/kg	10	10	100%	33.1	1200	109	217	349
PCB-7	ng/kg	10	9	90%	2.89	50.6	11.7	16.3	14.1
PCB-8	ng/kg	10	10	100%	123	2960	483	730	817
PCB-9	ng/kg	10	9	90%	7.55	103	15.5	26.6	29.5
PCB-10	ng/kg	10	10	100%	8.29	78.7	36.8	41.3	24.3
PCB-11	ng/kg	10	10	100%	158	762	255	338	218
PCB-12/13	ng/kg	10	10	100%	49.5	801	117	204	221
PCB-14	ng/kg	10	1	10%	0.799	0.799	NA	NA	NA
PCB-15	ng/kg	9	9	100%	211	1680	773	862	444
PCB-16	ng/kg	10	9	90%	72.3	1290	239	316	381
PCB-17	ng/kg	10	10	100%	122	1890	337	458	523
PCB-18/30	ng/kg	10	10	100%	188	3210	504	733	899
PCB-19	ng/kg	10	10	100%	36.1	688	105	169	193
PCB-20/28	ng/kg	10	10	100%	646	5360	1330	1810	1470
PCB-21/33	ng/kg	10	10	100%	101	1730	276	439	480
PCB-22	ng/kg	10	10	100%	122	1340	305	424	368
PCB-23	ng/kg	10	4	40%	1.21	3.22	1.28	1.75	0.982
PCB-24	ng/kg	10	6	60%	2.92	29.7	5.98	9.43	10.3
PCB-25	ng/kg	10	10	100%	69.9	581	153	202	155
PCB-26/29	ng/kg	10	10	100%	113	1050	270	355	282
PCB-27	ng/kg	10	10	100%	28.1	299	78.7	97.6	79.9
PCB-31	ng/kg	10	10	100%	438	4310	957	1280	1160
PCB-32	ng/kg	10	10	100%	108	1290	272	365	350
PCB-34	ng/kg	10	10	100%	3.22	28.4	6.94	9.28	7.61
PCB-35	ng/kg	10	10	100%	17.8	78.2	32.8	40.1	22.0
PCB-36	ng/kg	10	6	60%	1.22	5.41	1.83	2.56	1.67
PCB-37	ng/kg	10	10	100%	170	925	328	415	258
PCB-38	ng/kg	10	3	30%	0.73	2.06	1.02	1.27	0.699
PCB-39	ng/kg	10	10	100%	3.16	19.8	6.77	8.66	5.70
PCB-40/71	ng/kg	10	10	100%	133	1530	510	599	443
PCB-41	ng/kg	10	10	100%	9.21	140	44.9	58.3	42.7
PCB-42	ng/kg	10	10	100%	81.8	1130	362	436	331
PCB-43	ng/kg	10	10	100%	8.44	141	47.6	52.6	40.7
PCB-44/47/65	ng/kg	10	10	100%	258	3290	1130	1410	1040
PCB-45	ng/kg	10	10	100%	21.3	469	120	152	135
PCB-46	ng/kg	10	10	100%	10.5	188	56.5	64.5	53.6
PCB-48	ng/kg	10	10	100%	34.2	608	177	210	172
PCB-49/69	ng/kg	10	10	100%	202	2520	805	1070	838
PCB-50/53	ng/kg	10	10	100%	34.8	524	147	188	155
PCB-51	ng/kg	10	10	100%	18	191	57.4	84.2	61.9

Table 3-5
Statistical Summary of Detected Analytes in the Central Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-52	ng/kg	10	10	100%	234	3680	1190	1580	1250
PCB-54	ng/kg	10	9	90%	2.62	30.6	9.12	11.8	9.08
PCB-55	ng/kg	10	9	90%	2.84	26.5	10.4	11.6	7.68
PCB-56	ng/kg	10	10	100%	131	1420	500	595	418
PCB-57	ng/kg	10	8	80%	2.29	62.6	11.1	16.3	19.7
PCB-58	ng/kg	10	10	100%	1.83	12.2	5.40	5.98	3.64
PCB-60	ng/kg	10	10	100%	39.5	459	175	211	151
PCB-61/70/74/76	ng/kg	10	10	100%	419	4510	1760	2010	1350
PCB-62/75	ng/kg	10	10	100%	24.7	344	108	130	101
PCB-63	ng/kg	10	10	100%	12.8	123	47.4	51.9	35.4
PCB-64	ng/kg	10	10	100%	111	1590	501	596	460
PCB-66	ng/kg	10	10	100%	286	2880	1110	1260	843
PCB-67	ng/kg	10	10	100%	9.05	92.8	33.1	38.3	26.6
PCB-68	ng/kg	10	9	90%	4.59	32.4	10.6	15.3	10.6
PCB-72	ng/kg	10	10	100%	5.98	42.6	15.9	20.3	13.7
PCB-73	ng/kg	10	1	10%	4.27	4.27	NA	NA	NA
PCB-77	ng/kg	6	6	100%	48.1	290	123	138	85.3
PCB-79	ng/kg	10	8	80%	2.51	39.5	10.2	15.5	14.1
PCB-81	ng/kg	10	7	70%	2.27	9.13	5.20	5.44	2.74
PCB-82	ng/kg	10	10	100%	23.1	576	152	217	189
PCB-83	ng/kg	10	10	100%	9.81	316	74.1	111	101
PCB-84	ng/kg	10	10	100%	50.1	1500	255	449	462
PCB-85/116/117	ng/kg	10	10	100%	37.6	921	234	336	295
PCB-86/87/97/109/119/125	ng/kg	10	10	100%	117	4070	818	1240	1230
PCB-88	ng/kg	10	1	10%	349	349	NA	NA	NA
PCB-89	ng/kg	10	9	90%	2.96	53.7	17.4	21.0	17.2
PCB-90/101/113	ng/kg	10	9	90%	183	6280	907	1880	1970
PCB-91	ng/kg	10	10	100%	42.1	1300	172	341	388
PCB-92	ng/kg	10	9	90%	37.7	1220	163	367	387
PCB-93/100	ng/kg	10	9	90%	12.6	101	21.9	39.0	30.3
PCB-94	ng/kg	10	10	100%	2.63	33.4	7.97	13.8	11.3
PCB-95	ng/kg	4	4	100%	754	4390	1730	2150	1640
PCB-96	ng/kg	10	10	100%	1.91	38.1	9.79	15.4	13.6
PCB-98/102	ng/kg	10	10	100%	10.7	193	42.0	72.0	63.7
PCB-99	ng/kg	10	10	100%	114	3960	639	1080	1170
PCB-103	ng/kg	10	10	100%	4.22	85.3	12.5	24.6	24.7
PCB-104	ng/kg	10	4	40%	2.51	5.22	4.44	4.15	1.17
PCB-105	ng/kg	10	10	100%	67.2	1630	493	632	542
PCB-106	ng/kg	10	1	10%	3850	3850	NA	NA	NA
PCB-107	ng/kg	10	10	100%	14.7	354	91.3	127	113
PCB-108/124	ng/kg	10	10	100%	6.39	217	48.5	71.3	69.0
PCB-110/115	ng/kg	10	10	100%	224	8110	1490	2470	2510
PCB-112	ng/kg	10	4	40%	1.45	16.9	3.90	6.54	7.01
PCB-114	ng/kg	10	9	90%	4.04	94.4	36.6	40.0	32.0
PCB-118	ng/kg	10	10	100%	179	5590	1200	1730	1680

Table 3-5
Statistical Summary of Detected Analytes in the Central Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-120	ng/kg	10	10	100%	1.6	17.5	4.91	6.64	5.06
PCB-122	ng/kg	10	10	100%	2.3	54.3	17.4	22.4	19.1
PCB-123	ng/kg	10	10	100%	3.8	116	27.6	38.8	37.1
PCB-126	ng/kg	10	4	40%	1.88	24	5.85	9.40	10.0
PCB-127	ng/kg	8	4	50%	1.44	30.6	21.4	18.7	12.3
PCB-128/166	ng/kg	10	10	100%	25.9	1170	192	334	369
PCB-129/138/163	ng/kg	10	10	100%	184	6960	1350	2220	2260
PCB-130	ng/kg	10	10	100%	11.2	445	80.7	139	144
PCB-131	ng/kg	10	6	60%	2.11	105	30.8	37.0	38.3
PCB-132	ng/kg	10	10	100%	52.7	2060	418	664	677
PCB-133	ng/kg	10	10	100%	3.85	86	17.9	30.4	28.2
PCB-134	ng/kg	10	10	100%	9.31	435	77.6	122	137
PCB-135/151	ng/kg	10	10	100%	59.6	1840	347	603	598
PCB-136	ng/kg	10	10	100%	20	758	126	222	238
PCB-137	ng/kg	10	10	100%	7.31	426	64.6	116	132
PCB-139/140	ng/kg	10	8	80%	5.9	124	22.6	38.0	40.2
PCB-141	ng/kg	9	9	100%	25	820	235	325	284
PCB-143	ng/kg	10	2	20%	7.16	11.7	9.43	9.43	3.21
PCB-144	ng/kg	10	10	100%	7.27	248	42.1	79.8	80.8
PCB-145	ng/kg	10	3	30%	1.69	3.17	2.49	2.45	0.741
PCB-146	ng/kg	3	3	100%	131	575	208	305	237
PCB-147/149	ng/kg	10	10	100%	131	4240	898	1430	1400
PCB-148	ng/kg	10	3	30%	4.38	12.1	6.88	7.79	3.94
PCB-150	ng/kg	10	8	80%	1.99	24.9	5.68	7.58	7.50
PCB-152	ng/kg	10	5	50%	1.53	7.72	3.84	4.00	2.29
PCB-153/168	ng/kg	10	10	100%	159	5170	1030	1670	1650
PCB-154	ng/kg	10	10	100%	5.29	132	19.9	34.8	38.5
PCB-155	ng/kg	10	8	80%	2.82	24.2	7.69	10.7	7.90
PCB-156/157	ng/kg	10	10	100%	20.4	909	151	255	280
PCB-158	ng/kg	10	10	100%	15.3	743	130	219	234
PCB-162	ng/kg	10	7	70%	1.52	39.7	19.3	19.1	13.9
PCB-164	ng/kg	10	10	100%	11.1	471	79.9	141	150
PCB-165	ng/kg	3	1	33%	2.22	2.22	NA	NA	NA
PCB-167	ng/kg	8	8	100%	7.1	301	63.4	95.2	103
PCB-170	ng/kg	10	10	100%	41.2	913	255	388	346
PCB-171/173	ng/kg	4	4	100%	31.6	245	83.6	111	94.0
PCB-172	ng/kg	10	10	100%	8.05	163	46.9	67.5	57.7
PCB-174	ng/kg	4	4	100%	95.1	643	240	304	240
PCB-175	ng/kg	3	3	100%	9.27	35	15.1	19.8	13.5
PCB-176	ng/kg	10	10	100%	5.59	117	33.5	47.7	40.1
PCB-177	ng/kg	4	4	100%	67.6	485	163	220	185
PCB-178	ng/kg	9	9	100%	12.1	218	45.1	81.8	74.2
PCB-179	ng/kg	10	10	100%	20.3	385	118	161	133
PCB-180/193	ng/kg	10	9	90%	93.6	2160	473	856	764
PCB-181	ng/kg	4	3	75%	2.43	10.4	4.07	5.63	4.21

Table 3-5
Statistical Summary of Detected Analytes in the Central Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation	
PCB-182	ng/kg	4	1	25%	4.96	4.96	NA	NA	NA	
PCB-183/185	ng/kg	5	5	100%	59.3	566	165	226	205	
PCB-184	ng/kg	10	3	30%	2.32	2.93	2.69	2.65	0.307	
PCB-187	ng/kg	9	9	100%	77.7	1470	310	530	483	
PCB-188	ng/kg	10	4	40%	2.74	5.95	3.42	3.88	1.48	
PCB-189	ng/kg	10	10	100%	2.01	40.3	9.48	16.3	14.6	
PCB-190	ng/kg	10	10	100%	9.52	197	55.1	83.3	71.7	
PCB-191	ng/kg	10	9	90%	1.97	39.5	14.1	18.1	14.4	
PCB-194	ng/kg	10	10	100%	27.2	483	151	179	145	
PCB-195	ng/kg	10	10	100%	8.84	175	50.6	63.7	53.3	
PCB-196	ng/kg	10	10	100%	14.2	278	80.7	102	84.2	
PCB-197/200	ng/kg	8	8	100%	4.57	78.5	23.3	31.2	25.4	
PCB-198/199	ng/kg	10	10	100%	41.6	646	231	266	204	
PCB-201	ng/kg	10	10	100%	5.26	74.4	24.7	30.3	23.3	
PCB-202	ng/kg	10	10	100%	15.1	165	75.0	78.0	55.0	
PCB-203	ng/kg	10	10	100%	25.5	395	143	163	123	
PCB-205	ng/kg	10	10	100%	2.08	24.3	7.13	9.26	7.10	
PCB-206	ng/kg	10	10	100%	36.9	426	182	182	125	
PCB-207	ng/kg	10	10	100%	3.89	31.2	14.8	15.4	9.79	
PCB-208	ng/kg	10	10	100%	15.2	144	68.3	66.3	42.7	
PCB-209	ng/kg	6	6	100%	45.9	363	118	144	116	
Total PCB Congeners (209)	ng/kg	10	10	100%	10800	103000	31300	46500	35700	
Aroclor PCBs										
Aroclor-1248	ug/kg	10	8	80%	30	140	84.0	90.9	36.9	
Aroclor-1254	ug/kg	10	10	100%	28	750	75.0	152	215	
Aroclor-1260	ug/kg	10	6	60%	28	61	35.0	38.7	12.2	
Total Aroclor PCBs (Sum of 7 Aroclors)	ug/kg	10	10	100%	28	750	190	248	206	
Total Aroclor PCBs (Sum of 9 Aroclors)	ug/kg	10	10	100%	28	750	190	248	206	
Pesticides										
2,4'-DDD	pg/g	10	10	100%	1440	18700	3420	4920	5150	
2,4'-DDE	pg/g	10	10	100%	845	56200	3840	8950	16700	
2,4'-DDT	pg/g	9	8	89%	105	618	214	243	163	
4,4'-DDD	pg/g	10	10	100%	4360	43500	8610	12700	11900	
4,4'-DDE	pg/g	10	10	100%	4590	143000	17200	30100	40500	
4,4'-DDT	pg/g	10	10	100%	238	5040	962	1250	1380	
Alpha-BHC	pg/g	10	10	100%	8.61	295	32.3	63.4	86.7	
Alpha-Chlordane	pg/g	10	10	100%	706	6050	3790	3460	1770	
Beta-BHC	pg/g	10	8	80%	25.7	127	36.6	53.6	37.2	
cis-Nonachlor	pg/g	10	10	100%	398	1800	1160	1050	452	
Delta-BHC	pg/g	10	2	20%	6.07	63.6	34.8	34.8	40.7	
Dieldrin	pg/g	10	10	100%	396	2590	1530	1470	742	
Gamma-BHC (Lindane)	pg/g	10	6	60%	6.29	75.1	10.4	20.9	26.7	
Heptachlor	pg/g	10	2	20%	29.8	44.4	37.1	37.1	10.3	
Heptachlor Epoxide	pg/g	10	7	70%	90.5	178	113	132	36.2	
Hexachlorobenzene	pg/g	10	10	100%	424	3090	851	1030	776	

Table 3-5
Statistical Summary of Detected Analytes in the Central Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Mirex	pg/g	10	2	20%	27.8	77.2	52.5	52.5	34.9
Nonachlor, trans-	pg/g	10	10	100%	283	3580	2180	2040	1120
Oxychlordane	pg/g	10	1	10%	41.8	41.8	NA	NA	NA
trans-Chlordane	pg/g	10	10	100%	732	7150	3750	3940	1980
trans-Heptachlor Epoxide	pg/g	10	6	60%	88.4	580	311	335	193
Total Alpha + Gamma Chlordane	pg/g	10	10	100%	1400	13000	7700	7390	3700
Total DDT (2,4)	pg/g	10	10	100%	2400	76000	7450	14100	21900
Total DDT (4,4)	pg/g	10	10	100%	9500	190000	26500	44000	52400
Total DDT (2,4 & 4,4)	pg/g	10	10	100%	12000	270000	35000	58400	75500
Semivolatiles									
1-Methylnaphthalene	ug/kg	10	8	80%	1.4	20	6.65	8.09	6.67
2-Methylnaphthalene	ug/kg	10	10	100%	2	31	7.15	10.1	9.80
2-Nitroaniline	ug/kg	7	1	14%	33	33	NA	NA	NA
4-Methylphenol	ug/kg	8	6	75%	52	190	85.5	96.2	50.9
Acenaphthene	ug/kg	10	8	80%	4.5	35	12.5	16.7	11.9
Acenaphthylene	ug/kg	10	10	100%	5.2	40	13.5	17.4	12.4
Acetophenone	ug/kg	9	3	33%	27	100	76.0	67.7	37.2
Anthracene	ug/kg	10	10	100%	5.7	87	28.5	38.9	30.6
Benzo(a)anthracene	ug/kg	10	10	100%	18	280	83.5	113	97.9
Benzo(a)pyrene	ug/kg	10	10	100%	24	310	92.5	128	106
Benzo(b)fluoranthene	ug/kg	10	10	100%	17	290	79.0	111	97.9
Benzo(e)pyrene	ug/kg	10	10	100%	16	240	66.5	94.0	83.9
Benzo(g,h,i)perylene	ug/kg	10	10	100%	14	220	53.5	81.5	73.5
Benzo(j,k)fluoranthene	ug/kg	10	10	100%	18	290	73.5	108	98.4
Biphenyl	ug/kg	7	1	14%	55	55	NA	NA	NA
bis(2-Ethylhexyl)phthalate	ug/kg	9	9	100%	220	38000	940	5090	12400
C1-Chrysenes	ug/kg	10	10	100%	18	210	62.0	84.2	65.5
C1-Fluoranthenes/Pyrenes	ug/kg	10	10	100%	26	290	97.5	122	91.2
C1-Fluorenes	ug/kg	10	10	100%	2.8	29	8.50	12.1	9.05
C1-Naphthalenes	ug/kg	10	10	100%	2.8	42	9.50	13.0	12.6
C1-Phenanthrenes/Anthracenes	ug/kg	10	10	100%	12	190	40.0	80.0	72.5
C2-Chrysenes	ug/kg	10	10	100%	12	150	56.0	64.3	47.7
C2-Fluoranthenes/Pyrenes	ug/kg	10	10	100%	15	160	59.5	73.1	53.3
C2-Fluorenes	ug/kg	10	7	70%	3.2	23	11.0	13.4	8.24
C2-Naphthalenes	ug/kg	10	10	100%	3.2	64	12.8	17.0	18.0
C2-Phenanthrene/anthracenes	ug/kg	10	10	100%	13	140	46.5	63.4	47.4
C3-Chrysenes	ug/kg	10	10	100%	6.1	83	31.5	35.2	26.8
C3-Fluoranthenes/Pyrenes	ug/kg	10	10	100%	6.9	110	41.0	48.1	36.4
C3-Fluorenes	ug/kg	10	2	20%	5.7	11	8.35	8.35	3.75
C3-Naphthalene	ug/kg	10	10	100%	3.4	46	12.0	17.7	14.0
C3-Phenanthrene/anthracenes	ug/kg	10	10	100%	9.1	77	40.5	40.5	24.6
C4-Chrysenes	ug/kg	10	8	80%	5.5	47	20.5	22.6	14.8
C4-Naphthalene	ug/kg	10	10	100%	3.3	36	14.0	15.9	10.4
C4-Phenanthrenes/anthracenes	ug/kg	10	1	10%	30	30	NA	NA	NA
Carbazole	ug/kg	8	6	75%	42	480	97.5	164	163

Table 3-5
Statistical Summary of Detected Analytes in the Central Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Chrysene	ug/kg	10	10	100%	21	320	95.5	129	112
Dibenzo(a,h)anthracene	ug/kg	10	10	100%	4	56	15.0	22.1	19.0
Dibenzofuran	ug/kg	8	6	75%	35	240	63.0	101	82.2
Fluoranthene	ug/kg	10	10	100%	26	540	140	218	200
Fluorene	ug/kg	10	9	90%	2.8	41	8.90	17.1	14.9
Indeno(1,2,3-cd)pyrene	ug/kg	10	10	100%	15	230	57.5	87.6	78.8
Naphthalene	ug/kg	10	10	100%	4.2	69	18.5	28.6	24.3
Perylene	ug/kg	10	10	100%	5.6	80	24.5	32.1	27.2
Phenanthrene	ug/kg	10	10	100%	9.3	340	68.5	132	132
Phenol	ug/kg	7	1	14%	88	88	NA	NA	NA
Pyrene	ug/kg	10	10	100%	28	550	150	215	191
Total HMW PAHs	ug/kg	10	10	100%	190	3000	900	1210	1050
Total LMW PAHs	ug/kg	10	10	100%	27	640	165	257	227
TOTAL PAHs	ug/kg	10	10	100%	210	3700	1050	1470	1280
TPH									
Total Petroleum Hydrocarbons (C9-C40)	mg/kg	10	10	100%	52.3	612	119	195	183
Miscellaneous Chemicals									
Total Kjeldahl Nitrogen	mg/kg	10	10	100%	795	2370	1940	1770	532
Ammonia Nitrogen	mg/kg	10	5	50%	103	215	132	141	44.8
Phosphorus	mg/kg	10	10	100%	501	1460	807	855	295
Physical Properties									
Moisture (water) Content	%	10	10	100%	35.8	62.1	53.4	51.2	8.12
Oxidation Reduction Potential	mV	10	10	100%	26.5	221	83.8	105	61.3
Percent Moisture	%	10	10	100%	27.1	60.1	48.1	47.2	11.2
Total Solids (Percent)	%	10	10	100%	38.6	71.9	48.9	50.4	9.90
Water Content	%	10	10	100%	55.8	164	115	110	33.4
Water Content ASTM D2216	%	10	10	100%	37.2	150	93.8	97.0	40.1
TOC by Lloyd Kahn	mg/kg	10	10	100%	19000	51800	29700	31200	11000
pH	pH Units	10	10	100%	7.6	8.08	7.81	7.79	0.161
Grain Size									
0.001 mm	% passing	10	7	70%	1	10	6.00	5.57	3.36
0.002 mm	% passing	10	9	90%	2	16	7.00	9.11	5.40
0.02 mm	% passing	10	10	100%	7	56	34.0	34.7	17.7
0.05 mm	% passing	10	10	100%	9.5	80	51.8	51.0	24.4
0.064 mm	% passing	10	10	100%	11	90	59.0	58.3	26.6
0.3 mm	% passing	10	10	100%	67.2	97.3	90.6	89.6	8.49
3.35 mm	% passing	10	10	100%	90	99.8	99.1	97.9	2.97
75000 um	% passing	10	10	100%	100	100	100	100	0
Hydrometer Reading, Percent Finer Than 0.0050 mm	% passing	10	10	100%	4	24	11.5	13.9	8.05
Sieve No. 4, Percent Passing	% passing	10	10	100%	92.7	100	99.7	98.8	2.23
Sieve No. 8, Percent Passing	% passing	10	10	100%	84.8	99.1	97.3	96.2	4.27
Sieve No. 16, Percent Passing	% passing	10	10	100%	81.8	98.5	96.2	95.1	4.86
Sieve No. 30, Percent Passing	% passing	10	10	100%	78	97.7	94.5	93.5	5.69
Sieve No. 100, Percent Passing	% passing	10	10	100%	48.1	96.6	78.8	77.2	16.5

Table 3-5
Statistical Summary of Detected Analytes in the Central Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Sieve No. 200, Percent Passing	% passing	10	10	100%	13.7	94.7	63.6	62.4	27.1
Sieve 19000 Microns, Percent Passing	% passing	10	10	100%	100	100	100	100	0
Sieve 37500 Microns, Percent Passing	% passing	10	10	100%	100	100	100	100	0

Footnotes:

¹Valid results are results that were found to be valid as a result of data validation. Only valid data are used in statistical analyses. Additional details regarding rejected data are provided in Appendix H of this report.

Notes:

1. Only detected values were included in the calculation of totals.
2. Non-detect ("U" qualified) data were excluded from the statistical analysis.
3. Field duplicate samples were averaged to create one result prior to statistical reporting. Additional details regarding field duplicate handling can be found in Section 3.0 of the report.

ASTM = American Society for Testing Materials

AVS/SEM = acid volatile sulfide/simultaneously extracted metals

DDD = dichlorodiphenyldichloroethane

DDE = dichlorodiphenyldichloroethylene

DDT = dichlorodiphenyltrichloroethane

HMW = high molecular weight

LMW = low molecular weight

PAH = polycyclic aromatic hydrocarbon

PCB = polychlorinated biphenyl

TCDD = tetrachlorodibenzo-p-dioxin

TEPH = total extractable petroleum hydrocarbons

NA = not applicable

% = percent

mg/kg = milligrams per kilogram

ng/g = nanograms per gram

ng/kg = nanograms per kilogram

pg/g = picograms per gram

ppb = parts per billion

ug/kg = micrograms per kilogram

umol/g = micromoles per gram

Table 3-6
Statistical Summary of Detected Analytes in the South Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Dioxins/Furans									
1,2,3,4,6,7,8-HpCDD	ng/kg	16	16	100%	20	1780	287	402	470
1,2,3,4,6,7,8-HpCDF	ng/kg	16	16	100%	11.2	595	154	186	173
1,2,3,4,7,8,9-HpCDF	ng/kg	16	16	100%	1.04	49.4	8.89	11.7	12.5
1,2,3,4,7,8-HxCDD	ng/kg	16	16	100%	0.32	9.96	3.93	3.96	2.72
1,2,3,4,7,8-HxCDF	ng/kg	16	16	100%	2.14	120	30.3	35.8	32.8
1,2,3,6,7,8-HxCDD	ng/kg	16	16	100%	1.23	69.1	17.1	19.3	18.1
1,2,3,6,7,8-HxCDF	ng/kg	16	16	100%	1.21	49.2	11.2	14.4	13.2
1,2,3,7,8,9-HxCDD	ng/kg	16	16	100%	0.685	32.2	9.76	10.2	8.15
1,2,3,7,8,9-HxCDF	ng/kg	16	10	63%	0.452	5.45	1.31	2.05	1.72
1,2,3,7,8-PeCDD	ng/kg	16	16	100%	0.222	12	4.08	4.13	3.17
1,2,3,7,8-PeCDF	ng/kg	16	16	100%	0.728	40.7	8.11	9.65	9.88
2,3,4,6,7,8-HxCDF	ng/kg	16	16	100%	1.05	32	7.47	9.71	8.79
2,3,4,7,8-PeCDF	ng/kg	16	16	100%	1.04	44.8	12.5	14.3	12.0
2,3,7,8-TCDD	ng/kg	16	16	100%	1.76	347	34.9	80.1	108
2,3,7,8-TCDF	ng/kg	16	16	100%	1.28	57.3	15.7	16.2	13.9
OCDD	ng/kg	12	12	100%	212	3820	2050	2060	1240
OCDF	ng/kg	16	16	100%	18.9	2820	263	437	690
Herbicides									
2,4,5-T	ug/kg	15	7	47%	1.7	12	6.90	6.97	3.66
Metals									
Aluminum	mg/kg	16	16	100%	5420	23300	17000	15600	5550
Antimony	mg/kg	16	16	100%	0.226	4.21	1.75	1.78	1.26
Arsenic	mg/kg	16	16	100%	4.67	61.5	18.0	21.8	16.3
Barium	mg/kg	16	16	100%	32.1	1260	209	278	282
Beryllium	mg/kg	16	16	100%	0.327	1.78	1.12	1.03	0.380
Cadmium	mg/kg	16	16	100%	0.213	17.8	1.84	3.29	4.78
Calcium	mg/kg	16	16	100%	3160	27400	9060	9190	5440
Chromium	mg/kg	16	16	100%	20.8	397	121	137	109
Cobalt	mg/kg	16	16	100%	6.22	18.8	13.9	12.8	4.09
Copper	mg/kg	16	16	100%	19	567	195	223	171
Iron	mg/kg	16	16	100%	15000	47600	35700	31500	10200
Lead	mg/kg	16	16	100%	38.8	875	228	255	210
Magnesium	mg/kg	16	16	100%	4595	14000	9660	9080	2940
Manganese	mg/kg	16	16	100%	180	589	386	380	138
Mercury	ng/g	16	16	100%	169	8380	2070	2410	2150
Methyl Mercury	ng/g	16	16	100%	0.334	4.99	1.86	2.29	1.53
Nickel	mg/kg	16	16	100%	18.2	103	62.6	61.5	27.7
Potassium	mg/kg	16	16	100%	1550	6170	4500	4230	1470
Selenium	mg/kg	16	16	100%	0.151	3.74	0.964	1.25	0.997
Silver	mg/kg	16	16	100%	0.228	5.61	2.22	2.44	1.81
Sodium	mg/kg	16	16	100%	3810	18400	12500	11200	4540

Table 3-6
Statistical Summary of Detected Analytes in the South Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Thallium	mg/kg	16	16	100%	0.108	0.62	0.323	0.309	0.134
Titanium	mg/kg	16	16	100%	309.5	718	536	523	135
Vanadium	mg/kg	16	16	100%	24.2	78.5	50.6	45.7	16.1
Zinc	mg/kg	16	16	100%	79.6	752	397	383	219
AVS/SEM									
Acid Volatile Sulfide (AVS)	umol/g	16	15	94%	0.66	85.9	11.3	20.1	23.2
Cadmium	umol/g	16	16	100%	0.000632	0.0591	0.00332	0.0106	0.0180
Copper	umol/g	16	15	94%	0.133	1.1	0.479	0.466	0.245
Lead	umol/g	16	16	100%	0.0137	0.586	0.242	0.274	0.158
Mercury	umol/g	16	2	13%	0.0000075	0.000018	0.0000128	0.0000128	0.00000742
Nickel	umol/g	16	16	100%	0.0231	0.369	0.174	0.196	0.0985
Zinc	umol/g	16	16	100%	0.242	4.13	1.15	1.45	1.03
TEPH Alkanes									
2,6,10,14-Tetramethyl Pentadecane	mg/kg	16	5	31%	0.0316	0.694	0.211	0.259	0.265
2,6,10,14-Tetramethylhexadecane	mg/kg	16	9	56%	0.022	0.491	0.0585	0.159	0.184
Dotriacontane	mg/kg	16	12	75%	0.0327	0.691	0.0969	0.203	0.209
Heneicosane	mg/kg	16	9	56%	0.0292	0.171	0.0489	0.0596	0.0441
Heptadecane	mg/kg	16	11	69%	0.0485	0.688	0.110	0.175	0.191
Heptatriacontane, -n	mg/kg	16	9	56%	0.0238	0.441	0.0747	0.112	0.131
Hexatriacontane	mg/kg	16	5	31%	0.0589	0.325	0.156	0.181	0.116
Hhentriacontane	mg/kg	16	8	50%	0.0448	0.559	0.0972	0.152	0.171
n-Docosane	mg/kg	16	14	88%	0.0317	0.979	0.177	0.249	0.248
n-Dodecane	mg/kg	16	3	19%	0.0437	0.278	0.0452	0.122	0.135
n-Eicosane	mg/kg	16	7	44%	0.0235	0.264	0.0478	0.0821	0.0843
n-Hexacosane	mg/kg	16	6	38%	0.0592	1.04	0.104	0.252	0.388
n-Hexadecane	mg/kg	16	11	69%	0.0332	0.666	0.0690	0.180	0.229
n-Nonane	mg/kg	16	2	13%	0.0308	0.0371	0.0340	0.0340	0.00445
n-Octacosane	mg/kg	16	16	100%	0.0264	1.92	0.368	0.486	0.495
n-Octadecane	mg/kg	16	8	50%	0.0356	0.0943	0.0555	0.0599	0.0196
Nonacosane	mg/kg	16	14	88%	0.0195	0.597	0.126	0.158	0.149
Nonadecane	mg/kg	16	3	19%	0.0807	0.235	0.160	0.159	0.0772
Nonatriacontane	mg/kg	16	2	13%	0.0317	0.0551	0.0434	0.0434	0.0165
n-Tetracosane	mg/kg	16	7	44%	0.0371	0.344	0.0602	0.116	0.110
n-Triacontane	mg/kg	16	14	88%	0.0642	1.16	0.248	0.310	0.314
n-Tridecane	mg/kg	16	1	6%	0.0317	0.0317	NA	NA	NA
n-Undecane	mg/kg	16	1	6%	0.0494	0.0494	NA	NA	NA
Octatriacontane	mg/kg	16	1	6%	0.0508	0.0508	NA	NA	NA
Pentacosane	mg/kg	16	9	56%	0.02	1.03	0.140	0.248	0.311
Pentadecane	mg/kg	16	3	19%	0.0343	0.0873	0.0850	0.0689	0.0299
Pentatriacontane	mg/kg	16	11	69%	0.0156	0.26	0.0591	0.0939	0.0825
Tetracontane	mg/kg	16	4	25%	0.0232	0.127	0.0507	0.0629	0.0448
Tetratriacontane	mg/kg	16	2	13%	0.0255	0.0428	0.0342	0.0342	0.0122

Table 3-6
Statistical Summary of Detected Analytes in the South Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Tricosane	mg/kg	16	13	81%	0.0249	0.93	0.120	0.217	0.238
Tritriacontane	mg/kg	16	3	19%	0.0476	0.114	0.0672	0.0763	0.0341
Butyltins									
Dibutyltin	ug/kg	16	3	19%	4.2	15	4.75	7.98	6.08
Tributyltin	ug/kg	16	3	19%	2.8	8.1	7.20	6.03	2.84
PCB Congeners									
PCB-1	ng/kg	14	14	100%	25.3	1030	160	231	248
PCB-2	ng/kg	16	15	94%	5.03	330	24.2	46.3	80.3
PCB-3	ng/kg	14	14	100%	10.6	803	69.1	123	202
PCB-4	ng/kg	16	16	100%	34.2	4850	306	680	1170
PCB-5	ng/kg	16	14	88%	1.3	87.8	4.68	12.8	23.1
PCB-6	ng/kg	16	14	88%	15.2	1820	104	262	465
PCB-7	ng/kg	16	2	13%	4.66	57.3	31.0	31.0	37.2
PCB-8	ng/kg	16	15	94%	70.3	6260	330	920	1590
PCB-9	ng/kg	16	5	31%	4.65	297	72.3	103	117
PCB-10	ng/kg	16	16	100%	3.92	378	34.5	56.3	88.1
PCB-11	ng/kg	16	16	100%	34.7	8970	208	896	2180
PCB-12/13	ng/kg	16	16	100%	14.7	3200	99.4	321	774
PCB-14	ng/kg	16	2	13%	1.21	8.95	5.08	5.08	5.47
PCB-15	ng/kg	16	16	100%	75	14800	555	1590	3580
PCB-16	ng/kg	8	8	100%	95.6	3370	385	808	1110
PCB-17	ng/kg	16	16	100%	21.2	9890	253	1180	2440
PCB-18/30	ng/kg	16	16	100%	29	15500	379	1980	3910
PCB-19	ng/kg	16	15	94%	29.2	2280	71.9	307	576
PCB-20/28	ng/kg	16	16	100%	125	56300	1090	5820	13800
PCB-21/33	ng/kg	16	16	100%	19.9	11100	263	1330	2760
PCB-22	ng/kg	16	16	100%	25.2	12600	262	1390	3100
PCB-23	ng/kg	16	7	44%	0.695	30.3	3.12	7.20	10.5
PCB-24	ng/kg	16	7	44%	2.11	174	3.84	31.4	63.2
PCB-25	ng/kg	16	16	100%	14.8	4990	130	511	1220
PCB-26/29	ng/kg	16	16	100%	27.5	8530	247	880	2080
PCB-27	ng/kg	16	16	100%	6.74	2130	65.3	245	518
PCB-31	ng/kg	16	16	100%	70.6	31800	736	3450	7780
PCB-32	ng/kg	16	16	100%	17.7	8090	183	908	1980
PCB-34	ng/kg	16	16	100%	0.823	275	6.00	27.2	66.9
PCB-35	ng/kg	16	16	100%	3.85	1340	34.7	134	326
PCB-36	ng/kg	16	10	63%	0.802	41.1	1.45	6.00	12.5
PCB-37	ng/kg	16	16	100%	37	14000	361	1450	3430
PCB-38	ng/kg	16	4	25%	1.92	18.1	2.79	6.40	7.84
PCB-39	ng/kg	16	16	100%	1.04	264	5.36	26.1	64.4
PCB-40/71	ng/kg	16	16	100%	34.1	17900	451	2010	4390
PCB-41	ng/kg	16	15	94%	15.3	1960	86.0	271	511

Table 3-6
Statistical Summary of Detected Analytes in the South Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-42	ng/kg	16	16	100%	22.7	12200	322	1370	2990
PCB-43	ng/kg	16	16	100%	3.04	1810	42.2	198	444
PCB-44/47/65	ng/kg	16	16	100%	81.6	37500	1040	4320	9210
PCB-45	ng/kg	16	16	100%	8.34	5030	114	597	1250
PCB-46	ng/kg	16	16	100%	3.62	1760	50.3	221	438
PCB-48	ng/kg	16	16	100%	10.8	7730	178	858	1900
PCB-49/69	ng/kg	16	16	100%	63.9	27000	796	3020	6600
PCB-50/53	ng/kg	16	16	100%	11.2	4820	140	583	1190
PCB-51	ng/kg	16	16	100%	4.95	1630	69.0	199	398
PCB-52	ng/kg	16	16	100%	161	39000	1170	4620	9580
PCB-54	ng/kg	16	12	75%	2.1	121	8.37	20.3	33.3
PCB-55	ng/kg	16	14	88%	3.56	1849.85	9.35	166	491
PCB-56	ng/kg	16	16	100%	32.4	20500	508	2200	5040
PCB-57	ng/kg	16	15	94%	2.62	271	7.44	27.6	68.0
PCB-58	ng/kg	16	14	88%	2	191	4.53	20.7	49.8
PCB-60	ng/kg	16	16	100%	11.3	5970	180	745	1510
PCB-61/70/74/76	ng/kg	16	16	100%	95.3	67500	1520	7150	16600
PCB-62/75	ng/kg	16	16	100%	8.48	3780	91.2	417	926
PCB-63	ng/kg	16	16	100%	2.93	1950	39.0	188	476
PCB-64	ng/kg	16	16	100%	28.5	16900	455	1960	4160
PCB-66	ng/kg	16	16	100%	67.3	42800	963	4620	10600
PCB-67	ng/kg	16	16	100%	2.17	1300	27.0	129	318
PCB-68	ng/kg	16	14	88%	4.69	342	9.96	37.7	88.8
PCB-72	ng/kg	16	15	94%	1.83	538	13.9	54.8	135
PCB-73	ng/kg	16	3	19%	2.48	83	22.2	35.9	42.0
PCB-77	ng/kg	10	10	100%	10.2	5350	111	782	1660
PCB-78	ng/kg	16	1	6%	18.9	18.9	NA	NA	NA
PCB-79	ng/kg	16	15	94%	2.38	317	9.70	38.8	80.9
PCB-80	ng/kg	16	1	6%	5	5	NA	NA	NA
PCB-81	ng/kg	16	12	75%	1.88	152	5.93	22.9	43.0
PCB-82	ng/kg	16	16	100%	8.25	4170	149	537	1050
PCB-83	ng/kg	16	16	100%	4.8	1800	63.1	219	441
PCB-84	ng/kg	16	16	100%	11.5	7130	270	859	1740
PCB-85/116/117	ng/kg	16	16	100%	15	6450	235	816	1610
PCB-86/87/97/109/119/125	ng/kg	16	16	100%	47.7	20400	820	2600	5060
PCB-89	ng/kg	16	15	94%	3.6	495	19.8	59.5	125
PCB-90/101/113	ng/kg	16	16	100%	81.7	29700	1230	3650	7290
PCB-91	ng/kg	16	16	100%	10.2	4840	181	577	1180
PCB-92	ng/kg	16	16	100%	14.4	5790	223	643	1400
PCB-93/100	ng/kg	16	14	88%	12.2	475	24.2	67.2	122
PCB-94	ng/kg	16	14	88%	2.72	236	9.67	30.6	61.2
PCB-95	ng/kg	11	11	100%	60.8	23200	861	3570	6860

Table 3-6
Statistical Summary of Detected Analytes in the South Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-96	ng/kg	15	14	93%	2.21	267	11.5	38.0	70.0
PCB-98/102	ng/kg	16	15	94%	12.6	1300	49.7	160	326
PCB-99	ng/kg	16	16	100%	45.9	16600	687	2050	4070
PCB-103	ng/kg	16	15	94%	4.09	326	16.3	40.9	81.3
PCB-104	ng/kg	16	4	25%	2.51	21.3	9.87	10.9	7.77
PCB-105	ng/kg	16	16	100%	26.7	12800	426	1560	3230
PCB-107	ng/kg	16	16	100%	6.67	2650	78.7	303	660
PCB-108/124	ng/kg	16	16	100%	3.15	1260	40.5	153	317
PCB-110/115	ng/kg	16	16	100%	92.8	37300	1510	4760	9260
PCB-111	ng/kg	16	4	25%	1.75	24.8	4.12	8.70	11.0
PCB-112	ng/kg	16	5	31%	1.42	65.1	6.14	19.5	26.7
PCB-114	ng/kg	16	16	100%	1.76	800	27.2	98.3	203
PCB-118	ng/kg	16	16	100%	80.8	31500	1090	3870	7940
PCB-120	ng/kg	16	13	81%	2.26	141	5.14	18.4	37.8
PCB-121	ng/kg	16	1	6%	2.845	2.845	NA	NA	NA
PCB-122	ng/kg	16	15	94%	3.19	463	14.7	59.6	121
PCB-123	ng/kg	14	13	93%	4.95	623	24.4	93.8	172
PCB-126	ng/kg	15	11	73%	1.62	176	4.08	23.6	51.4
PCB-127	ng/kg	10	5	50%	3.91	6.56	5.32	5.22	0.990
PCB-128/166	ng/kg	16	16	100%	11.1	5160	181	617	1290
PCB-129/138/163	ng/kg	16	16	100%	85.5	41700	1260	4680	10300
PCB-130	ng/kg	13	13	100%	6	2410	61.3	307	659
PCB-131	ng/kg	13	12	92%	3.57	460	16.1	67.2	131
PCB-132	ng/kg	16	16	100%	25.1	12100	377	1380	2990
PCB-133	ng/kg	16	16	100%	1.92	599	17.3	66.8	149
PCB-134	ng/kg	13	13	100%	5.24	2050	61.9	266	559
PCB-135/151	ng/kg	16	16	100%	26.6	11200	362	1260	2740
PCB-136	ng/kg	16	16	100%	8.02	3610	132	417	879
PCB-137	ng/kg	13	13	100%	3.61	1650	54.9	229	459
PCB-139/140	ng/kg	16	15	94%	4.52	570	20.9	74.5	147
PCB-141	ng/kg	16	16	100%	10.7	6210	173	689	1540
PCB-142	ng/kg	13	1	8%	3.02	3.02	NA	NA	NA
PCB-143	ng/kg	10	4	40%	6.31	81.6	20.9	32.4	35.1
PCB-144	ng/kg	16	16	100%	2.32	1470	51.4	170	361
PCB-145	ng/kg	16	2	13%	1.99	5.335	3.66	3.66	2.37
PCB-146	ng/kg	11	11	100%	15	5700	175	834	1670
PCB-147/149	ng/kg	16	16	100%	64.7	28600	850	3150	7010
PCB-148	ng/kg	16	8	50%	2.85	60.8	5.06	14.8	20.6
PCB-150	ng/kg	16	14	88%	2.53	78.5	7.08	12.8	20.0
PCB-152	ng/kg	16	7	44%	1.8	28.1	2.90	7.39	9.62
PCB-153/168	ng/kg	16	16	100%	80.2	34600	980	3750	8480
PCB-154	ng/kg	16	13	81%	5.67	467	23.9	72.6	127

Table 3-6
Statistical Summary of Detected Analytes in the South Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-155	ng/kg	16	11	69%	1.7	256	5.55	31.6	75.2
PCB-156/157	ng/kg	16	16	100%	8.52	4460	143	518	1120
PCB-158	ng/kg	15	15	100%	7.55	3840	126	461	976
PCB-159	ng/kg	16	1	6%	61.4	61.4	NA	NA	NA
PCB-162	ng/kg	10	8	80%	2.22	101.35	9.54	24.0	32.4
PCB-164	ng/kg	14	14	100%	5.59	2550	83.2	317	668
PCB-165	ng/kg	10	3	30%	1.46	17.8	6.50	8.59	8.37
PCB-167	ng/kg	9	9	100%	19.8	476.5	43.6	93.6	146
PCB-169	ng/kg	16	1	6%	15.4	15.4	NA	NA	NA
PCB-170	ng/kg	16	16	100%	13.6	11200	258	1150	2760
PCB-171/173	ng/kg	10	10	100%	5.26	3560	84.7	518	1100
PCB-172	ng/kg	16	16	100%	3.3	2170	46.7	216	533
PCB-174	ng/kg	10	10	100%	15.8	10700	260	1580	3300
PCB-175	ng/kg	10	9	90%	2.98	513	12.6	82.3	165
PCB-176	ng/kg	16	16	100%	2.43	1390	34.6	145	341
PCB-177	ng/kg	10	10	100%	12.7	7260	166	1060	2240
PCB-178	ng/kg	10	10	100%	6.84	2510	60.3	368	773
PCB-179	ng/kg	16	16	100%	9.97	4820	124	506	1180
PCB-180/193	ng/kg	16	16	100%	48.4	26900	640	2780	6620
PCB-181	ng/kg	10	6	60%	1.98	88.7	5.48	23.2	34.2
PCB-182	ng/kg	10	2	20%	18.4	52.9	35.7	35.7	24.4
PCB-183/185	ng/kg	10	10	100%	17.2	8990	221	1320	2770
PCB-184	ng/kg	16	3	19%	1.75	25.1	4.32	10.4	12.8
PCB-186	ng/kg	16	1	6%	2.08	2.08	NA	NA	NA
PCB-187	ng/kg	10	10	100%	42.3	16000	400	2380	4930
PCB-188	ng/kg	16	6	38%	2.17	45.3	9.92	14.5	15.6
PCB-189	ng/kg	16	15	94%	2.37	424	10.5	46.9	108
PCB-190	ng/kg	16	16	100%	3.77	2420	57.0	251	598
PCB-191	ng/kg	16	15	94%	2.52	493	11.2	53.3	125
PCB-194	ng/kg	16	16	100%	17.7	6860	163	764	1700
PCB-195	ng/kg	16	16	100%	4.56	2450	53.9	254	607
PCB-196	ng/kg	16	16	100%	10.3	3450	94.3	389	851
PCB-197/200	ng/kg	9	9	100%	19	286.5	32.7	66.7	86.2
PCB-198/199	ng/kg	16	16	100%	39.5	8520	263	1100	2160
PCB-201	ng/kg	16	16	100%	4.6	961	30.3	115	236
PCB-202	ng/kg	16	16	100%	17.5	2290	77.2	291	579
PCB-203	ng/kg	16	16	100%	22.8	5100	162	710	1350
PCB-205	ng/kg	16	15	94%	2.37	340	8.89	37.6	86.5
PCB-206	ng/kg	16	16	100%	41.4	5700	245	988	1880
PCB-207	ng/kg	16	16	100%	3.44	475	25.6	83.3	150
PCB-208	ng/kg	16	16	100%	20.9	2120	98.5	351	681
PCB-209	ng/kg	16	16	100%	26.9	5090	260	679	1240

Table 3-6
Statistical Summary of Detected Analytes in the South Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Total PCB Congeners (209)	ng/kg	16	16	100%	2540	1070000	34900	121000	262000
Aroclor PCBs									
Aroclor-1248	ug/kg	16	12	75%	22	1500	125	273	410
Aroclor-1254	ug/kg	16	14	88%	11	850	118	191	225
Aroclor-1260	ug/kg	16	4	25%	25	81	48.5	50.8	25.9
Aroclor-1262	ug/kg	16	7	44%	18	160	25.0	56.9	60.9
Aroclor-1268	ug/kg	16	1	6%	20	20	NA	NA	NA
Total Aroclor PCBs (Sum of 7 Aroclors)	ug/kg	16	15	94%	11	2400	170	413	608
Total Aroclor PCBs (Sum of 9 Aroclors)	ug/kg	16	15	94%	31	2500	200	435	636
Pesticides									
2,4'-DDD	pg/g	16	16	100%	243	43800	7740	12000	12500
2,4'-DDE	pg/g	16	16	100%	307	175000	10400	30900	50700
2,4'-DDT	pg/g	16	14	88%	19.3	2440	248	588	682
4,4'-DDD	pg/g	16	16	100%	863	125000	23800	36700	36900
4,4'-DDE	pg/g	16	16	100%	1050	336000	36600	74800	104000
4,4'-DDT	pg/g	16	16	100%	229	108000	995	11300	27200
Alpha-BHC	pg/g	16	16	100%	8.06	1260	120	263	364
Alpha-Chlordane	pg/g	16	15	94%	203	5030	1700	2130	1310
Beta-BHC	pg/g	16	11	69%	6.63	1426	87.8	211	409
cis-Nonachlor	pg/g	16	15	94%	79.9	2470	619	842	662
Delta-BHC	pg/g	16	2	13%	14.7	322	168	168	217
Dieldrin	pg/g	16	15	94%	106	7830	947	1620	1940
Endosulfan I	pg/g	16	1	6%	247	247	NA	NA	NA
Gamma-BHC (Lindane)	pg/g	16	4	25%	19.4	218	74.1	96.4	90.8
Heptachlor	pg/g	16	3	19%	23.7	153	55.1	77.3	67.4
Heptachlor Epoxide	pg/g	16	3	19%	43.9	209	188	147	89.9
Hexachlorobenzene	pg/g	16	16	100%	217	31200	1190	3890	7970
Mirex	pg/g	13	2	15%	172	959	566	566	556
Nonachlor, trans-	pg/g	16	15	94%	139	3010	1110	1210	763
Oxychlordane	pg/g	16	1	6%	41.8	41.8	NA	NA	NA
trans-Chlordane	pg/g	16	15	94%	261	10900	2570	3100	2640
trans-Heptachlor Epoxide	pg/g	16	4	25%	502	599	545	548	40.0
Total Alpha + Gamma Chlordane	pg/g	16	15	94%	460	16000	4450	5220	3880
Total DDT (2,4)	pg/g	16	16	100%	550	180000	16300	43700	57600
Total DDT (4,4)	pg/g	16	16	100%	2300	490000	58000	123000	147000
Total DDT (2,4 & 4,4)	pg/g	16	16	100%	2800	600000	76000	166000	200000

Table 3-6
Statistical Summary of Detected Analytes in the South Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Semivolatiles									
1-Methylnaphthalene	ug/kg	16	14	88%	1.4	19.5	3.90	4.91	4.57
2,4-Dimethylphenol	ug/kg	16	2	13%	92	130	111	111	26.9
2-Methylnaphthalene	ug/kg	16	15	94%	2.3	27.5	7.10	8.59	6.61
4-Methylphenol	ug/kg	16	10	63%	39	140	62.5	82.1	38.8
Acenaphthene	ug/kg	16	14	88%	2.1	29.5	6.45	10.1	8.67
Acenaphthylene	ug/kg	16	15	94%	2.4	53	17.2	23.1	16.5
Acetophenone	ug/kg	16	6	38%	27	50.5	39.3	39.3	8.84
Anthracene	ug/kg	16	16	100%	2	91	29.0	33.2	24.7
Benzo(a)anthracene	ug/kg	16	16	100%	6.3	310	68.5	99.6	89.6
Benzo(a)pyrene	ug/kg	16	16	100%	7.2	390	88.5	119	107
Benzo(b)fluoranthene	ug/kg	16	16	100%	6.7	310	65.0	87.3	80.4
Benzo(e)pyrene	ug/kg	16	16	100%	5.6	270	60.0	80.2	72.0
Benzo(g,h,i)perylene	ug/kg	16	16	100%	5.1	240	57.0	72.4	64.6
Benzo(j,k)fluoranthene	ug/kg	16	16	100%	5.9	310	65.0	89.7	83.1
Biphenyl	ug/kg	16	2	13%	55	60	57.5	57.5	3.54
bis(2-Ethylhexyl)phthalate	ug/kg	16	11	69%	140	4000	680	1180	1260
C1-Chrysenes	ug/kg	16	16	100%	5.9	270	61.5	94.8	86.6
C1-Fluoranthenes/Pyrenes	ug/kg	16	16	100%	9.2	440	105	149	127
C1-Fluorenes	ug/kg	16	14	88%	1.3	30.5	10.0	13.6	10.1
C1-Naphthalenes	ug/kg	16	15	94%	2.7	32.5	7.80	10.0	8.03
C1-Phenanthrenes/Anthracenes	ug/kg	16	16	100%	3.8	205	52.5	68.4	55.0
C2-Chrysenes	ug/kg	16	16	100%	5.9	260	51.5	86.7	79.0
C2-Fluoranthenes/Pyrenes	ug/kg	16	16	100%	5.9	310	63.5	99.1	87.4
C2-Fluorenes	ug/kg	16	14	88%	2.3	45	11.5	18.9	14.8
C2-Naphthalenes	ug/kg	16	15	94%	3.2	60	22.0	24.9	17.7
C2-Phenanthrene/anthracenes	ug/kg	16	16	100%	6.7	350	60.5	101	95.8
C3-Chrysenes	ug/kg	16	16	100%	2.9	170	29.0	49.2	50.2
C3-Fluoranthenes/Pyrenes	ug/kg	16	16	100%	4.3	250	46.5	75.2	77.5
C3-Fluorenes	ug/kg	16	9	56%	6.7	120	19.0	42.0	38.9
C3-Naphthalene	ug/kg	16	16	100%	3.1	170	21.5	43.3	46.7
C3-Phenanthrene/anthracenes	ug/kg	16	16	100%	6.6	300	51.0	83.8	84.2
C4-Chrysenes	ug/kg	16	14	88%	5.7	130	21.0	34.1	36.8
C4-Naphthalene	ug/kg	16	16	100%	3.3	350	23.5	64.9	90.2
C4-Phenanthrenes/anthracenes	ug/kg	16	5	31%	41	200	150	138	65.0
Carbazole	ug/kg	16	5	31%	39	160	66.0	77.0	48.5
Chrysene	ug/kg	16	16	100%	6.7	350	85.5	112	100
Dibenzo(a,h)anthracene	ug/kg	16	15	94%	2.7	68	15.0	22.7	20.4
Dibenzofuran	ug/kg	16	4	25%	51	117	65.5	74.8	30.0
Di-n-Butylphthalate	ug/kg	16	1	6%	170	170	NA	NA	NA
Fluoranthene	ug/kg	16	16	100%	11	500	125	156	140
Fluorene	ug/kg	16	15	94%	1.7	37.05	7.20	10.2	9.99

Table 3-6
Statistical Summary of Detected Analytes in the South Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Indeno(1,2,3-cd)pyrene	ug/kg	16	16	100%	5.4	260	58.5	76.4	70.2
Naphthalene	ug/kg	16	16	100%	1.8	54.5	13.5	16.3	13.4
Perylene	ug/kg	16	16	100%	2.8	96	21.5	27.6	24.3
Phenanthrene	ug/kg	16	16	100%	2.8	280	46.5	74.6	77.4
Phenol	ug/kg	16	2	13%	40	46	43.0	43.0	4.24
Pyrene	ug/kg	16	16	100%	10	550	135	175	157
Total HMW PAHs	ug/kg	16	16	100%	64	3300	760	1010	909
Total LMW PAHs	ug/kg	16	16	100%	6.6	550	130	171	146
TOTAL PAHs	ug/kg	16	16	100%	71	3600	900	1180	1030
TPH									
PHC AS GASOLINE	mg/kg	16	4	25%	5.8	100	33.4	43.2	45.6
Total Petroleum Hydrocarbons (C9-C40)	mg/kg	16	15	94%	23.4	1290	166	303	348
Miscellaneous Chemicals									
Total Kjeldahl Nitrogen	mg/kg	16	16	100%	274	2280	1540	1450	691
Total Cyanide	mg/kg	16	3	19%	0.44	0.72	0.480	0.547	0.151
Ammonia Nitrogen	mg/kg	16	7	44%	94.4	216	148	157	48.9
Phosphorus	mg/kg	16	16	100%	158	2090	959	945	479
Physical Properties									
Moisture (water) Content	%	16	16	100%	26.5	62.9	56.5	50.9	12.0
Oxidation Reduction Potential	mV	16	16	100%	25.5	252	80.4	88.8	55.2
Percent Moisture	%	16	16	100%	23.2	66.6	51.4	47.7	14.7
Total Solids (Percent)	%	16	16	100%	37	79	46.5	51.2	13.1
Water Content	%	16	16	100%	36	170	130	114	45.1
Water Content ASTM D2216	%	16	16	100%	30.2	200	106	105	55.5
TOC by Lloyd Kahn	mg/kg	16	16	100%	3170	151000	42500	46200	33000
pH	pH Units	16	16	100%	7.44	8.07	7.84	7.76	0.200
Grain Size									
0.001 mm	% passing	16	14	88%	0.5	10	4.00	4.79	2.70
0.002 mm	% passing	16	16	100%	0.5	15	7.00	7.28	3.95
0.02 mm	% passing	16	16	100%	4	48	30.5	27.9	14.2
0.05 mm	% passing	16	16	100%	5	68	51.0	42.7	19.2
0.064 mm	% passing	16	16	100%	5	78	59.5	49.5	21.4
0.3 mm	% passing	16	16	100%	24.7	94.1	85.3	79.5	17.1
3.35 mm	% passing	16	16	100%	77.2	99.7	98.0	96.1	5.56
75000 um	% passing	16	16	100%	100	100	100	100	0
Hydrometer Reading, Percent Finer Than 0.0050 mm	% passing	16	16	100%	2	22	11.5	11.9	5.86
Sieve No. 4, Percent Passing	% passing	16	16	100%	80.1	100	99.3	97.5	4.93
Sieve No. 8, Percent Passing	% passing	16	16	100%	73.9	99.1	94.9	93.6	6.20
Sieve No. 16, Percent Passing	% passing	16	16	100%	69.2	98.45	93.3	91.7	7.23

Table 3-6
Statistical Summary of Detected Analytes in the South Zone - Sediment

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Sieve No. 30, Percent Passing	% passing	16	16	100%	56	97.9	91.2	87.9	10.3
Sieve No. 100, Percent Passing	% passing	16	16	100%	10	90.4	72.6	67.5	20.2
Sieve No. 200, Percent Passing	% passing	16	16	100%	5.9	82.9	63.5	53.3	22.3
Sieve 19000 Microns, Percent Passing	% passing	16	16	100%	85	100	100	99.1	3.75
Sieve 37500 Microns, Percent Passing	% passing	16	16	100%	100	100	100	100	0

Footnotes:

¹Valid results are results that were found to be valid as a result of data validation. Only valid data are used in statistical analyses. Additional details regarding rejected data are provided in Appendix H of this report.

Notes:

1. Only detected values were included in the calculation of totals.
2. Non-detect ("U" qualified) data were excluded from the statistical analysis.
3. Field duplicate samples were averaged to create one result prior to statistical reporting. Additional details regarding field duplicate handling can be found in Section 3.0 of the report.

ASTM = American Society for Testing Materials
AVS/SEM = acid volatile sulfide/simultaneously extracted metals
DDD = dichlorodiphenyldichloroethane
DDE = dichlorodiphenyldichloroethylene
DDT = dichlorodiphenyltrichloroethane
HMW = high molecular weight
LMW = low molecular weight
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
TCDD = tetrachlorodibenzo-p-dioxin
TEPH = total extractable petroleum hydrocarbons
NA = not applicable

% = percent
mg/kg = milligrams per kilogram
ng/g = nanograms per gram
ng/kg = nanograms per kilogram
pg/g = picograms per gram
ppb = parts per billion
ug/kg = micrograms per kilogram
umol/g = micromoles per gram

Table 3-7
List of Constituents Not Detected in Polychaete Tissue Samples

Analyte
Metals
Antimony
Beryllium
Thallium
Butyltins
Dibutyltin
Monobutyltin
Tetra-n-butyltin
Tributyltin
Pesticides
Alpha Endosulfan
Beta Endosulfan
Delta BHC
Endosulfan Sulfate
Endrin
Endrin Aldehyde
Endrin Ketone
Gamma Bhc (Lindane)
Heptachlor
Methoxychlor
Mirex
2,4'-DDT
Trans-Heptachlor Epoxide
Aroclor PCBs
Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1262
Aroclor 1268
PCB Congeners
PCB-5
PCB-41
PCB-78
PCB-80
PCB-88
PCB-106
PCB-142
PCB-143
PCB-159
PCB-160
PCB-161
PCB-169
PCB-186
PCB-192
PCB-204
Semivolatiles
1,2,4,5-Tetrachlorobenzene
1,2-Diphenylhydrazine
1-Methylnaphthalene
2,3,4,6-Tetrachlorophenol
2,4,5-Trichlorophenol

Table 3-7
List of Constituents Not Detected in Polychaete Tissue Samples

Analyte
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
2-Chloronaphthalene
2-Chlorophenol
2-Methylnaphthalene
2-Methylphenol (O-Cresol)
2-Nitroaniline
2-Nitrophenol
3,3'-Dichlorobenzidine
3-Nitroaniline
4,6-Dinitro-2-Methylphenol
4-Bromophenyl Phenyl Ether
4-Chloro-3-Methylphenol
4-Chloroaniline
4-Chlorophenyl Phenyl Ether
4-Methylphenol (P-Cresol)
4-Nitroaniline
4-Nitrophenol
Acenaphthene
Acenaphthylene
Acetophenone
Anthracene
Atrazine
Benzaldehyde
Benzidine
Benzo(A)Anthracene
Benzo(A)Pyrene
Benzo(G,H,I)Perylene
Benzoic Acid
Benzyl Butyl Phthalate
Biphenyl (Diphenyl)
Bis(2-Chloroethoxy) Methane
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)
Bis(2-Chloroisopropyl) Ether
Bis(2-Ethylhexyl) Phthalate
C1-Chrysenes
C1-Fluoranthenes/Pyrenes
C1-Fluorenes
C1-Naphthalenes
C1-Phenanthrene/Anthracene
C2-Chrysene
C2-Fluoranthenes/Pyrene
C2-Fluorenes
C2-Naphthalenes
C2-Phenanthrene/Anthracene
C3-Chrysene
C3-Fluoranthenes/Pyrene
C3-Fluorenes
C3-Phenanthrene/Anthracene

Table 3-7
List of Constituents Not Detected in Polychaete Tissue Samples

Analyte
C4-Chrysene
C4-Phenanthrene/Anthracene
Caprolactam
Carbazole
Dibenz(A,H)Anthracene
Dibenzofuran
Diethyl Phthalate
Dimethyl Phthalate
Di-N-Butyl Phthalate
Di-N-Octylphthalate
Fluorene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Indeno(1,2,3-C,D)Pyrene
Isophorone
Naphthalene
Nitrobenzene
N-Nitrosodi-N-Propylamine
N-Nitrosodiphenylamine
Pentachlorophenol
Phenanthrene
Phenol
Total LMW PAHs

Notes:

LWM = low molecular weight
PAHs = polycyclic aromatic hydrocarbons
PCB = polychlorinated biphenyl

Table 3-8
Statistical Summary of Detected Analytes – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Dioxins/Furans									
1,2,3,4,6,7,8-HpCDD	ng/kg	8	8	100%	1.9	11.145	2.77	3.62	3.08
1,2,3,4,6,7,8-HpCDF	ng/kg	8	8	100%	1.64	4.53	2.77	2.91	1.03
1,2,3,4,7,8,9-HpCDF	ng/kg	8	8	100%	0.106	0.241	0.165	0.159	0.0444
1,2,3,4,7,8-HxCDD	ng/kg	8	8	100%	0.106	0.291	0.145	0.161	0.0575
1,2,3,4,7,8-HxCDF	ng/kg	8	8	100%	0.42	1.96	0.831	0.902	0.491
1,2,3,6,7,8-HxCDD	ng/kg	8	8	100%	0.316	0.992	0.435	0.507	0.216
1,2,3,6,7,8-HxCDF	ng/kg	8	8	100%	0.27	0.637	0.410	0.427	0.128
1,2,3,7,8,9-HxCDD	ng/kg	8	8	100%	0.125	0.4165	0.203	0.219	0.0956
1,2,3,7,8,9-HxCDF	ng/kg	8	8	100%	0.0674	0.1105	0.0963	0.0938	0.0136
1,2,3,7,8-PCDD	ng/kg	8	2	25%	0.279	1.445	0.862	0.862	0.824
1,2,3,7,8-PCDF	ng/kg	8	8	100%	0.4855	0.819	0.572	0.613	0.110
2,3,4,6,7,8-HxCDF	ng/kg	8	8	100%	0.173	0.311	0.234	0.238	0.0479
2,3,4,7,8-PCDF	ng/kg	8	8	100%	0.645	1.32	0.908	0.952	0.235
2,3,7,8-TCDD	ng/kg	8	8	100%	1.2	17.1	3.33	4.91	5.15
2,3,7,8-TCDF	ng/kg	8	8	100%	1.68	2.26	1.96	1.97	0.205
OCDF	ng/kg	8	8	100%	1.23	8.52	1.88	3.08	2.42
OCDD	ng/kg	8	8	100%	9.4	60.4	15.1	20.5	16.7
Percent Lipids	%	8	8	100%	0.86	1.2	1.05	1.03	0.116
Metals									
Aluminum	mg/kg	8	7	88%	7.81	173	38.9	54.1	56.4
Arsenic	mg/kg	8	8	100%	2.17	2.935	2.61	2.58	0.286
Barium	mg/kg	8	4	50%	0.243	0.652	0.473	0.460	0.171
Cadmium	mg/kg	8	7	88%	0.0516	0.121	0.0662	0.0772	0.0258
Calcium	mg/kg	8	8	100%	202	327	260	259	36.3
Chromium, Total	mg/kg	8	6	75%	0.223	0.927	0.403	0.497	0.309
Cobalt	mg/kg	8	8	100%	0.116	0.154	0.131	0.134	0.0141
Copper	mg/kg	8	8	100%	1.67	2.44	2.01	2.00	0.246
Iron	mg/kg	8	8	100%	67.5	258	123	140	61.7
Lead	mg/kg	8	8	100%	0.256	0.839	0.527	0.530	0.214
Magnesium	mg/kg	8	8	100%	571	742	663	659	61.4
Manganese	mg/kg	8	8	100%	0.8185	3.03	1.45	1.56	0.795
Mercury	ng/g	8	8	100%	24	34	24.7	27.0	4.13
Methyl Mercury	ng/g	8	1	13%	3.7	3.7	NA	NA	NA
Nickel	mg/kg	8	8	100%	0.312	0.57	0.470	0.452	0.0980
Potassium	mg/kg	8	8	100%	2730	3220	3010	3000	208
Selenium	mg/kg	8	8	100%	0.282	0.387	0.330	0.334	0.0366
Silver	mg/kg	8	8	100%	0.0204	0.041	0.0336	0.0323	0.00730
Sodium	mg/kg	8	8	100%	3565	4650	3820	4030	451

Table 3-8
Statistical Summary of Detected Analytes – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Titanium	mg/kg	8	5	63%	0.705	2.79	1.92	1.78	0.773
Vanadium	mg/kg	8	3	38%	0.128	0.288	0.139	0.185	0.0894
Zinc	mg/kg	8	8	100%	16.4	46.3	26.3	27.7	11.4
Pesticides									
Aldrin	pg/g	8	3	38%	4.77	15.3	9.18	9.75	5.29
Alpha BHC	pg/g	4	2	50%	6.8	18.1	12.5	12.5	7.99
Beta BHC	pg/g	8	5	63%	5.71	11.2	5.74	7.28	2.41
Cis-chlordane	pg/g	8	8	100%	222	1360	543	628	370
Cis-nonachlor	pg/g	8	8	100%	197	479	340	339	104
Dieldrin	pg/g	8	8	100%	438	3140	1190	1300	807
Heptachlor Epoxide	pg/g	8	8	100%	23.5	134	44.0	56.2	34.7
Hexachlorobenzene	pg/g	8	8	100%	106	556	175	269	174
2,4'-DDD	pg/g	8	8	100%	316	1470	494	643	382
2,4'-DDE	pg/g	4	4	100%	57.7	302	100	140	115
Oxychlordane	pg/g	8	7	88%	26.1	50.8	42.3	41.6	9.23
4,4'-DDD	pg/g	8	8	100%	670	3540	1110	1540	1060
4,4'-DDE	pg/g	8	8	100%	330	1460	790	758	376
4,4'-DDT	pg/g	8	7	88%	26.1	100	31.9	44.0	26.0
Trans-Chlordane	pg/g	6	3	50%	616	828	799	748	115
Trans-Nonachlor	pg/g	8	8	100%	247	857	607	561	205
Total Alpha + Gamma Chlordane	pg/g	8	8	100%	272	1610	850	908	495
Total DDT (2,4)	pg/g	8	8	100%	316	1615	514	713	424
Total DDT (4,4)	pg/g	8	8	100%	1090	4470	1840	2340	1350
Total DDT (2,4 & 4,4)	pg/g	8	8	100%	1540	6085	2360	3050	1730
Aroclor PCBs									
Aroclor 1248	ug/kg	8	6	75%	19	82	31.0	38.6	24.1
Aroclor 1254	ug/kg	8	8	100%	15	44	26.5	27.4	9.93
Aroclor 1260	ug/kg	8	3	38%	13	19	17.0	16.3	3.06
Total Aroclor PCBs (Sum of 7 Aroclors)	ug/kg	8	8	100%	15	143	53.5	62.5	38.5
Total Aroclor PCBs (Sum of 9 Aroclors)	ug/kg	8	8	100%	15	143	53.5	62.5	38.5
PCB Congeners									
PCB-1	ng/kg	8	8	100%	4.35	24.6	7.22	9.34	6.86
PCB-2	ng/kg	8	8	100%	0.902	4.11	1.70	2.09	1.18
PCB-3	ng/kg	8	6	75%	2.19	4.63	2.94	3.23	0.899
PCB-4	ng/kg	8	8	100%	47.8	441	92.2	175	149
PCB-6	ng/kg	8	7	88%	2.53	23.9	6.40	9.39	7.70
PCB-7	ng/kg	8	6	75%	0.966	9.78	6.14	5.94	2.86
PCB-8	ng/kg	8	7	88%	7.04	66.1	21.1	31.2	24.8
PCB-9	ng/kg	8	6	75%	1.18	12.8	6.92	6.95	5.64

Table 3-8
Statistical Summary of Detected Analytes – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-10	ng/kg	8	8	100%	10.7	46.2	16.7	23.8	14.4
PCB-11	ng/kg	8	8	100%	54.9	431	81.8	166	144
PCB-12/13	ng/kg	8	8	100%	6.35	59.8	16.3	25.9	20.5
PCB-14	ng/kg	8	1	13%	1.15	1.15	NA	NA	NA
PCB-15	ng/kg	8	8	100%	126	791	173	369	300
PCB-16	ng/kg	8	7	88%	5.56	78.7	16.0	31.8	32.2
PCB-17	ng/kg	8	8	100%	20.3	226	43.8	93.7	89.5
PCB-18/30	ng/kg	8	8	100%	334	3730	577	1310	1290
PCB-19	ng/kg	8	8	100%	79.4	573	131	231	178
PCB-20/28	ng/kg	8	8	100%	553	3750	960	1740	1380
PCB-21/33	ng/kg	8	8	100%	5.2	91.6	19.4	32.9	31.9
PCB-22	ng/kg	8	8	100%	78.1	854	164	358	333
PCB-23	ng/kg	8	4	50%	0.725	3.52	2.42	2.27	1.23
PCB-24	ng/kg	8	8	100%	3.01	36.7	6.47	13.9	13.6
PCB-25	ng/kg	8	8	100%	35.6	162	57.1	87.0	56.7
PCB-26/29	ng/kg	8	8	100%	48.6	299	90.2	149	112
PCB-27	ng/kg	8	8	100%	41.8	220	62.3	104	73.6
PCB-31	ng/kg	8	8	100%	90.7	1010	223	451	405
PCB-32	ng/kg	8	8	100%	95.8	728	158	303	255
PCB-34	ng/kg	8	8	100%	2.46	13.1	4.33	6.44	4.48
PCB-35	ng/kg	8	8	100%	4.68	35	8.67	16.6	13.2
PCB-36	ng/kg	8	4	50%	1.71	3.03	1.97	2.17	0.587
PCB-37	ng/kg	8	8	100%	105	939	200	425	369
PCB-38	ng/kg	8	6	75%	1.11	3.32	1.53	1.83	0.888
PCB-39	ng/kg	8	8	100%	4.01	17.1	5.66	8.96	5.78
PCB-40/71	ng/kg	8	8	100%	129	766	192	320	236
PCB-42	ng/kg	8	8	100%	152	907	251	388	265
PCB-43	ng/kg	8	8	100%	40.9	262	66.5	109	80.4
PCB-44/47/65	ng/kg	8	8	100%	725	3490	1220	1680	945
PCB-45	ng/kg	8	8	100%	75.9	605	136	239	202
PCB-46	ng/kg	8	8	100%	16.8	114	28.0	45.3	35.6
PCB-48	ng/kg	8	8	100%	52.8	457	101	181	155
PCB-49/69	ng/kg	8	8	100%	485	2300	879	1160	641
PCB-50/53	ng/kg	8	8	100%	284	1780	458	711	504
PCB-51	ng/kg	8	8	100%	63.3	301	160	162	75.0
PCB-52	ng/kg	8	8	100%	1350	7160	2110	3100	2020
PCB-54	ng/kg	8	8	100%	4.33	20.6	14.1	13.0	5.76
PCB-55	ng/kg	8	3	38%	3.47	18.4	15.9	12.6	8.00
PCB-56	ng/kg	8	8	100%	285	1950	431	748	587

Table 3-8
Statistical Summary of Detected Analytes – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-57	ng/kg	8	8	100%	5.56	23.5	7.17	11.2	6.68
PCB-58	ng/kg	8	8	100%	4.43	13.8	6.78	7.68	3.01
PCB-60	ng/kg	8	8	100%	132	1090	195	383	340
PCB-61/70/74/76	ng/kg	8	8	100%	416	2500	721	1110	787
PCB-62/75	ng/kg	8	8	100%	115	638	177	275	183
PCB-63	ng/kg	8	8	100%	62.2	305	89.0	134	86.2
PCB-64	ng/kg	8	8	100%	362	2280	608	965	679
PCB-66	ng/kg	8	8	100%	490	2550	808	1180	748
PCB-67	ng/kg	8	8	100%	16.2	88.3	28.3	41.2	25.5
PCB-68	ng/kg	8	8	100%	19.4	36.7	25.0	26.7	6.28
PCB-72	ng/kg	8	8	100%	12.4	28.1	18.8	19.5	5.82
PCB-73	ng/kg	8	2	25%	17.6	22.7	20.2	20.2	3.61
PCB-77	ng/kg	8	8	100%	85.8	412	111	184	124
PCB-79	ng/kg	8	8	100%	9.33	41.5	14.3	20.2	11.8
PCB-81	ng/kg	8	8	100%	3.52	19.5	4.78	8.19	6.03
PCB-82	ng/kg	8	8	100%	17.2	84.7	23.6	36.8	25.2
PCB-83	ng/kg	8	8	100%	50.2	131	75.3	81.5	30.0
PCB-84	ng/kg	8	8	100%	259	1010	321	459	266
PCB-85/116/117	ng/kg	8	8	100%	229	758	312	395	178
PCB-86/87/97/109/119/125	ng/kg	8	8	100%	380	1400	532	700	354
PCB-89	ng/kg	8	7	88%	1.81	10.4	3.17	4.74	3.24
PCB-90/101/113	ng/kg	8	8	100%	1030	2960	1600	1780	681
PCB-91	ng/kg	8	8	100%	237	720	307	386	162
PCB-92	ng/kg	8	8	100%	180	491	263	300	111
PCB-93/100	ng/kg	8	8	100%	29.9	89.2	63.1	60.2	20.3
PCB-94	ng/kg	8	8	100%	15.1	48	26.7	27.9	9.96
PCB-95	ng/kg	8	8	100%	1290	4000	1750	2160	969
PCB-96	ng/kg	8	8	100%	8.79	43.9	14.5	18.9	11.6
PCB-98/102	ng/kg	8	8	100%	55.7	195	83.4	103	47.4
PCB-99	ng/kg	8	8	100%	658	1630	929	1040	337
PCB-103	ng/kg	8	8	100%	28	68.2	42.5	44.5	13.6
PCB-104	ng/kg	8	7	88%	1.53	6.82	4.68	4.34	1.99
PCB-105	ng/kg	8	8	100%	435	1440	506	728	377
PCB-107	ng/kg	8	8	100%	82.2	201	114	130	43.6
PCB-108/124	ng/kg	8	8	100%	15.2	50.8	23.7	29.4	13.8
PCB-110/115	ng/kg	6	6	100%	952	2440	1340	1520	542
PCB-111	ng/kg	8	7	88%	4.04	6.04	4.50	4.74	0.773
PCB-112	ng/kg	8	3	38%	1.85	8.75	6.33	5.64	3.50
PCB-114	ng/kg	8	8	100%	26.4	107	32.3	49.4	29.7

Table 3-8
Statistical Summary of Detected Analytes – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-118	ng/kg	8	8	100%	696	1850	892	1130	474
PCB-120	ng/kg	8	8	100%	15.1	25.5	17.7	19.0	3.55
PCB-121	ng/kg	8	5	63%	1.245	2.8	1.93	2.02	0.568
PCB-122	ng/kg	8	7	88%	5.35	23	6.70	11.0	6.54
PCB-123	ng/kg	8	8	100%	32.2	89.5	39.0	48.1	19.4
PCB-126	ng/kg	6	6	100%	5.09	13.8	6.42	7.75	3.25
PCB-127	ng/kg	7	1	14%	4.67	4.67	NA	NA	NA
PCB-128/166	ng/kg	8	8	100%	218	422	252	293	80.2
PCB-129/138/163	ng/kg	8	8	100%	2060	3570	2640	2740	620
PCB-130	ng/kg	8	8	100%	87.6	150	111	117	26.0
PCB-131	ng/kg	8	8	100%	7.77	23.7	11.3	13.7	5.78
PCB-132	ng/kg	8	8	100%	190	481	270	299	108
PCB-133	ng/kg	8	8	100%	56.7	90.5	72.6	73.7	11.6
PCB-134	ng/kg	8	8	100%	63.3	151	85.5	94.5	31.3
PCB-135/151	ng/kg	8	8	100%	490	992	702	722	213
PCB-136	ng/kg	8	8	100%	176	416	234	262	85.9
PCB-137	ng/kg	8	8	100%	60.7	146	82.6	94.1	30.3
PCB-139/140	ng/kg	8	8	100%	20.5	43.7	28.7	29.9	7.99
PCB-141	ng/kg	8	8	100%	84.2	255	171	172	69.7
PCB-144	ng/kg	8	8	100%	55.6	123	81.4	86.4	29.5
PCB-145	ng/kg	8	1	13%	1.56	1.56	NA	NA	NA
PCB-146	ng/kg	8	8	100%	479	789	554	589	116
PCB-147/149	ng/kg	8	8	100%	1410	2740	1900	2000	536
PCB-148	ng/kg	8	8	100%	10.4	15.2	11.8	12.5	2.05
PCB-150	ng/kg	8	8	100%	8.67	15	10.8	10.9	2.32
PCB-152	ng/kg	8	6	75%	1.54	3.95	2.75	2.57	0.894
PCB-153/168	ng/kg	8	8	100%	2630	4420	3160	3290	675
PCB-154	ng/kg	8	8	100%	66.5	105	84.9	86.4	16.3
PCB-155	ng/kg	8	8	100%	6.37	142	15.4	29.6	45.6
PCB-156/157	ng/kg	8	8	100%	166	363	227	252	74.3
PCB-158	ng/kg	8	8	100%	142	297	202	206	60.6
PCB-162	ng/kg	8	7	88%	22.7	38.9	28.0	31.0	6.97
PCB-164	ng/kg	8	8	100%	29.7	73.7	47.4	49.5	17.8
PCB-165	ng/kg	7	7	100%	4	5.8	4.38	4.59	0.629
PCB-167	ng/kg	6	6	100%	82.5	134	103	105	22.3
PCB-170	ng/kg	8	8	100%	458	761	600	599	126
PCB-171/173	ng/kg	4	4	100%	148	257	186	194	50.9
PCB-172	ng/kg	8	8	100%	83.4	168	107	112	28.4
PCB-174	ng/kg	4	4	100%	81.6	206	118	131	57.8

Table 3-8
Statistical Summary of Detected Analytes – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-175	ng/kg	2	2	100%	30.6	50	40.3	40.3	13.7
PCB-176	ng/kg	8	8	100%	53.1	96.8	72.2	71.7	17.7
PCB-177	ng/kg	4	4	100%	295	475	384	384	82.3
PCB-178	ng/kg	8	8	100%	153	250	188	193	36.9
PCB-179	ng/kg	8	8	100%	125.5	224	172	171	44.2
PCB-180/193	ng/kg	8	8	100%	1180	2170	1490	1520	360
PCB-181	ng/kg	2	2	100%	4.94	6.92	5.93	5.93	1.40
PCB-182	ng/kg	4	4	100%	4.58	9.21	5.38	6.14	2.09
PCB-183/185	ng/kg	2	2	100%	503	911	707	707	288
PCB-184	ng/kg	8	8	100%	3.09	9.1	4.12	4.55	1.92
PCB-187	ng/kg	2	2	100%	1220	1930	1580	1580	502
PCB-188	ng/kg	8	8	100%	7.87	10.8	9.48	9.32	1.04
PCB-189	ng/kg	8	8	100%	16.7	29.5	24.7	23.9	4.70
PCB-190	ng/kg	8	8	100%	112	187	147	147	28.6
PCB-191	ng/kg	8	8	100%	22.1	43.7	28.6	29.8	7.44
PCB-194	ng/kg	8	8	100%	175	308	243	240	44.4
PCB-195	ng/kg	8	8	100%	93.8	159	132	130	21.6
PCB-196	ng/kg	8	8	100%	165	260	201	202	37.1
PCB-197/200	ng/kg	8	8	100%	32.8	50.7	40.4	40.5	6.96
PCB-198/199	ng/kg	8	8	100%	335.5	491	414	413	65.4
PCB-201	ng/kg	8	8	100%	54.3	76.5	64.0	64.7	9.00
PCB-202	ng/kg	8	8	100%	90.4	134	119	115	17.0
PCB-203	ng/kg	8	8	100%	297	444	362	371	55.9
PCB-205	ng/kg	8	8	100%	16.6	26.5	21.9	22.0	3.60
PCB-206	ng/kg	8	8	100%	383	519	451	454	50.4
PCB-207	ng/kg	8	8	100%	47.1	63	54.4	55.4	5.25
PCB-208	ng/kg	8	8	100%	120	172	149	149	19.7
PCB-209	ng/kg	6	6	100%	273	392	336	340	44.6
Total PCB Congeners (209)	ng/kg	8	8	100%	27600	84200	40700	48300	20600
Semivolatiles									
Benzo(b)fluoranthene	ug/kg	8	1	13%	6.6	6.6	NA	NA	NA
Benzo(j)+(k)fluoranthene	ug/kg	8	1	13%	6.2	6.2	NA	NA	NA
Benzo[e]pyrene	ug/kg	8	1	13%	6.1	6.1	NA	NA	NA
C3-Naphthalenes	ug/kg	8	1	13%	13	13	NA	NA	NA
C4-Naphthalenes	ug/kg	8	1	13%	14	14	NA	NA	NA
Chrysene	ug/kg	8	2	25%	12	12	12.0	12.0	0
Fluoranthene	ug/kg	8	2	25%	11	15	13.0	13.0	2.83
Perylene	ug/kg	8	1	13%	14	14	NA	NA	NA
Pyrene	ug/kg	8	6	75%	9	23	11.5	14.0	5.67

Table 3-8
Statistical Summary of Detected Analytes – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Pyridine	ug/kg	8	1	13%	2900	2900	NA	NA	NA
Total HMW PAHs	ug/kg	8	6	75%	9	54.8	11.5	24.5	21.7
Total PAHs	ug/kg	8	6	75%	9	54.8	11.5	24.5	21.7
Physical Parameters									
Moisture (Water)Content	%	8	8	100%	524	611	565	568	29.8
Moisture, Percent	%	8	8	100%	84	85.9	85.0	85.0	0.650

Footnotes:

¹Valid results are results that were found to be valid as a result of data validation. Only valid data are used in statistical analyses. Additional details regarding rejected data are provided in Appendix H of this report.

Notes:

1. Only detected values were included in the calculation of totals.
2. Non-detect ("U" qualified) data were excluded from the statistical analysis.
3. Field duplicate samples were averaged to create one result prior to statistical reporting. Additional details regarding field duplicate handling can be found in Section 3.0 of the report.

DDD = dichlorodiphenyldichloroethane
DDE = dichlorodiphenyldichloroethylene
DDT = dichlorodiphenyltrichloroethane
HMW = high molecular weight
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
NA = not applicable

% = percent
mg/kg = milligrams per kilogram
ng/g = nanograms per gram
ng/kg = nanograms per kilogram
pg/g = picograms per gram
ug/kg = micrograms per kilogram

Table 3-9
Statistical Summary of Detected Analytes in the North Zone – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Dioxins/Furans									
1,2,3,4,6,7,8-HpCDD	ng/kg	4	4	100%	1.93	3.32	2.89	2.76	0.591
1,2,3,4,6,7,8-HpCDF	ng/kg	4	4	100%	2.25	4.53	3.26	3.33	0.951
1,2,3,4,7,8,9-HpCDF	ng/kg	4	4	100%	0.162	0.241	0.170	0.186	0.0371
1,2,3,4,7,8-HxCDD	ng/kg	4	4	100%	0.106	0.178	0.149	0.146	0.0347
1,2,3,4,7,8-HxCDF	ng/kg	4	4	100%	0.831	1.96	1.05	1.22	0.505
1,2,3,6,7,8-HxCDD	ng/kg	4	4	100%	0.37	0.583	0.473	0.475	0.106
1,2,3,6,7,8-HxCDF	ng/kg	4	4	100%	0.387	0.637	0.510	0.511	0.120
1,2,3,7,8,9-HxCDD	ng/kg	4	4	100%	0.125	0.281	0.203	0.203	0.0670
1,2,3,7,8,9-HxCDF	ng/kg	4	4	100%	0.0823	0.105	0.0964	0.0950	0.00972
1,2,3,7,8-PCDF	ng/kg	4	4	100%	0.567	0.819	0.686	0.689	0.103
2,3,4,6,7,8-HxCDF	ng/kg	4	4	100%	0.218	0.311	0.251	0.258	0.0388
2,3,4,7,8-PCDF	ng/kg	4	4	100%	0.922	1.32	1.15	1.14	0.168
2,3,7,8-TCDD	ng/kg	4	4	100%	2.67	17.1	4.83	7.36	6.61
2,3,7,8-TCDF	ng/kg	4	4	100%	1.97	2.26	2.13	2.12	0.162
OCDD	ng/kg	4	4	100%	9.4	21.2	18.1	16.7	5.57
OCDF	ng/kg	4	4	100%	1.79	4.18	2.70	2.84	1.16
Percent Lipids	%	4	4	100%	0.9	1.1	1.04	1.02	0.0995
Metals									
Aluminum	mg/kg	4	3	75%	7.81	173	63.4	81.4	84.1
Arsenic	mg/kg	4	4	100%	2.18	2.79	2.59	2.54	0.260
Barium	mg/kg	4	1	25%	0.652	0.652	NA	NA	NA
Cadmium	mg/kg	4	4	100%	0.0661	0.121	0.0898	0.0917	0.0253
Calcium	mg/kg	4	4	100%	202	327	254	259	52.6
Chromium, Total	mg/kg	4	3	75%	0.223	0.927	0.230	0.460	0.404
Cobalt	mg/kg	4	4	100%	0.12	0.154	0.142	0.139	0.0174
Copper	mg/kg	4	4	100%	1.67	2.44	2.00	2.03	0.350
Iron	mg/kg	4	4	100%	67.5	258	137	150	86.8
Lead	mg/kg	4	4	100%	0.256	0.839	0.643	0.595	0.269
Magnesium	mg/kg	4	4	100%	571	742	706	681	80.1
Manganese	mg/kg	4	4	100%	0.821	3.03	1.29	1.61	1.04
Mercury	ng/g	4	4	100%	24.3	34	28.9	29.0	5.24
Nickel	mg/kg	4	4	100%	0.316	0.553	0.492	0.463	0.103
Potassium	mg/kg	4	4	100%	2730	3220	3180	3080	233
Selenium	mg/kg	4	4	100%	0.306	0.387	0.347	0.347	0.0334
Silver	mg/kg	4	4	100%	0.0269	0.041	0.0374	0.0357	0.00627
Sodium	mg/kg	4	4	100%	3770	4650	4260	4230	478
Titanium	mg/kg	4	2	50%	2.05	2.79	2.42	2.42	0.523
Vanadium	mg/kg	4	1	25%	0.288	0.288	NA	NA	NA
Zinc	mg/kg	4	4	100%	16.4	46.3	17.6	24.5	14.6
Pesticides									
Aldrin	pg/g	4	3	75%	4.77	15.3	9.18	9.75	5.29
Alpha BHC	pg/g	1	1	100%	18.1	18.1	NA	NA	NA
Beta BHC	pg/g	4	4	100%	5.71	11.2	6.88	7.67	2.60
Cis-Chlordane	pg/g	4	4	100%	222	1360	686	738	476

Table 3-9
Statistical Summary of Detected Analytes in the North Zone – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Cis-Nonachlor	pg/g	4	4	100%	349	479	426	420	65.4
Dieldrin	pg/g	4	4	100%	949	3140	1190	1610	1020
Heptachlor Epoxide	pg/g	4	4	100%	35.1	134	57.0	70.8	45.4
Hexachlorobenzene	pg/g	4	4	100%	161	556	323	341	196
2,4'-DDD	pg/g	4	4	100%	316	517	461	439	86.2
2,4'-DDE	pg/g	1	1	100%	58.8	58.8	NA	NA	NA
Oxychlordane	pg/g	4	3	75%	47.9	50.8	50.4	49.7	1.57
4,4'-DDD	pg/g	4	4	100%	670	1110	1090	988	212
4,4'-DDE	pg/g	4	4	100%	391	987	584	636	277
4,4'-DDT	pg/g	4	4	100%	26.1	31.9	29.7	29.3	2.75
Trans-Chlordane	pg/g	3	3	100%	616	828	799	748	115
Trans-Nonachlor	pg/g	4	4	100%	584	857	684	702	122
Total Alpha + Gamma Chlordane	pg/g	4	4	100%	838	1610	1370	1300	326
Total DDT (2,4)	pg/g	4	4	100%	316	517	490	453	93.8
Total DDT (4,4)	pg/g	4	4	100%	1430	2120	1540	1660	316
Total DDT (2,4 & 4,4)	pg/g	4	4	100%	1750	2630	2020	2110	376
Aroclor PCBs									
Aroclor 1248	ug/kg	4	3	75%	22	82	47.0	50.3	30.1
Aroclor 1254	ug/kg	4	4	100%	25	44	27.0	30.8	8.88
Aroclor 1260	ug/kg	4	3	75%	13	19	17.0	16.3	3.06
Total Aroclor PCBs (Sum of 7 Aroclors)	ug/kg	4	4	100%	44	143	68.0	80.8	43.3
Total Aroclor PCBs (Sum of 9 Aroclors)	ug/kg	4	4	100%	44	143	68.0	80.8	43.3
PCB Congeners									
PCB-1	ng/kg	4	4	100%	4.35	13.5	7.22	8.07	3.87
PCB-2	ng/kg	4	4	100%	1.07	3.13	2.38	2.24	0.991
PCB-3	ng/kg	4	3	75%	2.19	3.96	3.10	3.08	0.885
PCB-4	ng/kg	4	4	100%	65.8	441	184	219	179
PCB-6	ng/kg	4	4	100%	2.53	14.3	8.70	8.56	5.16
PCB-7	ng/kg	4	3	75%	5.74	6.88	5.75	6.12	0.655
PCB-8	ng/kg	4	4	100%	7.04	66.1	27.5	32.0	25.2
PCB-9	ng/kg	4	3	75%	1.96	12.8	11.9	8.89	6.02
PCB-10	ng/kg	4	4	100%	11.9	46.2	24.8	26.9	15.5
PCB-11	ng/kg	4	4	100%	57.6	431	180	212	179
PCB-12/13	ng/kg	4	4	100%	8.15	46.2	28.2	27.7	19.5
PCB-15	ng/kg	4	4	100%	126	791	431	445	348
PCB-16	ng/kg	4	3	75%	9.51	78.7	28.8	39.0	35.7
PCB-17	ng/kg	4	4	100%	21	226	94.6	109	97.8
PCB-18/30	ng/kg	4	4	100%	393	3730	1300	1680	1610
PCB-19	ng/kg	4	4	100%	114	573	226	285	217
PCB-20/28	ng/kg	4	4	100%	732	3750	2060	2150	1580
PCB-21/33	ng/kg	4	4	100%	5.2	91.6	30.1	39.3	37.3
PCB-22	ng/kg	4	4	100%	118	854	437	462	397
PCB-23	ng/kg	4	2	50%	2.93	3.52	3.23	3.23	0.417
PCB-24	ng/kg	4	4	100%	3.76	36.7	17.2	18.7	17.3
PCB-25	ng/kg	4	4	100%	47.6	162	97.3	101	58.5

Table 3-9
Statistical Summary of Detected Analytes in the North Zone – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-26/29	ng/kg	4	4	100%	61	299	168	174	121
PCB-27	ng/kg	4	4	100%	48.1	220	105	119	83.0
PCB-31	ng/kg	4	4	100%	151	1010	549	565	456
PCB-32	ng/kg	4	4	100%	111	728	315	367	299
PCB-34	ng/kg	4	4	100%	2.91	12.7	6.53	7.17	4.51
PCB-35	ng/kg	4	4	100%	6.96	35	20.4	20.7	15.5
PCB-36	ng/kg	4	1	25%	3.03	3.03	NA	NA	NA
PCB-37	ng/kg	4	4	100%	155	939	543	545	432
PCB-38	ng/kg	4	3	75%	1.13	3.32	2.34	2.26	1.10
PCB-39	ng/kg	4	4	100%	4.09	15.3	10.5	10.1	6.01
PCB-40/71	ng/kg	4	4	100%	155	766	310	385	287
PCB-42	ng/kg	4	4	100%	222	907	397	481	326
PCB-43	ng/kg	4	4	100%	56.4	262	118	138	98.8
PCB-44/47/65	ng/kg	4	4	100%	1140	3490	1700	2010	1080
PCB-45	ng/kg	4	4	100%	78.7	605	242	292	248
PCB-46	ng/kg	4	4	100%	17.7	114	44.2	55.0	44.5
PCB-48	ng/kg	4	4	100%	60.4	457	196	227	185
PCB-49/69	ng/kg	4	4	100%	758	2300	1190	1360	693
PCB-50/53	ng/kg	4	4	100%	390	1780	688	887	640
PCB-51	ng/kg	4	4	100%	153	301	169	198	69.1
PCB-52	ng/kg	4	4	100%	1780	7160	3070	3770	2470
PCB-54	ng/kg	4	4	100%	9.63	20.6	17.6	16.3	4.70
PCB-55	ng/kg	4	1	25%	18.4	18.4	NA	NA	NA
PCB-56	ng/kg	4	4	100%	382	1950	734	950	740
PCB-57	ng/kg	4	4	100%	7.04	23.5	12.6	14.0	8.16
PCB-58	ng/kg	4	4	100%	6.64	13.8	7.91	9.06	3.32
PCB-60	ng/kg	4	4	100%	178	1090	417	526	432
PCB-61/70/74/76	ng/kg	4	4	100%	596	2500	1180	1360	884
PCB-62/75	ng/kg	4	4	100%	155	638	278	337	229
PCB-63	ng/kg	4	4	100%	78.6	305	147	169	106
PCB-64	ng/kg	4	4	100%	548	2280	974	1190	825
PCB-66	ng/kg	4	4	100%	720	2550	1200	1420	850
PCB-67	ng/kg	4	4	100%	26.1	88.3	45.5	51.4	29.5
PCB-68	ng/kg	4	4	100%	23.3	36.7	28.3	29.1	5.72
PCB-72	ng/kg	4	4	100%	14.9	28.1	21.3	21.4	5.41
PCB-73	ng/kg	4	1	25%	22.7	22.7	NA	NA	NA
PCB-77	ng/kg	4	4	100%	108	412	204	232	149
PCB-79	ng/kg	4	4	100%	11.1	41.5	20.8	23.6	14.1
PCB-81	ng/kg	4	4	100%	4.52	19.5	10.1	11.1	7.47
PCB-82	ng/kg	4	4	100%	17.2	84.7	34.9	42.9	30.7
PCB-83	ng/kg	4	4	100%	52.7	131	84.6	88.2	32.6
PCB-84	ng/kg	4	4	100%	259	1010	408	521	344
PCB-85/116/117	ng/kg	4	4	100%	284	758	402	462	215
PCB-86/87/97/109/119/125	ng/kg	4	4	100%	457	1400	698	813	420
PCB-89	ng/kg	4	3	75%	2.14	10.4	6.17	6.24	4.13

Table 3-9
Statistical Summary of Detected Analytes in the North Zone – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-90/101/113	ng/kg	4	4	100%	1270	2960	1950	2030	702
PCB-91	ng/kg	4	4	100%	296	720	360	434	196
PCB-92	ng/kg	4	4	100%	212	491	327	339	119
PCB-93/100	ng/kg	4	4	100%	52.1	89.2	72.6	71.6	16.9
PCB-94	ng/kg	4	4	100%	26.4	48	29.0	33.1	10.2
PCB-95	ng/kg	4	4	100%	1420	4000	2210	2460	1120
PCB-96	ng/kg	4	4	100%	9.96	43.9	18.9	22.9	14.9
PCB-98/102	ng/kg	4	4	100%	73.1	195	105	120	53.5
PCB-99	ng/kg	4	4	100%	830	1630	1070	1150	342
PCB-103	ng/kg	4	4	100%	34	68.2	50.7	50.9	15.5
PCB-104	ng/kg	4	3	75%	4.68	6.82	5.56	5.69	1.08
PCB-105	ng/kg	4	4	100%	487	1440	795	879	460
PCB-107	ng/kg	4	4	100%	103	201	139	145	42.7
PCB-108/124	ng/kg	4	4	100%	19.1	50.8	33.2	34.1	14.1
PCB-110/115	ng/kg	2	2	100%	1440	1860	1650	1650	297
PCB-111	ng/kg	4	3	75%	4.15	6.04	5.60	5.26	0.989
PCB-112	ng/kg	4	1	25%	6.33	6.33	NA	NA	NA
PCB-114	ng/kg	4	4	100%	31	107	54.5	61.8	36.5
PCB-118	ng/kg	4	4	100%	816	1850	1190	1260	478
PCB-120	ng/kg	4	4	100%	15.1	25.5	19.5	19.9	4.46
PCB-121	ng/kg	4	3	75%	1.93	2.8	2.25	2.33	0.440
PCB-122	ng/kg	4	3	75%	6.7	23	15.4	15.0	8.16
PCB-123	ng/kg	4	4	100%	37.3	89.5	49.0	56.2	23.9
PCB-126	ng/kg	2	2	100%	6.82	13.8	10.3	10.3	4.94
PCB-127	ng/kg	4	1	25%	4.67	4.67	NA	NA	NA
PCB-128/166	ng/kg	4	4	100%	244	422	307	320	83.4
PCB-129/138/163	ng/kg	4	4	100%	2320	3570	3140	3040	543
PCB-130	ng/kg	4	4	100%	100	148	132	128	21.5
PCB-131	ng/kg	4	4	100%	9.15	23.7	14.9	15.7	6.29
PCB-132	ng/kg	4	4	100%	220	481	337	344	108
PCB-133	ng/kg	4	4	100%	72.6	90.5	77.2	79.4	8.58
PCB-134	ng/kg	4	4	100%	71.7	151	102	107	33.2
PCB-135/151	ng/kg	4	4	100%	604	992	879	839	177
PCB-136	ng/kg	4	4	100%	215	416	276	296	87.2
PCB-137	ng/kg	4	4	100%	73.5	146	103	107	31.3
PCB-139/140	ng/kg	4	4	100%	25.4	43.7	32.4	33.5	7.58
PCB-141	ng/kg	4	4	100%	125	255	235	213	60.5
PCB-144	ng/kg	4	4	100%	64.8	123	108	101	26.6
PCB-145	ng/kg	4	1	25%	1.56	1.56	NA	NA	NA
PCB-146	ng/kg	4	4	100%	539	789	634	649	116
PCB-147/149	ng/kg	4	4	100%	1670	2740	2380	2290	496
PCB-148	ng/kg	4	4	100%	10.4	15.2	13.7	13.2	2.23
PCB-150	ng/kg	4	4	100%	8.68	15	11.4	11.6	2.59
PCB-152	ng/kg	4	3	75%	2.75	3.95	2.79	3.16	0.682
PCB-153/168	ng/kg	4	4	100%	2990	4420	3670	3690	645

Table 3-9
Statistical Summary of Detected Analytes in the North Zone – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-154	ng/kg	4	4	100%	66.5	105	95.8	90.8	18.0
PCB-155	ng/kg	4	4	100%	15.5	142	17.5	48.1	62.6
PCB-156/157	ng/kg	4	4	100%	205	363	290	287	72.9
PCB-158	ng/kg	4	4	100%	162	297	246	238	56.0
PCB-162	ng/kg	4	3	75%	28	38.9	38.4	35.1	6.15
PCB-164	ng/kg	4	4	100%	34.8	73.7	63.5	58.9	17.1
PCB-165	ng/kg	4	4	100%	4	5.8	4.45	4.68	0.782
PCB-167	ng/kg	3	3	100%	86.7	134	120	114	24.3
PCB-170	ng/kg	4	4	100%	540	761	712	681	97.6
PCB-171/173	ng/kg	3	3	100%	158	257	214	210	49.6
PCB-172	ng/kg	4	4	100%	96.1	168	125	129	29.7
PCB-174	ng/kg	3	3	100%	89.8	206	147	148	58.1
PCB-175	ng/kg	1	1	100%	50	50	NA	NA	NA
PCB-176	ng/kg	4	4	100%	61.7	96.8	84.0	81.6	14.6
PCB-177	ng/kg	3	3	100%	338	475	429	414	69.7
PCB-178	ng/kg	4	4	100%	169	250	215	212	33.9
PCB-179	ng/kg	4	4	100%	143	224	207	195	36.2
PCB-180/193	ng/kg	4	4	100%	1330	2170	1740	1750	345
PCB-181	ng/kg	1	1	100%	6.92	6.92	NA	NA	NA
PCB-182	ng/kg	3	3	100%	4.58	9.21	5.21	6.33	2.51
PCB-183/185	ng/kg	1	1	100%	911	911	NA	NA	NA
PCB-184	ng/kg	4	4	100%	3.98	9.1	4.47	5.51	2.41
PCB-187	ng/kg	1	1	100%	1930	1930	NA	NA	NA
PCB-188	ng/kg	4	4	100%	7.87	9.84	9.48	9.17	0.905
PCB-189	ng/kg	4	4	100%	22.4	29.5	27.7	26.8	3.09
PCB-190	ng/kg	4	4	100%	135	187	170	166	22.8
PCB-191	ng/kg	4	4	100%	25.4	43.7	34.0	34.3	7.48
PCB-194	ng/kg	4	4	100%	224	308	270	268	34.8
PCB-195	ng/kg	4	4	100%	127	159	141	142	13.5
PCB-196	ng/kg	4	4	100%	179	260	226	223	33.3
PCB-197/200	ng/kg	4	4	100%	37.1	50.7	44.0	43.9	5.56
PCB-198/199	ng/kg	4	4	100%	363	481	458	440	52.5
PCB-201	ng/kg	4	4	100%	57.8	73.6	70.6	68.2	7.08
PCB-202	ng/kg	4	4	100%	102	134	122	120	13.5
PCB-203	ng/kg	4	4	100%	342	444	399	396	44.3
PCB-205	ng/kg	4	4	100%	21.3	26.5	24.1	24.0	2.54
PCB-206	ng/kg	4	4	100%	416	519	451	459	45.8
PCB-207	ng/kg	4	4	100%	54.1	63	57.2	57.9	4.28
PCB-208	ng/kg	4	4	100%	137	171	149	151	14.9
PCB-209	ng/kg	2	2	100%	332	340	336	336	5.66
Total PCB Congeners (209)	ng/kg	4	4	100%	32200	84200	53900	56100	22100
Semivolatiles									
Benzo(b)fluoranthene	ug/kg	4	1	25%	6.6	6.6	NA	NA	NA
Benzo(j)+ (k)fluoranthene	ug/kg	4	1	25%	6.2	6.2	NA	NA	NA
Benzo[e]pyrene	ug/kg	4	1	25%	6.1	6.1	NA	NA	NA

Table 3-9
Statistical Summary of Detected Analytes in the North Zone – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Chrysene	ug/kg	4	1	25%	12	12	NA	NA	NA
Fluoranthene	ug/kg	4	1	25%	11	11	NA	NA	NA
Perylene	ug/kg	4	1	25%	14	14	NA	NA	NA
Pyrene	ug/kg	4	3	75%	9	19	12.0	13.3	5.13
Total HMW PAHs	ug/kg	4	3	75%	9	54.8	12.0	25.3	25.6
Total PAHs	ug/kg	4	3	75%	9	54.8	12.0	25.3	25.6
Physical Parameters									
Moisture (Water)Content	%	4	4	100%	524	611	549	558	38.6
Moisture, Percent	%	4	4	100%	84	85.9	84.6	84.8	0.838

Footnotes:

¹Valid results are results that were found to be valid as a result of data validation. Only valid data are used in statistical analyses. Additional details regarding rejected data are provided in Appendix H of this report.

Notes:

1. Only detected values were included in the calculation of totals.
2. Non-detect ("U" qualified) data were excluded from the statistical analysis.
3. Field duplicate samples were averaged to create one result prior to statistical reporting. Additional details regarding field duplicate handling can be found in Section 3.0 of the report.

DDD = dichlorodiphenyldichloroethane
DDE = dichlorodiphenyldichloroethylene
DDT = dichlorodiphenyltrichloroethane
HMW = high molecular weight
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
NA = not applicable

% = percent
mg/kg = milligrams per kilogram
ng/g = nanograms per gram
ng/kg = nanograms per kilogram
pg/g = picograms per gram
ug/kg = micrograms per kilogram

Table 3-10
Statistical Summary of Detected Analytes in the Central Zone – Polychaete Tissue

Analytes	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Dioxins/Furans									
1,2,3,4,6,7,8-HpCDD	ng/kg	3	3	100%	2.14	11.145	2.72	5.34	5.04
1,2,3,4,6,7,8-HpCDF	ng/kg	3	3	100%	1.64	3.98	1.85	2.49	1.29
1,2,3,4,7,8,9-HpCDF	ng/kg	3	3	100%	0.113	0.1863	0.125	0.141	0.0393
1,2,3,4,7,8-HxCDD	ng/kg	3	3	100%	0.139	0.291	0.150	0.193	0.0848
1,2,3,4,7,8-HxCDF	ng/kg	3	3	100%	0.42	0.545	0.524	0.496	0.0668
1,2,3,6,7,8-HxCDD	ng/kg	3	3	100%	0.38	0.992	0.470	0.614	0.330
1,2,3,6,7,8-HxCDF	ng/kg	3	3	100%	0.27	0.443	0.319	0.344	0.0892
1,2,3,7,8,9-HxCDD	ng/kg	3	3	100%	0.169	0.4165	0.228	0.271	0.129
1,2,3,7,8,9-HxCDF	ng/kg	3	3	100%	0.0929	0.1105	0.0993	0.101	0.00891
1,2,3,7,8-PCDD	ng/kg	3	1	33%	1.445	1.445	NA	NA	NA
1,2,3,7,8-PCDF	ng/kg	3	3	100%	0.4855	0.575	0.518	0.526	0.0453
2,3,4,6,7,8-HxCDF	ng/kg	3	3	100%	0.173	0.2955	0.210	0.226	0.0628
2,3,4,7,8-PCDF	ng/kg	3	3	100%	0.645	0.894	0.777	0.772	0.125
2,3,7,8-TCDD	ng/kg	3	3	100%	1.2	4.52	1.71	2.48	1.79
2,3,7,8-TCDF	ng/kg	3	3	100%	1.81	1.95	1.84	1.87	0.0737
OCDD	ng/kg	3	3	100%	11.1	60.4	14.8	28.8	27.5
OCDF	ng/kg	3	3	100%	1.23	8.52	1.75	3.83	4.07
Percent Lipids	%	3	3	100%	0.99	1.2	1.10	1.10	0.105
Metals									
Aluminum	mg/kg	3	3	100%	10.955	55.8	38.9	35.2	22.6
Arsenic	mg/kg	3	3	100%	2.57	2.935	2.84	2.78	0.189
Barium	mg/kg	3	3	100%	0.243	0.512	0.434	0.396	0.138
Cadmium	mg/kg	3	2	67%	0.0561	0.0662	0.0612	0.0612	0.00714
Calcium	mg/kg	3	3	100%	235	262	257	251	14.4
Chromium, Total	mg/kg	3	3	100%	0.268	0.799	0.537	0.535	0.266
Cobalt	mg/kg	3	3	100%	0.116	0.136	0.133	0.128	0.0108
Copper	mg/kg	3	3	100%	1.99	2.1	2.03	2.04	0.0557
Iron	mg/kg	3	3	100%	102.35	170	143	138	34.1
Lead	mg/kg	3	3	100%	0.407	0.626	0.549	0.527	0.111
Magnesium	mg/kg	3	3	100%	629	671	656	652	21.2
Manganese	mg/kg	3	3	100%	0.8185	2.2	1.86	1.63	0.720
Mercury	ng/g	3	3	100%	24	26.8	24.7	25.2	1.47
Nickel	mg/kg	3	3	100%	0.419	0.57	0.465	0.485	0.0774
Potassium	mg/kg	3	3	100%	2770	3165	2870	2940	205
Selenium	mg/kg	3	3	100%	0.282	0.377	0.310	0.323	0.0488
Silver	mg/kg	3	3	100%	0.0204	0.0378	0.0262	0.0281	0.00886
Sodium	mg/kg	3	3	100%	3565	4360	3620	3850	444
Titanium	mg/kg	3	2	67%	1.43	1.92	1.68	1.68	0.346
Vanadium	mg/kg	3	1	33%	0.128	0.128	NA	NA	NA
Zinc	mg/kg	3	3	100%	26	42.7	26.6	31.8	9.47

Table 3-10
Statistical Summary of Detected Analytes in the Central Zone – Polychaete Tissue

Analytes	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Pesticides									
Alpha BHC	pg/g	2	1	50%	6.8	6.8	NA	NA	NA
Beta BHC	pg/g	3	1	33%	5.74	5.74	NA	NA	NA
Cis-Chlordane	pg/g	3	3	100%	272	501	440	404	119
Cis-Nonachlor	pg/g	3	3	100%	197	270	231	233	36.5
Dieldrin	pg/g	3	3	100%	438	1370	1330	1050	527
Heptachlor Epoxide	pg/g	3	3	100%	23.5	55	46.9	41.8	16.4
Hexachlorobenzene	pg/g	3	3	100%	129	401	157	229	150
2,4'-DDD	pg/g	3	3	100%	587	1470	935	997	445
2,4'-DDE	pg/g	2	2	100%	142	302	222	222	113
Oxychlordane	pg/g	3	3	100%	26.1	39.9	33.5	33.2	6.91
4,4'-DDD	pg/g	3	3	100%	1200	3540	2890	2540	1210
4,4'-DDE	pg/g	3	3	100%	851	1460	880	1060	344
4,4'-DDT	pg/g	3	3	100%	40.5	100	50.2	63.6	31.9
Trans-Nonachlor	pg/g	3	3	100%	247	429.5	345	341	91.3
Total Alpha + Gamma Chlordane	pg/g	3	3	100%	272	501	440	404	119
Total DDT (2,4)	pg/g	3	3	100%	889	1615	935	1150	407
Total DDT (4,4)	pg/g	3	3	100%	2090	4470	4450	3670	1370
Total DDT (2,4 & 4,4)	pg/g	3	3	100%	2980	6085	5390	4820	1630
Aroclor PCBs									
Aroclor 1248	ug/kg	3	3	100%	19	40	21.5	26.8	11.5
Aroclor 1254	ug/kg	3	3	100%	16.5	39	26.0	27.2	11.3
Total Aroclor PCBs (Sum of 7 Aroclors)	ug/kg	3	3	100%	38	79	45.0	54.0	21.9
Total Aroclor PCBs (Sum of 9 Aroclors)	ug/kg	3	3	100%	38	79	45.0	54.0	21.9
PCB Congeners									
PCB-1	ng/kg	3	3	100%	4.355	24.6	4.86	11.3	11.5
PCB-2	ng/kg	3	3	100%	1.09	4.11	1.62	2.27	1.61
PCB-3	ng/kg	3	3	100%	2.735	4.63	2.78	3.38	1.08
PCB-4	ng/kg	3	3	100%	47.8	308	102	152	137
PCB-6	ng/kg	3	2	67%	4.28	23.9	14.1	14.1	13.9
PCB-7	ng/kg	3	2	67%	6.53	9.78	8.16	8.16	2.30
PCB-8	ng/kg	3	3	100%	12.7	64.3	13.0	30.0	29.7
PCB-9	ng/kg	3	2	67%	2.34	11.5	6.92	6.92	6.48
PCB-10	ng/kg	3	3	100%	10.7	42.5	16.2	23.1	17.0
PCB-11	ng/kg	3	3	100%	65.5	273	89.2	143	114
PCB-12/13	ng/kg	3	3	100%	11.5	59.8	18.9	30.1	26.0
PCB-14	ng/kg	3	1	33%	1.15	1.15	NA	NA	NA
PCB-15	ng/kg	3	3	100%	168	699	178	348	304
PCB-16	ng/kg	3	3	100%	7.63	76.4	16.0	33.3	37.5
PCB-17	ng/kg	3	3	100%	26.4	215	51.6	97.7	102
PCB-18/30	ng/kg	3	3	100%	336	2360	760	1150	1070

Table 3-10
Statistical Summary of Detected Analytes in the Central Zone – Polychaete Tissue

Analytes	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-19	ng/kg	3	3	100%	79.4	383	141	201	161
PCB-20/28	ng/kg	3	3	100%	577	3130	1080	1590	1350
PCB-21/33	ng/kg	3	3	100%	10.2	70.7	16.1	32.3	33.4
PCB-22	ng/kg	3	3	100%	83.9	647	205	312	296
PCB-23	ng/kg	3	2	67%	0.725	1.91	1.32	1.32	0.838
PCB-24	ng/kg	3	3	100%	3.01	21.2	8.85	11.0	9.29
PCB-25	ng/kg	3	3	100%	35.6	161	59.7	85.4	66.6
PCB-26/29	ng/kg	3	3	100%	53.4	290	99.7	148	125
PCB-27	ng/kg	3	3	100%	41.8	193	69.8	102	80.4
PCB-31	ng/kg	3	3	100%	114	889	254	419	413
PCB-32	ng/kg	3	3	100%	95.8	571	186	284	252
PCB-34	ng/kg	3	3	100%	2.46	13.1	4.54	6.70	5.64
PCB-35	ng/kg	3	3	100%	6.97	28.7	9.74	15.1	11.8
PCB-36	ng/kg	3	2	67%	1.95	1.99	1.97	1.97	0.0283
PCB-37	ng/kg	3	3	100%	144	757	212	371	336
PCB-38	ng/kg	3	2	67%	1.11	1.89	1.50	1.50	0.552
PCB-39	ng/kg	3	3	100%	4.63	17.1	5.59	9.11	6.94
PCB-40/71	ng/kg	3	3	100%	129	533	212	291	213
PCB-42	ng/kg	3	3	100%	152	564	273	330	212
PCB-43	ng/kg	3	3	100%	40.9	160	72.0	91.0	61.8
PCB-44/47/65	ng/kg	3	3	100%	725	2520	1150	1460	939
PCB-45	ng/kg	3	3	100%	75.9	419	164	220	178
PCB-46	ng/kg	3	3	100%	16.8	74.7	32.1	41.2	30.0
PCB-48	ng/kg	3	3	100%	52.8	319	109	160	140
PCB-49/69	ng/kg	3	3	100%	485	1830	830	1050	699
PCB-50/53	ng/kg	3	3	100%	284	999	459	581	373
PCB-51	ng/kg	3	3	100%	63.3	223	90.7	126	85.4
PCB-52	ng/kg	3	3	100%	1350	4590	2120	2690	1690
PCB-54	ng/kg	3	3	100%	4.33	14.2	6.39	8.31	5.21
PCB-55	ng/kg	3	2	67%	3.47	15.9	9.69	9.69	8.79
PCB-56	ng/kg	3	3	100%	285	1110	464	620	434
PCB-57	ng/kg	3	3	100%	5.56	14.5	6.98	9.01	4.80
PCB-58	ng/kg	3	3	100%	4.43	9.56	5.54	6.51	2.70
PCB-60	ng/kg	3	3	100%	132	497	192	274	196
PCB-61/70/74/76	ng/kg	3	3	100%	416	1900	709	1010	786
PCB-62/75	ng/kg	3	3	100%	115	393	191	233	144
PCB-63	ng/kg	3	3	100%	62.2	176	86.0	108	60.0
PCB-64	ng/kg	3	3	100%	362	1470	658	830	574
PCB-66	ng/kg	3	3	100%	490	1910	805	1070	746
PCB-67	ng/kg	3	3	100%	16.2	59.3	27.4	34.3	22.4
PCB-68	ng/kg	3	3	100%	19.4	33.8	20.9	24.7	7.93
PCB-72	ng/kg	3	3	100%	12.4	26.8	16.8	18.7	7.38

Table 3-10
Statistical Summary of Detected Analytes in the Central Zone – Polychaete Tissue

Analytes	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-77	ng/kg	3	3	100%	86.9	264	111	154	96.1
PCB-79	ng/kg	3	3	100%	11.8	31.2	15.0	19.3	10.4
PCB-81	ng/kg	3	3	100%	3.52	9.25	4.42	5.73	3.08
PCB-82	ng/kg	3	3	100%	19.3	61.7	24.5	35.2	23.1
PCB-83	ng/kg	3	3	100%	50.2	118	58.8	75.7	36.9
PCB-84	ng/kg	3	3	100%	265	680	325	423	224
PCB-85/116/117	ng/kg	3	3	100%	229	514	275	339	153
PCB-86/87/97/109/119/125	ng/kg	3	3	100%	380	1010	493	628	336
PCB-89	ng/kg	3	3	100%	1.81	7.09	3.17	4.02	2.74
PCB-90/101/113	ng/kg	3	3	100%	1030	2470	1250	1580	777
PCB-91	ng/kg	3	3	100%	237	527	288	351	155
PCB-92	ng/kg	3	3	100%	180	414	216	270	126
PCB-93/100	ng/kg	3	3	100%	29.9	65.8	36.5	44.1	19.1
PCB-94	ng/kg	3	3	100%	15.1	31.5	18.0	21.5	8.76
PCB-95	ng/kg	3	3	100%	1290	3120	1560	1990	988
PCB-96	ng/kg	3	3	100%	8.79	25.4	13.4	15.8	8.58
PCB-98/102	ng/kg	3	3	100%	55.7	145	68.2	89.6	48.4
PCB-99	ng/kg	3	3	100%	658	1430	801	963	411
PCB-103	ng/kg	3	3	100%	28	48.6	33.4	36.7	10.7
PCB-104	ng/kg	3	3	100%	1.53	4.34	1.79	2.55	1.55
PCB-105	ng/kg	3	3	100%	444	939	492	625	273
PCB-107	ng/kg	3	3	100%	82.2	181	104	122	51.9
PCB-108/124	ng/kg	3	3	100%	15.2	44.9	21.0	27.0	15.7
PCB-110/115	ng/kg	3	3	100%	952	2440	1220	1540	794
PCB-111	ng/kg	3	3	100%	4.04	4.63	4.24	4.30	0.300
PCB-112	ng/kg	3	2	67%	1.85	8.75	5.30	5.30	4.88
PCB-114	ng/kg	3	3	100%	26.4	63.4	31.1	40.3	20.1
PCB-118	ng/kg	3	3	100%	696	1730	846	1090	559
PCB-120	ng/kg	3	3	100%	16.3	22.1	16.5	18.3	3.29
PCB-121	ng/kg	3	1	33%	1,245	1,245	NA	NA	NA
PCB-122	ng/kg	3	3	100%	5.35	13.2	6.58	8.38	4.22
PCB-123	ng/kg	3	3	100%	34.1	57.2	36.7	42.7	12.7
PCB-126	ng/kg	3	3	100%	5.09	8.97	5.80	6.62	2.07
PCB-128/166	ng/kg	3	3	100%	223	384	244	284	87.6
PCB-129/138/163	ng/kg	3	3	100%	2060	3330	2200	2530	698
PCB-130	ng/kg	3	3	100%	87.6	150	97.7	112	33.5
PCB-131	ng/kg	3	3	100%	7.77	19.4	9.92	12.4	6.19
PCB-132	ng/kg	3	3	100%	190	406	214	270	119
PCB-133	ng/kg	3	3	100%	63.2	85.6	66.5	71.8	12.1
PCB-134	ng/kg	3	3	100%	63.3	124	75.5	87.6	32.1
PCB-135/151	ng/kg	3	3	100%	499	897	533	643	221
PCB-136	ng/kg	3	3	100%	188	348	199	245	89.5

Table 3-10
Statistical Summary of Detected Analytes in the Central Zone – Polychaete Tissue

Analytes	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-137	ng/kg	3	3	100%	60.7	122	71.4	84.7	32.8
PCB-139/140	ng/kg	3	3	100%	20.5	37.4	23.9	27.3	8.94
PCB-141	ng/kg	3	3	100%	84.2	216	119	140	68.4
PCB-144	ng/kg	3	3	100%	55.6	112	62.5	76.7	30.8
PCB-146	ng/kg	3	3	100%	479	663	486	543	104
PCB-147/149	ng/kg	3	3	100%	1410	2350	1500	1750	519
PCB-148	ng/kg	3	3	100%	10.6	14.5	11.2	12.1	2.11
PCB-150	ng/kg	3	3	100%	8.71	13.2	10.4	10.8	2.27
PCB-152	ng/kg	3	3	100%	1.54	2.75	1.61	1.97	0.679
PCB-153/168	ng/kg	3	3	100%	2630	3610	2690	2980	551
PCB-154	ng/kg	3	3	100%	73.3	104	82.2	86.5	15.8
PCB-155	ng/kg	3	3	100%	6.37	15.2	9.24	10.3	4.50
PCB-156/157	ng/kg	3	3	100%	193	314	196	234	69.0
PCB-158	ng/kg	3	3	100%	142	254	154	183	61.5
PCB-162	ng/kg	3	3	100%	24.05	37.1	27.7	29.6	6.73
PCB-164	ng/kg	3	3	100%	29.7	61.6	35.6	42.3	17.0
PCB-165	ng/kg	2	2	100%	4.34	5.03	4.69	4.69	0.488
PCB-167	ng/kg	3	3	100%	82.5	119	85.6	95.7	20.2
PCB-170	ng/kg	3	3	100%	458	660	474	531	112
PCB-172	ng/kg	3	3	100%	83.4	117	86.5	95.6	18.6
PCB-176	ng/kg	3	3	100%	53.95	85.7	54.1	64.6	18.3
PCB-178	ng/kg	3	3	100%	153	220	163	179	36.1
PCB-179	ng/kg	3	3	100%	125.5	208	127	154	47.2
PCB-180/193	ng/kg	3	3	100%	1180	1640	1200	1340	261
PCB-184	ng/kg	3	3	100%	3.09	4.36	3.15	3.53	0.718
PCB-188	ng/kg	3	3	100%	8.94	10.8	10.2	9.99	0.952
PCB-189	ng/kg	3	3	100%	19.8	26.9	20.2	22.3	4.00
PCB-190	ng/kg	3	3	100%	112	159	123	131	24.7
PCB-191	ng/kg	3	3	100%	22.1	31.7	23.1	25.6	5.28
PCB-194	ng/kg	3	3	100%	204.5	262	206	224	32.8
PCB-195	ng/kg	3	3	100%	112	150	118	127	20.4
PCB-196	ng/kg	3	3	100%	165	230	169	188	36.4
PCB-197/200	ng/kg	3	3	100%	33.5	47.7	34.2	38.5	8.00
PCB-198/199	ng/kg	3	3	100%	335.5	491	374	400	81.0
PCB-201	ng/kg	3	3	100%	54.3	76.5	58.3	63.0	11.8
PCB-202	ng/kg	3	3	100%	95.4	134	120	116	19.5
PCB-203	ng/kg	3	3	100%	316.5	434	338	363	62.6
PCB-205	ng/kg	3	3	100%	18.8	25	19.4	21.1	3.42
PCB-206	ng/kg	3	3	100%	413.5	512	490	472	51.7
PCB-207	ng/kg	3	3	100%	51.05	60	53.3	54.8	4.66

Table 3-10
Statistical Summary of Detected Analytes in the Central Zone – Polychaete Tissue

Analytes	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-208	ng/kg	3	3	100%	129	172	165	155	23.1
PCB-209	ng/kg	3	3	100%	318.5	392	387	366	41.1
Total PCB Congeners (209)	ng/kg	3	3	100%	27600	67600	34400	43200	21400
Semivolatiles									
C3-Naphthalenes	ug/kg	3	1	33%	13	13	NA	NA	NA
C4-Naphthalenes	ug/kg	3	1	33%	14	14	NA	NA	NA
Chrysene	ug/kg	3	1	33%	12	12	NA	NA	NA
Fluoranthene	ug/kg	3	1	33%	15	15	NA	NA	NA
Pyrene	ug/kg	3	3	100%	9.9	23	11.0	14.6	7.27
Pyridine	ug/kg	3	1	33%	2900	2900	NA	NA	NA
Total HMW PAHs	ug/kg	3	3	100%	9.9	50	11.0	23.6	22.8
Total PAHs	ug/kg	3	3	100%	9.9	50	11.0	23.6	22.8
Physical Parameters									
Moisture (Water)Content	%	3	3	100%	558	596	590	581	20.4
Moisture, Percent	%	3	3	100%	84.8	85.6	85.5	85.3	0.436

Footnotes:

¹Valid results are results that were found to be valid as a result of data validation. Only valid data are used in statistical analyses. Additional details regarding rejected data are provided in Appendix H of this report.

Notes:

1. Only detected values were included in the calculation of totals.
2. Non-detect ("U" qualified) data were excluded from the statistical analysis.
3. Field duplicate samples were averaged to create one result prior to statistical reporting. Additional details regarding field duplicate handling can be found in Section 3.0 of the report.

DDD = dichlorodiphenyldichloroethane
DDE = dichlorodiphenyldichloroethylene
DDT = dichlorodiphenyltrichloroethane
HMW = high molecular weight
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
NA = not applicable

% = percent
mg/kg = milligrams per kilogram
ng/g = nanograms per gram
ng/kg = nanograms per kilogram
pg/g = picograms per gram
ug/kg = micrograms per kilogram

Table 3-11
Statistical Summary of Detected Analytes in the South Zone – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Dioxins/Furans									
1,2,3,4,6,7,8-HpCDD	ng/kg	1	1	100%	1.9	1.9	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	ng/kg	1	1	100%	2.5	2.5	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	ng/kg	1	1	100%	0.106	0.106	NA	NA	NA
1,2,3,4,7,8-HxCDD	ng/kg	1	1	100%	0.128	0.128	NA	NA	NA
1,2,3,4,7,8-HxCDF	ng/kg	1	1	100%	0.831	0.831	NA	NA	NA
1,2,3,6,7,8-HxCDD	ng/kg	1	1	100%	0.316	0.316	NA	NA	NA
1,2,3,6,7,8-HxCDF	ng/kg	1	1	100%	0.339	0.339	NA	NA	NA
1,2,3,7,8,9-HxCDD	ng/kg	1	1	100%	0.13	0.13	NA	NA	NA
1,2,3,7,8,9-HxCDF	ng/kg	1	1	100%	0.0674	0.0674	NA	NA	NA
1,2,3,7,8-PCDD	ng/kg	1	1	100%	0.279	0.279	NA	NA	NA
1,2,3,7,8-PCDF	ng/kg	1	1	100%	0.569	0.569	NA	NA	NA
2,3,4,6,7,8-HxCDF	ng/kg	1	1	100%	0.197	0.197	NA	NA	NA
2,3,4,7,8-PCDF	ng/kg	1	1	100%	0.756	0.756	NA	NA	NA
2,3,7,8-TCDD	ng/kg	1	1	100%	2.4	2.4	NA	NA	NA
2,3,7,8-TCDF	ng/kg	1	1	100%	1.68	1.68	NA	NA	NA
OCDD	ng/kg	1	1	100%	10.9	10.9	NA	NA	NA
OCDF	ng/kg	1	1	100%	1.73	1.73	NA	NA	NA
Percent Lipids	%	1	1	100%	0.86	0.86	NA	NA	NA
Metals									
Aluminum	mg/kg	1	1	100%	29	29	NA	NA	NA
Arsenic	mg/kg	1	1	100%	2.17	2.17	NA	NA	NA
Cadmium	mg/kg	1	1	100%	0.0516	0.0516	NA	NA	NA
Calcium	mg/kg	1	1	100%	277	277	NA	NA	NA
Cobalt	mg/kg	1	1	100%	0.127	0.127	NA	NA	NA
Copper	mg/kg	1	1	100%	1.8	1.8	NA	NA	NA
Iron	mg/kg	1	1	100%	103	103	NA	NA	NA
Lead	mg/kg	1	1	100%	0.281	0.281	NA	NA	NA
Magnesium	mg/kg	1	1	100%	595	595	NA	NA	NA
Manganese	mg/kg	1	1	100%	1.17	1.17	NA	NA	NA
Mercury	ng/g	1	1	100%	24.6	24.6	NA	NA	NA
Methyl Mercury	ng/g	1	1	100%	3.7	3.7	NA	NA	NA
Nickel	mg/kg	1	1	100%	0.312	0.312	NA	NA	NA
Potassium	mg/kg	1	1	100%	2860	2860	NA	NA	NA
Selenium	mg/kg	1	1	100%	0.319	0.319	NA	NA	NA
Silver	mg/kg	1	1	100%	0.0316	0.0316	NA	NA	NA
Sodium	mg/kg	1	1	100%	3750	3750	NA	NA	NA
Titanium	mg/kg	1	1	100%	0.705	0.705	NA	NA	NA
Vanadium	mg/kg	1	1	100%	0.139	0.139	NA	NA	NA
Zinc	mg/kg	1	1	100%	28.1	28.1	NA	NA	NA

Table 3-11
Statistical Summary of Detected Analytes in the South Zone – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Pesticides									
Cis-Chlordane	pg/g	1	1	100%	862	862	NA	NA	NA
Cis-Nonachlor	pg/g	1	1	100%	331	331	NA	NA	NA
Dieldrin	pg/g	1	1	100%	785	785	NA	NA	NA
Heptachlor Epoxide	pg/g	1	1	100%	41	41	NA	NA	NA
Hexachlorobenzene	pg/g	1	1	100%	106	106	NA	NA	NA
2,4'-DDD	pg/g	1	1	100%	395	395	NA	NA	NA
2,4'-DDE	pg/g	1	1	100%	57.7	57.7	NA	NA	NA
Oxychlordane	pg/g	1	1	100%	42.3	42.3	NA	NA	NA
4,4'-DDD	pg/g	1	1	100%	757	757	NA	NA	NA
4,4'-DDE	pg/g	1	1	100%	330	330	NA	NA	NA
Trans-Nonachlor	pg/g	1	1	100%	655	655	NA	NA	NA
Total Alpha + Gamma Chlordane	pg/g	1	1	100%	862	862	NA	NA	NA
Total DDT (2,4)	pg/g	1	1	100%	453	453	NA	NA	NA
Total DDT (4,4)	pg/g	1	1	100%	1090	1090	NA	NA	NA
Total DDT (2,4 & 4,4)	pg/g	1	1	100%	1540	1540	NA	NA	NA
Aroclor PCBs									
Aroclor 1254	ug/kg	1	1	100%	15	15	NA	NA	NA
Total Aroclor PCBs (Sum of 7 Aroclors)	ug/kg	1	1	100%	15	15	NA	NA	NA
Total Aroclor PCBs (Sum of 9 Aroclors)	ug/kg	1	1	100%	15	15	NA	NA	NA
PCB Congeners									
PCB-1	ng/kg	1	1	100%	8.62	8.62	NA	NA	NA
PCB-2	ng/kg	1	1	100%	0.902	0.902	NA	NA	NA
PCB-4	ng/kg	1	1	100%	65.6	65.6	NA	NA	NA
PCB-6	ng/kg	1	1	100%	3.33	3.33	NA	NA	NA
PCB-7	ng/kg	1	1	100%	0.966	0.966	NA	NA	NA
PCB-9	ng/kg	1	1	100%	1.18	1.18	NA	NA	NA
PCB-10	ng/kg	1	1	100%	13	13	NA	NA	NA
PCB-11	ng/kg	1	1	100%	54.9	54.9	NA	NA	NA
PCB-12/13	ng/kg	1	1	100%	6.35	6.35	NA	NA	NA
PCB-15	ng/kg	1	1	100%	126	126	NA	NA	NA
PCB-16	ng/kg	1	1	100%	5.56	5.56	NA	NA	NA
PCB-17	ng/kg	1	1	100%	20.3	20.3	NA	NA	NA
PCB-18/30	ng/kg	1	1	100%	334	334	NA	NA	NA
PCB-19	ng/kg	1	1	100%	106	106	NA	NA	NA
PCB-20/28	ng/kg	1	1	100%	553	553	NA	NA	NA
PCB-21/33	ng/kg	1	1	100%	9.19	9.19	NA	NA	NA
PCB-22	ng/kg	1	1	100%	78.1	78.1	NA	NA	NA
PCB-24	ng/kg	1	1	100%	3.3	3.3	NA	NA	NA
PCB-25	ng/kg	1	1	100%	36	36	NA	NA	NA

Table 3-11
Statistical Summary of Detected Analytes in the South Zone – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-26/29	ng/kg	1	1	100%	48.6	48.6	NA	NA	NA
PCB-27	ng/kg	1	1	100%	46.4	46.4	NA	NA	NA
PCB-31	ng/kg	1	1	100%	90.7	90.7	NA	NA	NA
PCB-32	ng/kg	1	1	100%	99.8	99.8	NA	NA	NA
PCB-34	ng/kg	1	1	100%	2.79	2.79	NA	NA	NA
PCB-35	ng/kg	1	1	100%	4.68	4.68	NA	NA	NA
PCB-36	ng/kg	1	1	100%	1.71	1.71	NA	NA	NA
PCB-37	ng/kg	1	1	100%	105	105	NA	NA	NA
PCB-38	ng/kg	1	1	100%	1.16	1.16	NA	NA	NA
PCB-39	ng/kg	1	1	100%	4.01	4.01	NA	NA	NA
PCB-40/71	ng/kg	1	1	100%	143	143	NA	NA	NA
PCB-42	ng/kg	1	1	100%	194	194	NA	NA	NA
PCB-43	ng/kg	1	1	100%	46.1	46.1	NA	NA	NA
PCB-44/47/65	ng/kg	1	1	100%	1010	1010	NA	NA	NA
PCB-45	ng/kg	1	1	100%	83.1	83.1	NA	NA	NA
PCB-46	ng/kg	1	1	100%	18.6	18.6	NA	NA	NA
PCB-48	ng/kg	1	1	100%	59.1	59.1	NA	NA	NA
PCB-49/69	ng/kg	1	1	100%	654	654	NA	NA	NA
PCB-50/53	ng/kg	1	1	100%	401	401	NA	NA	NA
PCB-51	ng/kg	1	1	100%	126	126	NA	NA	NA
PCB-52	ng/kg	1	1	100%	1650	1650	NA	NA	NA
PCB-54	ng/kg	1	1	100%	14	14	NA	NA	NA
PCB-56	ng/kg	1	1	100%	323	323	NA	NA	NA
PCB-57	ng/kg	1	1	100%	6.56	6.56	NA	NA	NA
PCB-58	ng/kg	1	1	100%	5.69	5.69	NA	NA	NA
PCB-60	ng/kg	1	1	100%	144	144	NA	NA	NA
PCB-61/70/74/76	ng/kg	1	1	100%	421	421	NA	NA	NA
PCB-62/75	ng/kg	1	1	100%	151	151	NA	NA	NA
PCB-63	ng/kg	1	1	100%	69.8	69.8	NA	NA	NA
PCB-64	ng/kg	1	1	100%	452	452	NA	NA	NA
PCB-66	ng/kg	1	1	100%	567	567	NA	NA	NA
PCB-67	ng/kg	1	1	100%	21.1	21.1	NA	NA	NA
PCB-68	ng/kg	1	1	100%	22.7	22.7	NA	NA	NA
PCB-72	ng/kg	1	1	100%	14.6	14.6	NA	NA	NA
PCB-73	ng/kg	1	1	100%	17.6	17.6	NA	NA	NA
PCB-77	ng/kg	1	1	100%	85.8	85.8	NA	NA	NA
PCB-79	ng/kg	1	1	100%	9.33	9.33	NA	NA	NA
PCB-81	ng/kg	1	1	100%	4.07	4.07	NA	NA	NA
PCB-82	ng/kg	1	1	100%	17.6	17.6	NA	NA	NA
PCB-83	ng/kg	1	1	100%	71.9	71.9	NA	NA	NA

Table 3-11
Statistical Summary of Detected Analytes in the South Zone – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-84	ng/kg	1	1	100%	317	317	NA	NA	NA
PCB-85/116/117	ng/kg	1	1	100%	299	299	NA	NA	NA
PCB-86/87/97/109/119/125	ng/kg	1	1	100%	467	467	NA	NA	NA
PCB-89	ng/kg	1	1	100%	2.41	2.41	NA	NA	NA
PCB-90/101/113	ng/kg	1	1	100%	1350	1350	NA	NA	NA
PCB-91	ng/kg	1	1	100%	296	296	NA	NA	NA
PCB-92	ng/kg	1	1	100%	236	236	NA	NA	NA
PCB-93/100	ng/kg	1	1	100%	62.7	62.7	NA	NA	NA
PCB-94	ng/kg	1	1	100%	26.4	26.4	NA	NA	NA
PCB-95	ng/kg	1	1	100%	1490	1490	NA	NA	NA
PCB-96	ng/kg	1	1	100%	12.3	12.3	NA	NA	NA
PCB-98/102	ng/kg	1	1	100%	74.1	74.1	NA	NA	NA
PCB-99	ng/kg	1	1	100%	837	837	NA	NA	NA
PCB-103	ng/kg	1	1	100%	42.6	42.6	NA	NA	NA
PCB-104	ng/kg	1	1	100%	5.64	5.64	NA	NA	NA
PCB-105	ng/kg	1	1	100%	435	435	NA	NA	NA
PCB-107	ng/kg	1	1	100%	93.1	93.1	NA	NA	NA
PCB-108/124	ng/kg	1	1	100%	17.8	17.8	NA	NA	NA
PCB-110/115	ng/kg	1	1	100%	1230	1230	NA	NA	NA
PCB-111	ng/kg	1	1	100%	4.5	4.5	NA	NA	NA
PCB-114	ng/kg	1	1	100%	27	27	NA	NA	NA
PCB-118	ng/kg	1	1	100%	697	697	NA	NA	NA
PCB-120	ng/kg	1	1	100%	17.4	17.4	NA	NA	NA
PCB-121	ng/kg	1	1	100%	1.88	1.88	NA	NA	NA
PCB-122	ng/kg	1	1	100%	6.67	6.67	NA	NA	NA
PCB-123	ng/kg	1	1	100%	32.2	32.2	NA	NA	NA
PCB-126	ng/kg	1	1	100%	6.02	6.02	NA	NA	NA
PCB-128/166	ng/kg	1	1	100%	218	218	NA	NA	NA
PCB-129/138/163	ng/kg	1	1	100%	2160	2160	NA	NA	NA
PCB-130	ng/kg	1	1	100%	93.1	93.1	NA	NA	NA
PCB-131	ng/kg	1	1	100%	9.46	9.46	NA	NA	NA
PCB-132	ng/kg	1	1	100%	207	207	NA	NA	NA
PCB-133	ng/kg	1	1	100%	56.7	56.7	NA	NA	NA
PCB-134	ng/kg	1	1	100%	67.2	67.2	NA	NA	NA
PCB-135/151	ng/kg	1	1	100%	490	490	NA	NA	NA
PCB-136	ng/kg	1	1	100%	176	176	NA	NA	NA
PCB-137	ng/kg	1	1	100%	72.8	72.8	NA	NA	NA
PCB-139/140	ng/kg	1	1	100%	23.3	23.3	NA	NA	NA
PCB-141	ng/kg	1	1	100%	109	109	NA	NA	NA
PCB-144	ng/kg	1	1	100%	56.2	56.2	NA	NA	NA

Table 3-11
Statistical Summary of Detected Analytes in the South Zone – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-146	ng/kg	1	1	100%	488	488	NA	NA	NA
PCB-147/149	ng/kg	1	1	100%	1540	1540	NA	NA	NA
PCB-148	ng/kg	1	1	100%	10.8	10.8	NA	NA	NA
PCB-150	ng/kg	1	1	100%	8.67	8.67	NA	NA	NA
PCB-153/168	ng/kg	1	1	100%	2650	2650	NA	NA	NA
PCB-154	ng/kg	1	1	100%	68.9	68.9	NA	NA	NA
PCB-155	ng/kg	1	1	100%	13.1	13.1	NA	NA	NA
PCB-156/157	ng/kg	1	1	100%	166	166	NA	NA	NA
PCB-158	ng/kg	1	1	100%	149	149	NA	NA	NA
PCB-162	ng/kg	1	1	100%	22.7	22.7	NA	NA	NA
PCB-164	ng/kg	1	1	100%	33.3	33.3	NA	NA	NA
PCB-165	ng/kg	1	1	100%	4.08	4.08	NA	NA	NA
PCB-170	ng/kg	1	1	100%	471	471	NA	NA	NA
PCB-171/173	ng/kg	1	1	100%	148	148	NA	NA	NA
PCB-172	ng/kg	1	1	100%	91.6	91.6	NA	NA	NA
PCB-174	ng/kg	1	1	100%	81.6	81.6	NA	NA	NA
PCB-175	ng/kg	1	1	100%	30.6	30.6	NA	NA	NA
PCB-176	ng/kg	1	1	100%	53.1	53.1	NA	NA	NA
PCB-177	ng/kg	1	1	100%	295	295	NA	NA	NA
PCB-178	ng/kg	1	1	100%	156	156	NA	NA	NA
PCB-179	ng/kg	1	1	100%	126	126	NA	NA	NA
PCB-180/193	ng/kg	1	1	100%	1190	1190	NA	NA	NA
PCB-181	ng/kg	1	1	100%	4.94	4.94	NA	NA	NA
PCB-182	ng/kg	1	1	100%	5.55	5.55	NA	NA	NA
PCB-183/185	ng/kg	1	1	100%	503	503	NA	NA	NA
PCB-184	ng/kg	1	1	100%	3.79	3.79	NA	NA	NA
PCB-187	ng/kg	1	1	100%	1220	1220	NA	NA	NA
PCB-188	ng/kg	1	1	100%	7.97	7.97	NA	NA	NA
PCB-189	ng/kg	1	1	100%	16.7	16.7	NA	NA	NA
PCB-190	ng/kg	1	1	100%	118	118	NA	NA	NA
PCB-191	ng/kg	1	1	100%	24.2	24.2	NA	NA	NA
PCB-194	ng/kg	1	1	100%	175	175	NA	NA	NA
PCB-195	ng/kg	1	1	100%	93.8	93.8	NA	NA	NA
PCB-196	ng/kg	1	1	100%	165	165	NA	NA	NA
PCB-197/200	ng/kg	1	1	100%	32.8	32.8	NA	NA	NA
PCB-198/199	ng/kg	1	1	100%	341	341	NA	NA	NA
PCB-201	ng/kg	1	1	100%	55.7	55.7	NA	NA	NA
PCB-202	ng/kg	1	1	100%	90.4	90.4	NA	NA	NA
PCB-203	ng/kg	1	1	100%	297	297	NA	NA	NA
PCB-205	ng/kg	1	1	100%	16.6	16.6	NA	NA	NA

Table 3-11
Statistical Summary of Detected Analytes in the South Zone – Polychaete Tissue

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-206	ng/kg	1	1	100%	383	383	NA	NA	NA
PCB-207	ng/kg	1	1	100%	47.1	47.1	NA	NA	NA
PCB-208	ng/kg	1	1	100%	120	120	NA	NA	NA
PCB-209	ng/kg	1	1	100%	273	273	NA	NA	NA
Total PCB Congeners (209)	ng/kg	1	1	100%	32300	32300	NA	NA	NA
Physical Parameters									
Moisture (Water)Content	%	1	1	100%	567	567	NA	NA	NA
Moisture, Percent	%	1	1	100%	85	85	NA	NA	NA

Footnotes:

¹Valid results are results that were found to be valid as a result of data validation. Only valid data are used in statistical analyses. Additional details regarding rejected data are provided in Appendix H of this report.

Notes:

1. Only detected values were included in the calculation of totals.
2. Non-detect ("U" qualified) data were excluded from the statistical analysis.
3. Field duplicate samples were averaged to create one result prior to statistical reporting. Additional details regarding field duplicate handling can be found in Section 3.0 of the report.

DDD = dichlorodiphenyldichloroethane
DDE = dichlorodiphenyldichloroethylene
DDT = dichlorodiphenyltrichloroethane
HMW = high molecular weight
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
NA = not applicable

% = percent
mg/kg = milligrams per kilogram
ng/g = nanograms per gram
ng/kg = nanograms per kilogram
pg/g = picograms per gram
ug/kg = micrograms per kilogram

Table 3-12
List of Constituents Not Detected in Porewater Samples

Analyte
Metals
Beryllium
Cadmium
Cobalt
Nickel
Silver
Thallium
Pesticides
Beta BHC
Beta Endosulfan
Delta BHC
Endosulfan Sulfate
Endrin
Gamma BHC (Lindane)
Methoxychlor
PCB Congeners
PCB-78
PCB-80
PCB-142
PCB-159
PCB-160
PCB-186
PCB-192
PCB-204
PAHs
1-Methylnaphthalene
C1-Naphthalenes

Notes:

PCB = polychlorinated biphenyl

Table 3-13
Statistical Summary of Detected Analytes - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Dioxins/Furans									
1,2,3,4,6,7,8-HpCDD	pg/L	30	30	100%	1.06	26.6	1.53	3.01	5.34
1,2,3,4,6,7,8-HpCDF	pg/L	30	30	100%	0.866	20.7	2.21	3.06	3.93
1,2,3,4,7,8,9-HpCDF	pg/L	30	30	100%	0.0668	1.11	0.151	0.230	0.243
1,2,3,4,7,8-HxCDD	pg/L	30	28	93%	0.0481	0.353	0.118	0.124	0.0673
1,2,3,4,7,8-HxCDF	pg/L	30	30	100%	0.876	23	2.28	2.95	3.95
1,2,3,6,7,8-HxCDD	pg/L	30	30	100%	0.244	3.76	0.611	0.804	0.669
1,2,3,6,7,8-HxCDF	pg/L	30	30	100%	0.318	6.17	0.658	0.883	1.05
1,2,3,7,8,9-HxCDD	pg/L	30	30	100%	0.187	1.99	0.343	0.434	0.362
1,2,3,7,8,9-HxCDF	pg/L	30	30	100%	0.239	1.15	0.389	0.451	0.195
1,2,3,7,8-PeCDD	pg/L	30	28	93%	0.347	2.31	0.727	0.871	0.471
1,2,3,7,8-PeCDF	pg/L	30	30	100%	0.926	9.36	1.61	1.97	1.55
2,3,4,6,7,8-HxCDF	pg/L	30	30	100%	0.292	2.15	0.487	0.634	0.434
2,3,4,7,8-PeCDF	pg/L	30	30	100%	1.61	17.4	3.03	3.71	2.86
2,3,7,8-TCDD	pg/L	30	30	100%	5.93	468	21.2	38.1	82.7
2,3,7,8-TCDF	pg/L	30	30	100%	3.17	15.4	4.69	5.43	2.29
OCDD	pg/L	30	30	100%	1.87	112	3.33	10.7	26.6
OCDF	pg/L	30	30	100%	0.00228	0.0847	0.00558	0.0103	0.0165
Metals									
Aluminum	mg/L	29	4	14%	0.203	1.51	0.643	0.750	0.586
Antimony	mg/L	29	1	3%	0.0076	0.0076	NA	NA	NA
Arsenic	mg/L	29	9	31%	0.0183	0.0748	0.0268	0.0336	0.0185
Barium	mg/L	29	29	100%	0.0476	0.179	0.0707	0.0757	0.0310
Calcium	mg/L	29	29	100%	215.5	296	257	257	19.3
Chromium	mg/L	29	26	90%	0.0036	0.0148	0.00650	0.00670	0.00261
Copper	mg/L	29	5	17%	0.0021	0.0155	0.00420	0.00626	0.00558
Iron	mg/L	29	28	97%	0.128	5.14	0.894	1.16	1.12
Lead	mg/L	29	6	21%	0.00097	0.0076	0.00365	0.00390	0.00281
Magnesium	mg/L	29	29	100%	624	875	705	713	65.3
Manganese	mg/L	29	29	100%	0.114	4.29	0.907	1.18	1.00
Mercury	ng/L	30	29	97%	52.9	348	134	144	57.5
Methyl Mercury	ng/L	30	30	100%	33.1	368	114	137	71.5
Potassium	mg/L	29	29	100%	217	314	251	252	19.7
Selenium	mg/L	29	10	34%	0.0025	0.0034	0.00295	0.00292	0.000322
Sodium	mg/L	29	29	100%	5760	8550	6940	6940	635
Titanium	mg/L	28	20	71%	0.0039	0.0898	0.00755	0.0136	0.0205
Vanadium	mg/L	29	24	83%	0.0025	0.0074	0.00410	0.00447	0.00154
Zinc	mg/L	29	3	10%	0.0967	0.402	0.176	0.225	0.158
Pesticides									
2,4'-DDD	pg/L	30	30	100%	59.4	1150	98.1	175	207
2,4'-DDE	pg/L	30	30	100%	58.7	4400	158	400	810

Table 3-13
Statistical Summary of Detected Analytes - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
2,4'-DDT	pg/L	30	3	10%	0.175	0.555	0.201	0.310	0.212
4,4'-DDD	pg/L	30	30	100%	114	2955	195	378	545
4,4'-DDE	pg/L	30	30	100%	304	9580	777	1290	1790
4,4'-DDT	pg/L	30	4	13%	0.21	2.13	0.367	0.768	0.911
Aldrin	pg/L	30	20	67%	0.26	1.31	0.814	0.763	0.286
Alpha BHC	pg/L	30	5	17%	21.8	134	63.9	71.9	44.4
Alpha Endosulfan	pg/L	30	6	20%	335	834	564	585	228
Cis-Chlordane	pg/L	30	30	100%	65	283	148	149	52.3
Cis-Nonachlor	pg/L	30	29	97%	9.89	36.9	16.4	17.0	5.59
Dieldrin	pg/L	30	30	100%	127	868	199	248	158
Endrin Aldehyde	pg/L	30	1	3%	11.4	11.4	NA	NA	NA
Endrin Ketone	pg/L	27	1	4%	40.8	40.8	NA	NA	NA
Heptachlor	pg/L	30	26	87%	2.35	5.74	3.30	3.39	0.697
Heptachlor Epoxide	pg/L	30	13	43%	9.06	36.4	14.9	17.6	8.14
Hexachlorobenzene	pg/L	30	30	100%	38.3	7780	237	704	1630
Mirex	pg/L	28	16	57%	0.587	2.355	1.03	1.11	0.405
Oxychlordane	pg/L	30	2	7%	0.825	1.28	1.05	1.05	0.322
Trans-Chlordane	pg/L	30	30	100%	78.2	258	143	143	42.4
Trans-Heptachlor Epoxide	pg/L	30	1	3%	72.8	72.8	NA	NA	NA
Trans-Nonachlor	pg/L	30	30	100%	21.2	109	56.8	58.1	21.2
Total Alpha + Gamma Chlordane	pg/L	30	30	100%	143	471	291	291	86.9
Total DDT (2,4 & 4,4)	pg/L	30	30	100%	619	15100	1270	2250	2940
Total DDT (2,4)	pg/L	30	30	100%	142	4640	265	574	885
Total DDT (4,4)	pg/L	30	30	100%	467	10500	987	1670	2070
PCB Congeners									
PCB-1	ng/L	30	30	100%	2.61	72.1	7.34	10.7	12.8
PCB-2	ng/L	30	29	97%	0.7205	9.42	1.35	2.45	2.32
PCB-3	ng/L	30	28	93%	0.527	28.8	0.950	2.25	5.27
PCB-4	ng/L	30	30	100%	9.54	695	24.8	65.1	125
PCB-5	ng/L	30	22	73%	0.12	2.1	0.257	0.517	0.550
PCB-6	ng/L	30	29	97%	1.15	59.5	2.80	6.38	10.9
PCB-7	ng/L	30	26	87%	0.127	17.6	0.543	1.72	3.46
PCB-8	ng/L	30	30	100%	3.01	478	9.33	35.4	87.0
PCB-9	ng/L	30	29	97%	0.173	22.6	0.634	2.07	4.26
PCB-10	ng/L	30	29	97%	0.239	221	1.39	9.33	40.7
PCB-11	ng/L	30	30	100%	1.59	137	3.53	13.5	26.5
PCB-12/13	ng/L	30	30	100%	0.55	25.8	1.41	3.60	5.03
PCB-14	ng/L	30	7	23%	0.0501	0.188	0.0765	0.0952	0.0520
PCB-15	ng/L	30	30	100%	2.73	153	5.11	13.0	27.3
PCB-16	ng/L	30	30	100%	4.2	610	13.0	43.3	110
PCB-17	ng/L	30	30	100%	6	520	17.1	43.3	93.3

Table 3-13
Statistical Summary of Detected Analytes - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-18/30	ng/L	30	30	100%	6.8	855	20.6	63.2	154
PCB-19	ng/L	30	30	100%	3.19	140	6.87	14.9	25.1
PCB-20/28	ng/L	30	30	100%	10.8	670	22.5	59.6	120
PCB-21/33	ng/L	30	30	100%	2.21	364	5.95	24.6	65.9
PCB-22	ng/L	30	30	100%	2.06	233	5.01	17.5	42.0
PCB-23	ng/L	30	17	57%	0.0187	0.91	0.0464	0.111	0.212
PCB-24	ng/L	30	20	67%	0.0463	1.89	0.299	0.475	0.458
PCB-25	ng/L	30	30	100%	0.981	34.2	2.15	4.08	6.02
PCB-26/29	ng/L	30	30	100%	1.7	88.3	3.78	8.72	15.7
PCB-27	ng/L	30	30	100%	1.01	35.6	2.18	4.04	6.29
PCB-31	ng/L	30	30	100%	5.98	410	13.4	36.4	74.0
PCB-32	ng/L	30	30	100%	2.14	93.4	4.76	10.4	16.9
PCB-34	ng/L	30	30	100%	0.0579	2.83	0.152	0.312	0.502
PCB-35	ng/L	30	30	100%	0.0843	7.05	0.218	0.594	1.29
PCB-36	ng/L	30	18	60%	0.00872	0.037	0.0170	0.0193	0.00804
PCB-37	ng/L	30	30	100%	0.892	35.9	2.15	4.63	6.78
PCB-38	ng/L	30	19	63%	0.0106	0.0716	0.0270	0.0320	0.0178
PCB-39	ng/L	30	30	100%	0.0464	1.73	0.0964	0.192	0.305
PCB-40/71	ng/L	30	30	100%	4.81	95.7	8.82	14.3	16.7
PCB-41	ng/L	30	29	97%	0.495	24.9	1.29	2.86	4.70
PCB-42	ng/L	30	30	100%	3.69	76.6	7.50	12.1	13.5
PCB-43	ng/L	30	30	100%	0.6	13.1	1.16	1.98	2.34
PCB-44/47/65	ng/L	30	30	100%	12.5	212	23.2	36.1	36.9
PCB-45	ng/L	30	30	100%	2.16	87.6	4.18	8.96	15.5
PCB-46	ng/L	30	30	100%	0.846	24	1.63	3.06	4.26
PCB-48	ng/L	30	30	100%	1.68	41.2	3.57	6.55	7.62
PCB-49/69	ng/L	30	30	100%	6.77	95.2	12.6	18.2	16.6
PCB-50/53	ng/L	30	30	100%	2.41	48.1	4.40	7.26	8.38
PCB-51	ng/L	30	29	97%	1.27	5.74	3.16	3.17	1.08
PCB-52	ng/L	30	30	100%	10.9	226	23.0	35.4	39.9
PCB-54	ng/L	30	28	93%	0.366	2.75	0.757	0.850	0.456
PCB-55	ng/L	30	27	90%	0.0333	0.409	0.0750	0.109	0.0814
PCB-56	ng/L	30	30	100%	1.57	50.8	3.29	6.43	9.04
PCB-57	ng/L	30	29	97%	0.0269	1.77	0.0522	0.152	0.347
PCB-58	ng/L	30	27	90%	0.0247	0.0992	0.0436	0.0504	0.0213
PCB-60	ng/L	30	30	100%	0.503	24	1.09	2.52	4.34
PCB-61/70/74/76	ng/L	30	30	100%	5.87	178	12.3	23.7	31.8
PCB-62/75	ng/L	30	30	100%	2.2	24.6	4.25	5.99	4.56
PCB-63	ng/L	30	30	100%	0.464	8.01	0.800	1.35	1.41
PCB-64	ng/L	30	30	100%	1.64	54.9	3.31	6.30	9.64
PCB-66	ng/L	30	30	100%	2.92	80.1	6.32	11.4	14.2
PCB-67	ng/L	30	30	100%	0.104	1.9	0.209	0.332	0.334

Table 3-13
Statistical Summary of Detected Analytes - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-68	ng/L	30	30	100%	0.093	0.433	0.164	0.184	0.0681
PCB-72	ng/L	30	30	100%	0.0609	0.447	0.113	0.140	0.0760
PCB-73	ng/L	30	25	83%	0.0257	0.113	0.0514	0.0567	0.0192
PCB-77	ng/L	30	30	100%	0.164	5.69	0.322	0.652	1.02
PCB-79	ng/L	30	29	97%	0.0264	0.843	0.0452	0.0857	0.148
PCB-81	ng/L	30	27	90%	0.00957	0.212	0.0151	0.0300	0.0400
PCB-82	ng/L	30	30	100%	0.415	7.86	0.979	1.41	1.40
PCB-83	ng/L	30	30	100%	0.222	2.28	0.527	0.623	0.413
PCB-84	ng/L	30	29	97%	1.36	7.96	3.04	3.41	1.81
PCB-85/116/117	ng/L	30	30	100%	0.741	8.63	1.51	2.00	1.52
PCB-86/87/97/109/119/125	ng/L	30	30	100%	2.04	28	4.42	5.91	4.91
PCB-88	ng/L	30	11	37%	0.0151	0.0779	0.0268	0.0327	0.0174
PCB-89	ng/L	30	28	93%	0.085	0.555	0.159	0.210	0.117
PCB-90/101/113	ng/L	30	30	100%	3.49	34	7.22	9.00	5.91
PCB-91	ng/L	30	30	100%	1.18	8.84	2.12	2.65	1.52
PCB-92	ng/L	30	29	97%	0.727	6.18	1.43	1.76	1.09
PCB-93/100	ng/L	30	29	97%	0.193	1.09	0.508	0.514	0.175
PCB-94	ng/L	30	30	100%	0.0807	0.479	0.138	0.156	0.0734
PCB-95	ng/L	30	30	100%	3.73	49.4	7.32	9.91	8.65
PCB-96	ng/L	30	30	100%	0.165	2.3	0.268	0.404	0.387
PCB-98/102	ng/L	30	30	100%	0.352	2.94	0.617	0.770	0.482
PCB-99	ng/L	30	30	100%	2.37	19.1	4.48	5.46	3.24
PCB-103	ng/L	30	30	100%	0.125	0.413	0.210	0.226	0.0704
PCB-104	ng/L	30	25	83%	0.0303	0.215	0.0948	0.0953	0.0453
PCB-105	ng/L	30	30	100%	0.374	8.17	0.717	1.24	1.47
PCB-106	ng/L	30	1	3%	0.00559	0.00559	NA	NA	NA
PCB-107	ng/L	30	30	100%	0.104	1.44	0.172	0.255	0.248
PCB-108/124	ng/L	30	30	100%	0.0436	0.826	0.0823	0.131	0.146
PCB-110/115	ng/L	28	27	96%	2.34	12.3	5.26	5.76	2.74
PCB-111	ng/L	30	24	80%	0.00207	0.00499	0.00289	0.00314	0.000792
PCB-112	ng/L	30	27	90%	0.00757	0.0441	0.0176	0.0216	0.00985
PCB-114	ng/L	30	30	100%	0.0317	0.678	0.0605	0.103	0.121
PCB-118	ng/L	30	30	100%	1.15	17.6	2.06	3.19	3.14
PCB-120	ng/L	30	30	100%	0.0102	0.0682	0.0140	0.0171	0.0107
PCB-121	ng/L	30	23	77%	0.00146	0.00518	0.00310	0.00305	0.000765
PCB-122	ng/L	30	30	100%	0.0157	0.235	0.0308	0.0464	0.0425
PCB-123	ng/L	30	30	100%	0.023	0.395	0.0446	0.0683	0.0692
PCB-126	ng/L	21	18	86%	0.00193	0.0525	0.00352	0.00663	0.0116
PCB-127	ng/L	27	18	67%	0.00109	0.00585	0.00185	0.00234	0.00147
PCB-128/166	ng/L	30	30	100%	0.122	1.26	0.211	0.279	0.220
PCB-129/138/163	ng/L	30	30	100%	1.43	11.1	2.42	3.04	1.87
PCB-130	ng/L	30	30	100%	0.147	1.05	0.261	0.322	0.187

Table 3-13
Statistical Summary of Detected Analytes - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-131	ng/L	30	30	100%	0.0251	0.324	0.0493	0.0685	0.0574
PCB-132	ng/L	27	27	100%	0.294	2.76	0.503	0.664	0.510
PCB-133	ng/L	30	30	100%	0.0685	0.356	0.0919	0.115	0.0617
PCB-134	ng/L	30	30	100%	0.109	0.911	0.187	0.240	0.158
PCB-135/151	ng/L	30	30	100%	2.48	18.8	4.26	5.21	3.24
PCB-136	ng/L	30	30	100%	0.111	1.02	0.205	0.247	0.171
PCB-137	ng/L	30	30	100%	0.0536	0.387	0.105	0.130	0.0760
PCB-139/140	ng/L	30	30	100%	0.0388	0.305	0.0671	0.0855	0.0521
PCB-141	ng/L	30	30	100%	0.166	1.58	0.307	0.431	0.299
PCB-143	ng/L	30	21	70%	0.00589	0.01975	0.00882	0.00970	0.00355
PCB-144	ng/L	30	30	100%	0.09	1.32	0.160	0.238	0.254
PCB-145	ng/L	30	7	23%	0.00594	0.0123	0.00928	0.00884	0.00226
PCB-146	ng/L	30	30	100%	0.207	1.18	0.338	0.403	0.198
PCB-147/149	ng/L	30	30	100%	1.55	11.7	3.04	3.45	1.98
PCB-148	ng/L	30	28	93%	0.00729	0.0346	0.0133	0.0153	0.00707
PCB-150	ng/L	30	30	100%	0.0239	0.22	0.0487	0.0582	0.0369
PCB-152	ng/L	30	29	97%	0.0113	0.0486	0.0180	0.0198	0.00702
PCB-153/168	ng/L	30	30	100%	0.808	5.05	1.47	1.72	0.883
PCB-154	ng/L	30	30	100%	0.0462	0.41	0.0974	0.119	0.0773
PCB-155	ng/L	30	29	97%	0.0253	0.586	0.0770	0.0958	0.0988
PCB-156/157	ng/L	30	30	100%	0.0421	0.503	0.0797	0.120	0.101
PCB-158	ng/L	30	30	100%	0.0614	0.563	0.124	0.162	0.107
PCB-161	ng/L	30	1	3%	0.602	0.602	NA	NA	NA
PCB-162	ng/L	30	21	70%	0.00162	0.0365	0.00557	0.00864	0.00927
PCB-164	ng/L	30	30	100%	0.0369	0.363	0.0720	0.0973	0.0667
PCB-165	ng/L	22	16	73%	0.00071	0.00164	0.00113	0.00114	0.000239
PCB-167	ng/L	30	30	100%	0.014	0.123	0.0252	0.0348	0.0241
PCB-169	ng/L	30	1	3%	0.000417	0.000417	NA	NA	NA
PCB-170	ng/L	30	30	100%	0.0629	0.515	0.131	0.167	0.0977
PCB-171/173	ng/L	18	17	94%	0.0483	0.178	0.0803	0.0913	0.0344
PCB-172	ng/L	30	30	100%	0.0114	0.0877	0.0254	0.0305	0.0163
PCB-174	ng/L	26	26	100%	0.12	0.618	0.226	0.269	0.125
PCB-175	ng/L	24	24	100%	0.0087	0.0296	0.0142	0.0166	0.00582
PCB-176	ng/L	30	30	100%	0.0172	0.136	0.0299	0.0387	0.0229
PCB-177	ng/L	24	24	100%	0.251	0.838	0.399	0.456	0.158
PCB-178	ng/L	30	30	100%	0.0506	0.271	0.0867	0.101	0.0455
PCB-179	ng/L	30	30	100%	0.0687	0.478	0.129	0.149	0.0787
PCB-180/193	ng/L	30	30	100%	0.79	6.08	1.64	2.09	1.22
PCB-181	ng/L	24	23	96%	0.00193	0.00565	0.00284	0.00307	0.00101
PCB-182	ng/L	26	22	85%	0.00121	0.884	0.00187	0.0422	0.188
PCB-183/185	ng/L	16	16	100%	0.106	0.343	0.178	0.197	0.0630
PCB-184	ng/L	30	24	80%	0.0022	0.0103	0.00351	0.00383	0.00166

Table 3-13
Statistical Summary of Detected Analytes - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-187	ng/L	24	24	100%	0.263	0.903	0.435	0.484	0.153
PCB-188	ng/L	30	30	100%	0.00276	0.0251	0.00634	0.00697	0.00402
PCB-189	ng/L	30	30	100%	0.000719	0.00837	0.00156	0.00225	0.00182
PCB-190	ng/L	30	30	100%	0.00915	0.0683	0.0181	0.0237	0.0139
PCB-191	ng/L	30	30	100%	0.00182	0.0137	0.00407	0.00507	0.00290
PCB-194	ng/L	30	30	100%	0.00514	0.0845	0.0122	0.0190	0.0179
PCB-195	ng/L	30	30	100%	0.004	0.0492	0.00893	0.0130	0.0107
PCB-196	ng/L	30	30	100%	0.00626	0.066	0.0124	0.0183	0.0145
PCB-197/200	ng/L	30	30	100%	0.00553	0.0617	0.0116	0.0155	0.0114
PCB-198/199	ng/L	30	30	100%	0.0221	0.178	0.0388	0.0487	0.0320
PCB-201	ng/L	30	30	100%	0.0031	0.0246	0.00611	0.00777	0.00500
PCB-202	ng/L	30	30	100%	0.0259	0.117	0.0420	0.0485	0.0198
PCB-203	ng/L	30	30	100%	0.0107	0.0984	0.0212	0.0293	0.0212
PCB-205	ng/L	30	29	97%	0.000181	0.00314	0.000475	0.000696	0.000667
PCB-206	ng/L	30	30	100%	0.00193	0.0604	0.00355	0.00862	0.0122
PCB-207	ng/L	30	29	97%	0.000562	0.00821	0.00107	0.00185	0.00190
PCB-208	ng/L	30	30	100%	0.0027	0.0334	0.00475	0.00818	0.00770
PCB-209	ng/L	30	30	100%	0.000607	0.067	0.00138	0.00615	0.0135
Total PCB Congeners (209)	ng/L	30	30	100%	204	7670	365	787	1360
PAHs									
2-Methylnaphthalene	ng/L	30	2	7%	270	430	350	350	113
Acenaphthene	ng/L	30	3	10%	96	470	170	245	198
Acenaphthylene	ng/L	30	8	27%	580	3200	1150	1660	1070
Anthracene	ng/L	30	14	47%	14	330	37.5	63.7	82.5
Benzo(a)anthracene	ng/L	30	30	100%	0.85	23	2.45	4.23	4.75
Benzo(a)pyrene	ng/L	30	30	100%	0.8	8.9	1.75	2.52	1.96
Benzo(b)fluoranthene	ng/L	30	30	100%	0.61	7.7	1.35	1.75	1.32
Benzo(g,h,i)perylene	ng/L	30	30	100%	0.19	5.3	0.370	0.590	0.910
Benzo(j)+(k)fluoranthene	ng/L	30	30	100%	0.35	4.1	0.833	1.07	0.820
Benzo[e]pyrene	ng/L	30	30	100%	1	8.5	2.05	2.52	1.54
C1-Chrysenes	ng/L	30	30	100%	2.7	25	4.50	7.61	6.79
C1-Fluoranthenes/Pyrenes	ng/L	30	30	100%	26	360	56.5	92.7	88.1
C1-Fluorenes	ng/L	30	2	7%	11	35	23.0	23.0	17.0
C1-Phenanthrene/Anthracene	ng/L	30	7	23%	13	440	57.0	132	166
C2-Chrysene	ng/L	30	30	100%	1.4	23	2.85	4.87	5.15
C2-Fluoranthenes/Pyrene	ng/L	30	30	100%	15	190	27.0	45.6	43.9
C2-Fluorenes	ng/L	30	4	13%	39.5	240	131	135	99.7
C2-Naphthalenes	ng/L	30	2	7%	37	100	68.5	68.5	44.5
C2-Phenanthrene/Anthracene	ng/L	30	20	67%	8.2	730	26.5	81.6	168
C3-Chrysene	ng/L	30	30	100%	0.2	17	0.470	1.29	3.06
C3-Fluoranthenes/Pyrene	ng/L	30	30	100%	1.9	30	3.85	6.90	7.51
C3-Fluorenes	ng/L	30	3	10%	36	240	160	145	103

Table 3-13
Statistical Summary of Detected Analytes - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
C3-Naphthalenes	ng/L	30	1	3%	130	130	NA	NA	NA
C3-Phenanthrene/Anthracene	ng/L	30	26	87%	4.3	250	7.65	25.6	50.9
C4-Chrysene	ng/L	30	30	100%	0.021	2.5	0.0580	0.190	0.456
C4-Naphthalenes	ng/L	30	6	20%	22	1200	121	415	534
C4-Phenanthrene/Anthracene	ng/L	30	15	50%	1.6	45	5.30	9.73	11.6
Chrysene	ng/L	30	30	100%	1.2	23	2.75	4.78	4.65
Dibenz(a,h)anthracene	ng/L	30	26	87%	0.51	10	0.868	1.38	1.82
Fluoranthene	ng/L	30	30	100%	5.4	190	17.0	34.7	42.1
Fluorene	ng/L	30	2	7%	70	110	90.0	90.0	28.3
Indeno(1,2,3-c,d)pyrene	ng/L	30	30	100%	0.054	2.9	0.130	0.244	0.510
Naphthalene	ng/L	30	1	3%	450	450	NA	NA	NA
Perylene	ng/L	30	17	57%	0.15	0.77	0.200	0.286	0.198
Phenanthrene	ng/L	30	2	7%	27	39	33.0	33.0	8.49
Pyrene	ng/L	30	30	100%	36	760	130	203	198
Total HMW PAHs	ng/L	30	30	100%	60	930	155	253	244
Total LMW PAHs	ng/L	30	15	50%	14	3200	690	1080	1120
Total PAHs	ng/L	30	30	100%	60	4100	180	801	1170

Footnotes:

¹Valid results are results that were found to be valid as a result of data validation. Only valid data are used in statistical analyses. Additional details regarding rejected data are provided in Appendix H of this report.

Notes:

1. Only detected values were included in the calculation of totals.
2. Non-detect ("U" qualified) data were excluded from the statistical analysis.
3. Field duplicate samples were averaged to create one result prior to statistical reporting. Additional details regarding field duplicate handling can be found in Section 3.0 of the report.

DDD = dichlorodiphenyldichloroethane
DDE = dichlorodiphenyldichloroethylene
DDT = dichlorodiphenyltrichloroethane
HMW = high molecular weight
LMW = low molecular weight
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
NA = not applicable

ng/L = nanograms per liter
pg/L = picograms per liter

Table 3-14
Statistical Summary of Detected Analytes in the North Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Dioxins/Furans									
1,2,3,4,6,7,8-HpCDD	pg/L	13	13	100%	1.14	3.5	1.35	1.55	0.617
1,2,3,4,6,7,8-HpCDF	pg/L	13	13	100%	1.72	20.7	2.42	3.95	5.06
1,2,3,4,7,8,9-HpCDF	pg/L	13	13	100%	0.133	0.464	0.158	0.195	0.0978
1,2,3,4,7,8-HxCDD	pg/L	13	12	92%	0.0481	0.16	0.118	0.109	0.0391
1,2,3,4,7,8-HxCDF	pg/L	13	13	100%	2.05	23	2.96	4.43	5.59
1,2,3,6,7,8-HxCDD	pg/L	13	13	100%	0.397	1.51	0.577	0.637	0.279
1,2,3,6,7,8-HxCDF	pg/L	13	13	100%	0.48	6.17	0.756	1.16	1.51
1,2,3,7,8,9-HxCDD	pg/L	13	13	100%	0.19	0.881	0.287	0.338	0.178
1,2,3,7,8,9-HxCDF	pg/L	13	13	100%	0.239	0.776	0.372	0.402	0.127
1,2,3,7,8-PeCDD	pg/L	13	13	100%	0.347	1.68	0.690	0.774	0.358
1,2,3,7,8-PeCDF	pg/L	13	13	100%	1.02	9.36	1.61	2.20	2.16
2,3,4,6,7,8-HxCDF	pg/L	13	13	100%	0.386	2.15	0.452	0.616	0.472
2,3,4,7,8-PeCDF	pg/L	13	13	100%	2.17	17.4	3.40	4.43	3.94
2,3,7,8-TCDD	pg/L	13	13	100%	13.1	76.1	22.1	28.3	16.8
2,3,7,8-TCDF	pg/L	13	13	100%	3.36	8.08	4.59	5.10	1.44
OCDD	pg/L	13	13	100%	2.18	10.3	2.91	3.52	2.14
OCDF	pg/L	13	13	100%	0.00514	0.0348	0.00607	0.00878	0.00803
Metals									
Aluminum	mg/L	13	3	23%	0.203	1.51	0.898	0.870	0.654
Arsenic	mg/L	13	2	15%	0.0191	0.05	0.0346	0.0346	0.0218
Barium	mg/L	13	13	100%	0.0484	0.137	0.0638	0.0725	0.0268
Calcium	mg/L	13	13	100%	228	296	252	252	17.8
Chromium	mg/L	13	12	92%	0.0042	0.0148	0.00755	0.00780	0.00285
Copper	mg/L	13	4	31%	0.0021	0.0073	0.00320	0.00395	0.00243
Iron	mg/L	13	13	100%	0.158	5.14	1.09	1.39	1.37
Lead	mg/L	13	4	31%	0.0015	0.0076	0.00390	0.00423	0.00305
Magnesium	mg/L	13	13	100%	624	866	692	690	63.5
Manganese	mg/L	13	13	100%	0.266	4.29	0.924	1.35	1.09
Mercury	ng/L	13	13	100%	52.9	276	143	147	53.5
Methyl Mercury	ng/L	13	13	100%	33.1	195	117	129	48.4
Potassium	mg/L	13	13	100%	217	281	245	246	16.6
Selenium	mg/L	13	2	15%	0.0025	0.0029	0.00270	0.00270	0.000283
Sodium	mg/L	13	13	100%	6140	8550	6690	6780	619
Titanium	mg/L	13	11	85%	0.0056	0.0898	0.00840	0.0194	0.0267
Vanadium	mg/L	13	12	92%	0.0025	0.0074	0.00370	0.00405	0.00154
Zinc	mg/L	13	1	8%	0.176	0.176	NA	NA	NA
Pesticides									
2,4'-DDD	pg/L	13	13	100%	75.3	114	85.7	88.7	12.8
2,4'-DDE	pg/L	13	13	100%	64.8	233	98.5	114	45.4
4,4'-DDD	pg/L	13	13	100%	126	257	180	180	36.5

Table 3-14
Statistical Summary of Detected Analytes in the North Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
4,4'-DDE	pg/L	13	13	100%	438	1200	525	621	238
4,4'-DDT	pg/L	13	2	15%	0.21	0.404	0.307	0.307	0.137
Aldrin	pg/L	13	12	92%	0.342	1.31	0.831	0.788	0.297
Alpha BHC	pg/L	13	4	31%	21.8	134	69.9	73.9	51.0
Alpha Endosulfan	pg/L	13	5	38%	335	812	405	535	216
Cis-Chlordane	pg/L	13	13	100%	131	283	195	188	46.3
Cis-Nonachlor	pg/L	13	13	100%	12.1	28.6	17.8	17.9	4.31
Dieldrin	pg/L	13	13	100%	133	615	195	233	124
Endrin Ketone	pg/L	10	1	10%	40.8	40.8	NA	NA	NA
Heptachlor	pg/L	13	13	100%	2.57	4	2.99	3.12	0.445
Heptachlor Epoxide	pg/L	13	9	69%	9.62	26.2	15.1	17.7	5.97
Hexachlorobenzene	pg/L	13	13	100%	123	729	243	349	211
Mirex	pg/L	11	10	91%	0.908	1.39	1.17	1.15	0.176
Oxychlordane	pg/L	13	1	8%	0.825	0.825	NA	NA	NA
Trans-Chlordane	pg/L	13	13	100%	102	213	158	156	33.4
Trans-Nonachlor	pg/L	13	13	100%	51	109	75.2	73.7	17.4
Total Alpha + Gamma Chlordane	pg/L	13	13	100%	233	471	354	344	73.0
Total DDT (2,4 & 4,4)	pg/L	13	13	100%	708	1720	890	1000	298
Total DDT (2,4)	pg/L	13	13	100%	142	320	180	202	52.1
Total DDT (4,4)	pg/L	13	13	100%	564	1400	714	800	247
PCB Congeners									
PCB-1	ng/L	13	13	100%	4.13	11.1	6.97	7.44	2.01
PCB-2	ng/L	13	13	100%	0.851	7.4	1.28	2.22	2.24
PCB-3	ng/L	13	12	92%	0.559	2.73	0.999	1.22	0.742
PCB-4	ng/L	13	13	100%	14	165	18.7	38.4	44.7
PCB-5	ng/L	13	10	77%	0.129	2.1	0.216	0.567	0.747
PCB-6	ng/L	13	13	100%	1.34	12.7	2.07	3.92	4.00
PCB-7	ng/L	13	10	77%	0.206	4.33	0.415	1.18	1.56
PCB-8	ng/L	13	13	100%	4.19	94.1	7.49	20.3	28.9
PCB-9	ng/L	13	12	92%	0.268	6.31	0.484	1.49	2.11
PCB-10	ng/L	13	12	92%	0.884	3.52	1.26	1.65	0.934
PCB-11	ng/L	13	13	100%	1.97	44.3	3.36	8.19	13.0
PCB-12/13	ng/L	13	13	100%	0.845	7.12	1.29	2.21	2.22
PCB-14	ng/L	13	1	8%	0.0765	0.0765	NA	NA	NA
PCB-15	ng/L	13	13	100%	3.02	24.5	4.35	7.35	7.36
PCB-16	ng/L	13	13	100%	5.5	111	8.43	22.3	31.2
PCB-17	ng/L	13	13	100%	8.56	102	10.6	23.9	28.0
PCB-18/30	ng/L	13	13	100%	9.86	157	13.0	32.5	43.1
PCB-19	ng/L	13	13	100%	3.81	36.9	5.62	9.49	9.46
PCB-20/28	ng/L	13	13	100%	14.2	126	21.1	35.8	36.8
PCB-21/33	ng/L	13	13	100%	2.95	57.3	4.96	12.9	17.6

Table 3-14
Statistical Summary of Detected Analytes in the North Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-22	ng/L	13	13	100%	2.96	39	4.55	9.69	12.1
PCB-23	ng/L	13	6	46%	0.0187	0.148	0.0459	0.0686	0.0598
PCB-24	ng/L	13	7	54%	0.145	1.89	0.186	0.497	0.642
PCB-25	ng/L	13	13	100%	1.52	7.86	1.78	2.84	2.20
PCB-26/29	ng/L	13	13	100%	2.55	18.3	3.13	5.54	5.28
PCB-27	ng/L	13	13	100%	1.33	8.7	1.61	2.57	2.19
PCB-31	ng/L	13	13	100%	7.81	83.1	11.6	21.9	24.4
PCB-32	ng/L	13	13	100%	2.57	27.6	3.56	6.81	7.33
PCB-34	ng/L	13	13	100%	0.0979	0.641	0.129	0.202	0.164
PCB-35	ng/L	13	13	100%	0.125	1.19	0.168	0.320	0.352
PCB-36	ng/L	13	6	46%	0.0117	0.0229	0.0175	0.0174	0.00479
PCB-37	ng/L	13	13	100%	1.23	11.1	1.72	3.33	3.52
PCB-38	ng/L	13	6	46%	0.0131	0.0716	0.0239	0.0320	0.0221
PCB-39	ng/L	13	13	100%	0.0698	0.389	0.0871	0.126	0.0992
PCB-40/71	ng/L	13	13	100%	5.41	31.4	7.43	10.1	7.22
PCB-41	ng/L	13	12	92%	0.613	9.91	0.918	2.10	2.76
PCB-42	ng/L	13	13	100%	4.42	27.3	6.14	8.68	6.38
PCB-43	ng/L	13	13	100%	0.606	4.92	0.904	1.44	1.25
PCB-44/47/65	ng/L	13	13	100%	14.9	78.5	19.6	26.6	17.5
PCB-45	ng/L	13	13	100%	2.23	21	3.40	5.53	5.35
PCB-46	ng/L	13	13	100%	1.03	7.24	1.33	2.07	1.75
PCB-48	ng/L	13	13	100%	1.98	18.7	2.70	4.81	4.75
PCB-49/69	ng/L	13	13	100%	7.52	39.7	10.7	13.6	8.76
PCB-50/53	ng/L	13	13	100%	3.05	15.9	4.11	5.35	3.55
PCB-51	ng/L	13	13	100%	2.59	5.74	3.16	3.48	0.920
PCB-52	ng/L	13	13	100%	12.7	79.3	17.5	24.2	18.5
PCB-54	ng/L	13	13	100%	0.66	1.3	0.824	0.942	0.235
PCB-55	ng/L	13	12	92%	0.0516	0.409	0.0744	0.117	0.105
PCB-56	ng/L	13	13	100%	2.24	14.4	2.84	4.26	3.45
PCB-57	ng/L	13	12	92%	0.034	0.158	0.0436	0.0599	0.0385
PCB-58	ng/L	13	12	92%	0.0342	0.0972	0.0415	0.0459	0.0178
PCB-60	ng/L	13	13	100%	0.697	6.01	0.914	1.58	1.58
PCB-61/70/74/76	ng/L	13	13	100%	8.71	54.1	11.3	16.2	13.1
PCB-62/75	ng/L	13	13	100%	2.64	14.4	3.46	4.74	3.31
PCB-63	ng/L	13	13	100%	0.566	2.97	0.712	1.00	0.716
PCB-64	ng/L	13	13	100%	2	13.5	2.64	4.00	3.27
PCB-66	ng/L	13	13	100%	4.59	24.3	5.54	7.85	5.66
PCB-67	ng/L	13	13	100%	0.154	0.769	0.200	0.267	0.182
PCB-68	ng/L	13	13	100%	0.14	0.254	0.157	0.168	0.0317
PCB-72	ng/L	13	13	100%	0.088	0.217	0.104	0.114	0.0367
PCB-73	ng/L	13	11	85%	0.0443	0.113	0.0494	0.0567	0.0199

Table 3-14
Statistical Summary of Detected Analytes in the North Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-77	ng/L	13	13	100%	0.22	1.17	0.290	0.410	0.305
PCB-79	ng/L	13	12	92%	0.0331	0.114	0.0402	0.0489	0.0237
PCB-81	ng/L	13	12	92%	0.0111	0.058	0.0131	0.0197	0.0152
PCB-82	ng/L	13	13	100%	0.47	3.02	0.673	0.908	0.682
PCB-83	ng/L	13	13	100%	0.225	1.23	0.314	0.430	0.265
PCB-84	ng/L	13	13	100%	1.46	7.96	2.03	2.56	1.72
PCB-85/116/117	ng/L	13	13	100%	0.813	4.05	1.14	1.41	0.862
PCB-86/87/97/109/119/125	ng/L	13	13	100%	2.26	11.8	3.13	4.02	2.51
PCB-88	ng/L	13	3	23%	0.023	0.0779	0.0268	0.0426	0.0307
PCB-89	ng/L	13	13	100%	0.085	0.555	0.121	0.165	0.124
PCB-90/101/113	ng/L	13	13	100%	3.92	17	5.36	6.55	3.41
PCB-91	ng/L	13	13	100%	1.31	5.1	1.73	2.03	0.982
PCB-92	ng/L	13	12	92%	0.782	3.24	1.06	1.26	0.664
PCB-93/100	ng/L	13	13	100%	0.356	1.09	0.564	0.607	0.188
PCB-94	ng/L	13	13	100%	0.1	0.263	0.135	0.141	0.0409
PCB-95	ng/L	13	13	100%	4.05	17	5.61	6.85	3.44
PCB-96	ng/L	13	13	100%	0.18	0.711	0.249	0.298	0.139
PCB-98/102	ng/L	13	13	100%	0.386	1.45	0.550	0.616	0.266
PCB-99	ng/L	13	13	100%	2.65	10	3.60	4.13	1.91
PCB-103	ng/L	13	13	100%	0.143	0.413	0.206	0.230	0.0731
PCB-104	ng/L	13	13	100%	0.0697	0.215	0.115	0.124	0.0385
PCB-105	ng/L	13	13	100%	0.498	2.03	0.622	0.817	0.487
PCB-106	ng/L	13	1	8%	0.00559	0.00559	NA	NA	NA
PCB-107	ng/L	13	13	100%	0.126	0.386	0.150	0.181	0.0806
PCB-108/124	ng/L	13	13	100%	0.0576	0.216	0.0682	0.0887	0.0488
PCB-110/115	ng/L	13	13	100%	2.62	12.3	3.63	4.49	2.55
PCB-111	ng/L	13	11	85%	0.00224	0.0036	0.00272	0.00283	0.000431
PCB-112	ng/L	13	13	100%	0.0114	0.0441	0.0200	0.0223	0.00945
PCB-114	ng/L	13	13	100%	0.0402	0.184	0.0497	0.0697	0.0443
PCB-118	ng/L	13	13	100%	1.43	4.81	1.79	2.18	1.06
PCB-120	ng/L	13	13	100%	0.0102	0.0209	0.0121	0.0137	0.00350
PCB-121	ng/L	13	11	85%	0.00284	0.00518	0.00333	0.00345	0.000639
PCB-122	ng/L	13	13	100%	0.0205	0.0814	0.0267	0.0344	0.0189
PCB-123	ng/L	13	13	100%	0.0259	0.119	0.0380	0.0473	0.0261
PCB-126	ng/L	5	5	100%	0.00237	0.00753	0.00360	0.00419	0.00198
PCB-127	ng/L	13	7	54%	0.00109	0.00585	0.00163	0.00257	0.00192
PCB-128/166	ng/L	13	13	100%	0.132	0.436	0.163	0.199	0.0854
PCB-129/138/163	ng/L	13	13	100%	1.64	4.83	2.09	2.47	0.919
PCB-130	ng/L	13	13	100%	0.158	0.537	0.208	0.246	0.102
PCB-131	ng/L	13	13	100%	0.0308	0.118	0.0379	0.0479	0.0239
PCB-132	ng/L	13	13	100%	0.294	1.05	0.353	0.462	0.219

Table 3-14
Statistical Summary of Detected Analytes in the North Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-133	ng/L	13	13	100%	0.0693	0.157	0.0904	0.0983	0.0267
PCB-134	ng/L	13	13	100%	0.118	0.387	0.147	0.178	0.0742
PCB-135/151	ng/L	13	13	100%	2.86	7.57	3.51	4.24	1.64
PCB-136	ng/L	13	13	100%	0.129	0.362	0.161	0.194	0.0752
PCB-137	ng/L	13	13	100%	0.0661	0.23	0.0837	0.0988	0.0450
PCB-139/140	ng/L	13	13	100%	0.0478	0.142	0.0580	0.0675	0.0255
PCB-141	ng/L	13	13	100%	0.204	0.707	0.275	0.351	0.166
PCB-143	ng/L	13	9	69%	0.00589	0.0145	0.00656	0.00863	0.00362
PCB-144	ng/L	13	13	100%	0.102	0.329	0.131	0.164	0.0744
PCB-145	ng/L	13	1	8%	0.0103	0.0103	NA	NA	NA
PCB-146	ng/L	13	13	100%	0.243	0.619	0.294	0.342	0.109
PCB-147/149	ng/L	13	13	100%	1.96	5.5	2.21	2.84	1.06
PCB-148	ng/L	13	13	100%	0.00927	0.0346	0.0139	0.0152	0.00627
PCB-150	ng/L	13	13	100%	0.033	0.22	0.0496	0.0650	0.0481
PCB-152	ng/L	13	12	92%	0.0154	0.0265	0.0183	0.0196	0.00369
PCB-153/168	ng/L	13	13	100%	0.995	2.75	1.22	1.48	0.522
PCB-154	ng/L	13	13	100%	0.0673	0.41	0.0982	0.125	0.0880
PCB-155	ng/L	13	13	100%	0.0621	0.586	0.0885	0.129	0.138
PCB-156/157	ng/L	13	13	100%	0.0516	0.188	0.0673	0.0851	0.0421
PCB-158	ng/L	13	13	100%	0.0742	0.284	0.0949	0.122	0.0591
PCB-162	ng/L	13	9	69%	0.00162	0.0135	0.00550	0.00523	0.00357
PCB-164	ng/L	13	13	100%	0.0462	0.159	0.0602	0.0735	0.0325
PCB-165	ng/L	6	6	100%	0.000954	0.00127	0.00108	0.00109	0.000109
PCB-167	ng/L	13	13	100%	0.0176	0.0539	0.0236	0.0270	0.0113
PCB-170	ng/L	13	13	100%	0.088	0.259	0.114	0.143	0.0575
PCB-171/173	ng/L	5	5	100%	0.0568	0.153	0.0803	0.0914	0.0381
PCB-172	ng/L	13	13	100%	0.0163	0.0499	0.0214	0.0268	0.0109
PCB-174	ng/L	12	12	100%	0.142	0.412	0.177	0.235	0.102
PCB-175	ng/L	12	12	100%	0.0104	0.0284	0.0127	0.0160	0.00602
PCB-176	ng/L	13	13	100%	0.0227	0.0588	0.0263	0.0335	0.0129
PCB-177	ng/L	12	12	100%	0.294	0.767	0.350	0.442	0.165
PCB-178	ng/L	13	13	100%	0.0667	0.152	0.0754	0.0921	0.0276
PCB-179	ng/L	13	13	100%	0.0917	0.223	0.103	0.130	0.0439
PCB-180/193	ng/L	13	13	100%	1.16	3.17	1.48	1.79	0.689
PCB-181	ng/L	12	12	100%	0.00204	0.0053	0.00265	0.00299	0.000981
PCB-182	ng/L	12	11	92%	0.00152	0.00288	0.00182	0.00198	0.000483
PCB-183/185	ng/L	5	5	100%	0.136	0.343	0.181	0.212	0.0852
PCB-184	ng/L	13	11	85%	0.0033	0.0103	0.00384	0.00446	0.00201
PCB-187	ng/L	12	12	100%	0.329	0.766	0.408	0.473	0.140
PCB-188	ng/L	13	13	100%	0.00351	0.0251	0.00673	0.00796	0.00538
PCB-189	ng/L	13	13	100%	0.00102	0.00335	0.00143	0.00186	0.000856

Table 3-14
Statistical Summary of Detected Analytes in the North Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-190	ng/L	13	13	100%	0.0129	0.0391	0.0161	0.0204	0.00841
PCB-191	ng/L	13	13	100%	0.00276	0.00865	0.00372	0.00439	0.00192
PCB-194	ng/L	13	13	100%	0.00812	0.0249	0.0115	0.0139	0.00589
PCB-195	ng/L	13	13	100%	0.00633	0.0175	0.00874	0.0104	0.00411
PCB-196	ng/L	13	13	100%	0.00928	0.0245	0.0114	0.0139	0.00544
PCB-197/200	ng/L	13	13	100%	0.00887	0.0199	0.0106	0.0125	0.00406
PCB-198/199	ng/L	13	13	100%	0.0295	0.0636	0.0348	0.0401	0.0112
PCB-201	ng/L	13	13	100%	0.00434	0.0106	0.00523	0.00597	0.00196
PCB-202	ng/L	13	13	100%	0.032	0.0619	0.0411	0.0413	0.00809
PCB-203	ng/L	13	13	100%	0.0134	0.0362	0.0200	0.0218	0.00701
PCB-205	ng/L	13	12	92%	0.000265	0.000922	0.000407	0.000500	0.000233
PCB-206	ng/L	13	13	100%	0.0025	0.00872	0.00305	0.00375	0.00172
PCB-207	ng/L	13	12	92%	0.000755	0.00197	0.000972	0.00109	0.000375
PCB-208	ng/L	13	13	100%	0.00347	0.00906	0.00416	0.00482	0.00159
PCB-209	ng/L	13	13	100%	0.000807	0.00423	0.00118	0.00157	0.00107
Total PCB Congeners (209)	ng/L	13	13	100%	236	1770	295	493	461
PAHs									
2-Methylnaphthalene	ng/L	13	1	8%	270	270	NA	NA	NA
Acenaphthene	ng/L	13	1	8%	170	170	NA	NA	NA
Acenaphthylene	ng/L	13	2	15%	930	3200	2070	2070	1610
Anthracene	ng/L	13	5	38%	14	62	34.0	33.2	19.9
Benzo(a)anthracene	ng/L	13	13	100%	1.2	6.8	1.80	2.81	1.78
Benzo(a)pyrene	ng/L	13	13	100%	1.3	7.6	1.80	2.36	1.65
Benzo(b)fluoranthene	ng/L	13	13	100%	1	3.3	1.50	1.60	0.614
Benzo(g,h,i)perylene	ng/L	13	13	100%	0.19	0.81	0.350	0.398	0.167
Benzo(j)+(k)fluoranthene	ng/L	13	13	100%	0.6	2.5	0.930	1.03	0.517
Benzo[e]pyrene	ng/L	13	13	100%	1.2	4.7	2.20	2.21	0.922
C1-Chrysenes	ng/L	13	13	100%	3	21	4.10	5.64	4.71
C1-Fluoranthenes/Pyrenes	ng/L	13	13	100%	38	310	55.0	77.7	72.3
C1-Fluorenes	ng/L	13	1	8%	35	35	NA	NA	NA
C1-Phenanthrene/Anthracene	ng/L	13	2	15%	25	38	31.5	31.5	9.19
C2-Chrysene	ng/L	13	13	100%	1.4	7.7	2.30	2.70	1.59
C2-Fluoranthenes/Pyrene	ng/L	13	13	100%	17	130	22.0	31.8	30.1
C2-Fluorenes	ng/L	13	1	8%	61	61	NA	NA	NA
C2-Naphthalenes	ng/L	13	1	8%	100	100	NA	NA	NA
C2-Phenanthrene/Anthracene	ng/L	13	8	62%	9.2	110	15.5	28.5	33.7
C3-Chrysene	ng/L	13	13	100%	0.2	0.97	0.330	0.403	0.207
C3-Fluoranthenes/Pyrene	ng/L	13	13	100%	1.9	9.6	2.80	3.55	2.00
C3-Naphthalenes	ng/L	13	1	8%	130	130	NA	NA	NA
C3-Phenanthrene/Anthracene	ng/L	13	11	85%	4.3	29	6.50	9.00	7.09
C4-Chrysene	ng/L	13	13	100%	0.021	0.15	0.0460	0.0544	0.0347

Table 3-14
Statistical Summary of Detected Analytes in the North Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
C4-Naphthalenes	ng/L	13	3	23%	22	57	34.0	37.7	17.8
C4-Phenanthrene/Anthracene	ng/L	13	5	38%	1.6	6.8	2.00	3.48	2.41
Chrysene	ng/L	13	13	100%	1.2	10	2.70	3.63	2.31
Dibenz(a,h)anthracene	ng/L	13	12	92%	0.51	2.3	0.865	0.968	0.479
Fluoranthene	ng/L	13	13	100%	5.8	76	14.0	24.8	22.5
Indeno(1,2,3-c,d)pyrene	ng/L	13	13	100%	0.077	0.36	0.150	0.163	0.0811
Perylene	ng/L	13	8	62%	0.15	0.35	0.190	0.204	0.0623
Pyrene	ng/L	13	13	100%	71	760	130	185	187
Total HMW PAHs	ng/L	13	13	100%	89	840	160	222	207
Total LMW PAHs	ng/L	13	6	46%	14	3200	132	782	1270
Total PAHs	ng/L	13	13	100%	89	4100	170	592	1110

Footnotes:

¹Valid results are results that were found to be valid as a result of data validation. Only valid data are used in statistical analyses. Additional details regarding rejected data are provided in Appendix H of this report.

Notes:

1. Only detected values were included in the calculation of totals.
2. Non-detect ("U" qualified) data were excluded from the statistical analysis.
3. Field duplicate samples were averaged to create one result prior to statistical reporting. Additional details regarding field duplicate handling can be found in Section 3.0 of the report.

DDD = dichlorodiphenyldichloroethane
DDE = dichlorodiphenyldichloroethylene
DDT = dichlorodiphenyltrichloroethane
HMW = high molecular weight
LMW = low molecular weight
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
NA = not applicable

ng/L = nanograms per liter
pg/L = picograms per liter

Table 3-15
Statistical Summary of Detected Analytes in the Central Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Dioxins/Furans									
1,2,3,4,6,7,8-HpCDD	pg/L	7	7	100%	1.06	2.44	1.71	1.68	0.434
1,2,3,4,6,7,8-HpCDF	pg/L	7	7	100%	0.866	2.81	1.45	1.77	0.786
1,2,3,4,7,8,9-HpCDF	pg/L	7	7	100%	0.0946	0.292	0.165	0.181	0.0693
1,2,3,4,7,8-HxCDD	pg/L	7	7	100%	0.0645	0.158	0.106	0.107	0.0305
1,2,3,4,7,8-HxCDF	pg/L	7	7	100%	0.993	2.83	1.74	1.73	0.643
1,2,3,6,7,8-HxCDD	pg/L	7	7	100%	0.244	0.869	0.589	0.602	0.227
1,2,3,6,7,8-HxCDF	pg/L	7	7	100%	0.374	0.806	0.590	0.596	0.169
1,2,3,7,8,9-HxCDD	pg/L	7	7	100%	0.261	0.485	0.337	0.359	0.0812
1,2,3,7,8,9-HxCDF	pg/L	7	7	100%	0.3	0.686	0.454	0.471	0.126
1,2,3,7,8-PeCDD	pg/L	7	6	86%	0.592	1.01	0.739	0.758	0.142
1,2,3,7,8-PeCDF	pg/L	7	7	100%	1.03	2.21	1.33	1.56	0.438
2,3,4,6,7,8-HxCDF	pg/L	7	7	100%	0.342	0.708	0.490	0.521	0.137
2,3,4,7,8-PeCDF	pg/L	7	7	100%	1.91	4.32	2.64	2.99	1.01
2,3,7,8-TCDD	pg/L	7	7	100%	6.63	23.8	20.8	16.8	6.92
2,3,7,8-TCDF	pg/L	7	7	100%	3.17	7.41	4.54	4.69	1.42
OCDD	pg/L	7	7	100%	1.87	5.54	2.98	3.49	1.44
OCDF	pg/L	7	7	100%	0.00228	0.00716	0.00411	0.00501	0.00198
Metals									
Arsenic	mg/L	7	3	43%	0.0209	0.0371	0.0227	0.0269	0.00888
Barium	mg/L	7	7	100%	0.0485	0.0819	0.0761	0.0689	0.0135
Calcium	mg/L	7	7	100%	249	292	275	272	14.2
Chromium	mg/L	7	7	100%	0.0044	0.0084	0.00530	0.00577	0.00163
Iron	mg/L	7	7	100%	0.128	2.79	0.777	0.888	0.886
Magnesium	mg/L	7	7	100%	697	827	757	750	46.7
Manganese	mg/L	7	7	100%	0.258	3.99	0.808	1.18	1.28
Mercury	ng/L	7	7	100%	117	184	138	142	24.8
Methyl Mercury	ng/L	7	7	100%	80	208	106	123	44.1
Potassium	mg/L	7	7	100%	231	314	254	261	28.0
Selenium	mg/L	7	1	14%	0.0025	0.0025	NA	NA	NA
Sodium	mg/L	7	7	100%	6390	8390	6940	7130	638
Titanium	mg/L	6	3	50%	0.0039	0.0079	0.00690	0.00623	0.00208
Vanadium	mg/L	7	5	71%	0.0032	0.0072	0.00360	0.00488	0.00199
Zinc	mg/L	7	1	14%	0.0967	0.0967	NA	NA	NA
Pesticides									
2,4'-DDD	pg/L	7	7	100%	59.4	418	93.4	145	129
2,4'-DDE	pg/L	7	7	100%	58.7	1090	142	279	363
2,4'-DDT	pg/L	7	1	14%	0.175	0.175	NA	NA	NA
4,4'-DDD	pg/L	7	7	100%	114	406	163	200	103
4,4'-DDE	pg/L	7	7	100%	304	2990	584	951	928
4,4'-DDT	pg/L	7	1	14%	0.329	0.329	NA	NA	NA

Table 3-15
Statistical Summary of Detected Analytes in the Central Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Aldrin	pg/L	7	4	57%	0.539	1.18	0.690	0.775	0.301
Alpha Endosulfan	pg/L	7	1	14%	834	834	NA	NA	NA
Cis-Chlordane	pg/L	7	7	100%	65	171	148	137	34.2
Cis-Nonachlor	pg/L	7	7	100%	9.94	21.6	16.4	16.1	3.90
Dieldrin	pg/L	7	7	100%	127	499	180	227	127
Endrin Aldehyde	pg/L	7	1	14%	11.4	11.4	NA	NA	NA
Heptachlor	pg/L	7	6	86%	2.35	3.82	3.63	3.33	0.582
Heptachlor Epoxide	pg/L	7	3	43%	9.18	36.4	14.1	19.9	14.5
Hexachlorobenzene	pg/L	7	7	100%	38.3	658	134	261	227
Mirex	pg/L	7	4	57%	0.756	0.916	0.811	0.823	0.0680
Oxychlordane	pg/L	7	1	14%	1.28	1.28	NA	NA	NA
Trans-Chlordane	pg/L	7	7	100%	78.2	203	143	142	39.0
Trans-Heptachlor Epoxide	pg/L	7	1	14%	72.8	72.8	NA	NA	NA
Trans-Nonachlor	pg/L	7	7	100%	21.2	68.3	63.9	56.4	16.4
Total Alpha + Gamma Chlordane	pg/L	7	7	100%	143	374	291	278	71.2
Total DDT (2,4 & 4,4)	pg/L	7	7	100%	619	4900	1010	1570	1500
Total DDT (2,4)	pg/L	7	7	100%	152	1500	238	422	484
Total DDT (4,4)	pg/L	7	7	100%	467	3400	771	1150	1020
PCB Congeners									
PCB-1	ng/L	7	7	100%	3.57	14.2	8.10	7.74	4.29
PCB-2	ng/L	7	7	100%	0.735	6.27	1.28	2.03	1.99
PCB-3	ng/L	7	6	86%	0.527	2.68	0.758	1.16	0.845
PCB-4	ng/L	7	7	100%	9.54	91.4	24.1	36.5	29.3
PCB-5	ng/L	7	4	57%	0.238	0.673	0.436	0.446	0.224
PCB-6	ng/L	7	6	86%	1.15	8.27	2.28	3.34	2.70
PCB-7	ng/L	7	7	100%	0.127	1.67	0.432	0.643	0.599
PCB-8	ng/L	7	7	100%	3.01	28.6	8.09	12.5	11.0
PCB-9	ng/L	7	7	100%	0.173	2.21	0.548	0.792	0.743
PCB-10	ng/L	7	7	100%	0.542	3.31	1.71	1.61	0.902
PCB-11	ng/L	7	7	100%	1.59	14.4	3.35	6.25	5.26
PCB-12/13	ng/L	7	7	100%	0.55	10.3	0.855	2.78	3.59
PCB-14	ng/L	7	2	29%	0.0603	0.084	0.0722	0.0722	0.0168
PCB-15	ng/L	7	7	100%	2.73	12.8	4.01	6.10	4.35
PCB-16	ng/L	7	7	100%	4.2	38.6	10.6	16.4	15.3
PCB-17	ng/L	7	7	100%	6	52.1	12.6	20.1	17.6
PCB-18/30	ng/L	7	7	100%	6.8	60	16.4	24.9	22.1
PCB-19	ng/L	7	7	100%	3.19	19.5	5.72	8.51	6.29
PCB-20/28	ng/L	7	7	100%	10.8	65.8	19.5	26.7	20.9
PCB-21/33	ng/L	7	7	100%	2.21	16.5	5.35	7.22	6.09
PCB-22	ng/L	7	7	100%	2.06	14.8	4.47	6.37	5.28
PCB-23	ng/L	7	4	57%	0.0207	0.0487	0.0434	0.0391	0.0127

Table 3-15
Statistical Summary of Detected Analytes in the Central Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-24	ng/L	7	6	86%	0.102	0.904	0.227	0.387	0.343
PCB-25	ng/L	7	7	100%	0.981	5.69	1.58	2.28	1.70
PCB-26/29	ng/L	7	7	100%	1.7	10.8	3.22	4.40	3.33
PCB-27	ng/L	7	7	100%	1.01	6.01	1.62	2.49	1.83
PCB-31	ng/L	7	7	100%	5.98	37.7	11.4	15.5	12.2
PCB-32	ng/L	7	7	100%	2.14	14	3.93	5.76	4.63
PCB-34	ng/L	7	7	100%	0.0579	0.509	0.105	0.177	0.156
PCB-35	ng/L	7	7	100%	0.0843	0.512	0.151	0.258	0.184
PCB-36	ng/L	7	5	71%	0.0113	0.0342	0.0158	0.0184	0.00905
PCB-37	ng/L	7	7	100%	0.892	4.54	1.41	2.23	1.57
PCB-38	ng/L	7	5	71%	0.0135	0.0629	0.0233	0.0306	0.0196
PCB-39	ng/L	7	7	100%	0.0464	0.271	0.0783	0.107	0.0791
PCB-40/71	ng/L	7	7	100%	4.81	19.7	7.32	9.34	5.83
PCB-41	ng/L	7	7	100%	0.495	3.52	1.02	1.37	1.07
PCB-42	ng/L	7	7	100%	3.69	17.3	6.18	8.22	5.42
PCB-43	ng/L	7	7	100%	0.6	2.68	0.931	1.27	0.856
PCB-44/47/65	ng/L	7	7	100%	12.5	49.5	19.6	25.5	15.0
PCB-45	ng/L	7	7	100%	2.16	10.8	3.29	4.95	3.67
PCB-46	ng/L	7	7	100%	0.846	3.9	1.30	1.90	1.30
PCB-48	ng/L	7	7	100%	1.68	8.91	2.55	4.09	3.05
PCB-49/69	ng/L	7	7	100%	6.77	26.6	10.2	13.4	8.11
PCB-50/53	ng/L	7	7	100%	2.41	9.55	3.66	4.85	2.99
PCB-51	ng/L	7	7	100%	1.27	4.22	2.66	2.57	1.18
PCB-52	ng/L	7	7	100%	10.9	46	17.5	25.0	14.5
PCB-54	ng/L	7	7	100%	0.369	0.847	0.693	0.604	0.211
PCB-55	ng/L	7	7	100%	0.0333	0.185	0.0621	0.0794	0.0536
PCB-56	ng/L	7	7	100%	1.57	7.71	2.76	3.74	2.49
PCB-57	ng/L	7	7	100%	0.0269	0.125	0.0409	0.0595	0.0379
PCB-58	ng/L	7	7	100%	0.0247	0.0992	0.0357	0.0463	0.0276
PCB-60	ng/L	7	7	100%	0.503	2.78	0.924	1.19	0.783
PCB-61/70/74/76	ng/L	7	7	100%	5.87	27.1	10.7	14.0	8.37
PCB-62/75	ng/L	7	7	100%	2.2	9.66	3.46	4.60	3.13
PCB-63	ng/L	7	7	100%	0.464	1.72	0.604	0.870	0.522
PCB-64	ng/L	7	7	100%	1.64	7.47	2.53	3.76	2.51
PCB-66	ng/L	7	7	100%	2.92	13.4	5.23	6.96	4.40
PCB-67	ng/L	7	7	100%	0.104	0.397	0.158	0.213	0.126
PCB-68	ng/L	7	7	100%	0.093	0.318	0.142	0.163	0.0768
PCB-72	ng/L	7	7	100%	0.0609	0.262	0.0921	0.121	0.0715
PCB-73	ng/L	7	6	86%	0.0257	0.0858	0.0539	0.0542	0.0241
PCB-77	ng/L	7	7	100%	0.164	0.756	0.270	0.361	0.222
PCB-79	ng/L	7	7	100%	0.0264	0.0877	0.0447	0.0539	0.0239

Table 3-15
Statistical Summary of Detected Analytes in the Central Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-81	ng/L	7	5	71%	0.00957	0.0273	0.0130	0.0163	0.00781
PCB-82	ng/L	7	7	100%	0.415	2.12	0.929	1.11	0.587
PCB-83	ng/L	7	7	100%	0.222	1.01	0.485	0.566	0.292
PCB-84	ng/L	7	7	100%	1.36	6.46	3.04	3.43	1.80
PCB-85/116/117	ng/L	7	7	100%	0.741	2.86	1.38	1.63	0.762
PCB-86/87/97/109/119/125	ng/L	7	7	100%	2.04	9	4.46	4.94	2.41
PCB-88	ng/L	7	3	43%	0.0234	0.0438	0.0253	0.0308	0.0113
PCB-89	ng/L	7	6	86%	0.121	0.338	0.148	0.196	0.0944
PCB-90/101/113	ng/L	7	7	100%	3.49	14.4	7.11	7.96	3.79
PCB-91	ng/L	7	7	100%	1.18	3.87	1.92	2.31	1.03
PCB-92	ng/L	7	7	100%	0.727	2.71	1.41	1.59	0.724
PCB-93/100	ng/L	7	7	100%	0.24	0.579	0.501	0.433	0.129
PCB-94	ng/L	7	7	100%	0.0807	0.213	0.123	0.133	0.0515
PCB-95	ng/L	7	7	100%	3.73	14.3	7.31	8.11	3.78
PCB-96	ng/L	7	7	100%	0.165	0.473	0.236	0.283	0.128
PCB-98/102	ng/L	7	7	100%	0.352	1.02	0.525	0.634	0.261
PCB-99	ng/L	7	7	100%	2.37	7.51	4.02	4.69	1.99
PCB-103	ng/L	7	7	100%	0.125	0.316	0.193	0.197	0.0712
PCB-104	ng/L	7	5	71%	0.0362	0.126	0.0592	0.0750	0.0372
PCB-105	ng/L	7	7	100%	0.374	1.72	0.701	0.851	0.450
PCB-107	ng/L	7	7	100%	0.104	0.337	0.147	0.191	0.0868
PCB-108/124	ng/L	7	7	100%	0.0436	0.181	0.0827	0.0929	0.0464
PCB-110/115	ng/L	7	6	86%	2.34	12	5.82	6.43	3.40
PCB-111	ng/L	7	5	71%	0.00207	0.00499	0.00255	0.00300	0.00115
PCB-112	ng/L	7	7	100%	0.00757	0.0277	0.0160	0.0174	0.00671
PCB-114	ng/L	7	7	100%	0.0317	0.125	0.0562	0.0659	0.0314
PCB-118	ng/L	7	7	100%	1.15	4.58	2.00	2.36	1.18
PCB-120	ng/L	7	7	100%	0.0102	0.026	0.0123	0.0150	0.00624
PCB-121	ng/L	7	4	57%	0.00188	0.00337	0.00250	0.00256	0.000656
PCB-122	ng/L	7	7	100%	0.0157	0.0638	0.0258	0.0329	0.0164
PCB-123	ng/L	7	7	100%	0.023	0.0971	0.0409	0.0493	0.0252
PCB-126	ng/L	7	6	86%	0.00193	0.00678	0.00280	0.00357	0.00179
PCB-127	ng/L	5	4	80%	0.0011	0.002	0.00152	0.00153	0.000376
PCB-128/166	ng/L	7	7	100%	0.122	0.318	0.199	0.216	0.0695
PCB-129/138/163	ng/L	7	7	100%	1.43	3.75	2.10	2.33	0.725
PCB-130	ng/L	7	7	100%	0.147	0.44	0.235	0.280	0.108
PCB-131	ng/L	7	7	100%	0.0251	0.0924	0.0481	0.0558	0.0241
PCB-132	ng/L	5	5	100%	0.418	0.911	0.698	0.645	0.214
PCB-133	ng/L	7	7	100%	0.0685	0.126	0.0783	0.0891	0.0233
PCB-134	ng/L	7	7	100%	0.109	0.332	0.170	0.208	0.0827
PCB-135/151	ng/L	7	7	100%	2.48	6.06	3.65	4.05	1.38

Table 3-15
Statistical Summary of Detected Analytes in the Central Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-136	ng/L	7	7	100%	0.111	0.298	0.163	0.196	0.0731
PCB-137	ng/L	7	7	100%	0.0536	0.172	0.0999	0.110	0.0420
PCB-139/140	ng/L	7	7	100%	0.0388	0.1	0.0587	0.0695	0.0236
PCB-141	ng/L	7	7	100%	0.166	0.512	0.268	0.322	0.122
PCB-143	ng/L	7	5	71%	0.0072	0.0129	0.00944	0.00997	0.00225
PCB-144	ng/L	7	7	100%	0.09	0.244	0.141	0.158	0.0571
PCB-146	ng/L	7	7	100%	0.207	0.494	0.296	0.328	0.106
PCB-147/149	ng/L	7	7	100%	1.55	4.48	2.52	2.88	1.11
PCB-148	ng/L	7	6	86%	0.00729	0.0147	0.0100	0.0101	0.00275
PCB-150	ng/L	7	7	100%	0.0239	0.0534	0.0410	0.0394	0.0103
PCB-152	ng/L	7	7	100%	0.0115	0.0205	0.0172	0.0166	0.00335
PCB-153/168	ng/L	7	7	100%	0.808	2.13	1.23	1.39	0.490
PCB-154	ng/L	7	7	100%	0.0462	0.107	0.0779	0.0801	0.0237
PCB-155	ng/L	7	6	86%	0.0295	0.169	0.0648	0.0754	0.0490
PCB-156/157	ng/L	7	7	100%	0.0421	0.173	0.0676	0.0914	0.0446
PCB-158	ng/L	7	7	100%	0.0614	0.245	0.108	0.140	0.0650
PCB-162	ng/L	7	4	57%	0.00175	0.00865	0.00358	0.00439	0.00311
PCB-164	ng/L	7	7	100%	0.0369	0.155	0.0693	0.0836	0.0401
PCB-165	ng/L	7	5	71%	0.000744	0.00144	0.00111	0.00110	0.000254
PCB-167	ng/L	7	7	100%	0.014	0.0497	0.0215	0.0276	0.0122
PCB-170	ng/L	7	7	100%	0.0629	0.201	0.112	0.127	0.0544
PCB-171/173	ng/L	5	5	100%	0.0483	0.114	0.0732	0.0795	0.0260
PCB-172	ng/L	7	7	100%	0.0114	0.0357	0.0218	0.0231	0.00992
PCB-174	ng/L	5	5	100%	0.12	0.308	0.235	0.228	0.0795
PCB-175	ng/L	5	5	100%	0.0087	0.022	0.0130	0.0152	0.00546
PCB-176	ng/L	7	7	100%	0.0172	0.0491	0.0259	0.0281	0.0108
PCB-177	ng/L	5	5	100%	0.251	0.614	0.377	0.421	0.140
PCB-178	ng/L	7	7	100%	0.0506	0.123	0.0668	0.0763	0.0268
PCB-179	ng/L	7	7	100%	0.0687	0.187	0.110	0.113	0.0407
PCB-180/193	ng/L	7	7	100%	0.79	2.68	1.47	1.60	0.695
PCB-181	ng/L	5	4	80%	0.00193	0.00391	0.00301	0.00296	0.000962
PCB-182	ng/L	5	4	80%	0.00121	0.00276	0.00186	0.00192	0.000688
PCB-183/185	ng/L	5	5	100%	0.106	0.261	0.164	0.180	0.0608
PCB-184	ng/L	7	5	71%	0.0026	0.00508	0.00319	0.00338	0.000993
PCB-187	ng/L	5	5	100%	0.263	0.607	0.376	0.431	0.139
PCB-188	ng/L	7	7	100%	0.00276	0.00668	0.00466	0.00487	0.00147
PCB-189	ng/L	7	7	100%	0.000719	0.003	0.00139	0.00162	0.000839
PCB-190	ng/L	7	7	100%	0.00915	0.0313	0.0169	0.0182	0.00792
PCB-191	ng/L	7	7	100%	0.00182	0.00711	0.00379	0.00403	0.00191
PCB-194	ng/L	7	7	100%	0.00514	0.0278	0.0110	0.0147	0.00955
PCB-195	ng/L	7	7	100%	0.004	0.0154	0.00730	0.00941	0.00491

Table 3-15
Statistical Summary of Detected Analytes in the Central Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-196	ng/L	7	7	100%	0.00626	0.0256	0.0113	0.0141	0.00783
PCB-197/200	ng/L	7	7	100%	0.00553	0.0161	0.00880	0.0108	0.00468
PCB-198/199	ng/L	7	7	100%	0.0221	0.0502	0.0299	0.0331	0.0121
PCB-201	ng/L	7	7	100%	0.0031	0.0123	0.00532	0.00650	0.00353
PCB-202	ng/L	7	7	100%	0.0259	0.0632	0.0334	0.0433	0.0166
PCB-203	ng/L	7	7	100%	0.0107	0.0478	0.0188	0.0247	0.0147
PCB-205	ng/L	7	7	100%	0.000181	0.00113	0.000491	0.000558	0.000402
PCB-206	ng/L	7	7	100%	0.00193	0.0286	0.00496	0.00965	0.0110
PCB-207	ng/L	7	7	100%	0.000562	0.00504	0.00100	0.00184	0.00175
PCB-208	ng/L	7	7	100%	0.0027	0.0243	0.00474	0.00926	0.00869
PCB-209	ng/L	7	7	100%	0.000607	0.0287	0.00176	0.00663	0.0105
Total PCB Congeners (209)	ng/L	7	7	100%	204	907	302	428	289
PAHs									
Acenaphthene	ng/L	7	2	29%	96	470	283	283	264
Acenaphthylene	ng/L	7	2	29%	580	2400	1490	1490	1290
Anthracene	ng/L	7	4	57%	22	75	34.5	41.5	23.9
Benzo(a)anthracene	ng/L	7	7	100%	0.85	9.8	2.20	3.86	3.41
Benzo(a)pyrene	ng/L	7	7	100%	0.8	8.9	1.50	3.09	3.14
Benzo(b)fluoranthene	ng/L	7	7	100%	0.61	7.7	1.20	2.30	2.54
Benzo(g,h,i)perylene	ng/L	7	7	100%	0.21	5.3	0.320	1.11	1.87
Benzo(j)+(k)fluoranthene	ng/L	7	7	100%	0.35	4.1	0.670	1.41	1.47
Benzo[e]pyrene	ng/L	7	7	100%	1	8.5	2.00	3.07	2.72
C1-Chrysenes	ng/L	7	7	100%	2.7	25	3.30	8.94	9.42
C1-Fluoranthenes/Pyrenes	ng/L	7	7	100%	26	250	42.0	86.9	83.4
C1-Fluorenes	ng/L	7	1	14%	11	11	NA	NA	NA
C1-Phenanthrene/Anthracene	ng/L	7	2	29%	13	57	35.0	35.0	31.1
C2-Chrysene	ng/L	7	7	100%	1.6	23	1.90	6.76	8.45
C2-Fluoranthenes/Pyrene	ng/L	7	7	100%	15	140	19.0	49.1	50.1
C2-Naphthalenes	ng/L	7	1	14%	37	37	NA	NA	NA
C2-Phenanthrene/Anthracene	ng/L	7	5	71%	8.2	78	32.0	32.1	28.3
C3-Chrysene	ng/L	7	7	100%	0.23	17	0.350	3.07	6.21
C3-Fluoranthenes/Pyrene	ng/L	7	7	100%	2.4	30	2.60	9.57	11.5
C3-Phenanthrene/Anthracene	ng/L	7	5	71%	4.5	54	6.50	17.4	20.9
C4-Chrysene	ng/L	7	7	100%	0.026	2.5	0.0370	0.450	0.915
C4-Phenanthrene/Anthracene	ng/L	7	2	29%	5	21	13.0	13.0	11.3
Chrysene	ng/L	7	7	100%	1.8	10	2.80	4.19	2.99
Dibenz(a,h)anthracene	ng/L	7	5	71%	0.64	10	0.880	2.92	4.03
Fluoranthene	ng/L	7	7	100%	5.4	130	29.0	36.5	42.7
Fluorene	ng/L	7	2	29%	70	110	90.0	90.0	28.3
Indeno(1,2,3-c,d)pyrene	ng/L	7	7	100%	0.056	2.9	0.120	0.545	1.05
Naphthalene	ng/L	7	1	14%	450	450	NA	NA	NA

Table 3-15
Statistical Summary of Detected Analytes in the Central Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Perylene	ng/L	7	3	43%	0.15	0.77	0.770	0.563	0.358
Phenanthrene	ng/L	7	2	29%	27	39	33.0	33.0	8.49
Pyrene	ng/L	7	7	100%	36	500	79.0	193	202
Total HMW PAHs	ng/L	7	7	100%	60	680	120	248	254
Total LMW PAHs	ng/L	7	4	57%	620	2400	690	1100	867
Total PAHs	ng/L	7	7	100%	60	2900	800	873	1030

Footnotes:

¹Valid results are results that were found to be valid as a result of data validation. Only valid data are used in statistical analyses. Additional details regarding rejected data are provided in Appendix H of this report.

Notes:

1. Only detected values were included in the calculation of totals.
2. Non-detect ("U" qualified) data were excluded from the statistical analysis.
3. Field duplicate samples were averaged to create one result prior to statistical reporting. Additional details regarding field duplicate handling can be found in Section 3.0 of the report.

DDD = dichlorodiphenyldichloroethane
DDE = dichlorodiphenyldichloroethylene
DDT = dichlorodiphenyltrichloroethane
HMW = high molecular weight
LMW = low molecular weight
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
NA = not applicable

ng/L = nanograms per liter
pg/L = picograms per liter

Table 3-16
Statistical Summary of Detected Analytes in the South Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Dioxins/Furans									
1,2,3,4,6,7,8-HpCDD	pg/L	10	10	100%	1.16	26.6	1.91	5.83	8.83
1,2,3,4,6,7,8-HpCDF	pg/L	10	10	100%	0.946	12.2	1.39	2.80	3.55
1,2,3,4,7,8,9-HpCDF	pg/L	10	10	100%	0.0668	1.11	0.142	0.310	0.405
1,2,3,4,7,8-HxCDD	pg/L	10	9	90%	0.0663	0.353	0.126	0.157	0.103
1,2,3,4,7,8-HxCDF	pg/L	10	10	100%	0.876	5.79	1.29	1.86	1.59
1,2,3,6,7,8-HxCDD	pg/L	10	10	100%	0.394	3.76	0.827	1.16	1.05
1,2,3,6,7,8-HxCDF	pg/L	10	10	100%	0.318	2.04	0.554	0.719	0.534
1,2,3,7,8,9-HxCDD	pg/L	10	10	100%	0.187	1.99	0.425	0.611	0.568
1,2,3,7,8,9-HxCDF	pg/L	10	10	100%	0.2635	1.15	0.389	0.502	0.290
1,2,3,7,8-PeCDD	pg/L	10	9	90%	0.454	2.31	0.831	1.09	0.685
1,2,3,7,8-PeCDF	pg/L	10	10	100%	0.926	4.37	1.63	1.94	1.06
2,3,4,6,7,8-HxCDF	pg/L	10	10	100%	0.292	1.81	0.593	0.736	0.524
2,3,4,7,8-PeCDF	pg/L	10	10	100%	1.61	6.91	2.82	3.27	1.90
2,3,7,8-TCDD	pg/L	10	10	100%	5.93	468	13.7	65.6	143
2,3,7,8-TCDF	pg/L	10	10	100%	3.77	15.4	5.61	6.38	3.34
OCDD	pg/L	10	10	100%	2.36	112	4.47	25.2	44.0
OCDF	pg/L	10	10	100%	0.00242	0.0847	0.00394	0.0161	0.0270
Metals									
Aluminum	mg/L	9	1	11%	0.388	0.388	NA	NA	NA
Antimony	mg/L	9	1	11%	0.0076	0.0076	NA	NA	NA
Arsenic	mg/L	9	4	44%	0.0183	0.0748	0.0299	0.0382	0.0251
Barium	mg/L	9	9	100%	0.0476	0.179	0.0754	0.0858	0.0446
Calcium	mg/L	9	9	100%	215.5	279	249	251	20.3
Chromium	mg/L	9	7	78%	0.0036	0.0103	0.00450	0.00575	0.00253
Copper	mg/L	9	1	11%	0.0155	0.0155	NA	NA	NA
Iron	mg/L	9	8	89%	0.16	2.37	1.03	1.02	0.856
Lead	mg/L	9	2	22%	0.00097	0.0055	0.00324	0.00324	0.00320
Magnesium	mg/L	9	9	100%	626.5	875	706	716	71.7
Manganese	mg/L	9	9	100%	0.114	1.92	0.661	0.914	0.613
Mercury	ng/L	10	9	90%	59	348	122	140	82.2
Methyl Mercury	ng/L	10	10	100%	61.1	368	135	157	107
Potassium	mg/L	9	9	100%	225	276	253	253	15.5
Selenium	mg/L	9	7	78%	0.0026	0.0034	0.00300	0.00304	0.000282
Sodium	mg/L	9	9	100%	5760	7730	7170	7020	670
Titanium	mg/L	9	6	67%	0.00405	0.0077	0.00690	0.00661	0.00132
Vanadium	mg/L	9	7	78%	0.0032	0.0065	0.00520	0.00489	0.00122
Zinc	mg/L	9	1	11%	0.402	0.402	NA	NA	NA
Pesticides									
2,4'-DDD	pg/L	10	10	100%	101	1150	213	308	308
2,4'-DDE	pg/L	10	10	100%	203	4400	396	857	1290

Table 3-16
Statistical Summary of Detected Analytes in the South Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
2,4'-DDT	pg/L	10	2	20%	0.201	0.555	0.378	0.378	0.250
4,4'-DDD	pg/L	10	10	100%	195	2955	413	760	840
4,4'-DDE	pg/L	10	10	100%	752	9580	1310	2410	2740
4,4'-DDT	pg/L	10	1	10%	2.13	2.13	NA	NA	NA
Aldrin	pg/L	10	4	40%	0.26	0.918	0.766	0.677	0.303
Alpha BHC	pg/L	10	1	10%	63.85	63.85	NA	NA	NA
Cis-Chlordane	pg/L	10	10	100%	68.4	157	97.4	106	29.9
Cis-Nonachlor	pg/L	10	9	90%	9.89	36.9	14.3	16.2	8.21
Dieldrin	pg/L	10	10	100%	132	868	230	281	218
Heptachlor	pg/L	10	7	70%	3.25	5.74	3.64	3.93	0.917
Heptachlor Epoxide	pg/L	10	1	10%	9.06	9.06	NA	NA	NA
Hexachlorobenzene	pg/L	10	10	100%	95.9	7780	219	1480	2740
Mirex	pg/L	10	2	20%	0.587	2.355	1.47	1.47	1.25
Trans-Chlordane	pg/L	10	10	100%	80.4	258	113	126	52.0
Trans-Nonachlor	pg/L	10	10	100%	22.3	58.25	36.8	38.9	10.2
Total Alpha + Gamma Chlordane	pg/L	10	10	100%	153	415	211	232	76.2
Total DDT (2,4 & 4,4)	pg/L	10	10	100%	1270	15100	2370	4330	4330
Total DDT (2,4)	pg/L	10	10	100%	304	4640	615	1160	1330
Total DDT (4,4)	pg/L	10	10	100%	963	10500	1750	3170	3030
PCB Congeners									
PCB-1	ng/L	10	10	100%	2.61	72.1	9.28	17.2	21.1
PCB-2	ng/L	10	9	90%	0.7205	9.42	2.30	3.12	2.76
PCB-3	ng/L	10	10	100%	0.5905	28.8	0.976	4.15	8.72
PCB-4	ng/L	10	10	100%	20.1	695	43.3	120	206
PCB-5	ng/L	10	8	80%	0.12	1.21	0.298	0.491	0.404
PCB-6	ng/L	10	10	100%	1.62	59.5	4.40	11.4	17.4
PCB-7	ng/L	10	9	90%	0.283	17.6	0.830	3.15	5.54
PCB-8	ng/L	10	10	100%	6.72	478	13.7	71.0	145
PCB-9	ng/L	10	10	100%	0.335	22.6	0.888	3.66	6.80
PCB-10	ng/L	10	10	100%	0.239	221	2.07	23.9	69.2
PCB-11	ng/L	10	10	100%	3.055	137	6.25	25.6	42.0
PCB-12/13	ng/L	10	10	100%	1.355	25.8	2.67	5.98	7.53
PCB-14	ng/L	10	4	40%	0.0501	0.188	0.104	0.111	0.0671
PCB-15	ng/L	10	10	100%	4.34	153	7.46	25.1	45.6
PCB-16	ng/L	10	10	100%	13.3	610	19.2	89.4	185
PCB-17	ng/L	10	10	100%	17.8	520	26.4	84.8	155
PCB-18/30	ng/L	10	10	100%	21.9	855	31.1	130	257
PCB-19	ng/L	10	10	100%	5.44	140	10.6	26.3	40.8
PCB-20/28	ng/L	10	10	100%	19.9	670	41.4	113	198
PCB-21/33	ng/L	10	10	100%	5.69	364	9.97	52.1	111
PCB-22	ng/L	10	10	100%	4.91	233	9.80	35.5	70.2

Table 3-16
Statistical Summary of Detected Analytes in the South Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-23	ng/L	10	7	70%	0.0243	0.91	0.0632	0.189	0.323
PCB-24	ng/L	10	7	70%	0.0463	1.13	0.368	0.527	0.378
PCB-25	ng/L	10	10	100%	1.53	34.2	3.93	6.95	9.72
PCB-26/29	ng/L	10	10	100%	2.83	88.3	6.70	15.9	25.8
PCB-27	ng/L	10	10	100%	2.3	35.6	3.25	7.05	10.2
PCB-31	ng/L	10	10	100%	13.3	410	22.8	69.8	122
PCB-32	ng/L	10	10	100%	4.4	93.4	7.72	18.2	27.0
PCB-34	ng/L	10	10	100%	0.102	2.83	0.255	0.548	0.816
PCB-35	ng/L	10	10	100%	0.19	7.05	0.342	1.19	2.14
PCB-36	ng/L	10	7	70%	0.00872	0.037	0.0184	0.0216	0.00994
PCB-37	ng/L	10	10	100%	1.95	35.9	3.72	7.99	10.5
PCB-38	ng/L	10	8	80%	0.0106	0.0583	0.0292	0.0329	0.0157
PCB-39	ng/L	10	10	100%	0.0878	1.73	0.153	0.338	0.497
PCB-40/71	ng/L	10	10	100%	8.64	95.7	14.6	23.2	26.0
PCB-41	ng/L	10	10	100%	1.19	24.9	2.43	4.83	7.20
PCB-42	ng/L	10	10	100%	7.23	76.6	12.4	19.2	20.6
PCB-43	ng/L	10	10	100%	1.18	13.1	1.98	3.19	3.55
PCB-44/47/65	ng/L	10	10	100%	22.9	212	37.4	55.9	56.5
PCB-45	ng/L	10	10	100%	4.04	87.6	6.93	16.2	25.4
PCB-46	ng/L	10	10	100%	1.61	24	2.58	5.18	6.78
PCB-48	ng/L	10	10	100%	3.54	41.2	6.21	10.5	11.1
PCB-49/69	ng/L	10	10	100%	13.1	95.2	19.7	27.4	24.4
PCB-50/53	ng/L	10	10	100%	4.06	48.1	6.72	11.4	13.2
PCB-51	ng/L	10	9	90%	1.7	5.34	3.31	3.21	1.14
PCB-52	ng/L	10	10	100%	23.7	226	35.6	57.2	61.3
PCB-54	ng/L	10	8	80%	0.366	2.75	0.690	0.914	0.767
PCB-55	ng/L	10	8	80%	0.064	0.21	0.109	0.125	0.0595
PCB-56	ng/L	10	10	100%	3.06	50.8	6.97	11.1	14.4
PCB-57	ng/L	10	10	100%	0.0498	1.77	0.0844	0.328	0.564
PCB-58	ng/L	10	8	80%	0.0326	0.0926	0.0659	0.0608	0.0189
PCB-60	ng/L	10	10	100%	0.973	24	2.08	4.67	7.01
PCB-61/70/74/76	ng/L	10	10	100%	11.8	178	25.9	40.5	50.1
PCB-62/75	ng/L	10	10	100%	4.27	24.6	6.78	8.60	5.89
PCB-63	ng/L	10	10	100%	0.799	8.01	1.63	2.12	2.13
PCB-64	ng/L	10	10	100%	3.23	54.9	6.05	11.1	15.6
PCB-66	ng/L	10	10	100%	5.98	80.1	12.8	19.1	22.1
PCB-67	ng/L	10	10	100%	0.195	1.9	0.390	0.501	0.505
PCB-68	ng/L	10	10	100%	0.107	0.433	0.221	0.221	0.0862
PCB-72	ng/L	10	10	100%	0.0809	0.447	0.166	0.186	0.0987
PCB-73	ng/L	10	8	80%	0.035	0.0793	0.0624	0.0584	0.0167
PCB-77	ng/L	10	10	100%	0.297	5.69	0.591	1.17	1.65

Table 3-16
Statistical Summary of Detected Analytes in the South Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-79	ng/L	10	10	100%	0.0442	0.843	0.0726	0.152	0.245
PCB-81	ng/L	10	10	100%	0.0116	0.212	0.0247	0.0493	0.0605
PCB-82	ng/L	10	10	100%	0.939	7.86	1.82	2.28	2.04
PCB-83	ng/L	10	10	100%	0.522	2.28	0.815	0.914	0.500
PCB-84	ng/L	10	9	90%	2.8	7.3	4.63	4.61	1.36
PCB-85/116/117	ng/L	10	10	100%	1.43	8.63	2.66	3.02	2.08
PCB-86/87/97/109/119/125	ng/L	10	10	100%	4.32	28	7.49	9.04	6.97
PCB-88	ng/L	10	5	50%	0.0151	0.0417	0.0273	0.0279	0.0109
PCB-89	ng/L	10	9	90%	0.149	0.417	0.314	0.285	0.0877
PCB-90/101/113	ng/L	10	10	100%	7.03	34	11.2	12.9	7.79
PCB-91	ng/L	10	10	100%	2.09	8.84	3.35	3.70	1.89
PCB-92	ng/L	10	10	100%	1.43	6.18	2.22	2.49	1.35
PCB-93/100	ng/L	10	9	90%	0.193	0.624	0.468	0.442	0.129
PCB-94	ng/L	10	10	100%	0.101	0.479	0.171	0.191	0.106
PCB-95	ng/L	10	10	100%	7.32	49.4	11.1	15.1	13.0
PCB-96	ng/L	10	10	100%	0.235	2.3	0.481	0.626	0.603
PCB-98/102	ng/L	10	10	100%	0.553	2.94	0.928	1.07	0.680
PCB-99	ng/L	10	10	100%	4.53	19.1	7.01	7.74	4.18
PCB-103	ng/L	10	10	100%	0.159	0.384	0.235	0.241	0.0675
PCB-104	ng/L	10	7	70%	0.0303	0.07985	0.0515	0.0566	0.0214
PCB-105	ng/L	10	10	100%	0.652	8.17	1.00	2.07	2.33
PCB-107	ng/L	10	10	100%	0.154	1.44	0.250	0.398	0.388
PCB-108/124	ng/L	10	10	100%	0.0732	0.826	0.115	0.213	0.231
PCB-110/115	ng/L	8	8	100%	5.26	8.915	7.86	7.30	1.56
PCB-111	ng/L	10	8	80%	0.00238	0.00492	0.00378	0.00364	0.000769
PCB-112	ng/L	10	7	70%	0.0132	0.0434	0.0166	0.0246	0.0129
PCB-114	ng/L	10	10	100%	0.0497	0.678	0.0882	0.172	0.190
PCB-118	ng/L	10	10	100%	1.86	17.6	2.97	5.08	4.84
PCB-120	ng/L	10	10	100%	0.0107	0.0682	0.0185	0.0231	0.0164
PCB-121	ng/L	10	8	80%	0.00146	0.003525	0.00289	0.00276	0.000770
PCB-122	ng/L	10	10	100%	0.0254	0.235	0.0416	0.0714	0.0641
PCB-123	ng/L	10	10	100%	0.0401	0.395	0.0630	0.109	0.107
PCB-126	ng/L	9	7	78%	0.00225	0.0525	0.00412	0.0110	0.0184
PCB-127	ng/L	9	7	78%	0.00119	0.00531	0.00213	0.00258	0.00134
PCB-128/166	ng/L	10	10	100%	0.211	1.26	0.288	0.426	0.327
PCB-129/138/163	ng/L	10	10	100%	2.28	11.1	3.40	4.29	2.68
PCB-130	ng/L	10	10	100%	0.253	1.05	0.359	0.450	0.250
PCB-131	ng/L	10	10	100%	0.0465	0.324	0.0730	0.104	0.0856
PCB-132	ng/L	9	9	100%	0.444	2.76	0.690	0.966	0.762
PCB-133	ng/L	10	10	100%	0.0736	0.356	0.111	0.155	0.0907
PCB-134	ng/L	10	10	100%	0.174	0.911	0.274	0.344	0.225

Table 3-16
Statistical Summary of Detected Analytes in the South Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-135/151	ng/L	10	10	100%	3.33	18.8	5.53	7.28	4.68
PCB-136	ng/L	10	10	100%	0.15	1.02	0.276	0.350	0.257
PCB-137	ng/L	10	10	100%	0.0981	0.387	0.135	0.185	0.0986
PCB-139/140	ng/L	10	10	100%	0.0616	0.305	0.0945	0.120	0.0743
PCB-141	ng/L	10	10	100%	0.295	1.58	0.399	0.611	0.433
PCB-143	ng/L	10	7	70%	0.00741	0.01975	0.00943	0.0109	0.00421
PCB-144	ng/L	10	10	100%	0.131	1.32	0.223	0.391	0.398
PCB-145	ng/L	10	6	60%	0.00594	0.0123	0.00831	0.00860	0.00237
PCB-146	ng/L	10	10	100%	0.284	1.18	0.448	0.535	0.271
PCB-147/149	ng/L	10	10	100%	2.35	11.7	3.84	4.64	2.82
PCB-148	ng/L	10	9	90%	0.0111	0.0318	0.0167	0.0190	0.00830
PCB-150	ng/L	10	10	100%	0.0355	0.138	0.0566	0.0624	0.0296
PCB-152	ng/L	10	10	100%	0.0113	0.0486	0.0193	0.0222	0.0107
PCB-153/168	ng/L	10	10	100%	1.19	5.05	1.78	2.26	1.22
PCB-154	ng/L	10	10	100%	0.0717	0.349	0.0974	0.137	0.0833
PCB-155	ng/L	10	10	100%	0.0253	0.109	0.0663	0.0647	0.0237
PCB-156/157	ng/L	10	10	100%	0.0744	0.503	0.102	0.185	0.150
PCB-158	ng/L	10	10	100%	0.114	0.563	0.162	0.230	0.148
PCB-161	ng/L	10	1	10%	0.602	0.602	NA	NA	NA
PCB-162	ng/L	10	8	80%	0.00225	0.0365	0.00961	0.0146	0.0127
PCB-164	ng/L	10	10	100%	0.0655	0.363	0.0970	0.138	0.0952
PCB-165	ng/L	9	5	56%	0.00071	0.00164	0.00133	0.00124	0.000342
PCB-167	ng/L	10	10	100%	0.0229	0.123	0.0312	0.0500	0.0349
PCB-169	ng/L	10	1	10%	0.000417	0.000417	NA	NA	NA
PCB-170	ng/L	10	10	100%	0.113	0.515	0.165	0.225	0.136
PCB-171/173	ng/L	8	7	88%	0.067	0.178	0.0877	0.0998	0.0393
PCB-172	ng/L	10	10	100%	0.022	0.0877	0.0309	0.0404	0.0215
PCB-174	ng/L	9	9	100%	0.194	0.618	0.277	0.337	0.152
PCB-175	ng/L	7	7	100%	0.0126	0.0296	0.0177	0.0186	0.00603
PCB-176	ng/L	10	10	100%	0.0264	0.136	0.0441	0.0529	0.0323
PCB-177	ng/L	7	7	100%	0.342	0.838	0.489	0.506	0.168
PCB-178	ng/L	10	10	100%	0.0708	0.271	0.111	0.131	0.0599
PCB-179	ng/L	10	10	100%	0.104	0.478	0.171	0.200	0.109
PCB-180/193	ng/L	10	10	100%	1.35	6.08	2.02	2.81	1.71
PCB-181	ng/L	7	7	100%	0.00206	0.00565	0.00300	0.00326	0.00120
PCB-182	ng/L	9	7	78%	0.00154	0.884	0.00237	0.128	0.333
PCB-183/185	ng/L	6	6	100%	0.147	0.279	0.194	0.198	0.0513
PCB-184	ng/L	10	8	80%	0.0022	0.00568	0.00272	0.00325	0.00126
PCB-187	ng/L	7	7	100%	0.363	0.903	0.500	0.543	0.185
PCB-188	ng/L	10	10	100%	0.00338	0.0117	0.00708	0.00714	0.00266
PCB-189	ng/L	10	10	100%	0.00113	0.00837	0.00174	0.00321	0.00277

Table 3-16
Statistical Summary of Detected Analytes in the South Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
PCB-190	ng/L	10	10	100%	0.0148	0.0683	0.0222	0.0317	0.0194
PCB-191	ng/L	10	10	100%	0.00317	0.0137	0.00473	0.00668	0.00392
PCB-194	ng/L	10	10	100%	0.00855	0.0845	0.0161	0.0288	0.0276
PCB-195	ng/L	10	10	100%	0.00657	0.0492	0.0108	0.0189	0.0166
PCB-196	ng/L	10	10	100%	0.00926	0.066	0.0167	0.0269	0.0218
PCB-197/200	ng/L	10	10	100%	0.00911	0.0617	0.0146	0.0226	0.0171
PCB-198/199	ng/L	10	10	100%	0.0301	0.178	0.0466	0.0707	0.0470
PCB-201	ng/L	10	10	100%	0.00449	0.0246	0.00760	0.0110	0.00706
PCB-202	ng/L	10	10	100%	0.0339	0.117	0.0536	0.0616	0.0266
PCB-203	ng/L	10	10	100%	0.0147	0.0984	0.0287	0.0422	0.0310
PCB-205	ng/L	10	10	100%	0.000277	0.00314	0.000534	0.00103	0.00101
PCB-206	ng/L	10	10	100%	0.00301	0.0604	0.00566	0.0142	0.0180
PCB-207	ng/L	10	10	100%	0.000825	0.00821	0.00164	0.00277	0.00270
PCB-208	ng/L	10	10	100%	0.00386	0.0334	0.00744	0.0118	0.0103
PCB-209	ng/L	10	10	100%	0.001255	0.067	0.00261	0.0118	0.0211
Total PCB Congeners (209)	ng/L	10	10	100%	379	7670	568	1420	2230
PAHs									
2-Methylnaphthalene	ng/L	10	1	10%	430	430	NA	NA	NA
Acenaphthylene	ng/L	10	4	40%	800	3100	1150	1550	1050
Anthracene	ng/L	10	5	50%	24	330	50.0	112	129
Benzo(a)anthracene	ng/L	10	10	100%	1.65	23	3.20	6.34	7.26
Benzo(a)pyrene	ng/L	10	10	100%	1.1	4.6	1.75	2.34	1.38
Benzo(b)fluoranthene	ng/L	10	10	100%	0.84	2.8	1.30	1.57	0.716
Benzo(g,h,i)perylene	ng/L	10	10	100%	0.3	0.8	0.400	0.473	0.167
Benzo(j)+(k)fluoranthene	ng/L	10	10	100%	0.39	1.8	0.778	0.899	0.491
Benzo[e]pyrene	ng/L	10	10	100%	1.6	4.4	1.95	2.53	1.10
C1-Chrysenes	ng/L	10	10	100%	4.1	23	6.08	9.23	7.05
C1-Fluoranthenes/Pyrenes	ng/L	10	10	100%	41	360	69.8	116	112
C1-Phenanthrene/Anthracene	ng/L	10	3	30%	58	440	290	263	192
C2-Chrysene	ng/L	10	10	100%	2.6	17	4.10	6.36	4.74
C2-Fluoranthenes/Pyrene	ng/L	10	10	100%	25	190	36.5	61.1	52.9
C2-Fluorenes	ng/L	10	3	30%	39.5	240	200	160	106
C2-Phenanthrene/Anthracene	ng/L	10	7	70%	14	730	37.0	178	266
C3-Chrysene	ng/L	10	10	100%	0.46	3.5	0.768	1.20	0.946
C3-Fluoranthenes/Pyrene	ng/L	10	10	100%	3.5	28	5.70	9.39	7.72
C3-Fluorenes	ng/L	10	3	30%	36	240	160	145	103
C3-Phenanthrene/Anthracene	ng/L	10	10	100%	5.65	250	16.5	48.1	77.6
C4-Chrysene	ng/L	10	10	100%	0.06	0.62	0.110	0.184	0.172
C4-Naphthalenes	ng/L	10	3	30%	185	1200	990	792	536
C4-Phenanthrene/Anthracene	ng/L	10	8	80%	3.2	45	6.75	12.8	14.3
Chrysene	ng/L	10	10	100%	1.75	23	3.65	6.69	7.10

Table 3-16
Statistical Summary of Detected Analytes in the South Zone - Porewater

Analyte	Units	Number of Valid Results ¹	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Median Value	Mean of Detects	Standard Deviation
Dibenz(a,h)anthracene	ng/L	10	9	90%	0.62	1.6	0.855	1.07	0.372
Fluoranthene	ng/L	10	10	100%	6.45	190	17.0	46.2	59.5
Indeno(1,2,3-c,d)pyrene	ng/L	10	10	100%	0.054	0.27	0.135	0.140	0.0706
Perylene	ng/L	10	6	60%	0.18	0.46	0.210	0.258	0.106
Pyrene	ng/L	10	10	100%	62	690	152	232	225
Total HMW PAHs	ng/L	10	10	100%	80	930	185	298	297
Total LMW PAHs	ng/L	10	5	50%	26	3200	1000	1440	1230
Total PAHs	ng/L	10	10	100%	80	4000	200	1020	1400

Footnotes:

¹Valid results are results that were found to be valid as a result of data validation. Only valid data are used in statistical analyses. Additional details regarding rejected data are provided in Appendix H of this report.

Notes:

1. Only detected values were included in the calculation of totals.
2. Non-detect ("U" qualified) data were excluded from the statistical analysis.
3. Field duplicate samples were averaged to create one result prior to statistical reporting. Additional details regarding field duplicate handling can be found in Section 3.0 of the report.

DDD = dichlorodiphenyldichloroethane
DDE = dichlorodiphenyldichloroethylene
DDT = dichlorodiphenyltrichloroethane
HMW = high molecular weight
LMW = low molecular weight
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
NA = not applicable

ng/L = nanograms per liter
pg/L = picograms per liter

Table 3-17
Summary of 10-day and 28-day *Leptocheirus plumulosus* Sediment Toxicity Test Results

Sample Identification	10-Day Mean Percent Survival	28-Day Mean Percent Survival	Growth Rate (mg/Organism/Day) (±S.D.)	Mean Reproduction (Young per Surviving Adult)
Control	90	81	0.045 (±0.002)	1.97
North Zone				
NB03SED-TOX136	92	63	0.028 (±0.017)	0.69
NB03SED-TOX137	96	75	0.029 (±0.010)	0.28
NB03SED-TOX138	89	46	0.017 (±0.012)	0.33
NB03SED-TOX139	92	92	0.033 (±0.013)	0.56
NB03SED-TOX140	81	79	0.032 (±0.015)	0.77
NB03SED-TOX158	93	39	0.01 (±0.013)	0
NB03SED-TOX159	90	62	0.029 (±0.022)	0.67
NB03SED-TOX160	90	0	(a)	(a)
NB03SED-TOX161	95	96	0.034 (±0.007)	0.71
NB03SED-TOX162	92	86 (c)	0.037 (±0.004)	0.95
NB03SED-TOX163	94	69	0.031 (±0.016)	1.02
NB03SED-TOX164	96	84	0.021 (±0.009)	0.83
NB03SED-TOX165	95	88	0.028 (±0.007)	0.68
Minimum	81	0	0.01	0
Maximum	96	96	0.037	1.02
Mean	91.9	67.6	0.027	0.62
Central Zone				
NB03SED-TOX141	92	67	0.036 (±0.015)	0.8
NB03SED-TOX142	98	53	0.05 (±0.006)	1.93
NB03SED-TOX143	90	30	0.012 (±0.007)	0.21
NB03SED-TOX144	93	65	0.021 (±0.014)	1.13
NB03SED-TOX145	97	59	0.04 (±0.016)	0.58
NB03SED-TOX156	96	86	0.035 (±0.008)	0.79
NB03SED-TOX157	92	80	0.024 (±0.016)	0.94
Minimum	90	30	0.012	0.21
Maximum	98	86	0.050	1.93
Mean	94	62.9	0.031	0.91
South Zone				
NB03SED-TOX146	83	54	0.029 (±0.014)	0.6
NB03SED-TOX147	90	79	0.035 (±0.013)	0.28
NB03SED-TOX148	97	92	0.032 (±0.007)	0.84
NB03SED-TOX149	98	63	0.02 (±0.009)	0.64
NB03SED-TOX150	89	73	0.03 (±0.019)	0.67
NB03SED-TOX151	39	0	(a)	(a)
NB03SED-TOX152	97	86	0.025 (±0.014)	0.37
NB03SED-TOX153	98	83	0.037 (±0.019)	0.73
NB03SED-TOX154	32	7	0.001 (±0.002)	0.96
NB03SED-TOX155	95	70 (b)	0.035 (±0.017)	0.6
Minimum	32	0	0.001	0.28
Maximum	98	92	0.037	0.96
Mean	81.8	60.7	0.027	0.63
Overall				
Minimum	32	0	0.001	0.00
Maximum	98	96	0.050	1.93
Mean	89.0	64.2	0.028	0.70

Footnotes:

- (a) Growth rate or reproduction not calculable for samples with no surviving organisms.
- (b) Survival out of 101 individuals.
- (c) Survival out of 102 individuals.

Notes:

- 1. Survival all out of 100 individuals, except where indicated.
- 2. Shaded cells are considered significantly different than the control (p=0.05).

mg = milligrams
S.D. = standard deviation

**Table 3-18
Benthic Community Metrics**

Station	Total Taxa (Richness) ¹	Total Mean Density (no./m ²) ²	Shannon Wiener Diversity Index ³	Pielou's Evenness ⁴	Swartz's Dominance ⁵
North					
136	22	6,363	2.2	0.7	6
137	21	7,739	2.1	0.7	4
138	20	5,985	2.4	0.8	5
139	22	6,232	2.2	0.7	5
140	22	6,826	2.1	0.7	4
158	46	10,756	2.1	0.6	4
159	23	1,974	2.3	0.7	6
160	16	3,167	2.2	0.8	6
161	18	2,667	1.5	0.5	3
162	15	1,406	2.1	0.8	5
163	21	2,899	2.0	0.7	4
164	21	11,101	1.8	0.6	3
165	22	9,725	2.4	0.8	6
Summary					
<i>Minimum</i>	15	1,406	1.5	0.5	3
<i>Maximum</i>	46	11,101	2.4	0.8	6
<i>Average</i>	22	5,911	2.1	0.7	5
<i>Median</i>	21	6,232	2.1	0.7	5
<i>Standard Deviation</i>	8	3,321	0.24	0.1	1
Central					
141	19	3,870	2.1	0.7	5
142	29	11,237	2.0	0.6	4
143	25	5,870	2.3	0.7	5
144	11	710	2.1	0.9	5
145	28	8,870	2.1	0.6	4
156	16	1,812	2.2	0.8	5
157	19	1,218	2.4	0.8	8
Summary					
<i>Minimum</i>	11	710	2.0	0.6	4
<i>Maximum</i>	29	11,237	2.4	0.9	8
<i>Average</i>	21	4,798	2.2	0.7	5
<i>Median</i>	19	3,870	2.1	0.7	5
<i>Standard Deviation</i>	7	4,052	0.14	0.1	1
South					
146	42	2,788	2.7	0.7	8
147	14	2,116	1.9	0.7	5
148	8	406	1.5	0.7	3
149	15	7,019	1.8	0.6	3
150	23	2,276	2.6	0.8	7
151	22	1,667	2.2	0.7	5
152	43	7,186	2.2	0.6	4
153	42	5,595	2.7	0.7	8
154	33	1,301	3.0	0.9	12
155	20	2,340	1.9	0.7	4
Summary					
<i>Minimum</i>	8	406	1.5	0.6	3
<i>Maximum</i>	43	7,186	3.0	0.9	12
<i>Average</i>	26	3,269	2.3	0.7	6
<i>Median</i>	23	2,308	2.2	0.7	5
<i>Standard Deviation</i>	13	2,423	0.48	0.1	3

Table 3-18
Benthic Community Metrics

Station	Total Taxa (Richness) ¹	Total Mean Density (no./m ²) ²	Shannon Wiener Diversity Index ³	Pielou's Evenness ⁴	Swartz's Dominance ⁵
Overall					
<i>Summary</i>					
<i>Minimum</i>	8	406	1.5	0.5	3
<i>Maximum</i>	46	11,237	3.0	0.9	12
<i>Average</i>	23	4,771	2.2	0.7	5
<i>Median</i>	22	3,518	2.2	0.7	5
<i>Standard Deviation</i>	9	3,338	0.32	0.1	2

Notes:

¹ Total Taxa (Richness) is the total number of species [or higher order taxa, if not identified to species] in a sample.

² Total Mean Density is the number of individual organisms found per sample area. The values are prepared by counting the number of distinct individual organisms in a given sample.

³ Shannon Wiener Diversity Index is a measure of the species diversity of a sample and takes into account species richness and evenness of each species within the community. The formula for calculating the Shannon Wiener Diversity Index is provided in Section 3.5.1.2.

⁴ Pielou's Evenness is related to the Shannon-Wiener diversity index in that it also examines the distribution of individuals among taxa relative to an idealized distribution. The formula for calculating Pielou's Evenness is provided in Section 3.5.1.3.

⁵ Swartz's Dominance is an indicator of whether a small number of taxa dominate the sample. The formula for calculating Swartz's Dominance is provided in Section 3.5.1.4.

no./m² = number of organisms per square meter

**Table 3-19
Dominant Taxa Summary**

Taxa			Zone			
			North	South	Central	Overall
Annelida						
	Oligochaeta	Oligochaeta	4	2	7	4
	Polychaeta	<i>Hypereteone heteropoda</i>	--	10	8	--
		<i>Leitoscoloplos fragilis</i>	9	8	6	7
		<i>Leitoscoloplos</i> sp	2	4	5	2
		<i>Mediomastus ambiseta</i>	3	5	4	3
		<i>Pectinaria gouldii</i>	--	7	10	--
		<i>Streblospio benedicti</i>	1	1	1	1
		<i>Tharyx acutus</i>	--	9	--	--
Arthropoda						
	Crustacea	<i>Ampelisca abdita</i>	7	--	--	8
		<i>Cyathura burbancki</i>	10	--	--	--
		<i>Grandidierella japonica</i>	6	3	2	5
		<i>Microdeutopus gryllotalpa</i>	--	--	3	9
Mollusca						
	Bivalvia	<i>Macoma balthica</i>	8	--	--	10
		<i>Mya arenaria</i>	5	--	--	6
	Gastropoda	<i>Haminoea solitaria</i>	--	6	9	--

Notes:

1. Dominant taxa are ranked from 1-10, 1 being the most dominant and 10 being the least dominant.

Table 3-20
Benthic Invertebrate Sample Biomass

Station ¹	Total Weight (grams)			Mean Weight Per Replicate (grams)	Mean Weight Per Square Meter (grams) ²
	Replicate 1	Replicate 2	Replicate 3		
North Zone					
136	0.1243	0.0536	0.2871	0.1550	6.7391
137	0.0697	0.2512	0.1195	0.1468	6.3826
137	0.0731	0.1351	0.1612	0.1231	5.3536
139	0.3107	0.1766	0.3767	0.2880	12.5217
140	0.1559	0.1376	0.3015	0.1983	8.6232
158	1.6241	1.7611	1.9050	1.7634	33.9115
159	0.0728	0.1375	0.0431	0.0845	1.6244
160	0.9086	0.5748	0.8384	0.7739	14.8833
161	0.1178	0.1473	0.0844	0.1165	5.0652
162	0.0060	0.0278	0.0038	0.0125	0.5449
163	0.0371	0.1664	0.0744	0.0926	4.0275
164	0.6754	0.6003	0.9456	0.7404	32.1928
165	0.1329	0.1735	0.1221	0.1428	6.2101
				Minimum	0.5449
				Maximum	33.9115
				Mean	10.6215
Central Zone					
141	0.1516	0.2756	0.4151	0.2808	12.2073
142	0.2520	0.0608	0.1271	0.1466	2.8199
143	0.0561	0.0395	0.1927	0.0961	4.1783
144	0.0021	0.0121	0.0757	0.0300	1.3029
145	0.2522	0.3734	0.1951	0.2736	11.8942
156	0.0198	0.0578	0.0188	0.0321	1.3971
157	0.1154	0.0857	0.0408	0.0806	3.5058
				Minimum	1.3029
				Maximum	12.2073
				Mean	5.3294
South Zone					
146	0.1675	0.1920	0.6212	0.3269	6.2865
147	0.0088	0.0961	0.0016	0.0355	1.5435
148	0.0146	0.0152	0.0043	0.0114	0.4942
149	0.4443	0.1428	0.1957	0.2609	5.0179
150	0.0469	0.0681	0.0560	0.0570	2.4783
151	0.2377	0.3899	0.1855	0.2710	11.7841
152	0.0298	0.5187	0.3418	0.2968	5.7071
153	0.1415	0.1567	0.0545	0.1176	5.1116
154	2.3561	0.4843	0.1562	0.9989	19.2090
155	0.0266	0.1519	0.3397	0.1727	3.3218
				Minimum	0.4942
				Maximum	19.2090
				Mean	6.0954
Overall				Minimum	0.4942
				Maximum	33.9115
				Mean	7.8780

Footnotes:

¹ All samples were collected with a petite PONAR grab sampler (0.023 square meter) except stations 142, 146, 149, 152, 154, 155, 158, 159, and 160 which were collected with a standard PONAR grab sampler (0.052 square meter).

² Dry weight biomass of benthic macroinvertebrates per square meter of Newark Bay bottom.

**Table 3-21
Surface Water Quality Measurements**

Station	Date Measured	Water Depth (feet)	Depth (feet below water surface)	Temperature (°C)	Conductivity (µS/cm)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (SU)	ORP (mV)
North Zone									
136	9/14/2015	7.5	1.0	21.76	31.94	20.06	5.85	7.70	14.2
			2.0	22.34	34.62	20.52	5.84	7.70	17.3
			3.0	22.42	35.28	21.47	5.80	7.69	17.8
			4.0	22.43	35.49	22.15	5.69	7.68	17.5
			5.0	22.43	35.52	22.34	5.65	7.68	17.4
			6.0	22.40	35.59	22.40	5.67	7.68	17.6
137	9/14/2015	6.8	1.0	23.19	35.91	22.67	6.44	7.60	-22.3
			2.0	23.21	35.92	22.68	6.31	7.65	-16.7
			3.0	23.22	35.92	22.69	6.16	7.67	-13.5
			4.0	23.21	35.91	22.68	6.04	7.68	-10.8
			5.0	23.23	35.94	22.70	5.95	7.69	-5.8
138	9/14/2015	11.4	1.0	23.11	37.23	23.60	6.81	7.76	41.6
			2.0	23.11	37.22	23.60	6.34	7.75	31.2
			3.0	23.12	37.32	23.67	6.18	7.74	28.5
			4.0	23.64	38.37	24.39	5.70	7.71	26.0
			5.0	23.70	38.39	24.41	5.65	7.71	25.5
			6.0	23.71	38.42	24.43	5.61	7.71	25.2
			7.0	23.24	38.46	24.46	5.46	7.70	25.2
			8.0	23.75	38.49	24.48	5.39	7.70	26.0
			9.0	23.79	38.54	24.51	5.29	7.69	26.1
			10.0	23.81	38.56	24.52	5.25	7.68	25.2
139	9/15/2015	10.7	1.0	23.15	36.66	23.19	6.17	7.60	-11.2
			2.0	23.28	36.84	23.37	5.96	7.64	-9.6
			3.0	23.62	37.93	24.10	6.08	7.68	-7.4
			4.0	23.65	38.23	24.33	5.94	7.69	-6.3
			5.0	23.61	38.37	24.40	5.82	7.69	-5.4
			6.0	23.58	38.40	24.43	5.81	7.69	-4.8
			7.0	23.56	38.46	24.46	5.71	7.69	-4.3
			8.0	23.55	38.48	24.47	5.54	7.68	-4.0
			9.0	23.55	38.48	24.48	5.50	7.68	-3.9
			10.0	23.55	38.49	24.48	5.45	7.60	-4.0
140	9/16/2015	6.0	1.0	23.11	37.36	23.69	7.02	7.51	53.1
			2.0	23.08	37.37	23.70	7.54	6.26	38.6
			3.0	23.08	37.36	23.69	5.97	7.59	24.1
			4.0	23.09	37.37	23.70	5.71	7.61	17.4
			5.0	23.04	37.37	23.70	5.49	7.62	13.5
140	9/29/2015	4.2	2.1	21.45	34.68	21.85	5.77	8.00	6.9
158	9/17/2015	13.9	2.0	23.85	37.57	23.77	5.47	7.55	121.1
			7.0	23.84	38.07	24.19	5.94	7.57	134.1
			11.9	23.82	38.57	24.53	8.26	7.59	155.1
158	9/24/2015	12.7	1.0	21.89	38.36	24.42	6.82	7.94	10.3
			6.4	21.90	38.36	24.41	7.02	8.03	5.4
			10.7	21.86	38.33	24.40	7.01	8.19	1.6
159	9/24/2015	37.6	1.0	21.87	37.36	23.71	6.72	7.63	117.0
			18.8	22.03	37.91	24.09	6.45	7.63	118.1
			35.6	22.15	38.48	24.50	6.57	7.62	122.2

Table 3-21 Surface Water Quality Measurements

**Table 3-21
Surface Water Quality Measurements**

Station	Date Measured	Water Depth (feet)	Depth (feet below water surface)	Temperature (°C)	Conductivity (µS/cm)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (SU)	ORP (mV)
160	9/15/2015	4.0	1.0	22.85	36.71	23.27	5.84	7.05	4.0
			2.0	23.24	37.42	23.77	5.22	7.29	1.2
			3.0	23.29	37.71	23.95	5.20	7.45	-0.4
160	9/28/2015	3.4	1.7	21.15	37.31	23.70	5.95	7.92	12.0
161	9/15/2015	6.5	1.0	23.35	34.79	21.91	5.35	7.43	-7.6
			2.0	23.57	35.89	22.77	5.07	7.48	-6.2
			3.0	23.60	36.22	22.89	5.05	7.50	-5.8
			4.0	23.61	36.42	23.05	5.01	7.52	-5.1
			5.0	23.61	36.56	23.14	4.97	7.53	-4.3
162	9/21/2015	23.0	1.0	23.01	36.19	22.85	5.74	7.67	105.9
			11.5	23.05	36.71	23.23	5.49	7.66	100.4
			21.0	23.11	37.35	23.74	5.47	7.60	82.7
163	9/16/2015	30.6	1.0	23.90	35.85	22.63	5.57	7.36	72.4
			15.3	23.91	36.79	23.29	5.66	7.38	73.4
			28.6	23.95	36.89	23.35	7.27	7.37	76.7
163	9/22/2015	30.1	1.0	22.51	36.25	22.88	6.00	7.64	148.7
			15.1	22.44	37.11	23.52	5.92	7.65	157.4
			28.1	22.42	37.24	23.62	5.62	7.66	157.0
164	9/13/2015	6.4	1.0	24.61	37.07	NR	5.00	7.65	-32.8
			2.0	24.61	38.18	NR	4.94	7.66	-31.1
			3.0	24.56	38.21	NR	4.89	7.66	-29.9
			4.0	24.56	38.22	NR	4.88	7.66	-29.6
			5.0	24.56	38.22	NR	4.83	7.66	-29.9
			6.0	24.56	38.22	NR	4.80	7.66	-27.7
164	9/21/2015	8.0	1.0	NR	NR	23.39	NR	NR	NR
			4.0	NR	NR	24.32	NR	NR	NR
			6.0	NR	NR	24.29	NR	NR	NR
165	9/13/2015	6.0	1.0	24.87	37.60	NR	6.15	7.73	-50.6
			2.0	24.87	37.62	NR	5.76	7.71	-46.1
			3.0	24.84	37.65	NR	5.55	7.70	-46.2
			4.0	24.81	37.69	NR	5.43	7.70	-46.2
			5.0	24.79	37.71	NR	5.33	7.69	-45.0
165	9/21/2015	9.0	1.0	NR	NR	23.65	NR	NR	NR
			4.5	NR	NR	23.68	NR	NR	NR
			7.0	NR	NR	23.68	NR	NR	NR
166	9/13/2015	4.5	1.0	25.12	31.98	NR	6.01	7.72	-47.7
			2.0	24.82	36.18	NR	5.79	7.67	-66.4
			3.0	24.57	37.40	NR	5.56	7.67	-65.1
			4.0	24.68	37.98	NR	5.54	7.67	-57.3
166	9/21/2015	7.5	1.0	NR	NR	23.15	NR	NR	NR
			3.8	NR	NR	23.33	NR	NR	NR
			5.5	NR	NR	23.50	NR	NR	NR
167	9/14/2015	5.5	1.0	22.07	36.59	23.17	6.56	7.84	9.8
			2.0	22.07	36.58	23.16	6.34	7.79	13.1
			3.0	22.06	36.58	23.17	6.24	7.77	16.0
			4.0	22.06	36.58	23.16	6.18	7.76	17.2

Table 3-21
Surface Water Quality Measurements

Station	Date Measured	Water Depth (feet)	Depth (feet below water surface)	Temperature (°C)	Conductivity (µS/cm)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (SU)	ORP (mV)
168	9/15/2015	7.3	1.0	22.66	36.22	22.90	6.14	7.48	-20.8
			2.0	22.62	36.19	22.89	5.77	7.53	-17.1
			3.0	22.67	36.31	22.97	5.60	7.55	-15.2
			4.0	22.90	36.75	23.29	5.38	7.56	-13.5
			5.0	23.35	37.53	23.84	5.19	7.57	-11.7
			6.0	23.44	37.74	23.96	5.12	7.57	-11.0
169	9/15/2015	7.4	1.0	23.29	36.34	22.95	6.41	7.21	23.3
			2.0	23.32	37.16	23.57	6.12	7.53	0.2
			3.0	23.28	37.40	23.74	5.85	7.57	-3.2
			4.0	23.28	37.52	23.80	5.70	7.62	-6.5
			5.0	23.27	37.53	23.81	5.59	7.64	-7.7
			6.0	23.27	37.55	23.83	5.56	7.65	-7.8
Central Zone									
141	9/16/2015	10.0	1.0	23.39	37.54	23.82	7.82	7.25	29.2
			2.0	23.41	37.57	23.84	6.92	7.48	23.4
			3.0	23.36	37.64	23.88	6.22	7.55	18.1
			4.0	23.31	37.69	23.94	6.37	7.59	15.5
			5.0	23.25	37.79	24.00	5.80	7.60	15.3
			6.0	23.16	37.90	24.08	5.64	7.61	14.9
			7.0	23.08	37.96	24.12	5.43	7.62	14.3
			8.0	23.07	37.96	24.12	5.38	7.62	13.9
			9.0	23.06	37.96	24.12	5.32	7.63	13.3
142	9/28/2015	6.6	1.0	21.04	37.79	24.02	7.52	7.97	12.0
			4.6	21.04	37.86	24.07	7.86	8.00	8.4
143	9/29/2015	8.4	1.0	21.88	39.25	24.99	6.32	8.10	-9.0
			6.4	21.80	39.84	25.46	6.41	8.14	-12.0
144	9/17/2015	12.6	1.0	23.39	37.38	23.72	6.21	7.56	47.1
			6.3	23.49	37.60	23.84	6.18	7.54	53.0
			11.6	23.52	37.78	23.97	6.56	7.46	66.6
145	9/29/2015	8.0	1.0	21.73	39.56	25.25	6.32	8.04	-4.5
			6.0	21.63	39.93	25.53	6.03	8.59	-9.0
156	9/17/2015	36.0	1.0	23.68	37.65	23.92	5.60	7.54	136.7
			18.0	23.69	38.24	24.29	5.80	7.56	128.9
			34.0	23.71	38.55	24.52	6.06	7.56	119.1
157	9/16/2015	9.6	1.0	24.22	37.79	23.98	7.54	7.60	29.1
			2.0	24.10	37.82	24.01	6.88	7.61	24.4
			3.0	23.87	37.93	24.08	6.52	7.62	20.7
			4.0	23.74	38.03	24.16	6.24	7.63	17.0
			5.0	23.70	38.10	24.23	6.06	7.63	15.4
			6.0	23.69	38.21	24.28	5.86	7.63	14.2
			7.0	23.68	38.22	24.29	5.76	7.63	13.7
			8.0	23.68	38.24	24.32	5.72	7.64	13.0

**Table 3-21
Surface Water Quality Measurements**

Station	Date Measured	Water Depth (feet)	Depth (feet below water surface)	Temperature (°C)	Conductivity (µS/cm)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (SU)	ORP (mV)
170	9/16/2015	9.1	1.0	23.51	37.40	23.71	6.58	7.64	-13.8
			2.0	23.51	37.40	23.72	6.24	7.68	-8.5
			3.0	23.44	37.44	23.75	6.10	7.69	-7.6
			4.0	23.35	37.65	23.91	5.95	7.70	5.5
			5.0	23.28	37.79	24.00	5.88	7.70	-3.6
			6.0	23.30	37.85	24.04	5.84	7.71	-3.6
			7.0	23.27	37.88	24.06	5.76	7.71	-3.1
			8.0	23.26	37.88	24.05	5.69	7.71	-3.5
171	9/17/2015	8.0	2.0	23.64	37.84	24.02	6.33	7.57	47.9
			4.0	23.63	37.85	24.03	6.35	7.58	48.8
			6.0	23.66	37.90	24.06	6.42	7.59	51.5
172	9/23/2015	7.2	1.0	22.35	38.12	24.24	9.91	8.05	3.6
			5.2	21.91	38.17	24.27	11.76	8.04	0.5
South Zone									
146	9/21/2015	19.0	1.0	22.89	39.05	24.89	5.11	7.76	13.8
			9.5	22.87	39.08	24.91	5.00	7.78	8.8
			17.0	22.87	39.08	24.91	4.97	7.79	6.7
147	9/21/2015	11.1	1.0	22.64	38.68	24.63	6.11	7.79	21.6
			5.6	22.63	38.68	24.63	6.02	7.00	19.4
			9.1	22.63	38.69	24.64	6.00	7.83	13.9
148	9/21/2015	14.3	1.0	22.65	38.77	24.69	5.42	7.79	23.1
			7.2	22.66	38.78	24.70	5.47	7.79	21.8
			12.3	22.64	38.77	24.69	5.21	7.80	15.0
149	9/22/2015	2.4	1.2	21.82	38.67	24.63	7.12	7.96	24.0
150	9/22/2015	12.1	1.0	22.39	38.78	24.70	6.88	7.83	25.4
			6.1	29.40	38.77	24.70	6.80	7.83	23.2
			10.1	22.39	38.74	24.67	6.76	7.82	21.0
151	9/20/2015	10.2	1.0	23.52	39.01	24.85	6.74	7.69	23.9
			5.1	23.53	39.06	24.88	6.75	7.65	20.7
			8.2	23.49	39.11	24.91	6.85	7.50	13.5
152	9/29/2015	7.7	1.0	21.60	38.90	24.80	6.04	8.02	5.2
			5.7	21.60	38.95	24.03	5.85	8.06	2.5
153	9/23/2015	10.4	1.0	22.21	38.83	24.74	6.13	7.69	162.1
			8.4	22.18	38.74	24.73	6.86	7.56	175.5
154	9/20/2015	11.4	1.0	23.92	38.88	24.75	7.52	7.80	15.4
			5.7	23.87	38.95	24.80	7.53	7.81	15.4
			9.4	23.73	39.06	24.86	7.87	7.83	17.9
155	9/20/2015	3.3	1.7	23.57	38.81	24.71	10.50	7.77	36.9
173	9/23/2015	8.0	1.0	21.76	38.34	24.39	5.74	7.96	5.9
			6.0	21.84	38.52	24.52	6.02	8.00	7.3
174	9/20/2015	15.0	1.0	23.29	39.84	25.39	8.10	7.70	22.0
			7.5	23.22	40.02	25.56	8.75	7.71	18.1
			13.0	23.23	40.05	25.60	12.80	7.74	14.6
175	9/21/2015	10.2	1.0	22.92	38.82	24.72	7.39	7.39	11.5
			5.1	22.90	38.86	24.75	7.38	7.89	9.3
			8.2	22.89	38.94	24.81	7.46	7.92	6.7

Table 3-21 Surface Water Quality Measurements

Table 3-21
Surface Water Quality Measurements

Station	Date Measured	Water Depth (feet)	Depth (feet below water surface)	Temperature (°C)	Conductivity (µS/cm)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (SU)	ORP (mV)
176	9/22/2015	6.5	3.3	22.56	38.83	24.73	6.88	8.00	5.3
176	9/23/2015	6.8	1.0 4.8	22.69 22.48	38.64 38.74	24.60 24.67	7.14 8.07	7.90 7.96	5.0 0.3
177	9/23/2015	31.8	1.0 15.9 29.8	23.05 22.99 22.87	38.64 38.72 38.95	24.60 24.64 24.82	6.22 6.25 6.41	7.59 7.59 7.54	172.4 171.8 174.9
177	9/29/2015	4.5	2.3	23.23	39.08	24.91	5.23	8.18	-23.4
178	9/22/2015	11.0	1.0 9.0	22.33 22.34	38.87 38.88	24.76 24.78	7.20 7.20	7.95 7.99	9.8 4.5
178	9/23/2015	8.2	1.0 6.2	22.07 22.05	38.61 38.93	24.59 24.81	5.37 5.44	7.92 7.92	1.0 -3.3
Mean Bay-Wide Measurements:				23.17	37.74	23.96	6.20	7.68	20.91

Notes:

- % = percent
- °C = degrees Celsius
- µS/cm = microSiemens per centimeter
- mg/L = milligrams per liter
- mV = millivolts
- NR = not recorded
- ppt = parts per trillion
- SU = standard units

Table 3-22
Benthic Index of Biotic Integrity Metrics for Newark Bay

Station	Salinity (bottom)	Salinity Class	Grain Size (% silt/clay)	Sediment Type	Total Taxa	B-IBI Taxa Score	Total Mean Density (no./m ²)	B-IBI Density Score	Pollution Indicative Species (no./m ²)	% Abundance Pollution Indicative Species	B-IBI Pollution Indicative Species Score	Pollution Sensitive Species (no./m ²)	% Abundance Pollution Sensitive Species	B-IBI Pollution Sensitive Species Score	Biomass	B-IBI Biomass Score	Overall B-IBI Score
North Zone																	
136	22.4	polyhaline	95.9	mud	22	5	6362.6	5	2434.9	38.3%	3	0	0.0%	1	6.7	5	3.8
137	22.7	polyhaline	79.3	mud	21	5	7739.1	5	3289.9	42.5%	1	0	0.0%	1	6.4	5	3.4
138	24.52	polyhaline	75.1	mud	20	3	5985.4	5	2043.5	34.1%	3	115.9	1.9%	1	5.4	5	3.4
139	24.48	polyhaline	55	mud	22	5	6231.9	5	1318.9	21.2%	3	144.9	2.3%	1	12.5	3	3.4
140	23.7	polyhaline	28.9	sand	22	5	6826.3	5	2058	30.1%	3	0	0.0%	1	8.6	3	3.4
158	24.47	polyhaline	20.7	sand	46	5	10756	3	3916.7	36.4%	3	134.6	1.3%	1	33.9	3	3
159	24.5	polyhaline	52.9	mud	23	5	1974.1	3	320.5	16.2%	3	89.7	4.5%	3	1.6	3	3.4
160	23.7	polyhaline	56.8	mud	16	3	3166.8	5	512.8	16.2%	3	0	0.0%	1	14.9	3	3
161	23.14	polyhaline	86.9	mud	18	3	2666.9	3	1913.1	71.7%	1	0	0.0%	1	5.1	5	2.6
162	23.74	polyhaline	84.2	mud	15	3	1405.8	1	463.8	33.0%	3	144.9	10.3%	3	0.5	1	2.2
163	23.62	polyhaline	54.4	mud	21	5	2898.7	3	145	5.0%	5	144.9	5.0%	3	4.0	5	4.2
164	24.29	polyhaline	43.3	mud	21	5	11101.4	3	5971	53.8%	1	0	0.0%	1	32.2	3	2.6
165	23.68	polyhaline	91.5	mud	22	5	9724.9	5	2565.2	26.4%	3	0	0.0%	1	6.2	5	3.8
Average B-IBI for North																	3.2
Central Zone																	
141	24.12	polyhaline	94.7	mud	19	3	3869.7	5	1463.8	37.8%	3	29	0.7%	1	12.2	3	3
142	24.07	polyhaline	13.7	sand	29	5	11237	3	2179.4	19.4%	3	51.3	0.5%	1	2.8	5	3.4
143	25.46	polyhaline	70.6	mud	25	5	5869.5	5	2318.8	39.5%	3	29	0.5%	1	4.2	5	3.8
144	23.97	polyhaline	79.5	mud	11	1	710.1	1	159.4	22.4%	3	58	8.2%	3	1.3	3	2.2
145	25.53	polyhaline	41.6	mud	28	5	8869.7	5	3550.7	40.0%	1	29	0.3%	1	11.9	3	3
156	24.52	polyhaline	89.9	mud	16	3	1811.8	3	478.3	26.4%	3	58	3.2%	3	1.4	3	3
157	24.32	polyhaline	90.3	mud	19	3	1217.7	1	101.5	8.3%	5	29	2.4%	1	3.5	5	3
Average B-IBI for Central																	3.1
South Zone																	
146	24.91	polyhaline	26.9	sand	42	5	2787.9	5	519.2	18.6%	3	57.6	2.1%	1	6.3	5	3.8
147	24.64	polyhaline	40.5	mud	14	1	2115.9	3	652.2	30.8%	3	0	0.0%	1	1.5	3	2.2
148	24.69	polyhaline	66.9	mud	8	1	405.8	1	0	0.0%	5	0	0.0%	1	0.5	1	1.8
149	24.63	polyhaline	67	mud	15	3	7019.1	5	2794.8	39.8%	3	0	0.0%	1	5.0	5	3.4
150	24.67	polyhaline	67.1	mud	23	5	2275.5	3	695.7	30.6%	3	87	3.8%	3	2.5	3	3.4
151	24.91	polyhaline	69.7	mud	22	5	1666.8	3	840.6	50.4%	1	14.5	0.9%	1	11.8	3	2.6
152	24.03	polyhaline	29.8	sand	43	5	7185.5	5	3980.8	55.4%	1	57.7	0.8%	1	5.7	5	3.4
153	24.73	polyhaline	50.8	mud	42	5	5594.6	5	1840.6	32.9%	3	173.9	3.1%	3	5.1	5	4.2
154	24.86	polyhaline	64.9	mud	33	5	1301.3	1	211.6	16.3%	3	0	0.0%	1	19.2	3	2.6
155	24.71	polyhaline	17.4	sand	20	3	2339.6	3	961.5	41.1%	1	0	0.0%	1	3.3	5	2.6
Average B-IBI for South																	3.0

Notes

1. Bottom-most salinity included out of multiple depth readings.
2. Grainsize percentage from sieve size number 200 for silt/clay content.

% = percent

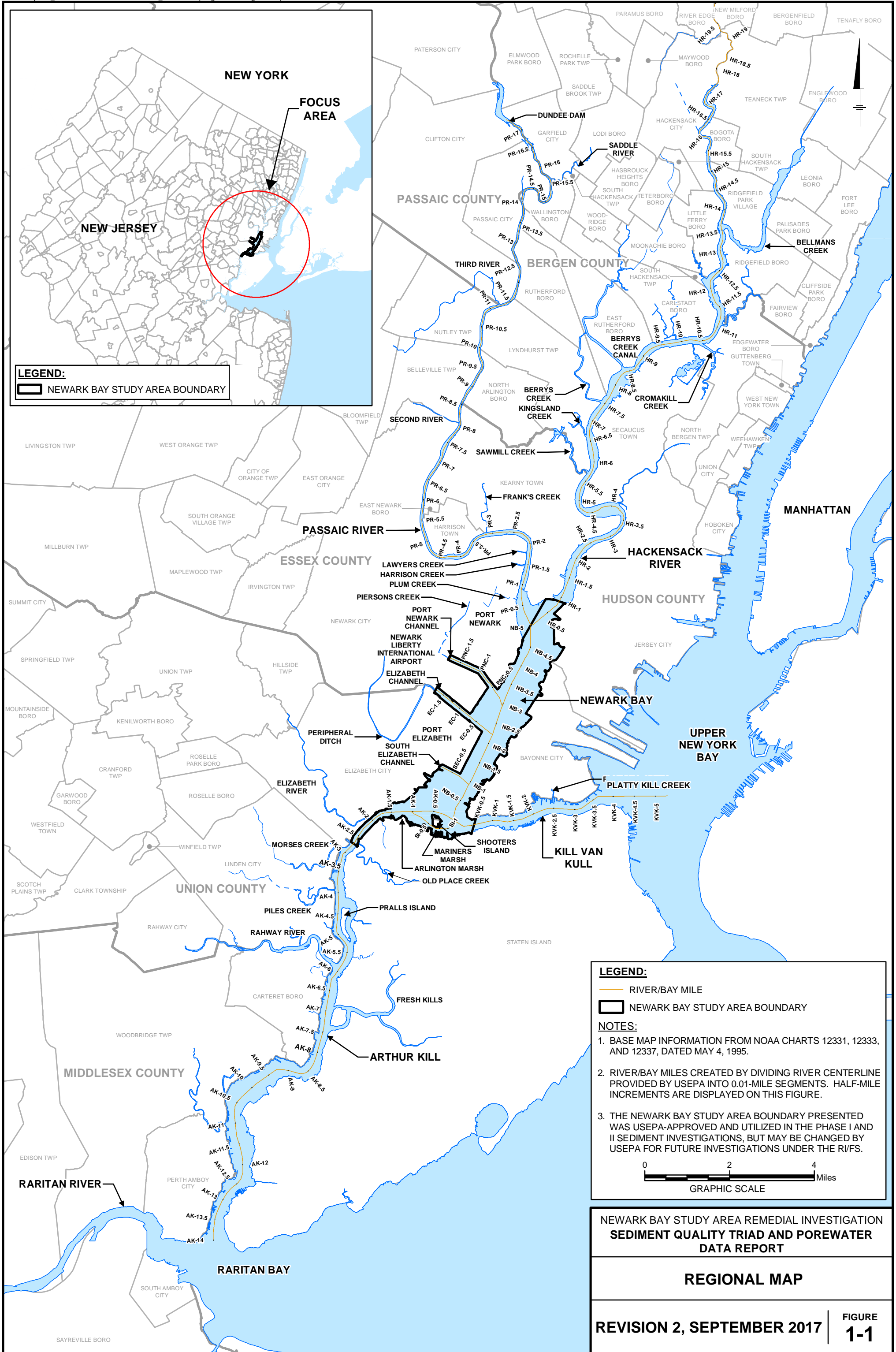
B-IBI = Benthic Index of Biotic Integrity

no./m² = number per square meter

B-IBI Score:

- 1 to <2 = impacted
- 2 to <3 = slightly impacted
- 3 to 5 = non-impacted

Figures

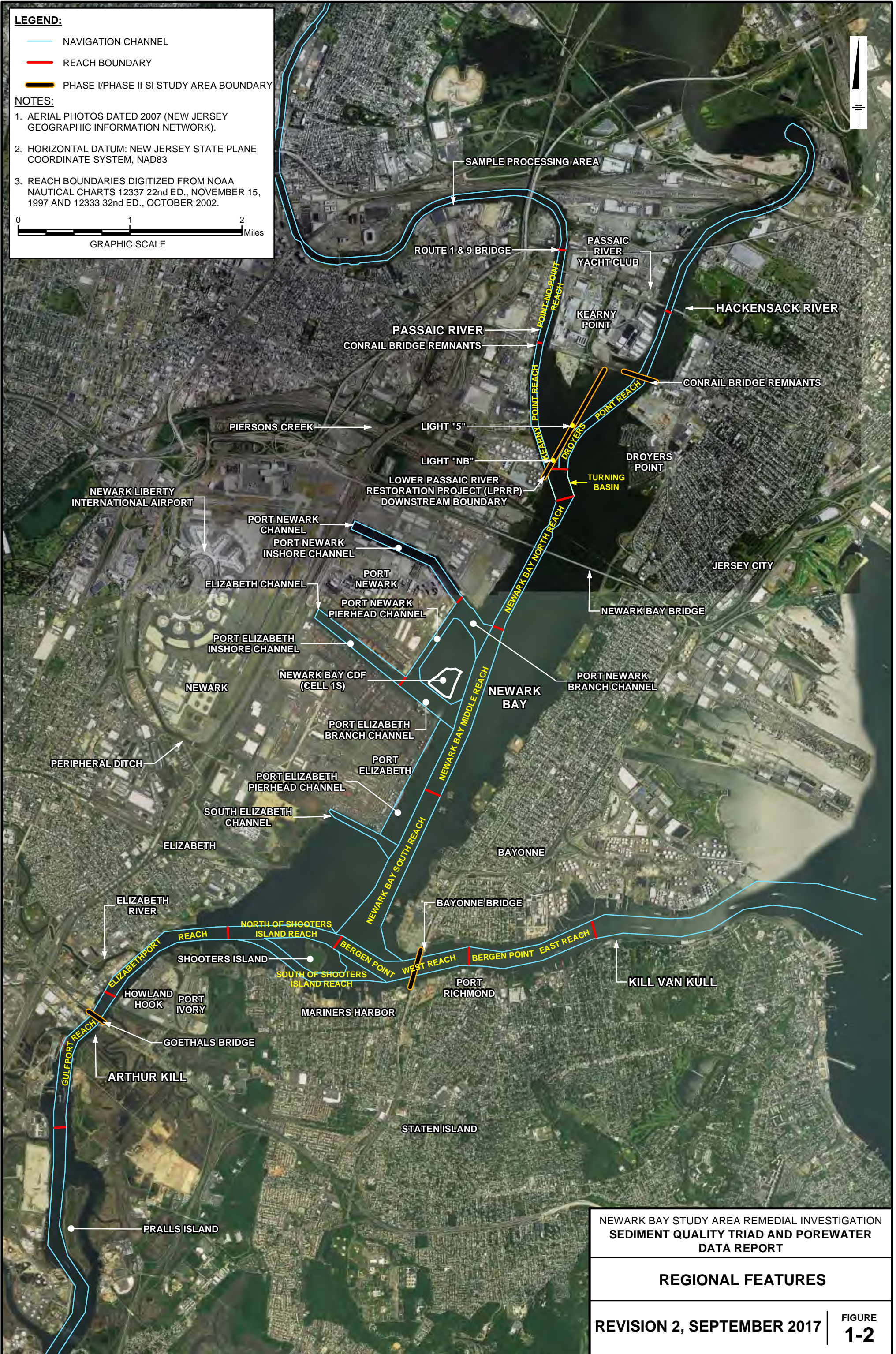
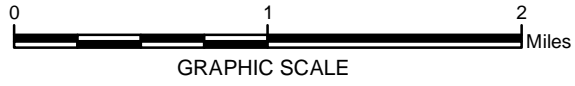


LEGEND:

- NAVIGATION CHANNEL
- REACH BOUNDARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY

NOTES:

1. AERIAL PHOTOS DATED 2007 (NEW JERSEY GEOGRAPHIC INFORMATION NETWORK).
2. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83
3. REACH BOUNDARIES DIGITIZED FROM NOAA NAUTICAL CHARTS 12337 22nd ED., NOVEMBER 15, 1997 AND 12333 32nd ED., OCTOBER 2002.



NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION
 SEDIMENT QUALITY TRIAD AND POREWATER
 DATA REPORT

REGIONAL FEATURES

REVISION 2, SEPTEMBER 2017 | **FIGURE 1-2**

LEGEND:

- CLAM AND SEDIMENT SAMPLING LOCATION
- SURFACE WATER COLLECTION LOCATION

ANALYSES

- BHHRA
- ◇ SQT/PW+LP
- ◊ SQT/PW+LP+Bio
- ◻ SQT/PW+LP+BHHRA
- △ SQT/PW+LP+Bio+BHHRA

GEOMORPHIC AREAS

- NAVIGATION CHANNELS
- SUBTIDAL FLATS
- TRANSITIONAL SLOPES
- INTERTIDAL AREAS
- POTENTIAL HUMAN-SEDIMENT CONTACT LOCATION

SHORELINE

- SHORELINE
- - UNDERGROUND TRIBUTARY
- GEOGRAPHIC ZONE BOUNDARY

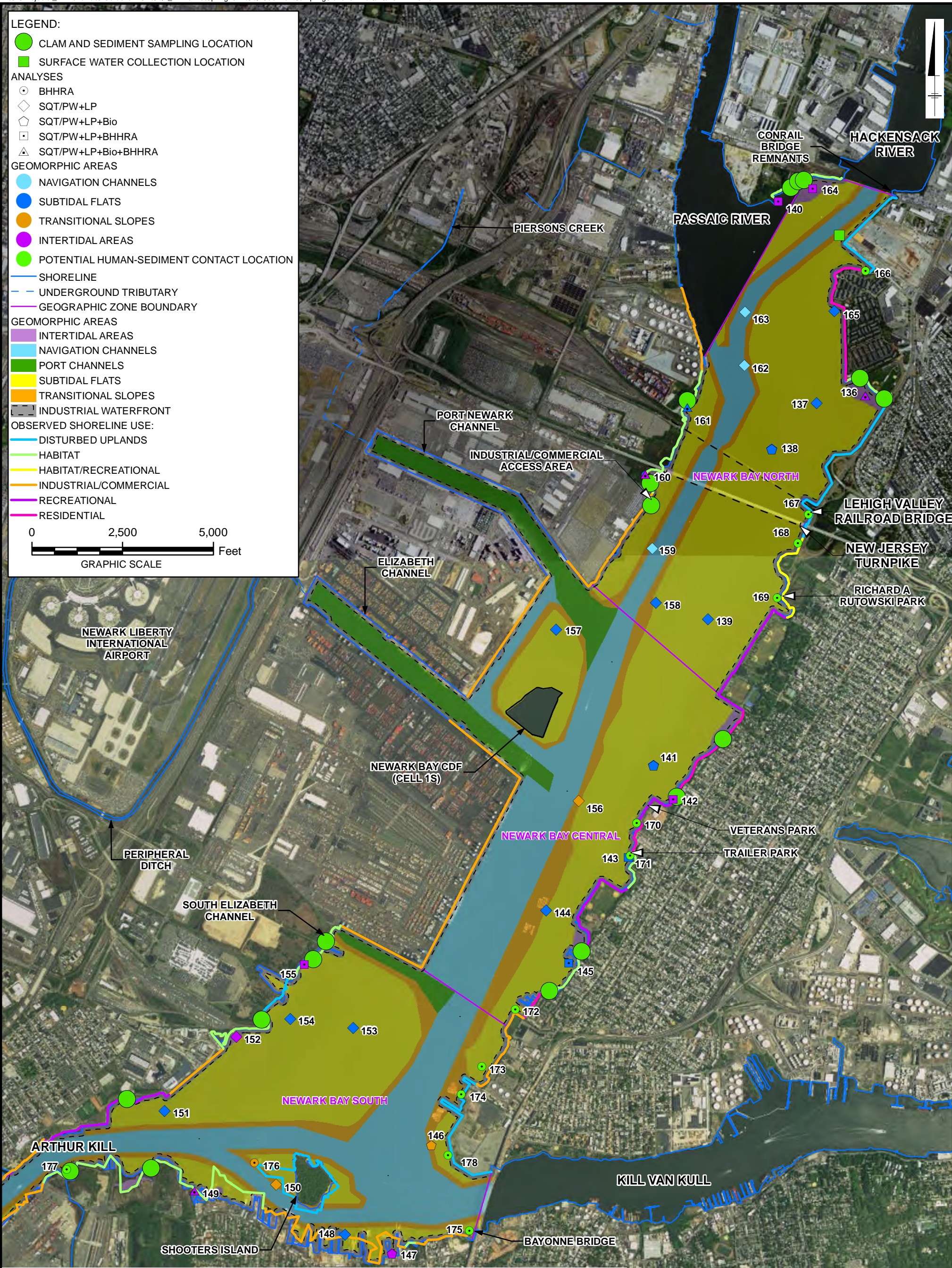
GEOMORPHIC AREAS

- INTERTIDAL AREAS
- NAVIGATION CHANNELS
- PORT CHANNELS
- SUBTIDAL FLATS
- TRANSITIONAL SLOPES
- INDUSTRIAL WATERFRONT

OBSERVED SHORELINE USE:

- DISTURBED UPLANDS
- HABITAT
- HABITAT/RECREATIONAL
- INDUSTRIAL/COMMERCIAL
- RECREATIONAL
- RESIDENTIAL

0 2,500 5,000
 GRAPHIC SCALE Feet



- NOTES:**
1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
 2. AERIAL PHOTOS DATED 2015 (ESRI CLOUD IMAGERY).
 3. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
 4. THE GEOMORPHIC AREAS SHOWN ARE CONSISTENT WITH THOSE PRESENTED IN THE CSM (TIERRA 2013) AND THE NEWARK BAY STUDY AREA PHASE I RIWP (TIERRA 2005).
 5. SQT REPRESENTS THREE ANALYSES: SEDIMENT CHEMISTRY, BENTHIC INVERTEBRATE COMMUNITY, AND TOXICITY TESTING WITH *L. PLUMULOSUS* (10-DAY AND 28-DAY).
 6. SURFACE WATER WAS NOT A TARGETED SAMPLING MATRIX. SURFACE WATER WAS COLLECTED AND USED IN THE FIELD FACILITY FOR THE SHIPMENT OF SEDIMENT FOR POREWATER ANALYSES.
 7. GEOMORPHIC AREA DESIGNATIONS FOR EACH SAMPLING LOCATION ARE BASED ON THE FIELD-COLLECTED GEOGRAPHIC COORDINATES OF THE ACTUAL SAMPLING LOCATIONS AS RECORDED DURING SEDIMENT COLLECTION ACTIVITIES.

**NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION
 SEDIMENT QUALITY TRIAD
 AND POREWATER DATA REPORT**

**SQT AND POREWATER
 SAMPLING STATIONS**

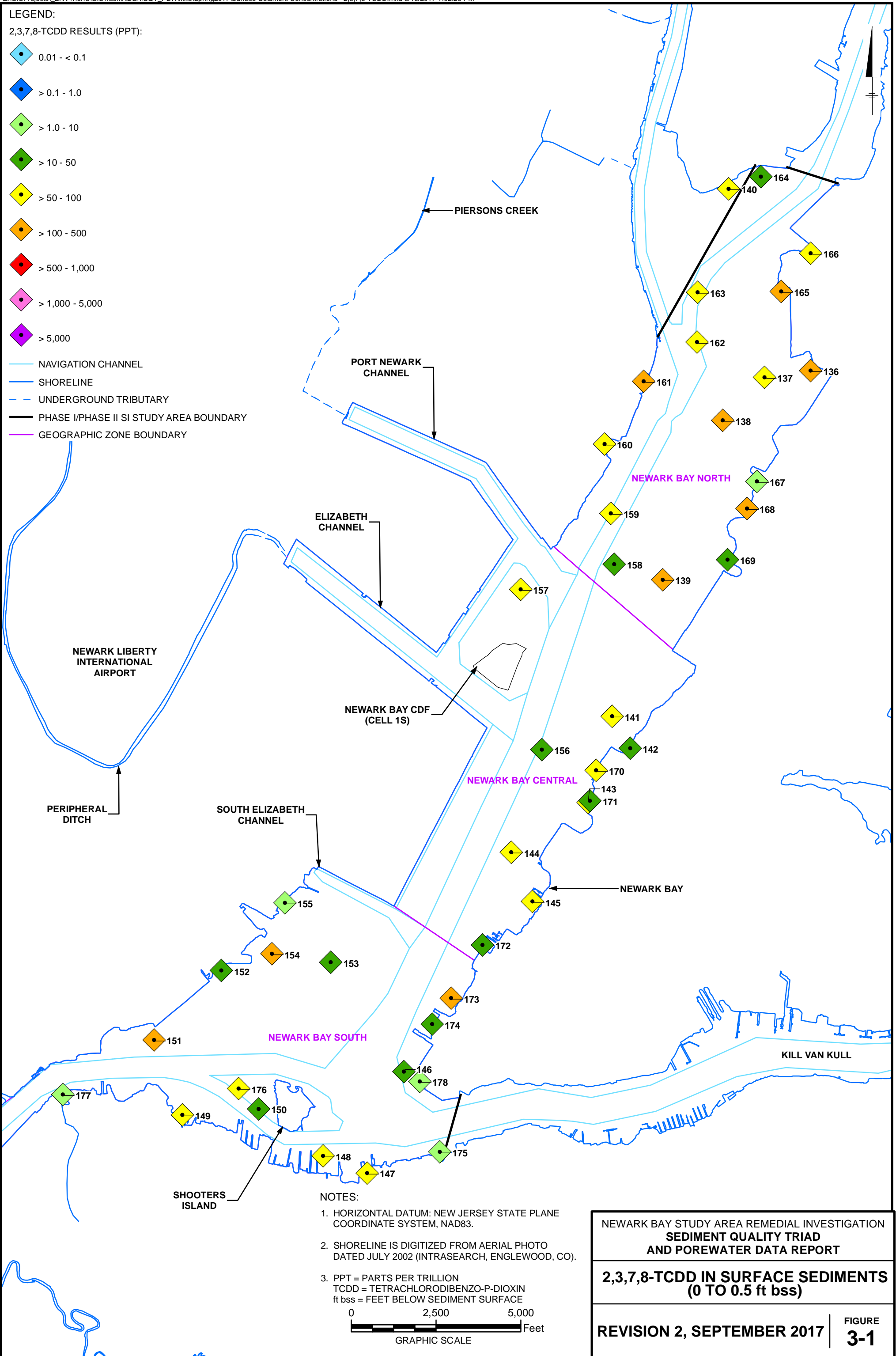
REVISION 2, SEPTEMBER 2017

**FIGURE
 2-1**

LEGEND:
 2,3,7,8-TCDD RESULTS (PPT):

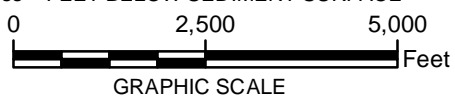
- ◆ 0.01 - < 0.1
- ◆ > 0.1 - 1.0
- ◆ > 1.0 - 10
- ◆ > 10 - 50
- ◆ > 50 - 100
- ◆ > 100 - 500
- ◆ > 500 - 1,000
- ◆ > 1,000 - 5,000
- ◆ > 5,000

- NAVIGATION CHANNEL
- SHORELINE
- - - UNDERGROUND TRIBUTARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY
- GEOGRAPHIC ZONE BOUNDARY



NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
3. PPT = PARTS PER TRILLION
 TCDD = TETRACHLORODIBENZO-P-DIOXIN
 ft bss = FEET BELOW SEDIMENT SURFACE

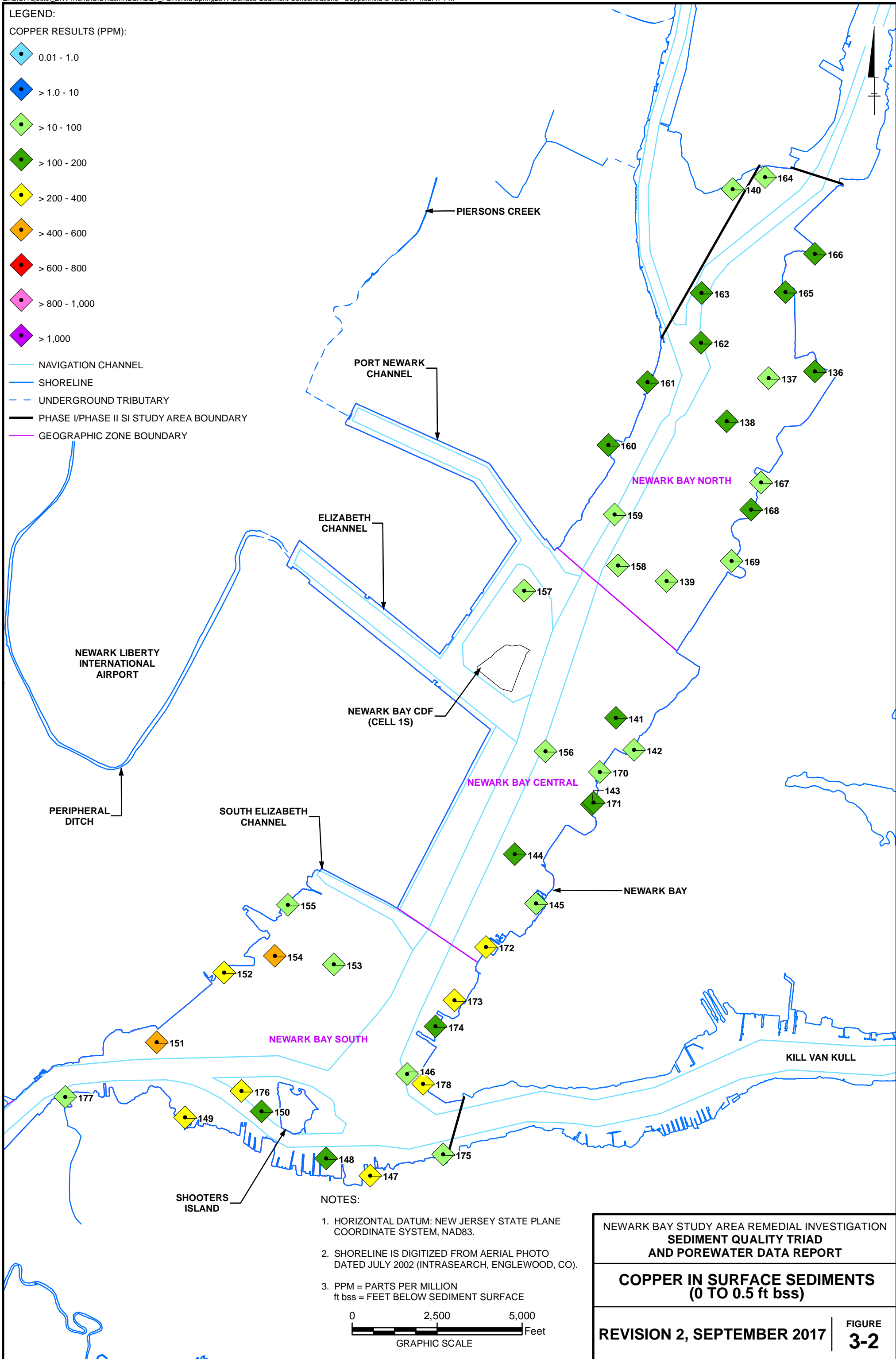


NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION SEDIMENT QUALITY TRIAD AND POREWATER DATA REPORT	
2,3,7,8-TCDD IN SURFACE SEDIMENTS (0 TO 0.5 ft bss)	
REVISION 2, SEPTEMBER 2017	FIGURE 3-1

LEGEND:
COPPER RESULTS (PPM):

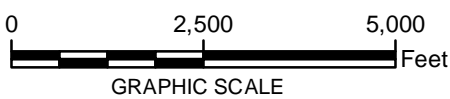
- ◆ 0.01 - 1.0
- ◆ > 1.0 - 10
- ◆ > 10 - 100
- ◆ > 100 - 200
- ◆ > 200 - 400
- ◆ > 400 - 600
- ◆ > 600 - 800
- ◆ > 800 - 1,000
- ◆ > 1,000

- NAVIGATION CHANNEL
- SHORELINE
- - - UNDERGROUND TRIBUTARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY
- GEOGRAPHIC ZONE BOUNDARY



NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
3. PPM = PARTS PER MILLION
 ft bss = FEET BELOW SEDIMENT SURFACE

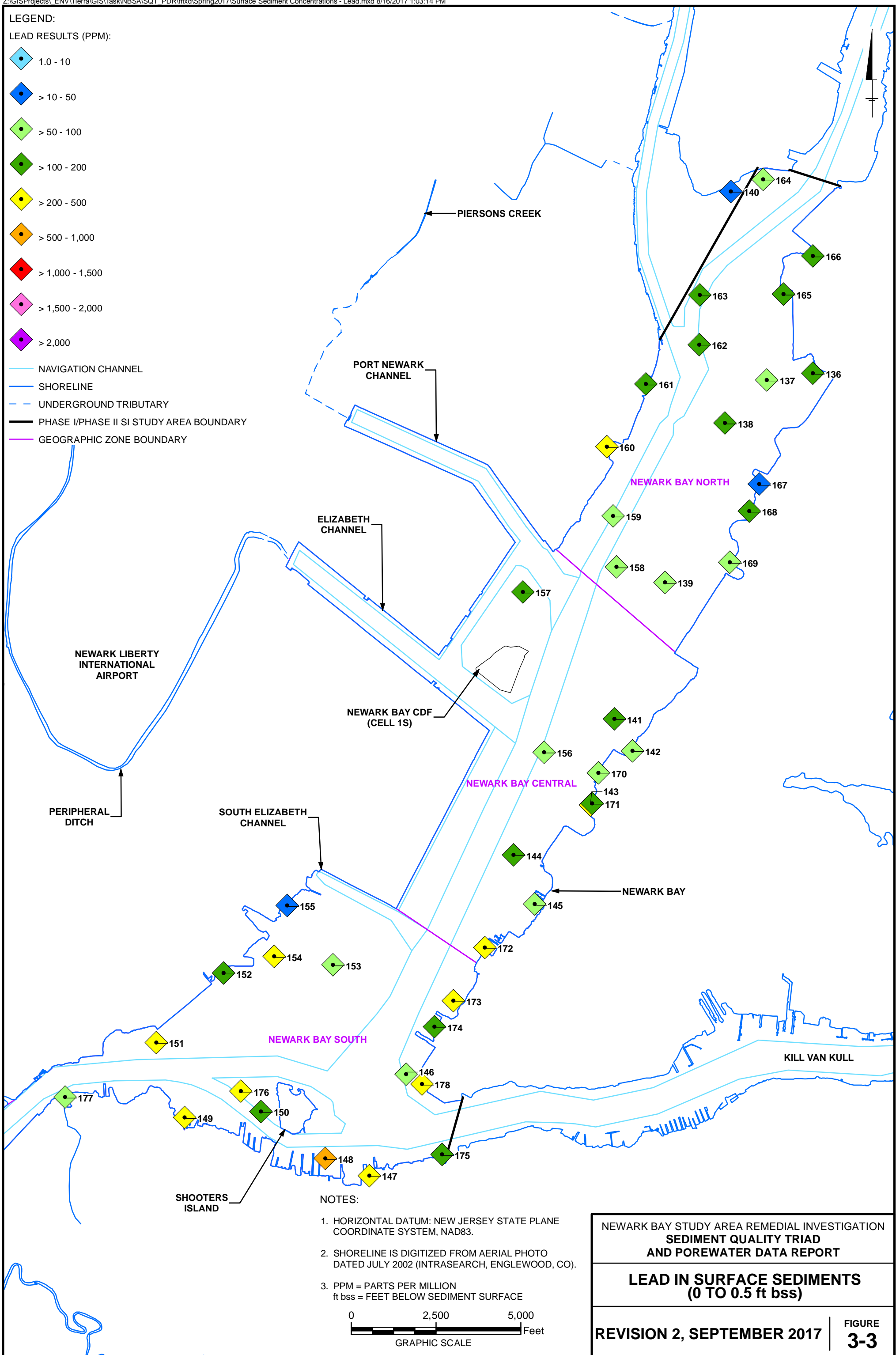


LEGEND:

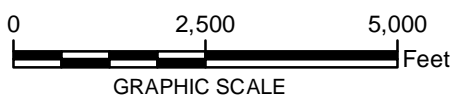
LEAD RESULTS (PPM):

- ◆ 1.0 - 10
- ◆ > 10 - 50
- ◆ > 50 - 100
- ◆ > 100 - 200
- ◆ > 200 - 500
- ◆ > 500 - 1,000
- ◆ > 1,000 - 1,500
- ◆ > 1,500 - 2,000
- ◆ > 2,000

- NAVIGATION CHANNEL
- SHORELINE
- - - UNDERGROUND TRIBUTARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY
- GEOGRAPHIC ZONE BOUNDARY



- NOTES:**
1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
 2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
 3. PPM = PARTS PER MILLION
ft bss = FEET BELOW SEDIMENT SURFACE

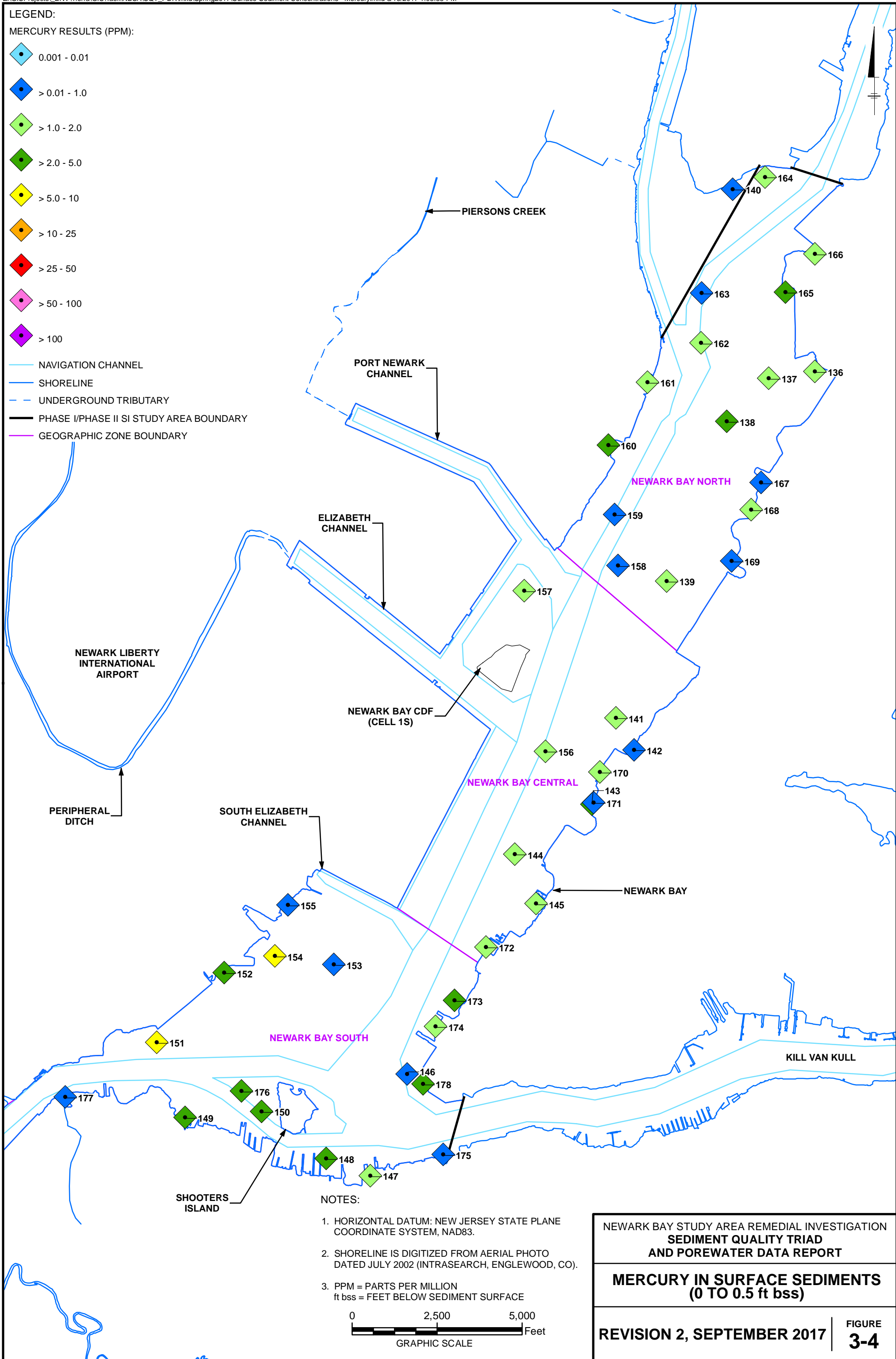


NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION SEDIMENT QUALITY TRIAD AND POREWATER DATA REPORT	
LEAD IN SURFACE SEDIMENTS (0 TO 0.5 ft bss)	
REVISION 2, SEPTEMBER 2017	FIGURE 3-3

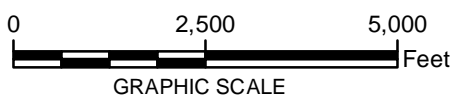
LEGEND:
MERCURY RESULTS (PPM):

- ◆ 0.001 - 0.01
- ◆ > 0.01 - 1.0
- ◆ > 1.0 - 2.0
- ◆ > 2.0 - 5.0
- ◆ > 5.0 - 10
- ◆ > 10 - 25
- ◆ > 25 - 50
- ◆ > 50 - 100
- ◆ > 100

- NAVIGATION CHANNEL
- SHORELINE
- - - UNDERGROUND TRIBUTARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY
- GEOGRAPHIC ZONE BOUNDARY



- NOTES:**
1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
 2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
 3. PPM = PARTS PER MILLION
ft bss = FEET BELOW SEDIMENT SURFACE



**NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION
 SEDIMENT QUALITY TRIAD
 AND POREWATER DATA REPORT**

**MERCURY IN SURFACE SEDIMENTS
 (0 TO 0.5 ft bss)**

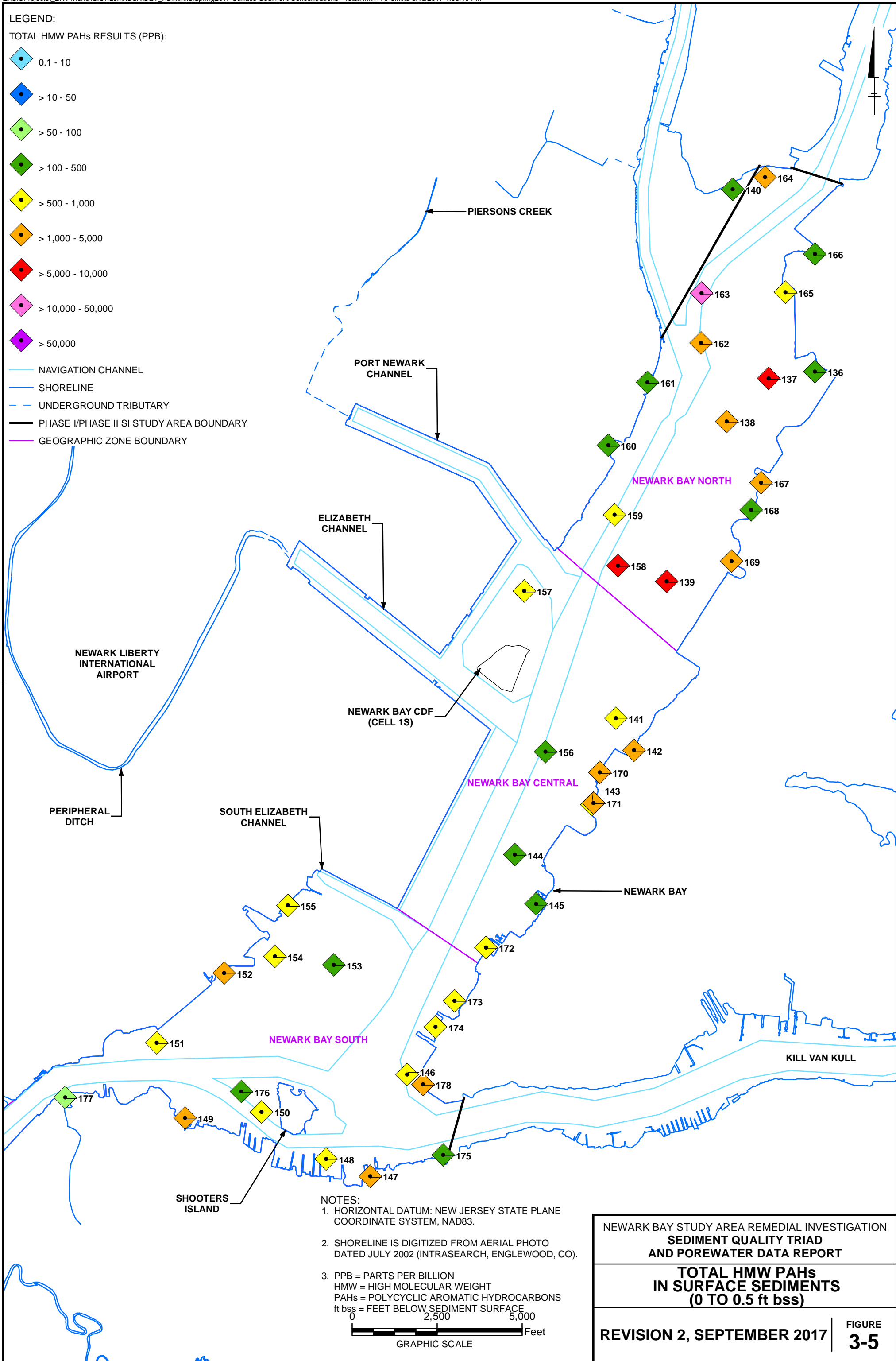
REVISION 2, SEPTEMBER 2017 | **FIGURE 3-4**

LEGEND:

TOTAL HMW PAHs RESULTS (PPB):

- ◆ 0.1 - 10
- ◆ > 10 - 50
- ◆ > 50 - 100
- ◆ > 100 - 500
- ◆ > 500 - 1,000
- ◆ > 1,000 - 5,000
- ◆ > 5,000 - 10,000
- ◆ > 10,000 - 50,000
- ◆ > 50,000

- NAVIGATION CHANNEL
- SHORELINE
- - - UNDERGROUND TRIBUTARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY
- GEOGRAPHIC ZONE BOUNDARY



NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
3. PPB = PARTS PER BILLION
 HMW = HIGH MOLECULAR WEIGHT
 PAHs = POLYCYCLIC AROMATIC HYDROCARBONS
 ft bss = FEET BELOW SEDIMENT SURFACE

0 2,500 5,000
 Feet
 GRAPHIC SCALE

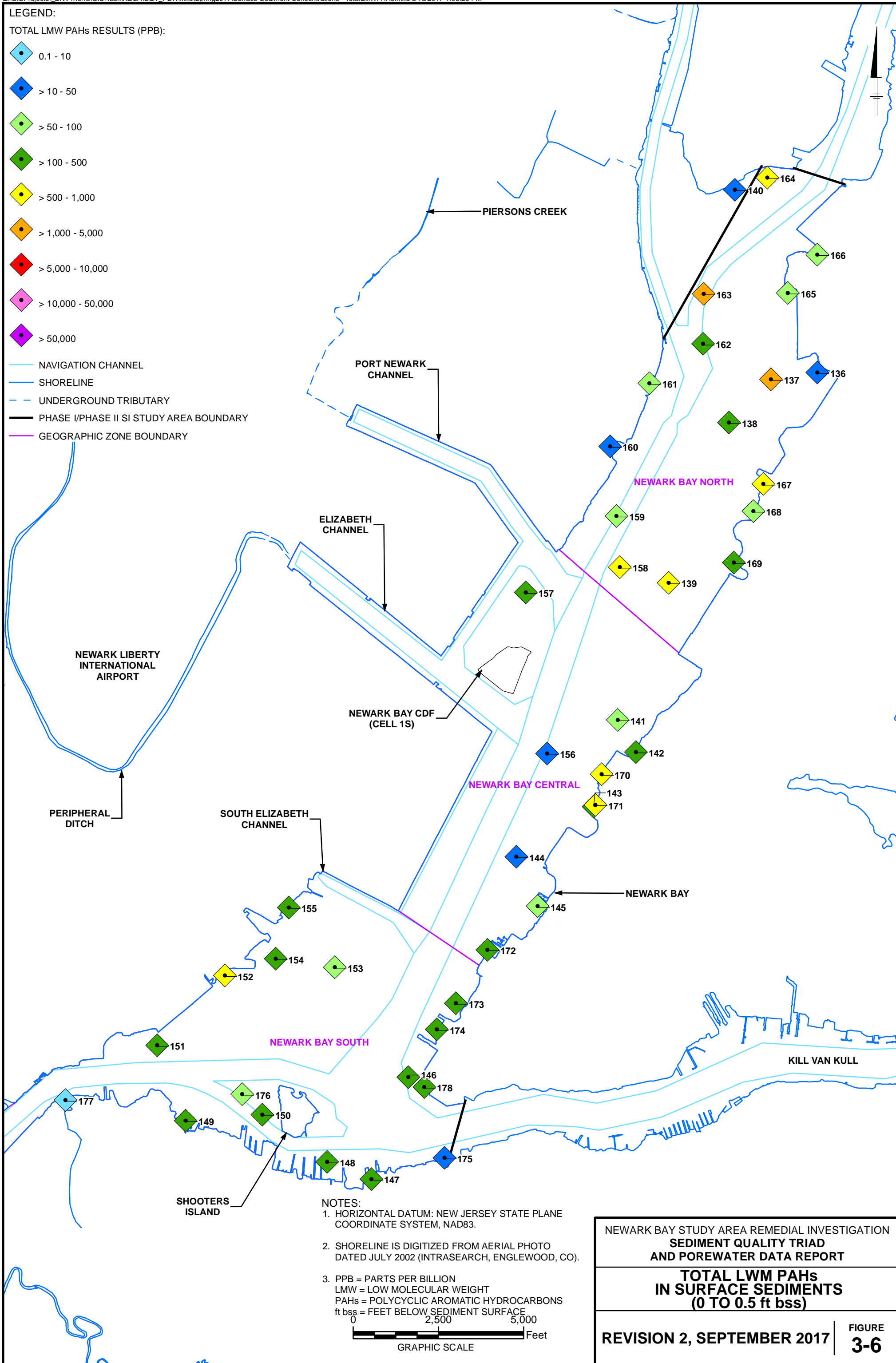
NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION SEDIMENT QUALITY TRIAD AND POREWATER DATA REPORT	
TOTAL HMW PAHs IN SURFACE SEDIMENTS (0 TO 0.5 ft bss)	
REVISION 2, SEPTEMBER 2017	FIGURE 3-5

LEGEND:

TOTAL LMW PAHs RESULTS (PPB):

- ◆ 0.1 - 10
- ◆ > 10 - 50
- ◆ > 50 - 100
- ◆ > 100 - 500
- ◆ > 500 - 1,000
- ◆ > 1,000 - 5,000
- ◆ > 5,000 - 10,000
- ◆ > 10,000 - 50,000
- ◆ > 50,000

- NAVIGATION CHANNEL
- SHORELINE
- UNDERGROUND TRIBUTARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY
- GEOGRAPHIC ZONE BOUNDARY



NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
3. PPB = PARTS PER BILLION
 LMW = LOW MOLECULAR WEIGHT
 PAHs = POLYCYCLIC AROMATIC HYDROCARBONS
 ft bss = FEET BELOW SEDIMENT SURFACE

0 2,500 5,000 Feet
 GRAPHIC SCALE

NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION
**SEDIMENT QUALITY TRIAD
 AND POREWATER DATA REPORT**

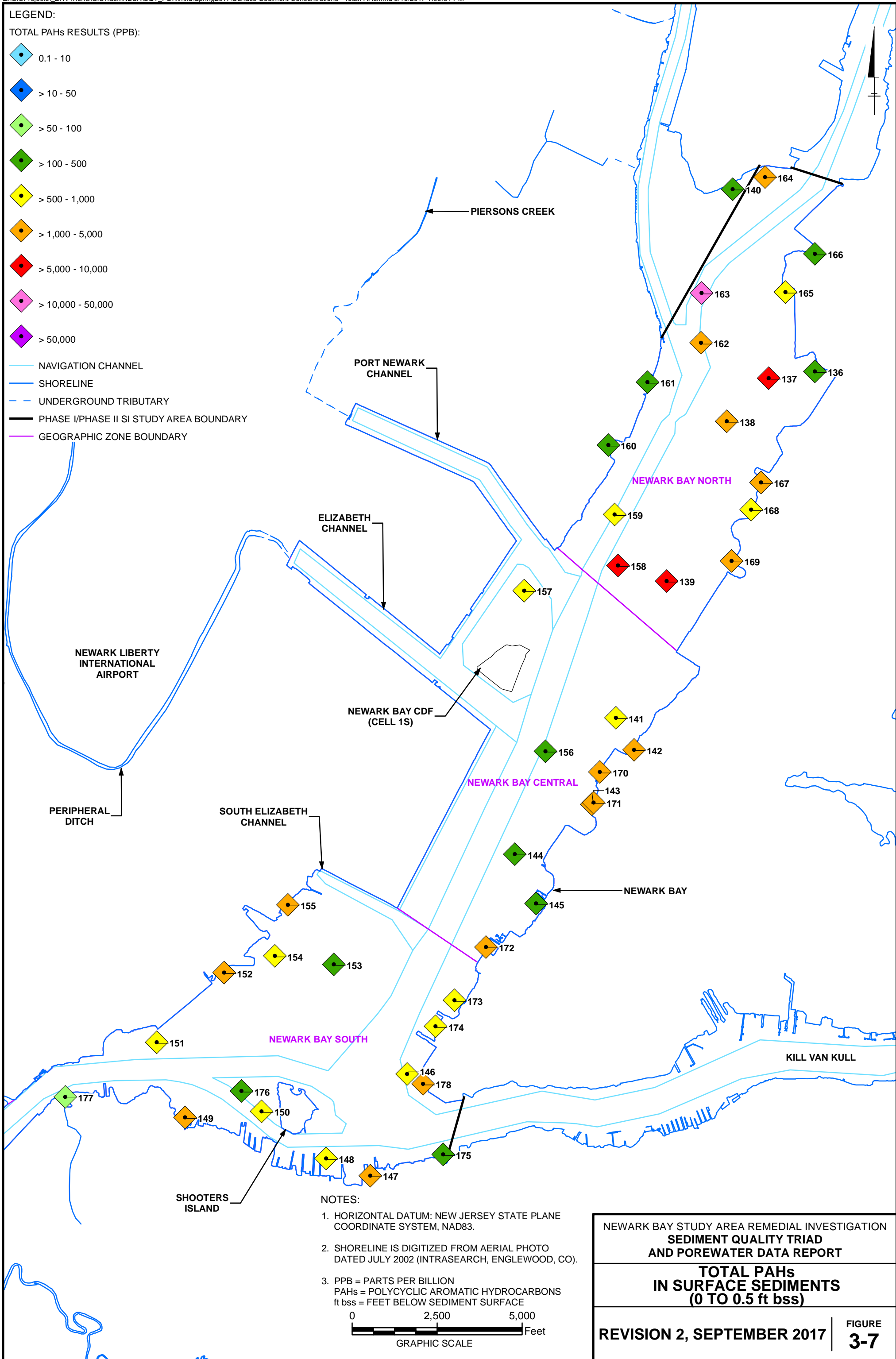
**TOTAL LMW PAHs
 IN SURFACE SEDIMENTS
 (0 TO 0.5 ft bss)**

REVISION 2, SEPTEMBER 2017 | **FIGURE 3-6**

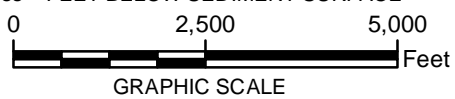
LEGEND:
TOTAL PAHs RESULTS (PPB):

- ◆ 0.1 - 10
- ◆ > 10 - 50
- ◆ > 50 - 100
- ◆ > 100 - 500
- ◆ > 500 - 1,000
- ◆ > 1,000 - 5,000
- ◆ > 5,000 - 10,000
- ◆ > 10,000 - 50,000
- ◆ > 50,000

- NAVIGATION CHANNEL
- SHORELINE
- - - UNDERGROUND TRIBUTARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY
- GEOGRAPHIC ZONE BOUNDARY



- NOTES:**
1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
 2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
 3. PPB = PARTS PER BILLION
 PAHs = POLYCYCLIC AROMATIC HYDROCARBONS
 ft bss = FEET BELOW SEDIMENT SURFACE



**NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION
 SEDIMENT QUALITY TRIAD
 AND POREWATER DATA REPORT**

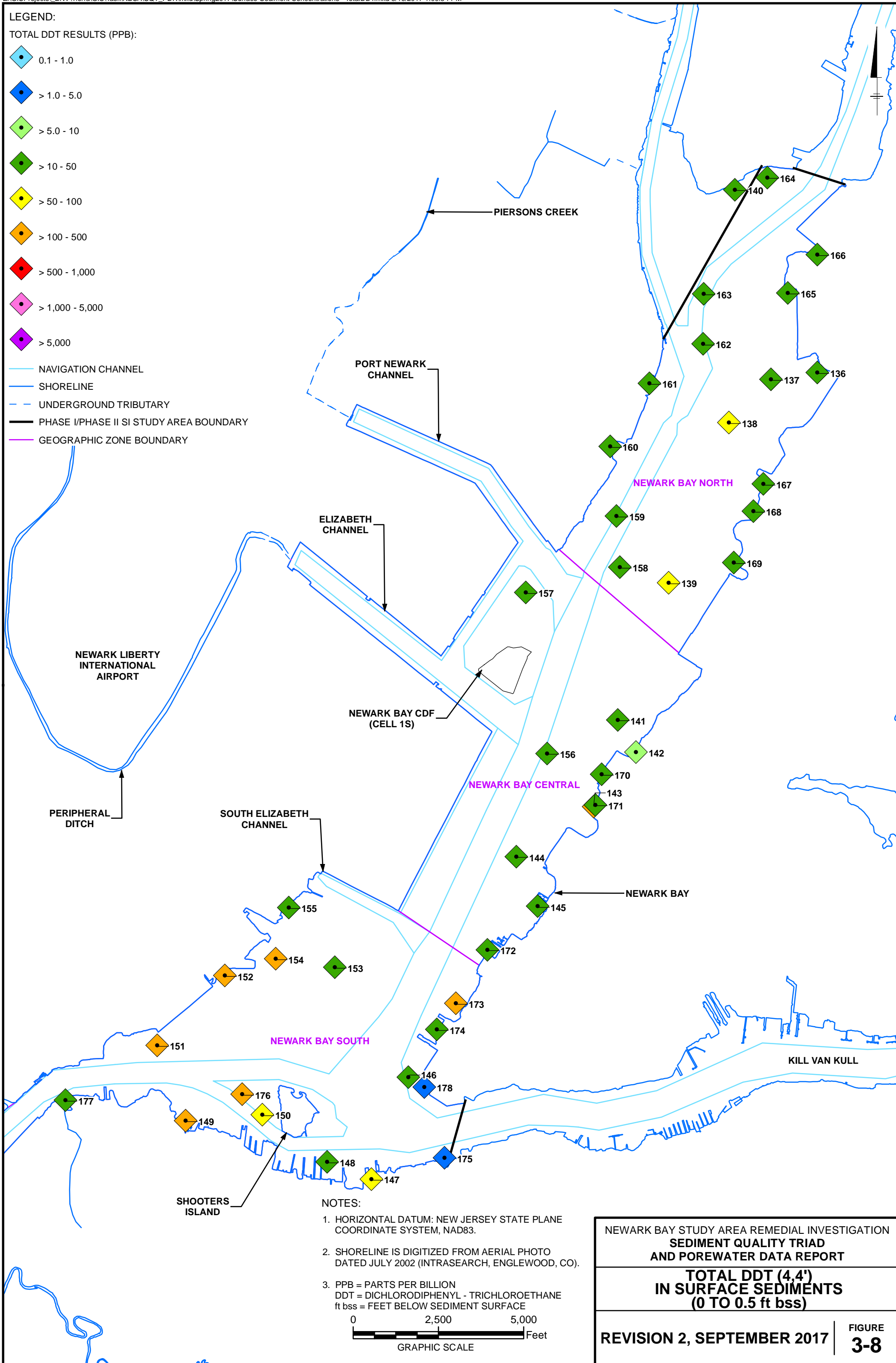
**TOTAL PAHs
 IN SURFACE SEDIMENTS
 (0 TO 0.5 ft bss)**

REVISION 2, SEPTEMBER 2017 | **FIGURE 3-7**

LEGEND:
TOTAL DDT RESULTS (PPB):

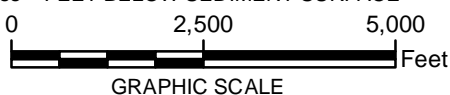
- ◆ 0.1 - 1.0
- ◆ > 1.0 - 5.0
- ◆ > 5.0 - 10
- ◆ > 10 - 50
- ◆ > 50 - 100
- ◆ > 100 - 500
- ◆ > 500 - 1,000
- ◆ > 1,000 - 5,000
- ◆ > 5,000

- NAVIGATION CHANNEL
- SHORELINE
- - - UNDERGROUND TRIBUTARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY
- GEOGRAPHIC ZONE BOUNDARY

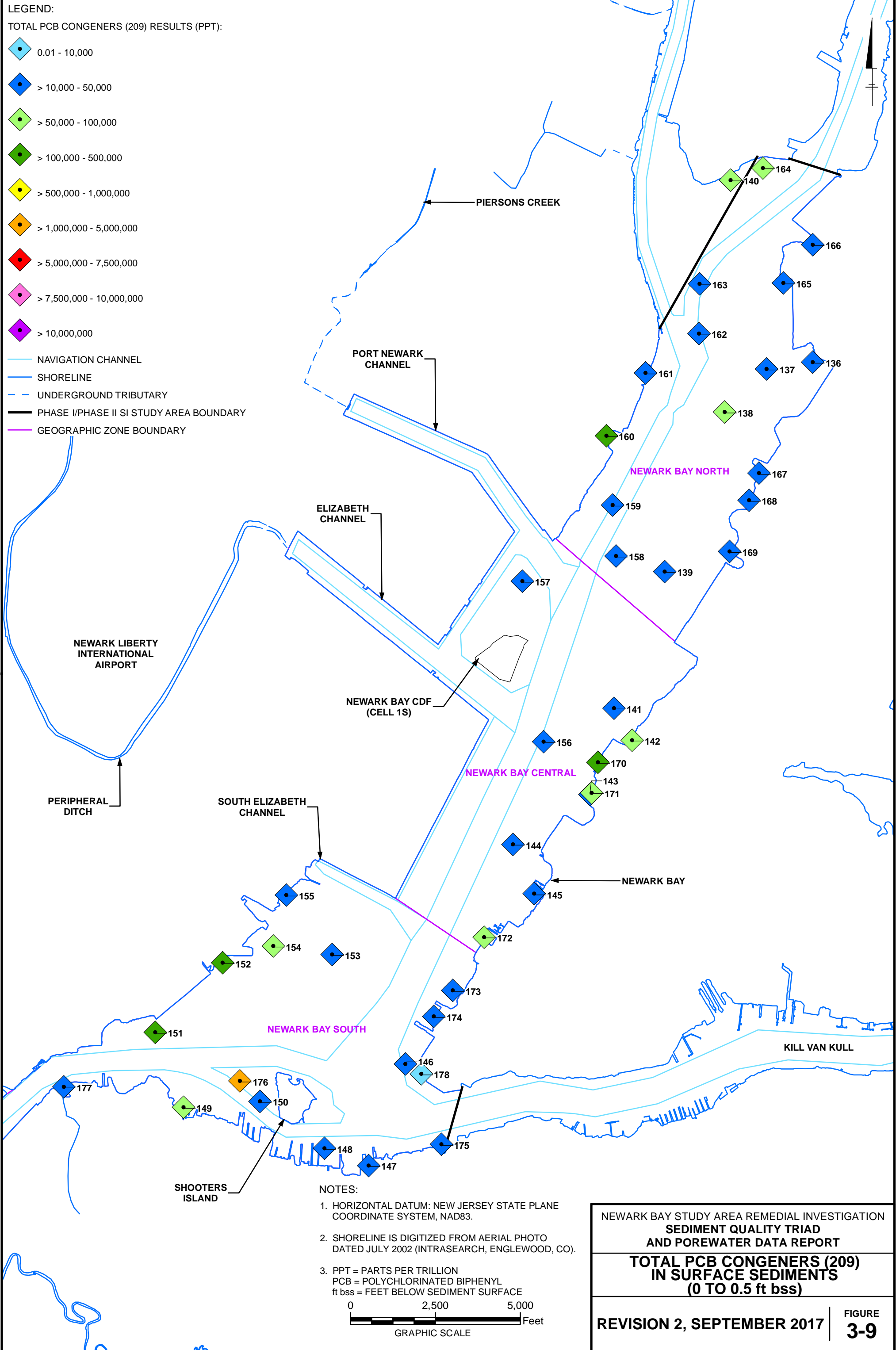


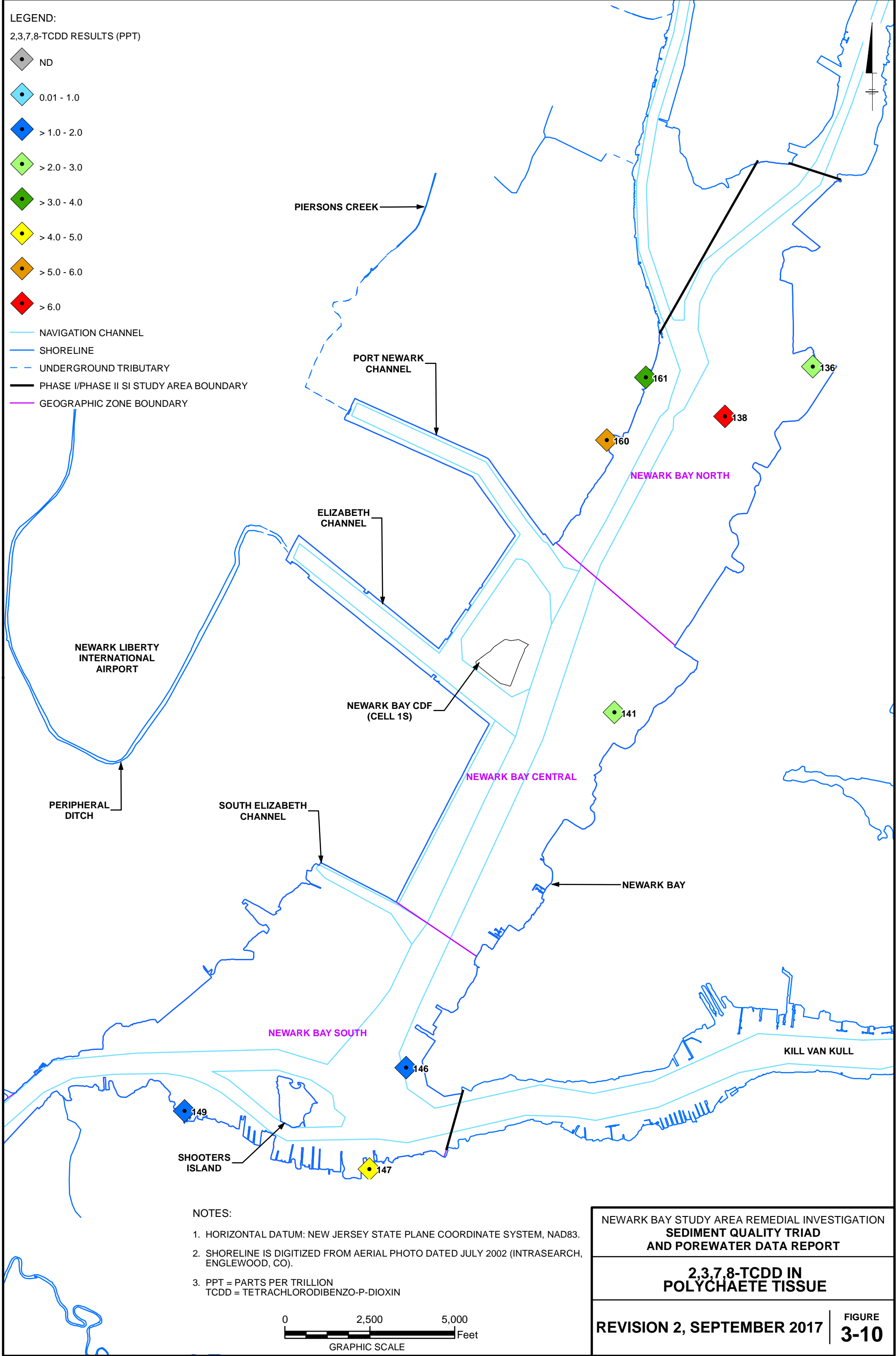
NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
3. PPB = PARTS PER BILLION
 DDT = DICHLORODIPHENYL - TRICHLOROETHANE
 ft bss = FEET BELOW SEDIMENT SURFACE



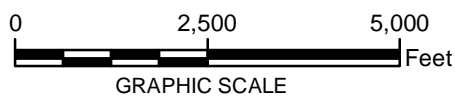
NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION SEDIMENT QUALITY TRIAD AND POREWATER DATA REPORT	
TOTAL DDT (4,4') IN SURFACE SEDIMENTS (0 TO 0.5 ft bss)	
REVISION 2, SEPTEMBER 2017	FIGURE 3-8





NOTES:

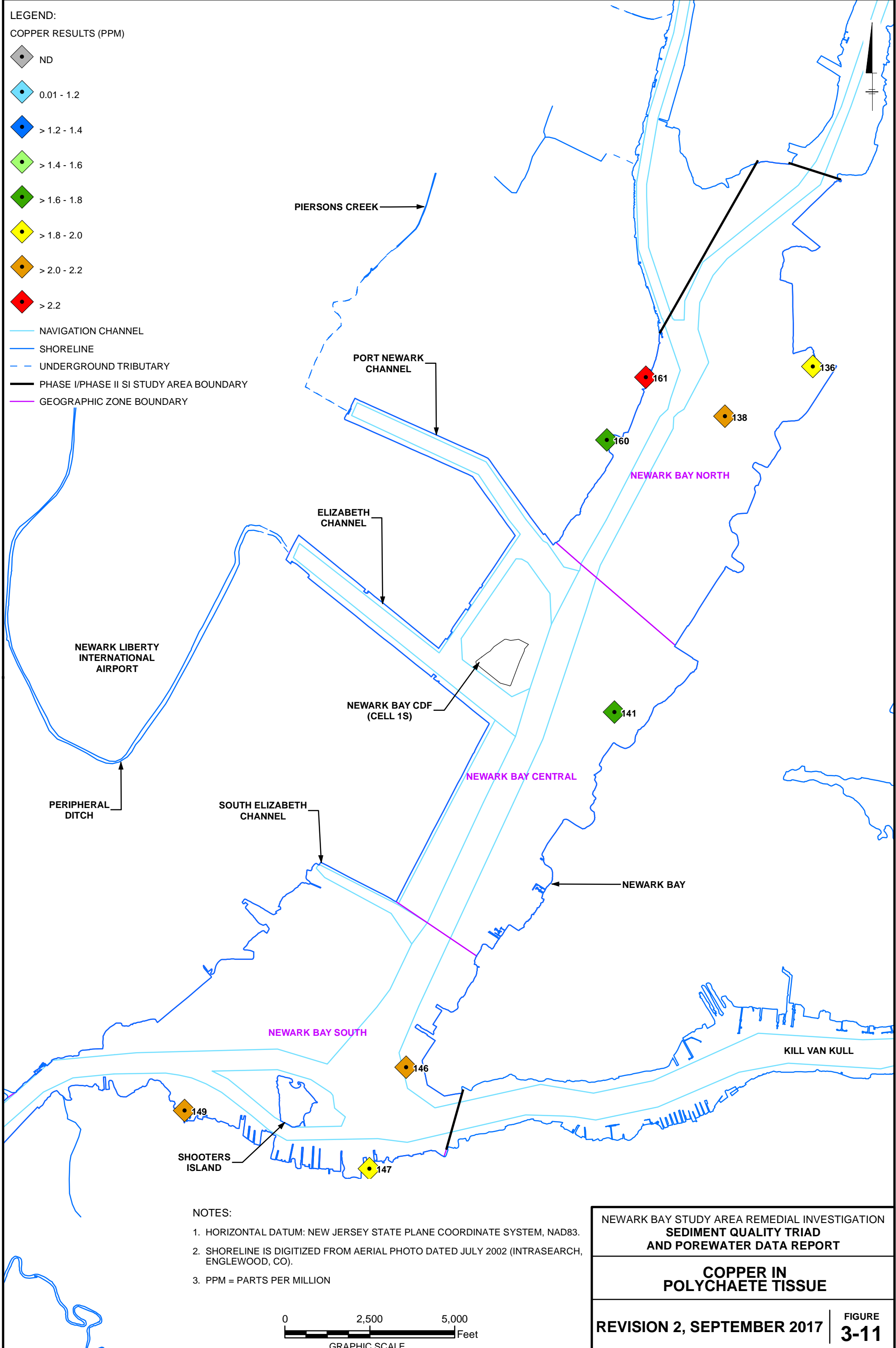
1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
3. PPT = PARTS PER TRILLION
 TCDD = TETRACHLORODIBENZO-P-DIOXIN



NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION
**SEDIMENT QUALITY TRIAD
 AND POREWATER DATA REPORT**

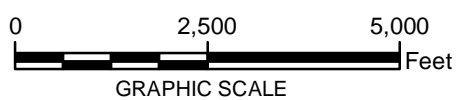
**2,3,7,8-TCDD IN
 POLYCHAETE TISSUE**

REVISION 2, SEPTEMBER 2017 | **FIGURE 3-10**



NOTES:

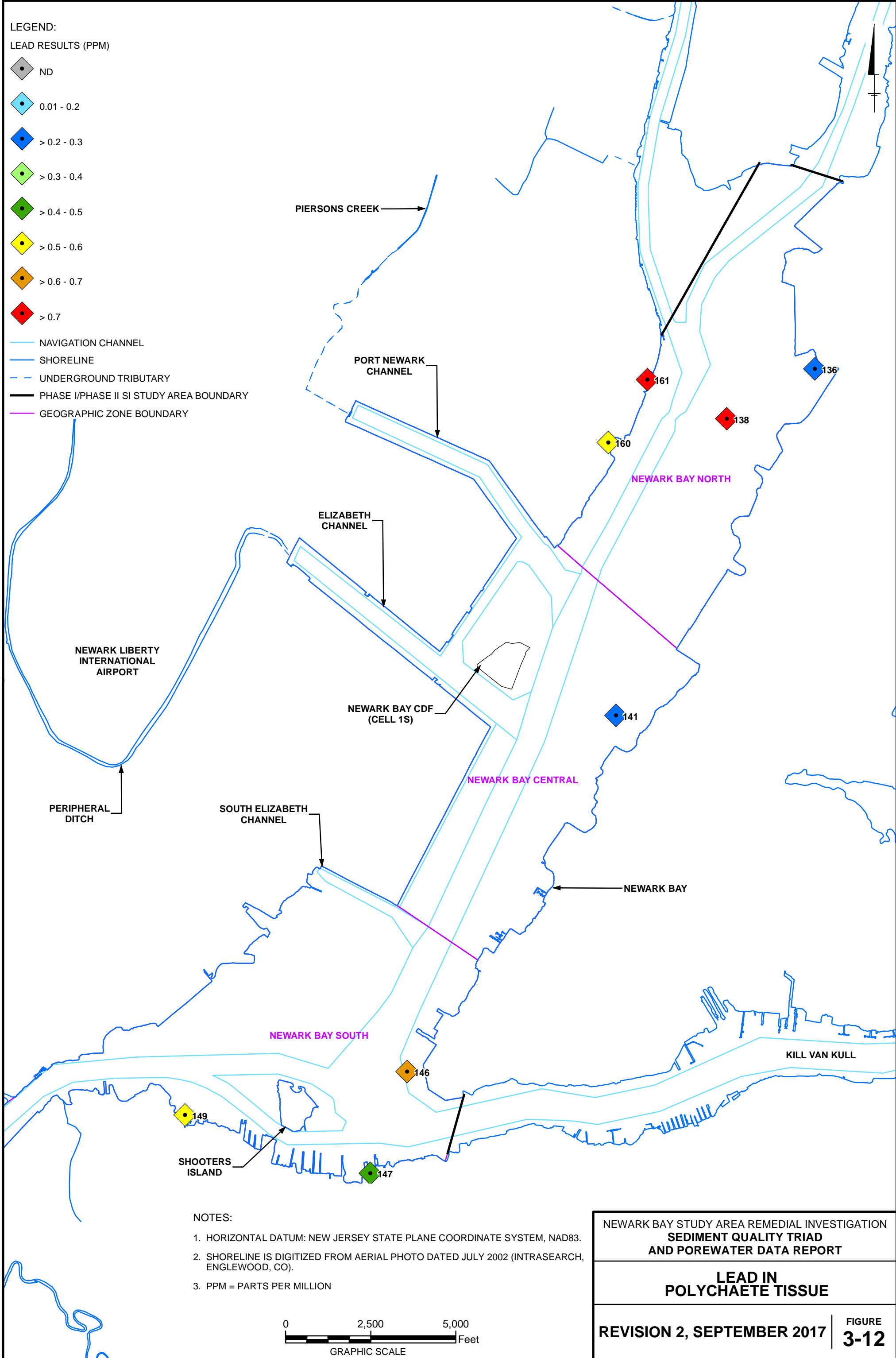
1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
3. PPM = PARTS PER MILLION

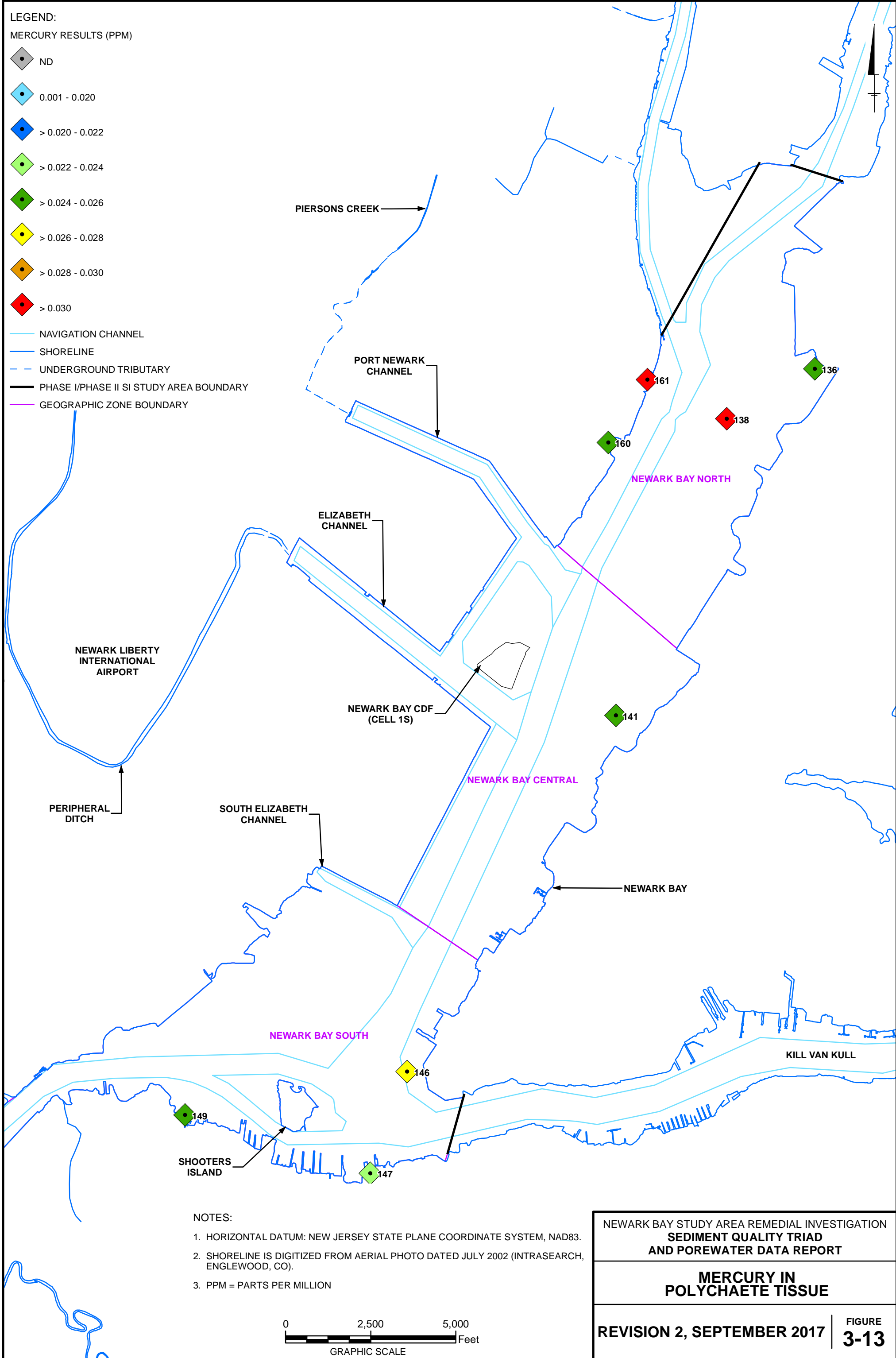


NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION
**SEDIMENT QUALITY TRIAD
 AND POREWATER DATA REPORT**

**COPPER IN
 POLYCHAETE TISSUE**

REVISION 2, SEPTEMBER 2017 | **FIGURE 3-11**



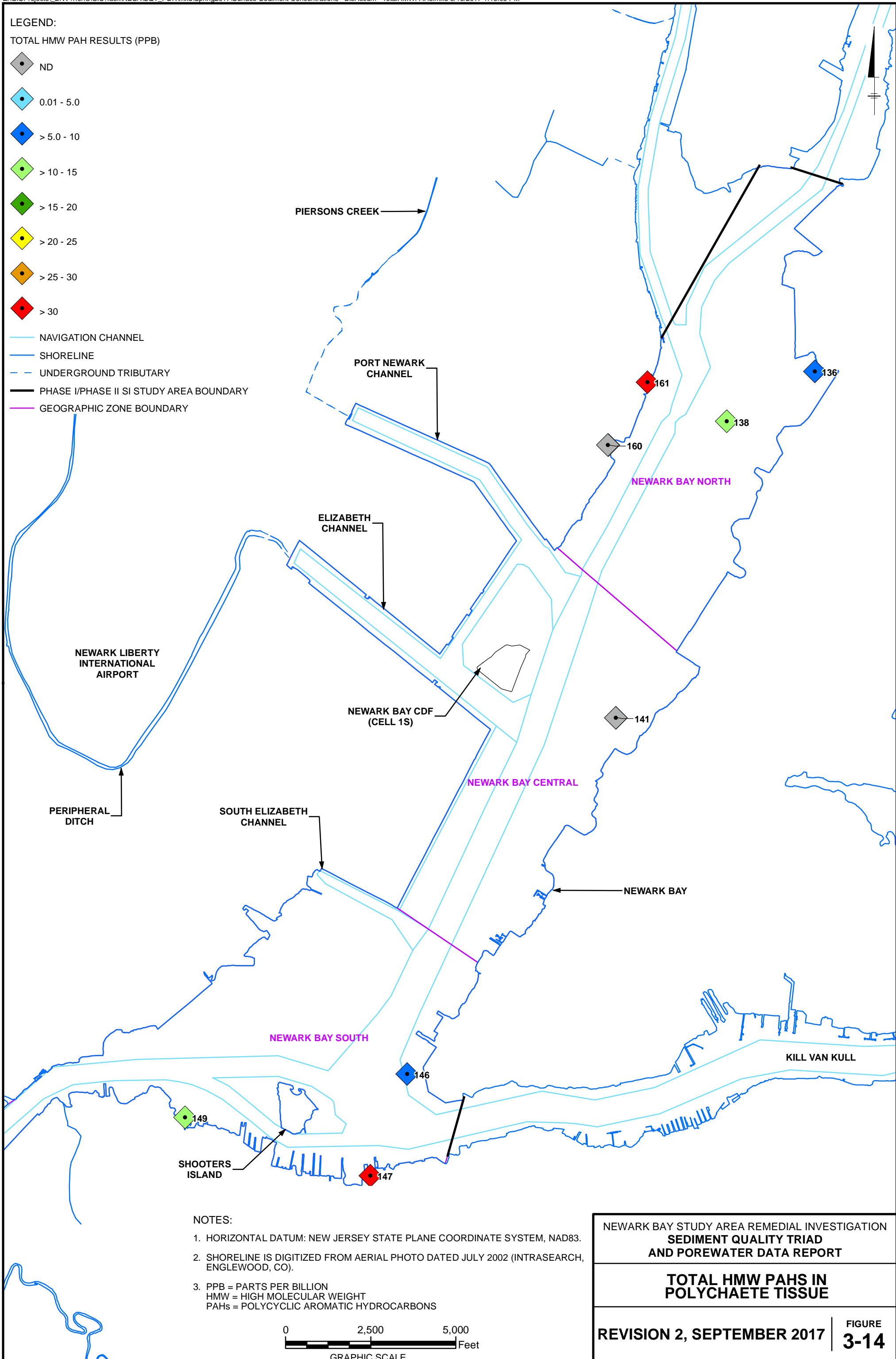


LEGEND:

TOTAL HMW PAH RESULTS (PPB)

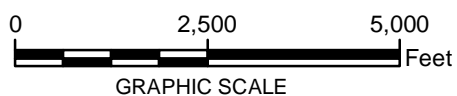
- ◆ ND
- ◆ 0.01 - 5.0
- ◆ > 5.0 - 10
- ◆ > 10 - 15
- ◆ > 15 - 20
- ◆ > 20 - 25
- ◆ > 25 - 30
- ◆ > 30

- NAVIGATION CHANNEL
- SHORELINE
- - UNDERGROUND TRIBUTARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY
- GEOGRAPHIC ZONE BOUNDARY



NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
3. PPB = PARTS PER BILLION
 HMW = HIGH MOLECULAR WEIGHT
 PAHs = POLYCYCLIC AROMATIC HYDROCARBONS



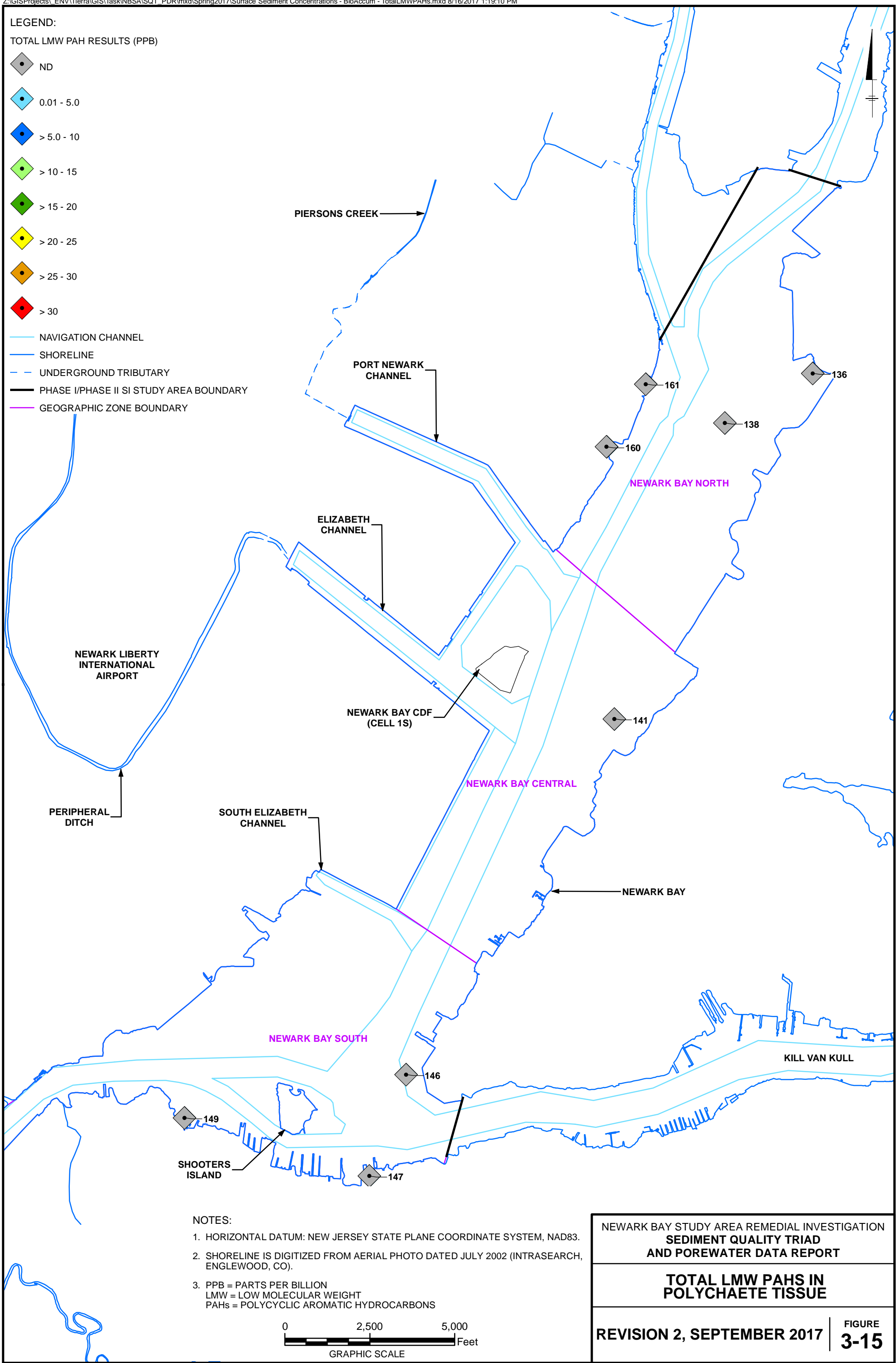
NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION SEDIMENT QUALITY TRIAD AND POREWATER DATA REPORT	
TOTAL HMW PAHs IN POLYCHAETE TISSUE	
REVISION 2, SEPTEMBER 2017	FIGURE 3-14

LEGEND:

TOTAL LMW PAH RESULTS (PPB)

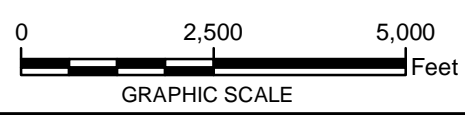
- ◆ ND
- ◆ 0.01 - 5.0
- ◆ > 5.0 - 10
- ◆ > 10 - 15
- ◆ > 15 - 20
- ◆ > 20 - 25
- ◆ > 25 - 30
- ◆ > 30

- NAVIGATION CHANNEL
- SHORELINE
- - UNDERGROUND TRIBUTARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY
- GEOGRAPHIC ZONE BOUNDARY

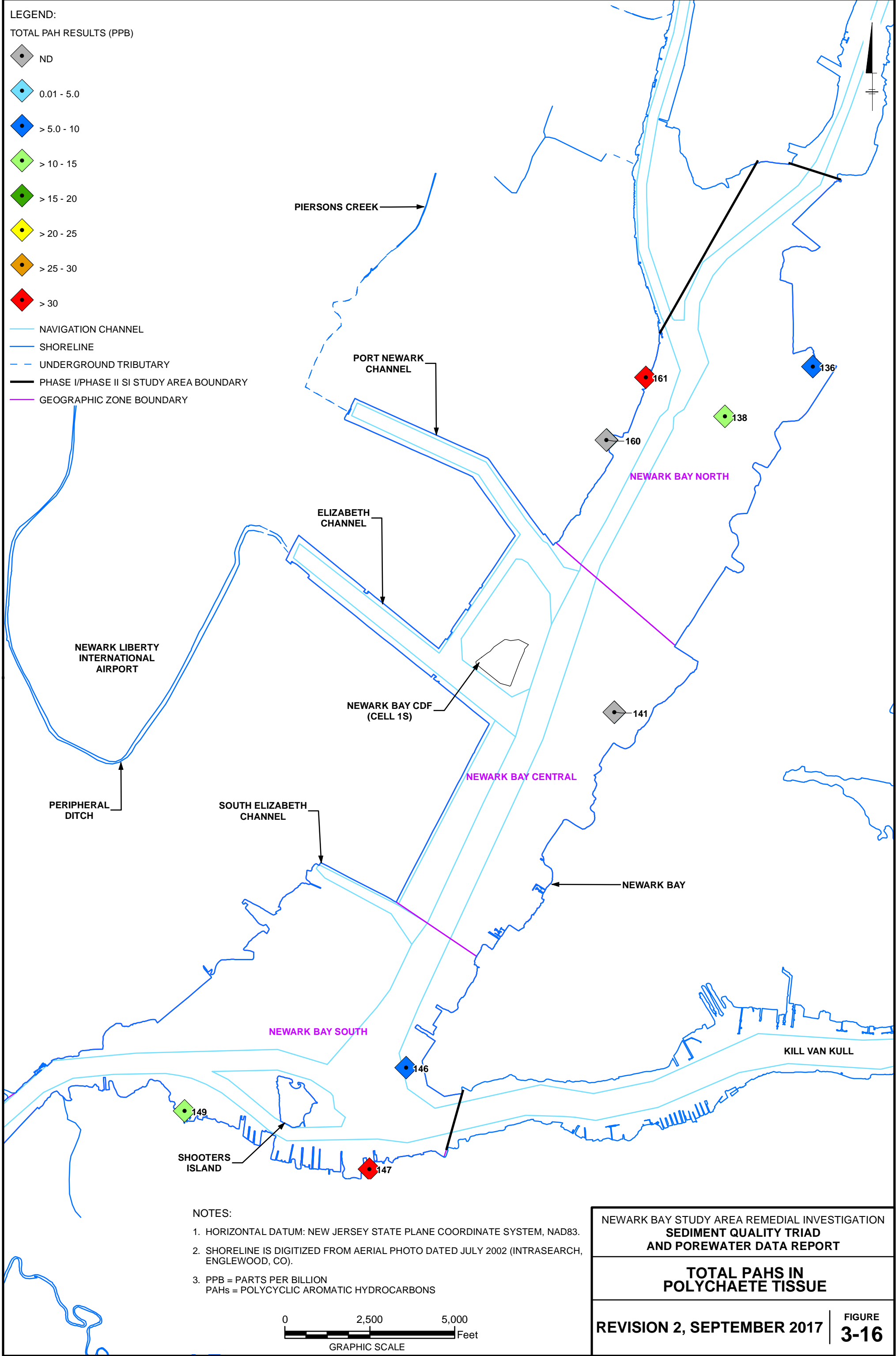


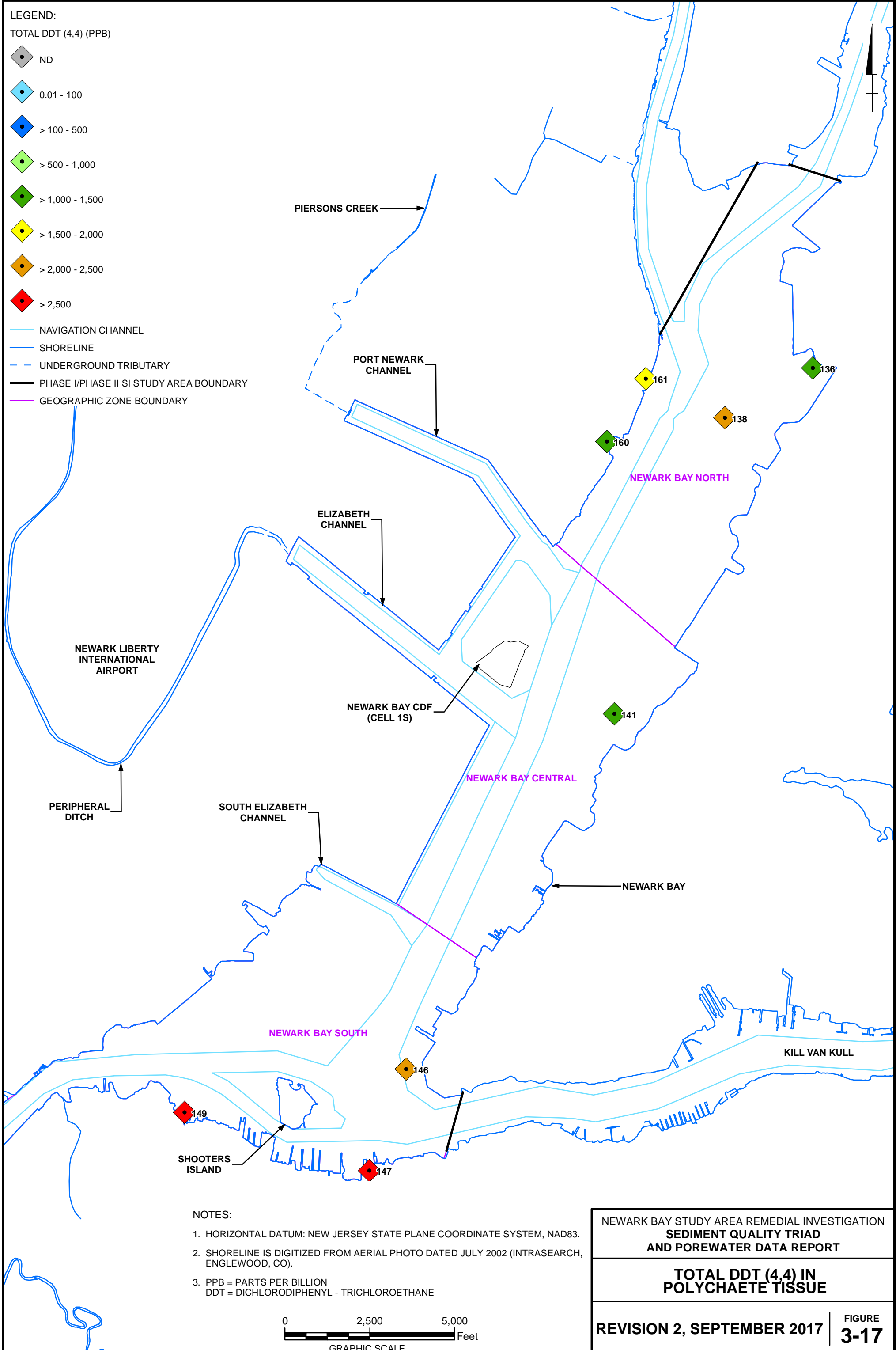
NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
3. PPB = PARTS PER BILLION
 LMW = LOW MOLECULAR WEIGHT
 PAHs = POLYCYCLIC AROMATIC HYDROCARBONS



NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION SEDIMENT QUALITY TRIAD AND POREWATER DATA REPORT	
TOTAL LMW PAHs IN POLYCHAETE TISSUE	
REVISION 2, SEPTEMBER 2017	FIGURE 3-15



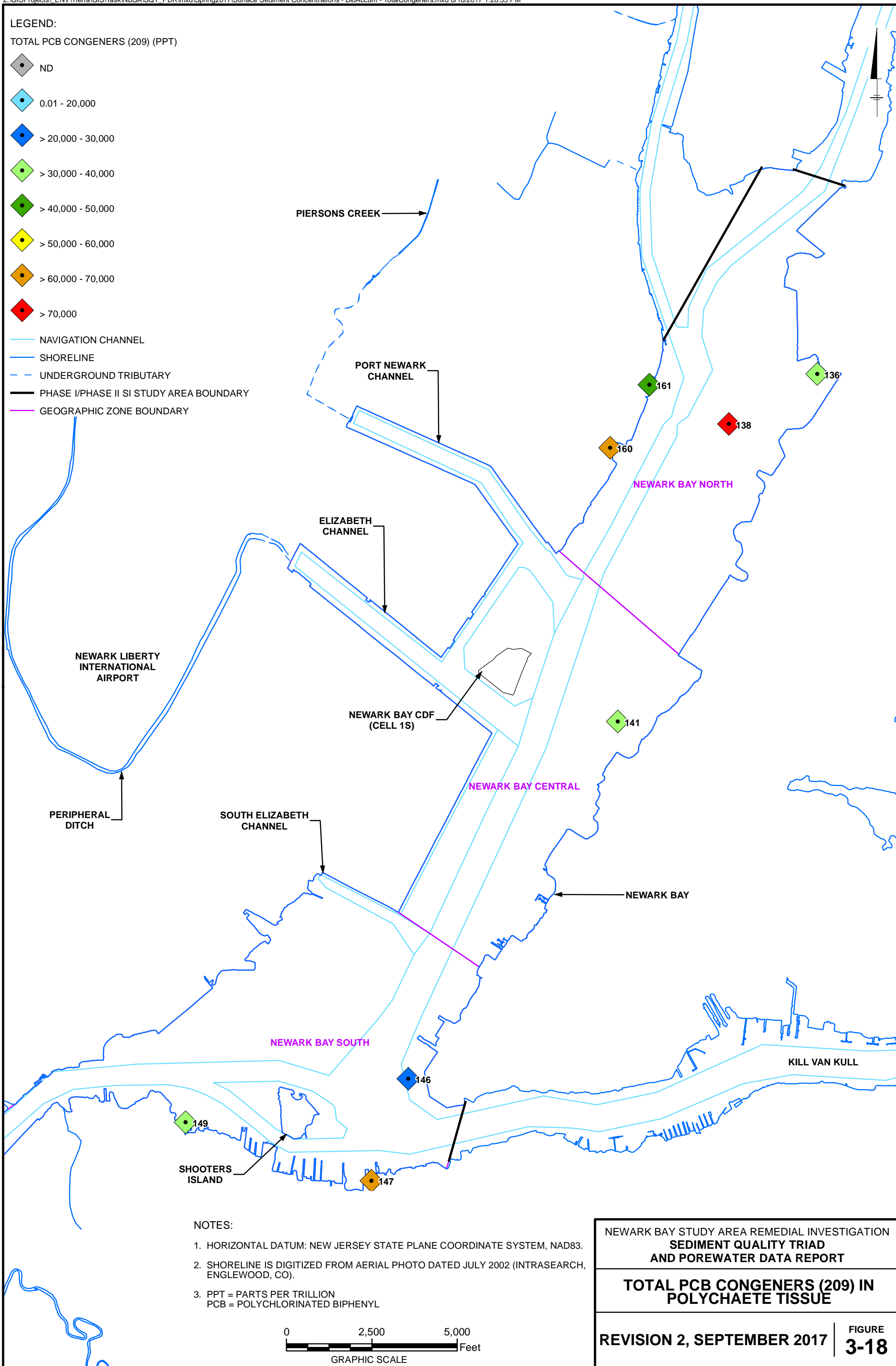


LEGEND:

TOTAL PCB CONGENERS (209) (PPT)

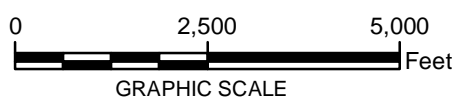
- ◆ ND
- ◆ 0.01 - 20,000
- ◆ > 20,000 - 30,000
- ◆ > 30,000 - 40,000
- ◆ > 40,000 - 50,000
- ◆ > 50,000 - 60,000
- ◆ > 60,000 - 70,000
- ◆ > 70,000

- NAVIGATION CHANNEL
- SHORELINE
- - UNDERGROUND TRIBUTARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY
- GEOGRAPHIC ZONE BOUNDARY



NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
3. PPT = PARTS PER TRILLION
 PCB = POLYCHLORINATED BIPHENYL



NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION
 SEDIMENT QUALITY TRIAD
 AND POREWATER DATA REPORT

**TOTAL PCB CONGENERS (209) IN
 POLYCHAETE TISSUE**

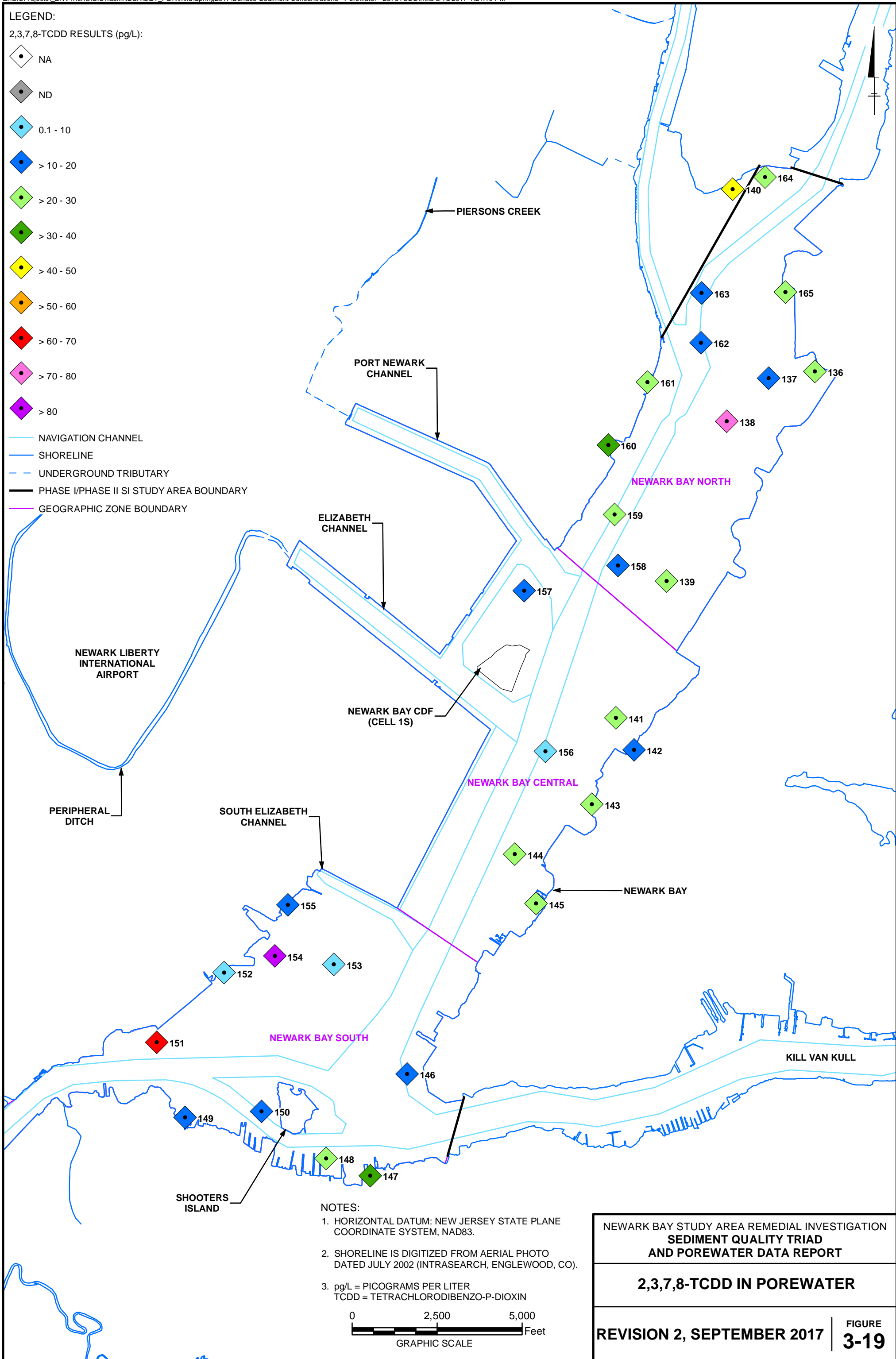
REVISION 2, SEPTEMBER 2017

FIGURE
3-18

LEGEND:
 2,3,7,8-TCDD RESULTS (pg/L):

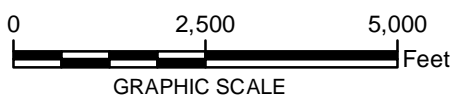
- NA
- ND
- 0.1 - 10
- > 10 - 20
- > 20 - 30
- > 30 - 40
- > 40 - 50
- > 50 - 60
- > 60 - 70
- > 70 - 80
- > 80

- NAVIGATION CHANNEL
- SHORELINE
- UNDERGROUND TRIBUTARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY
- GEOGRAPHIC ZONE BOUNDARY



NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
3. pg/L = PICOGRAMS PER LITER
 TCDD = TETRACHLORODIBENZO-P-DIOXIN

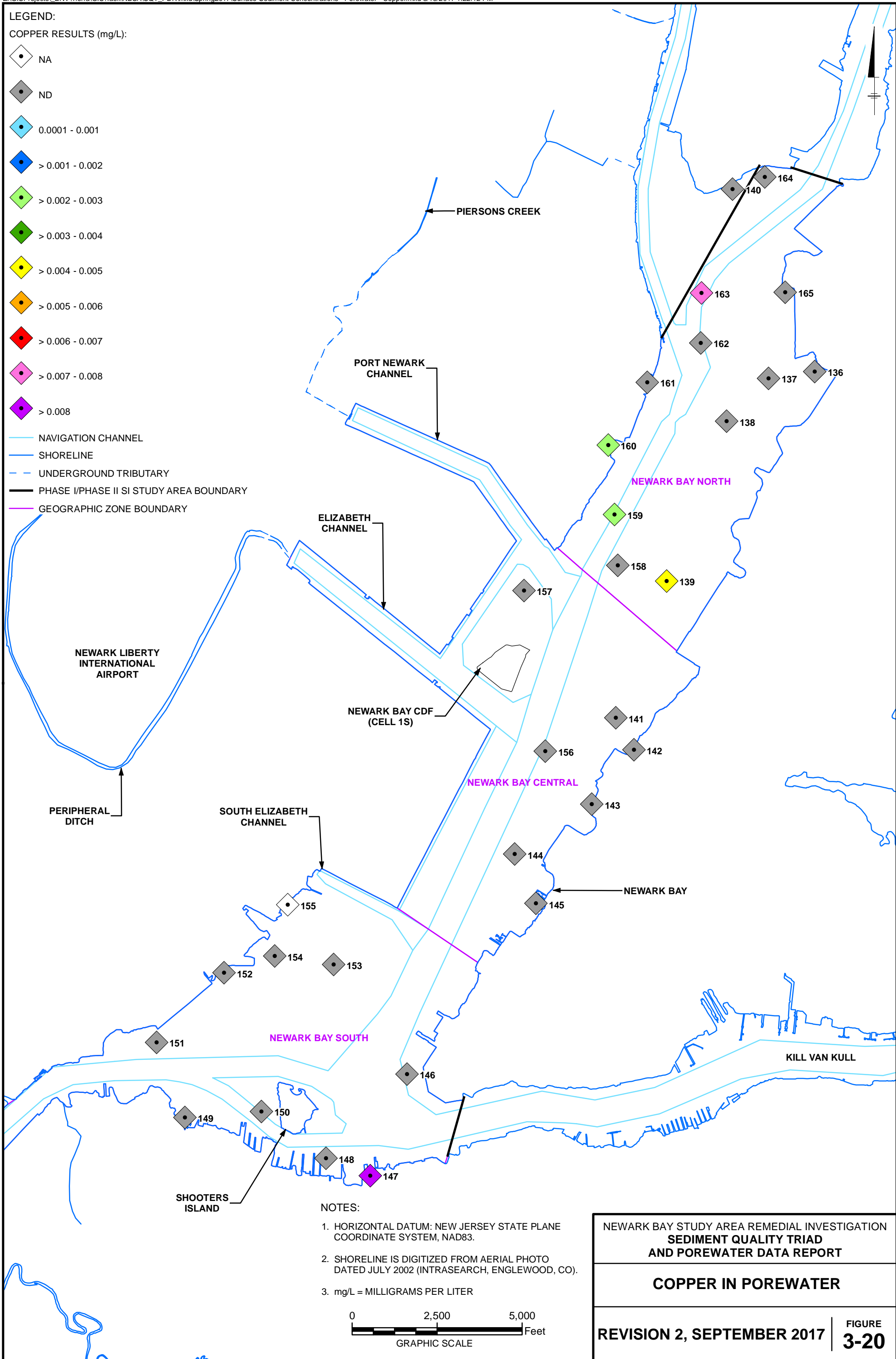


NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION SEDIMENT QUALITY TRIAD AND POREWATER DATA REPORT	
2,3,7,8-TCDD IN POREWATER	
REVISION 2, SEPTEMBER 2017	FIGURE 3-19

LEGEND:
COPPER RESULTS (mg/L):

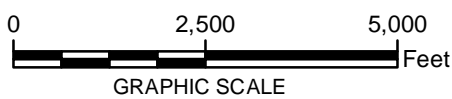
- ◊ NA
- ◊ ND
- ◊ 0.0001 - 0.001
- ◊ > 0.001 - 0.002
- ◊ > 0.002 - 0.003
- ◊ > 0.003 - 0.004
- ◊ > 0.004 - 0.005
- ◊ > 0.005 - 0.006
- ◊ > 0.006 - 0.007
- ◊ > 0.007 - 0.008
- ◊ > 0.008

- NAVIGATION CHANNEL
- SHORELINE
- - UNDERGROUND TRIBUTARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY
- GEOGRAPHIC ZONE BOUNDARY



NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
3. mg/L = MILLIGRAMS PER LITER

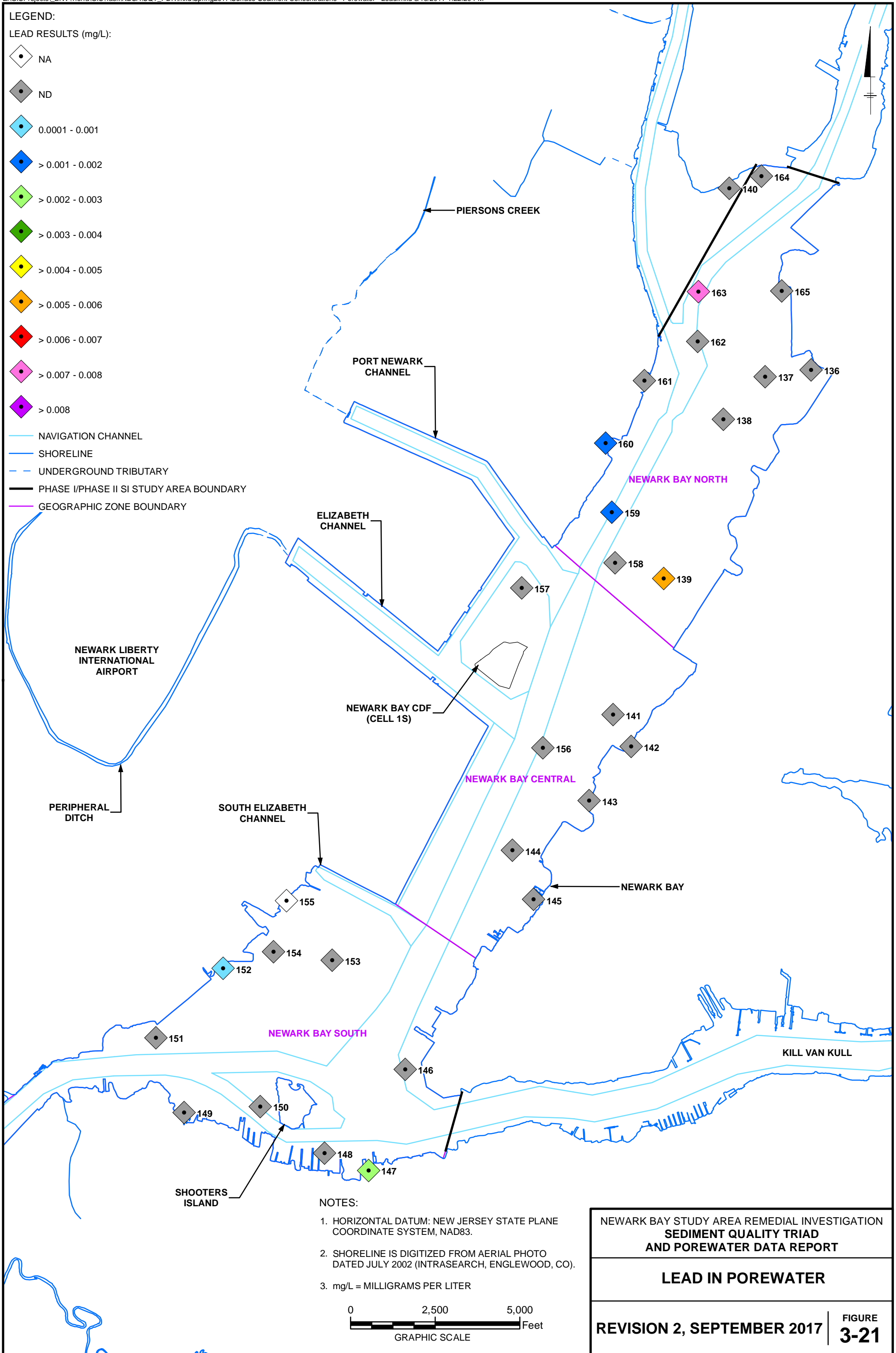


NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION SEDIMENT QUALITY TRIAD AND POREWATER DATA REPORT	
COPPER IN POREWATER	
REVISION 2, SEPTEMBER 2017	FIGURE 3-20

LEGEND:
LEAD RESULTS (mg/L):

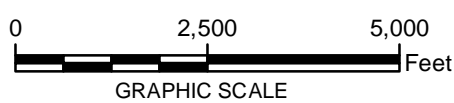
- ◊ NA
- ◊ ND
- ◊ 0.0001 - 0.001
- ◊ > 0.001 - 0.002
- ◊ > 0.002 - 0.003
- ◊ > 0.003 - 0.004
- ◊ > 0.004 - 0.005
- ◊ > 0.005 - 0.006
- ◊ > 0.006 - 0.007
- ◊ > 0.007 - 0.008
- ◊ > 0.008

- NAVIGATION CHANNEL
- SHORELINE
- - UNDERGROUND TRIBUTARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY
- GEOGRAPHIC ZONE BOUNDARY



NOTES:

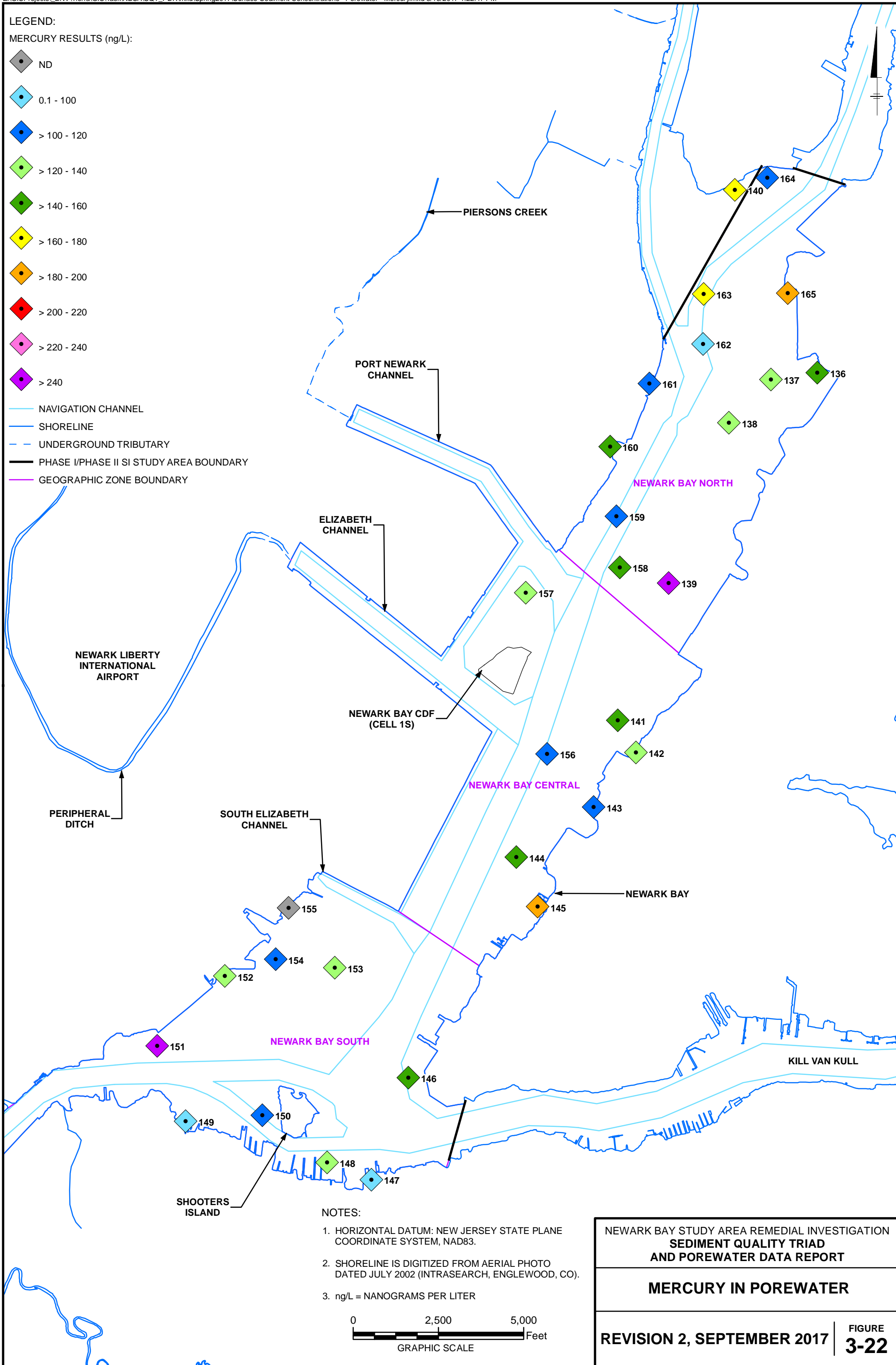
1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
3. mg/L = MILLIGRAMS PER LITER



LEGEND:
MERCURY RESULTS (ng/L):

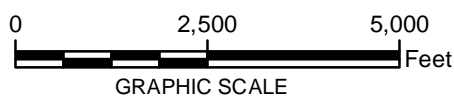
- ◆ ND
- ◆ 0.1 - 100
- ◆ > 100 - 120
- ◆ > 120 - 140
- ◆ > 140 - 160
- ◆ > 160 - 180
- ◆ > 180 - 200
- ◆ > 200 - 220
- ◆ > 220 - 240
- ◆ > 240

- NAVIGATION CHANNEL
- SHORELINE
- - UNDERGROUND TRIBUTARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY
- GEOGRAPHIC ZONE BOUNDARY



NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
3. ng/L = NANOGRAMS PER LITER

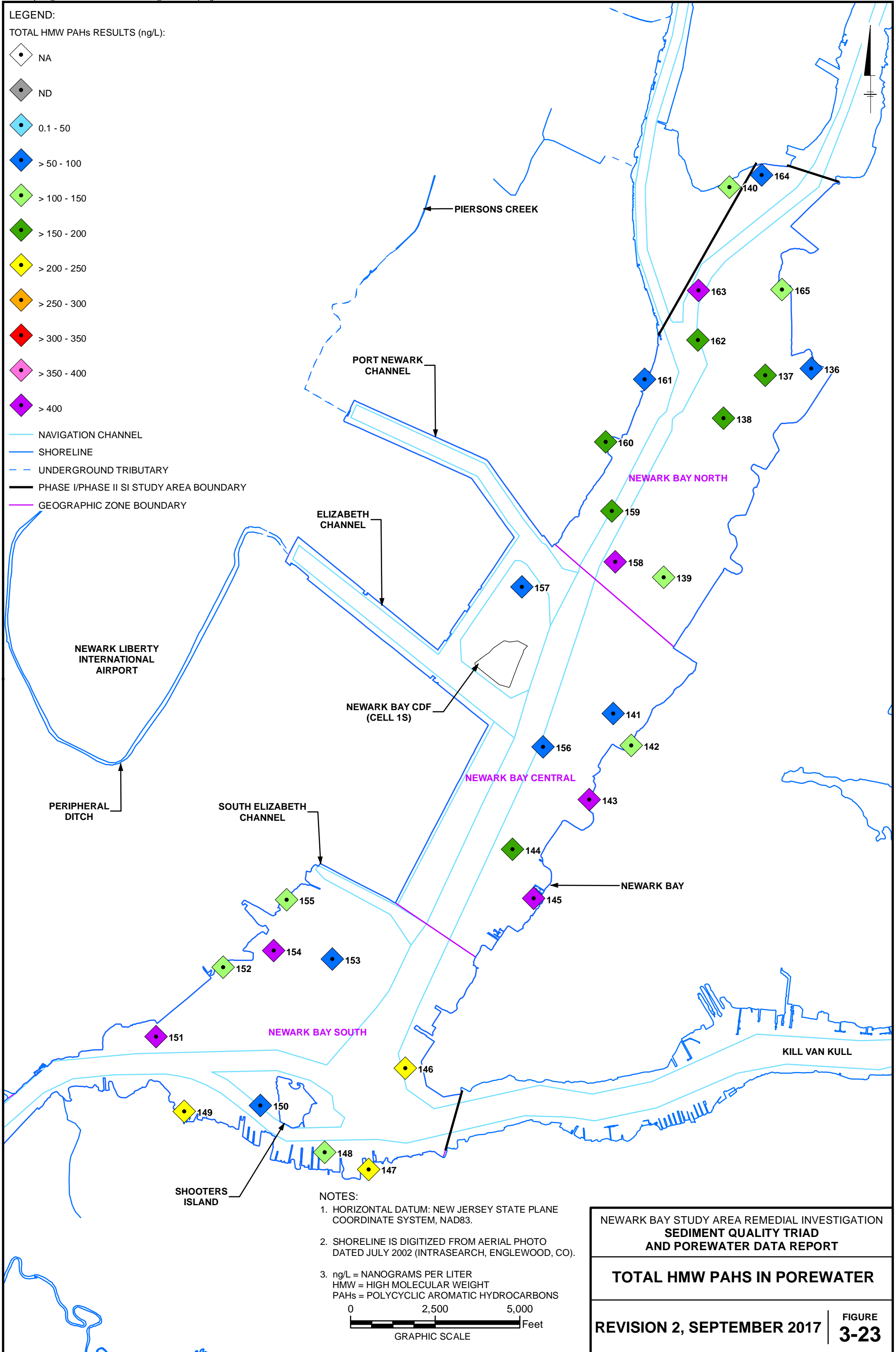


LEGEND:

TOTAL HMW PAHs RESULTS (ng/L):

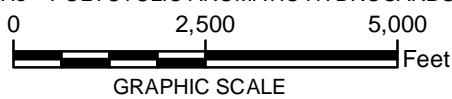
- ◊ NA
- ◊ ND
- ◊ 0.1 - 50
- ◊ > 50 - 100
- ◊ > 100 - 150
- ◊ > 150 - 200
- ◊ > 200 - 250
- ◊ > 250 - 300
- ◊ > 300 - 350
- ◊ > 350 - 400
- ◊ > 400

- NAVIGATION CHANNEL
- SHORELINE
- - UNDERGROUND TRIBUTARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY
- GEOGRAPHIC ZONE BOUNDARY



NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
3. ng/L = NANOGRAMS PER LITER
 HMW = HIGH MOLECULAR WEIGHT
 PAHs = POLYCYCLIC AROMATIC HYDROCARBONS

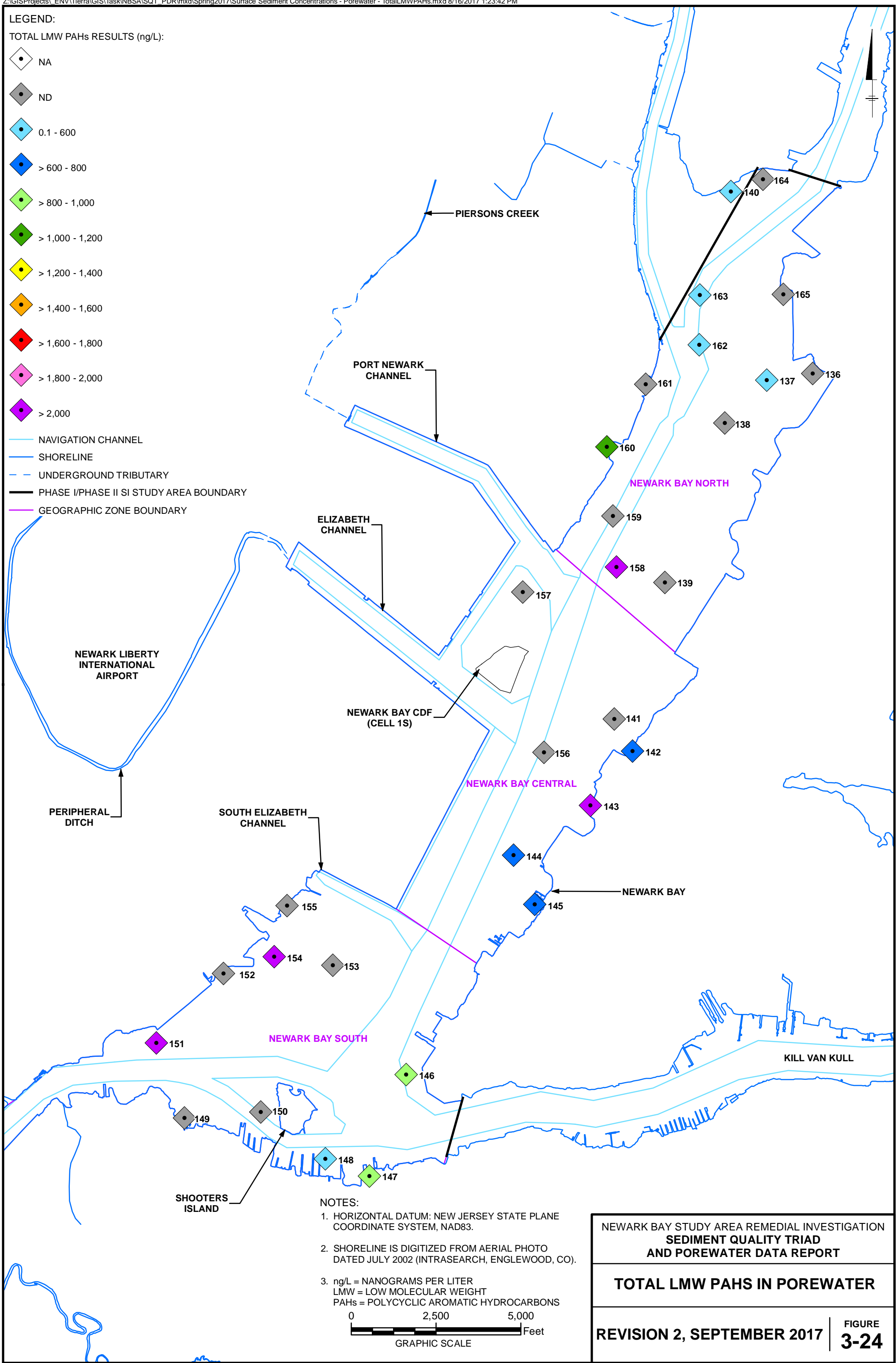


LEGEND:

TOTAL LMW PAHs RESULTS (ng/L):

- ◊ NA
- ◊ ND
- ◊ 0.1 - 600
- ◊ > 600 - 800
- ◊ > 800 - 1,000
- ◊ > 1,000 - 1,200
- ◊ > 1,200 - 1,400
- ◊ > 1,400 - 1,600
- ◊ > 1,600 - 1,800
- ◊ > 1,800 - 2,000
- ◊ > 2,000

- NAVIGATION CHANNEL
- SHORELINE
- - UNDERGROUND TRIBUTARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY
- GEOGRAPHIC ZONE BOUNDARY



NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
3. ng/L = NANOGRAMS PER LITER
 LMW = LOW MOLECULAR WEIGHT
 PAHs = POLYCYCLIC AROMATIC HYDROCARBONS












0 2,500 5,000 Feet
 GRAPHIC SCALE






**NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION
 SEDIMENT QUALITY TRIAD
 AND POREWATER DATA REPORT**

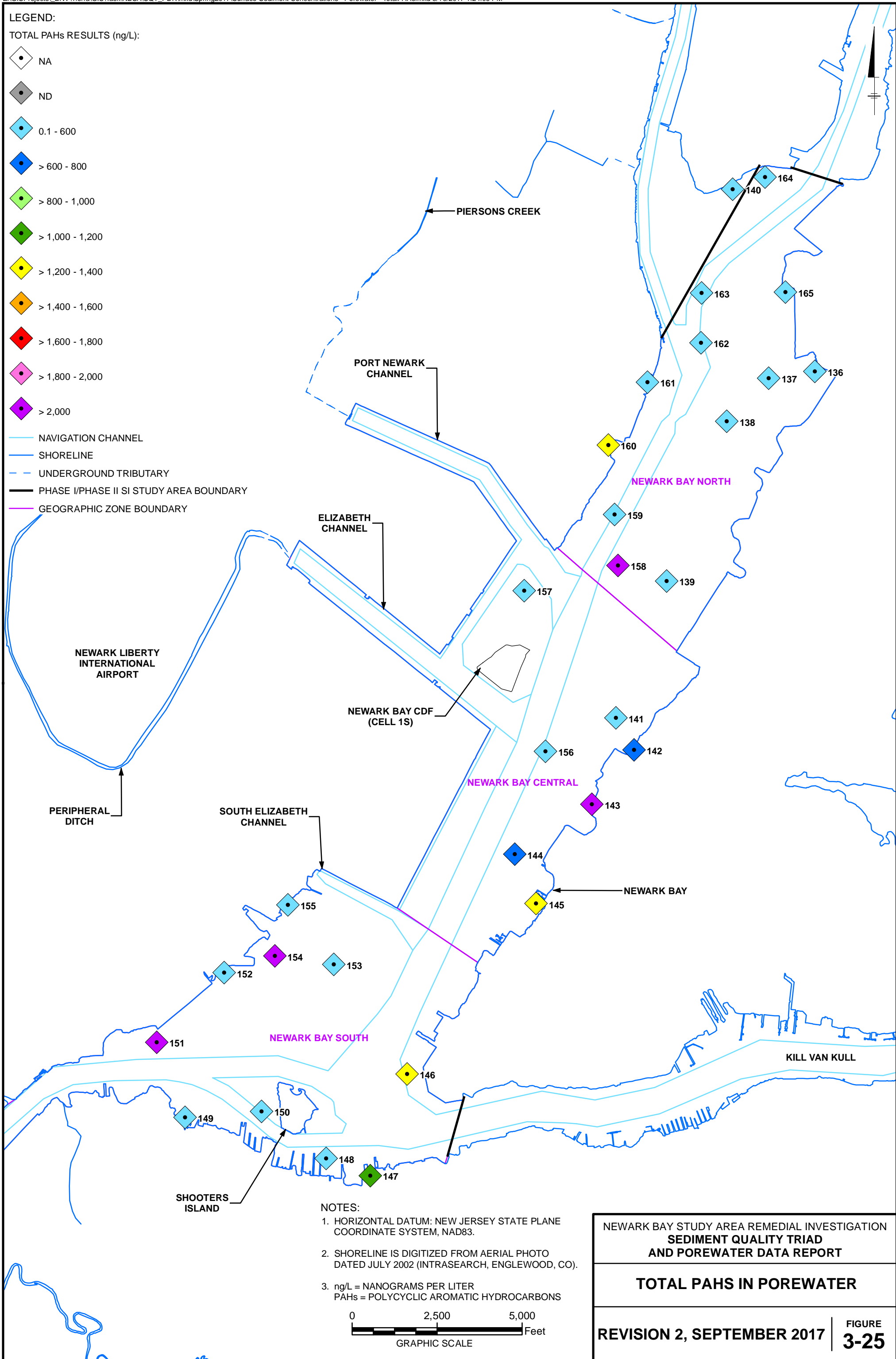
TOTAL LMW PAHs IN POREWATER

REVISION 2, SEPTEMBER 2017 | **FIGURE 3-24**

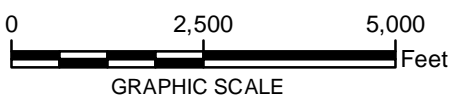
LEGEND:
 TOTAL PAHs RESULTS (ng/L):

-  NA
-  ND
-  0.1 - 600
-  > 600 - 800
-  > 800 - 1,000
-  > 1,000 - 1,200
-  > 1,200 - 1,400
-  > 1,400 - 1,600
-  > 1,600 - 1,800
-  > 1,800 - 2,000
-  > 2,000

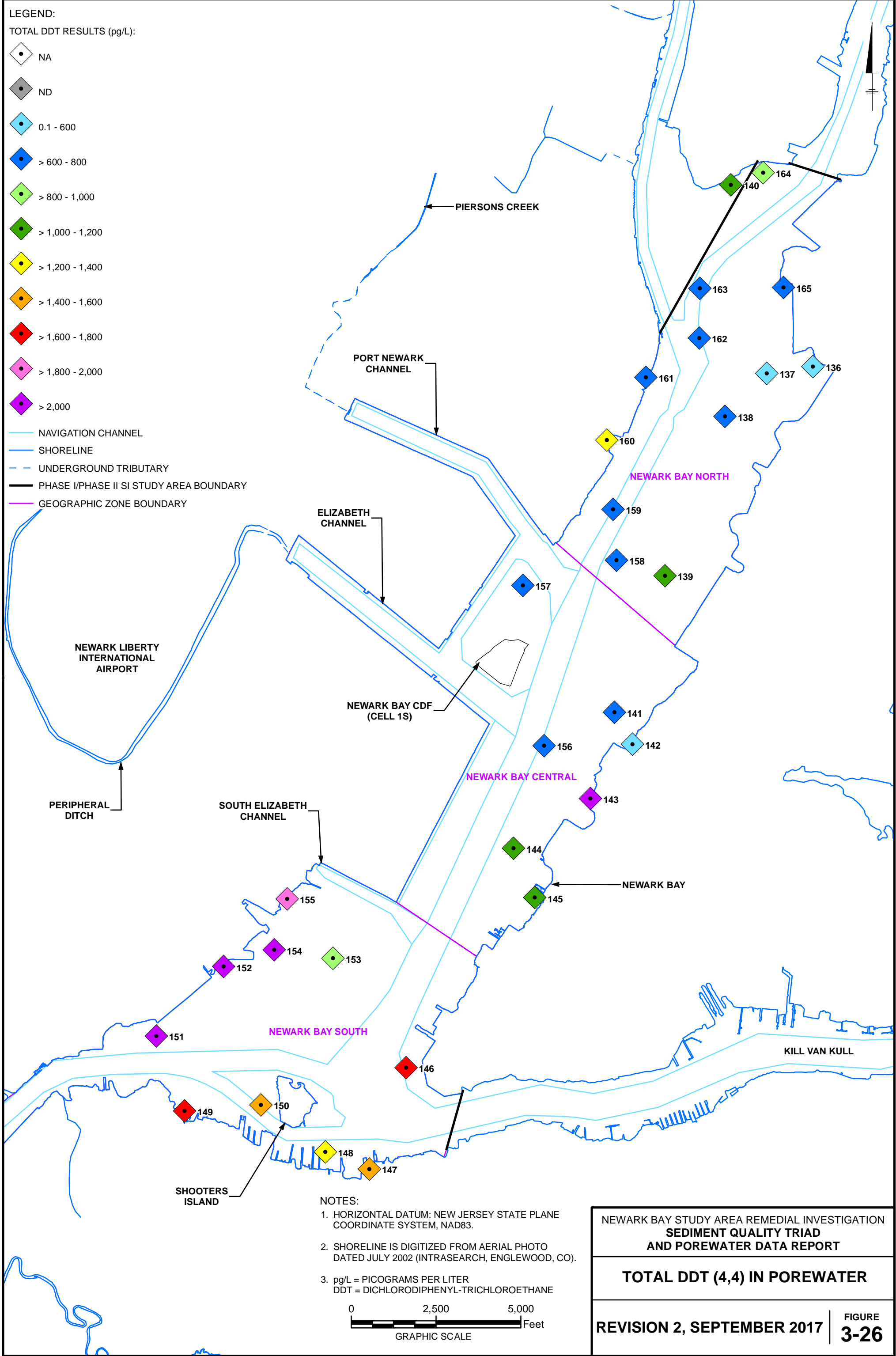
-  NAVIGATION CHANNEL
-  SHORELINE
-  UNDERGROUND TRIBUTARY
-  PHASE I/PHASE II SI STUDY AREA BOUNDARY
-  GEOGRAPHIC ZONE BOUNDARY



- NOTES:**
1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
 2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
 3. ng/L = NANOGRAMS PER LITER
 PAHs = POLYCYCLIC AROMATIC HYDROCARBONS



NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION SEDIMENT QUALITY TRIAD AND POREWATER DATA REPORT	
TOTAL PAHs IN POREWATER	
REVISION 2, SEPTEMBER 2017	FIGURE 3-25

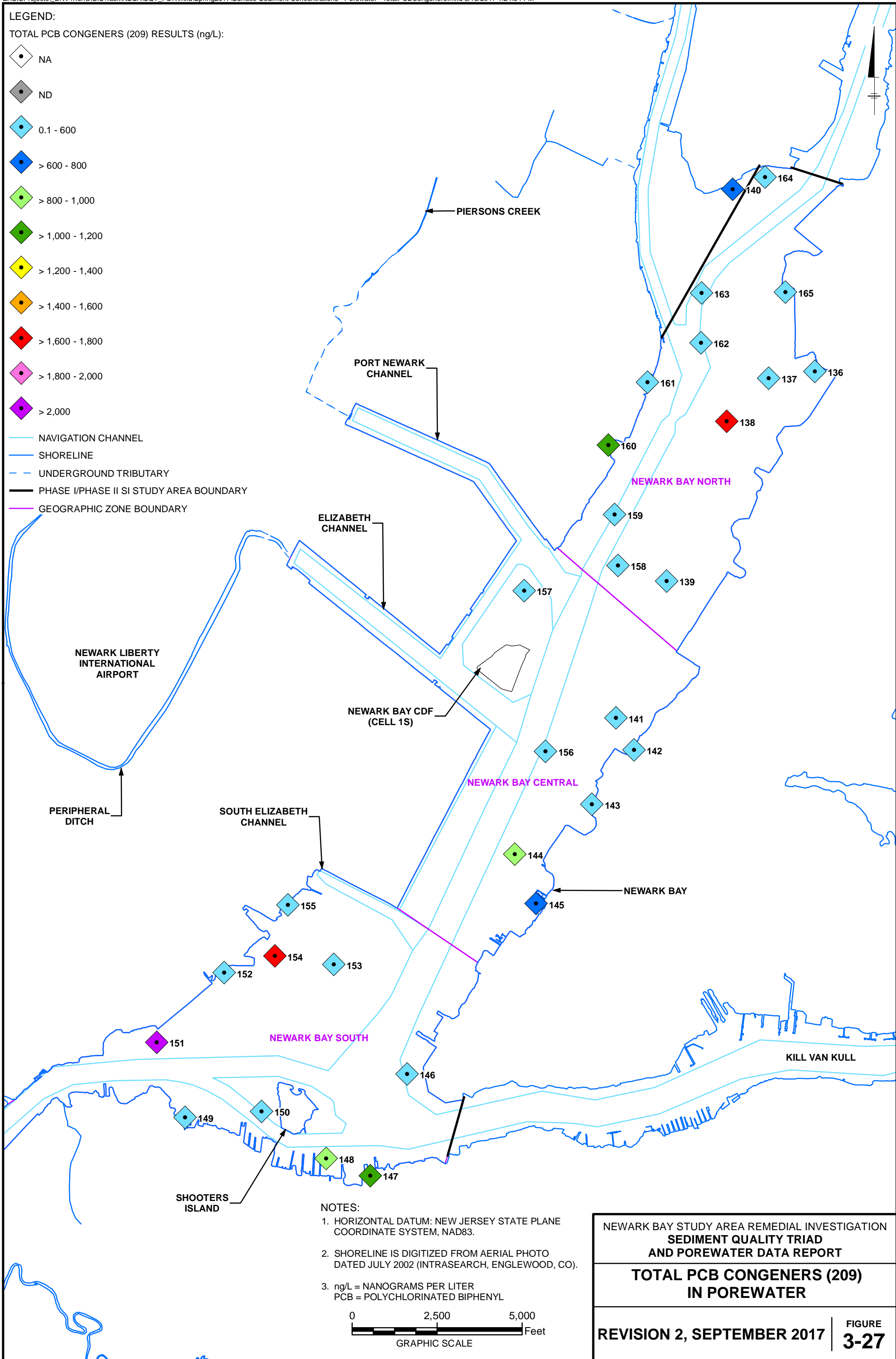


LEGEND:

TOTAL PCB CONGENERS (209) RESULTS (ng/L):

- ◊ NA
- ◊ ND
- ◊ 0.1 - 600
- ◊ > 600 - 800
- ◊ > 800 - 1,000
- ◊ > 1,000 - 1,200
- ◊ > 1,200 - 1,400
- ◊ > 1,400 - 1,600
- ◊ > 1,600 - 1,800
- ◊ > 1,800 - 2,000
- ◊ > 2,000

- NAVIGATION CHANNEL
- SHORELINE
- - UNDERGROUND TRIBUTARY
- PHASE I/PHASE II SI STUDY AREA BOUNDARY
- GEOGRAPHIC ZONE BOUNDARY












NOTES:

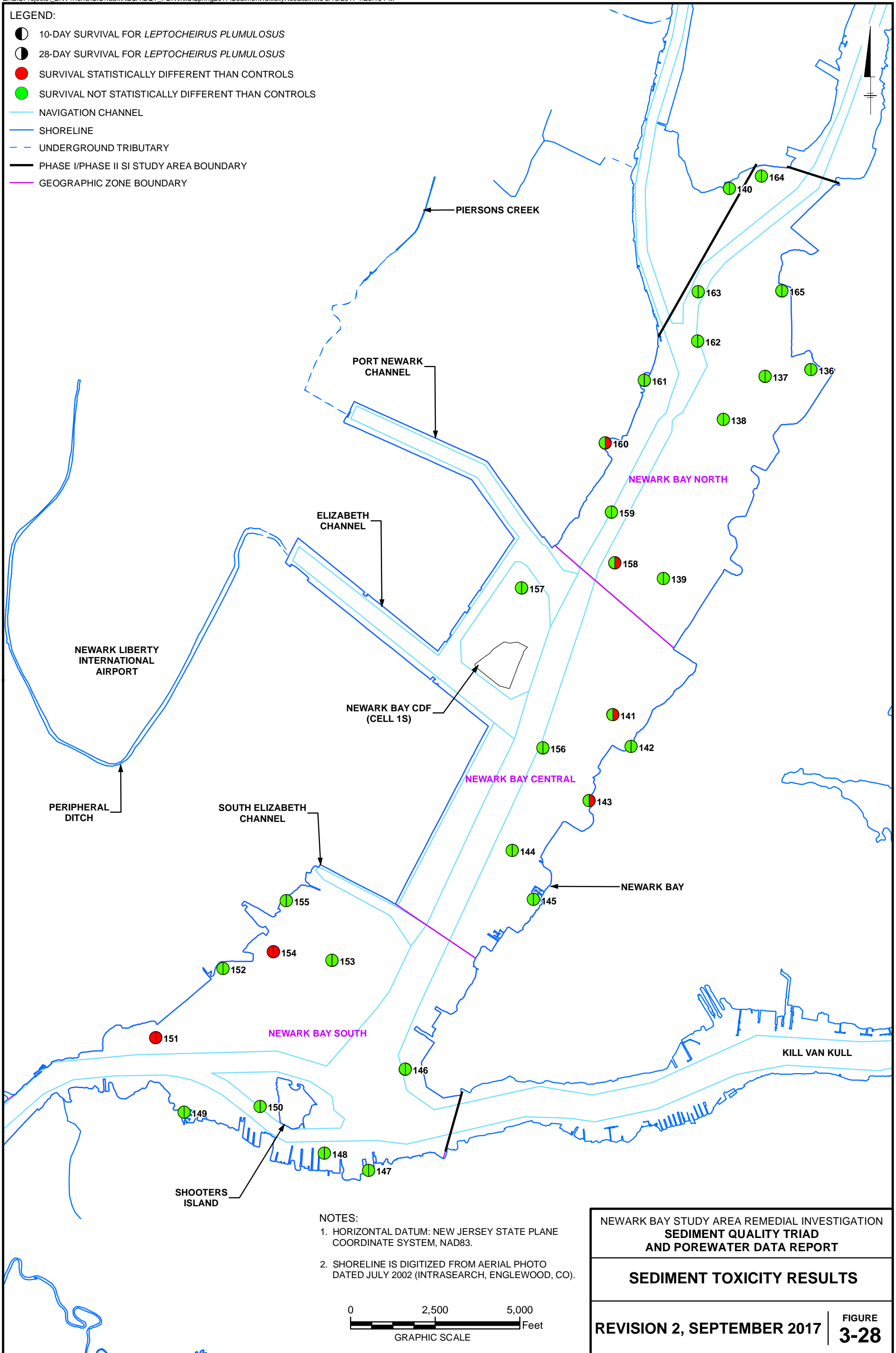
1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
3. ng/L = NANOGRAMS PER LITER
 PCB = POLYCHLORINATED BIPHENYL



NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION SEDIMENT QUALITY TRIAD AND POREWATER DATA REPORT	
TOTAL PCB CONGENERS (209) IN POREWATER	
REVISION 2, SEPTEMBER 2017	FIGURE 3-27

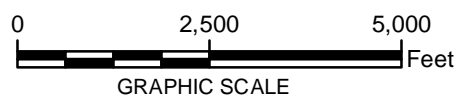
LEGEND:

-  10-DAY SURVIVAL FOR *LEPTOCHEIRUS PLUMULOSUS*
-  28-DAY SURVIVAL FOR *LEPTOCHEIRUS PLUMULOSUS*
-  SURVIVAL STATISTICALLY DIFFERENT THAN CONTROLS
-  SURVIVAL NOT STATISTICALLY DIFFERENT THAN CONTROLS
-  NAVIGATION CHANNEL
-  SHORELINE
-  UNDERGROUND TRIBUTARY
-  PHASE I/PHASE II SI STUDY AREA BOUNDARY
-  GEOGRAPHIC ZONE BOUNDARY

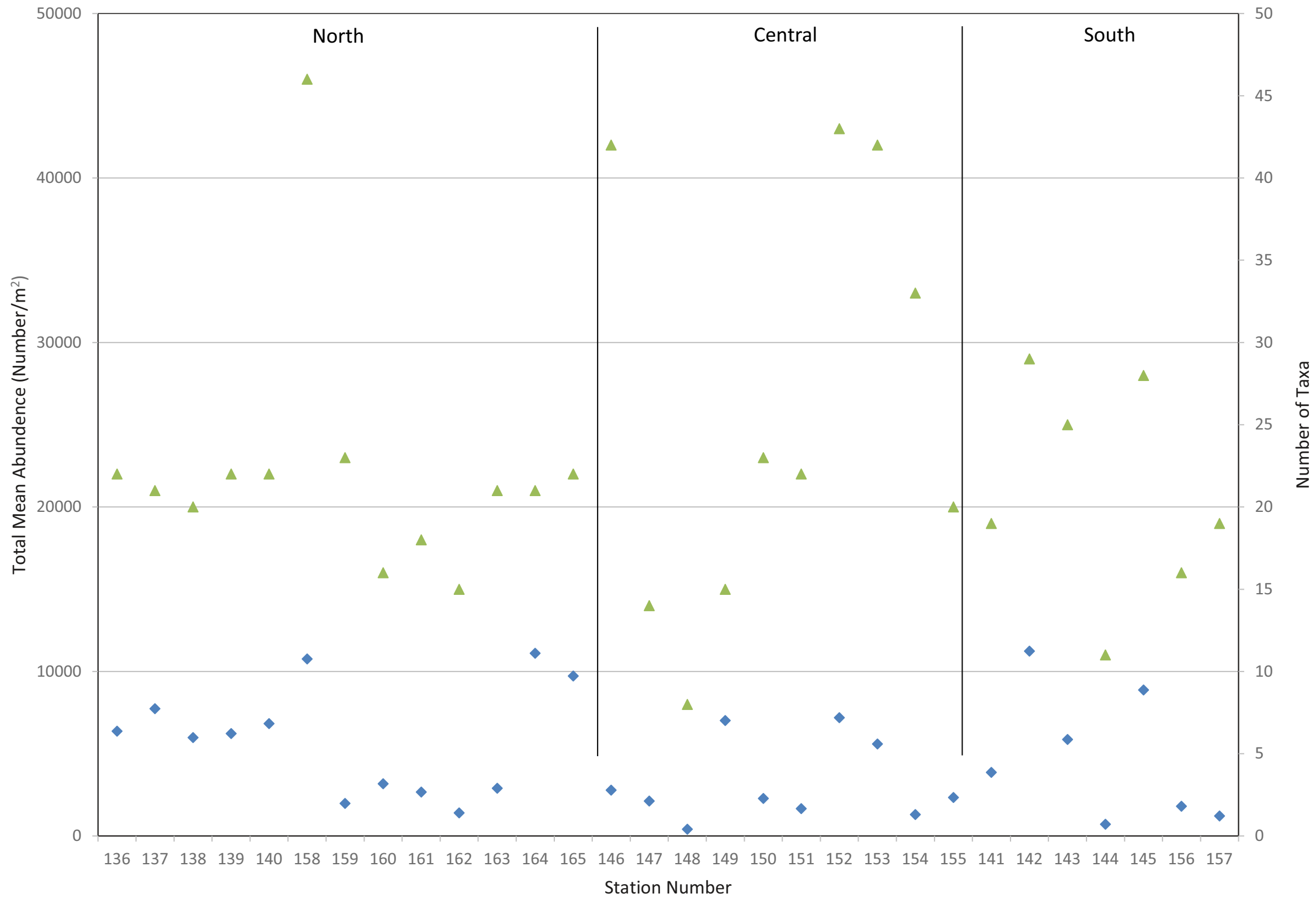


NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).



NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION SEDIMENT QUALITY TRIAD AND POREWATER DATA REPORT	
SEDIMENT TOXICITY RESULTS	
REVISION 2, SEPTEMBER 2017	FIGURE 3-28

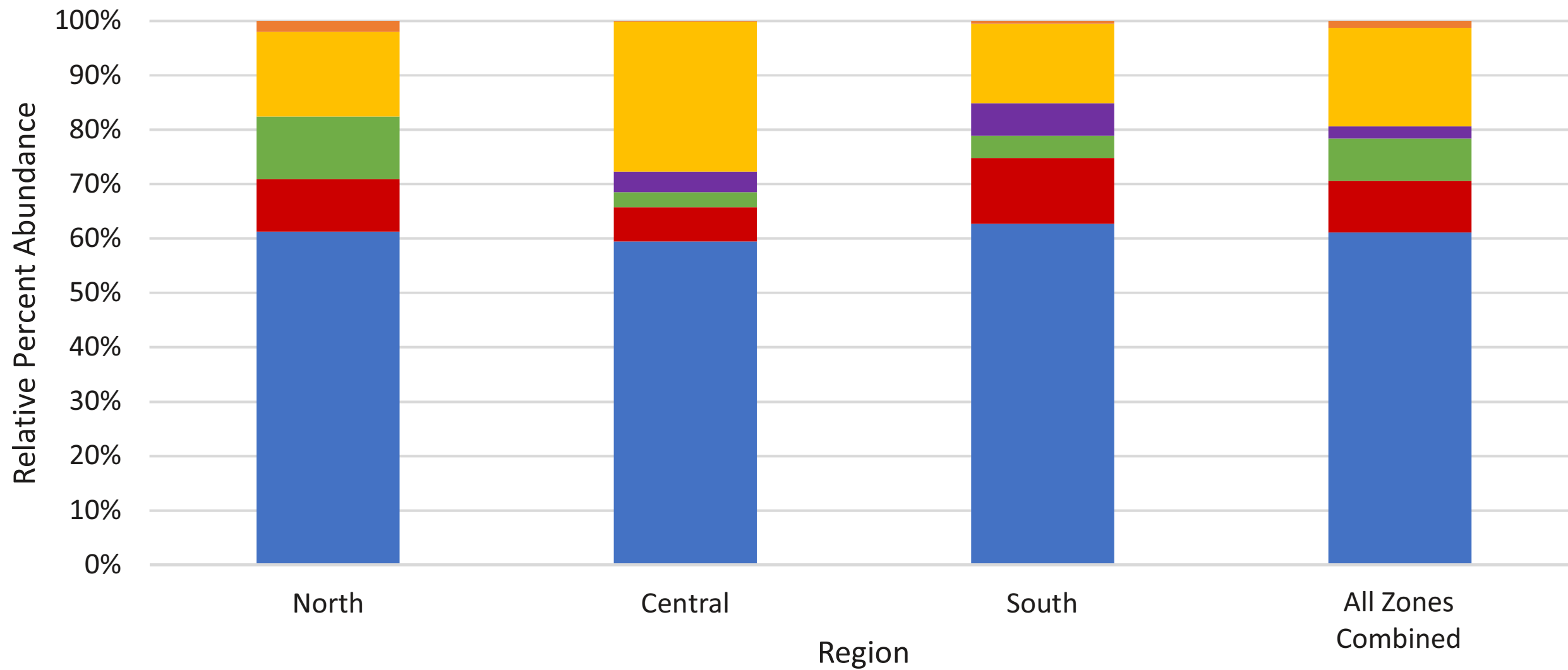


◆ Total Mean Density (no./m²) ▲ Total Taxa

NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION
**SEDIMENT QUALITY TRIAD
AND POREWATER DATA REPORT**

**MEAN ABUNDANCE AND
MEAN SPECIES RICHNESS**

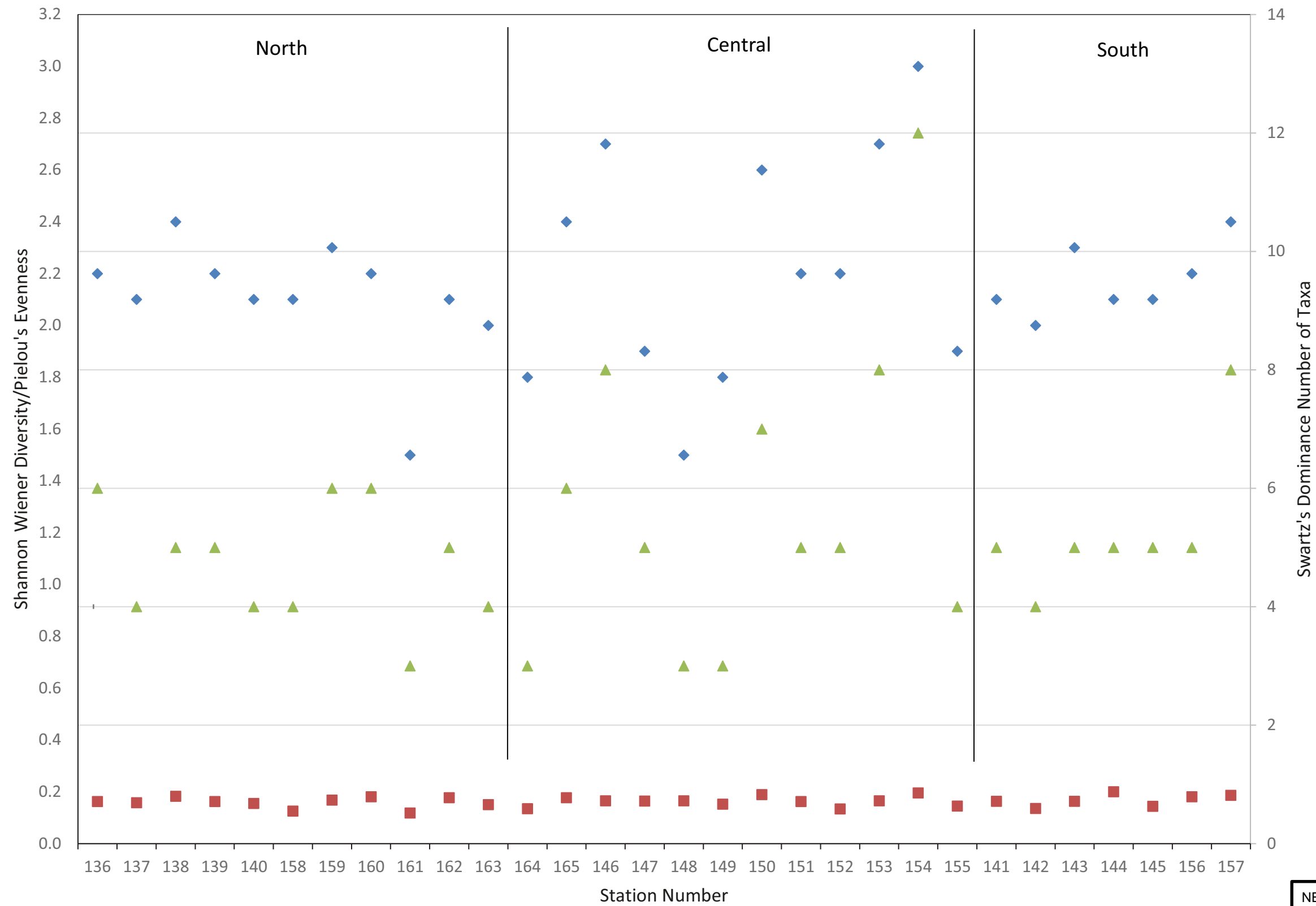
REVISION 2, SEPTEMBER 2017 | **FIGURE 3-29**



■ Annelida-Polychaeta ■ Annelida-Oligochaeta ■ Mollusca-Bivalvia
■ Mollusca-Gastropoda ■ Arthropoda-Crustacea ■ Other

Other:
 North - Hoplonemertea A, Tubulanidae, Gastropoda, Actinaria
 Central - Hoplonemertea A, Polycladida
 South - Hoplonemertea A, Tubulanidae, Lineidae, Polycladida, Stolidobranchia, Chelicerata

NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION SEDIMENT QUALITY TRIAD AND POREWATER DATA REPORT	
DOMINANT PRIMARY TAXONOMIC GROUP BY ZONE	
REVISION 2, SEPTEMBER 2017	FIGURE 3-30



◆ Shannon-Wiener Diversity Index ■ Pielou's Evenness ▲ Swartz's Dominance

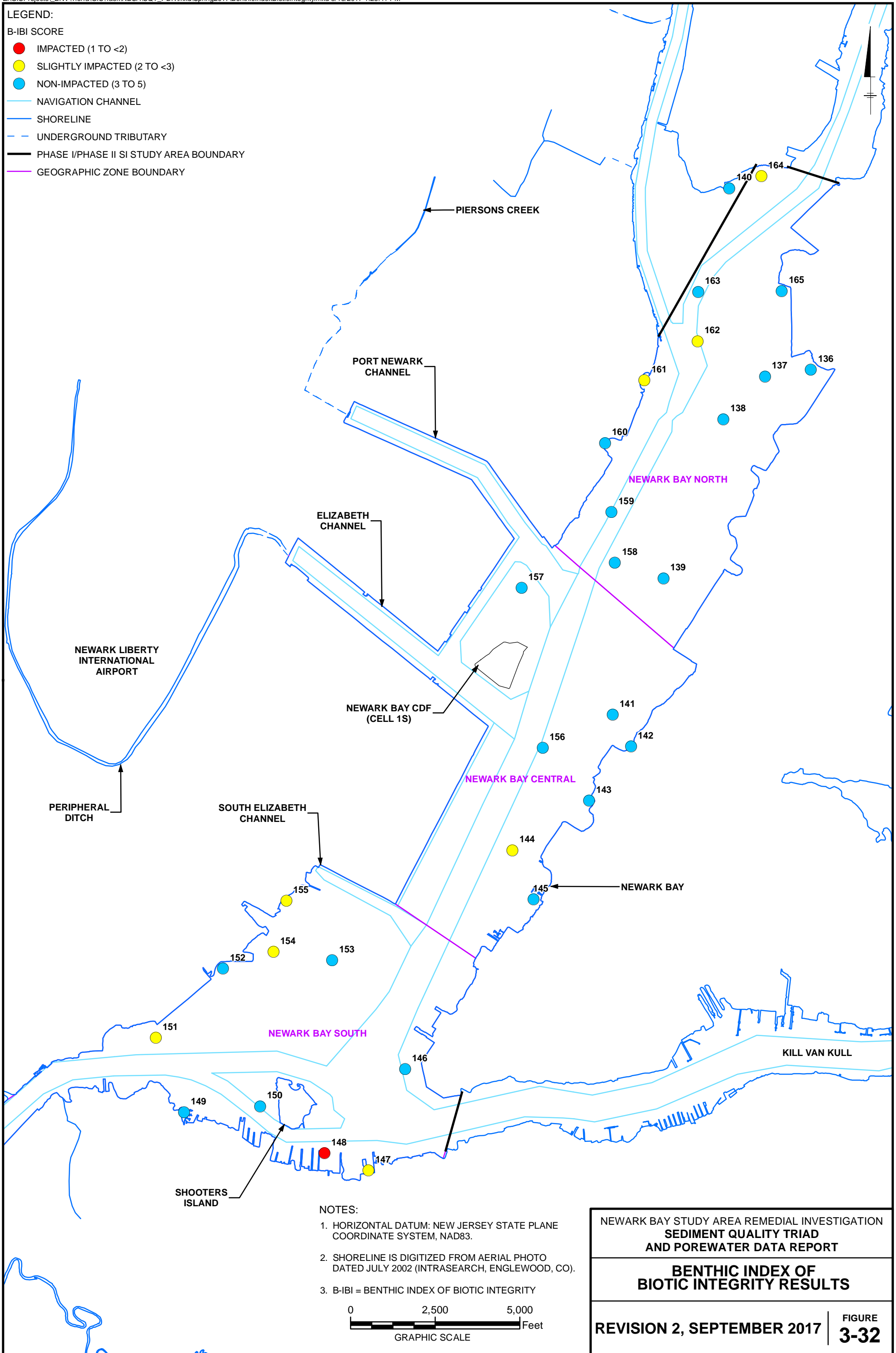
NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION
SEDIMENT QUALITY TRIAD
AND POREWATER DATA REPORT

MEAN SHANNON-WIENER DIVERSITY,
PIELOU'S EVENNESS, AND SWARTZ'S
DOMINANCE INDICES

REVISION 2, SEPTEMBER 2017 FIGURE
3-31

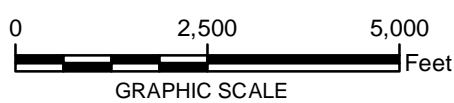
LEGEND:

- B-IBI SCORE**
- IMPACTED (1 TO <2)
 - SLIGHTLY IMPACTED (2 TO <3)
 - NON-IMPACTED (3 TO 5)
- NAVIGATION CHANNEL
 - SHORELINE
 - - - UNDERGROUND TRIBUTARY
 - PHASE I/PHASE II SI STUDY AREA BOUNDARY
 - GEOGRAPHIC ZONE BOUNDARY



NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD83.
2. SHORELINE IS DIGITIZED FROM AERIAL PHOTO DATED JULY 2002 (INTRASEARCH, ENGLEWOOD, CO).
3. B-IBI = BENTHIC INDEX OF BIOTIC INTEGRITY



NEWARK BAY STUDY AREA REMEDIAL INVESTIGATION
 SEDIMENT QUALITY TRIAD
 AND POREWATER DATA REPORT

BENTHIC INDEX OF BIOTIC INTEGRITY RESULTS

REVISION 2, SEPTEMBER 2017

FIGURE 3-32

Appendices

Appendix A



**ECOTOXICOLOGICAL EVALUATION OF SEDIMENTS
FOR TOXICITY AND BIOACCUMULATION TESTING
NEWARK BAY STUDY AREA**

Prepared for

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Prepared by:

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Results relate only to the items tested or to the samples as received by the laboratory.

*This report shall not be reproduced, except in full, without written approval of
EA Engineering, Science, and Technology, Inc., PBC*

This report contains 23 pages plus 6 attachments.

A handwritten signature in black ink that reads 'Wayne L. McCulloch'.

Wayne L. McCulloch
Laboratory Director

12 July 2016

Date

EA Project Number 70005.15



EA Report Number 7246R

1. INTRODUCTION

At the request of the Tierra Solution, Inc., EA Engineering, Science, and Technology performed whole sediment toxicity testing and bioaccumulation testing on sediment samples collected from the Newark Bay, New Jersey Study Area, in support of Tierra's development of a risk assessment, pursuant to an Administrative Order on Consent (AOC) with the United States Environmental Protection Agency (US EPA). The purpose of this study was to evaluate the toxicity and bioaccumulation potential of the sediment samples.

The toxicity testing program consisted of: 1) 10-day whole sediment toxicity tests with *Leptocheirus plumulosus* (marine amphipod); 2) 28-day whole sediment toxicity tests with *Leptocheirus plumulosus*; and 3) 28-day bioaccumulation tests with *Nereis virens* (sand worm). The whole sediment toxicity tests evaluated the effects of exposure to the sediment samples on survival, growth or reproduction of the test organisms. The bioaccumulation test evaluated survival of the test organisms and bioaccumulative effects as a result of exposure to the sediment samples. At the completion of the bioaccumulation testing, the organism tissues were submitted for selected chemical analyses, the results of which are not included in this report.

2. MATERIALS AND METHODS

2.1 SAMPLE RECEIPT AND PREPARATION

Thirty-five sediment samples from Newark Bay, New Jersey Study Area, were collected and composited by Tierra personnel. The sediment samples were placed into 5-gallon pails. The samples were held at $\leq 4^{\circ}\text{C}$ and were hand delivered to EA's Ecotoxicology Laboratory in Hunt Valley, Maryland. Upon receipt at EA, the sediment samples were logged in and assigned EA laboratory accession numbers, and were stored in the dark in a secured walk-in cooler at $\leq 4^{\circ}\text{C}$ until used for testing. Table 1 summarizes the sample identification, accession numbers, and collection/composite and receipt information for the sediment samples. Chain-of-custody records are included in Attachment I.

2.2 LABORATORY WATER

Artificial seawater was used as the overlying water. The artificial seawater was prepared by mixing Crystal Sea synthetic sea salts with laboratory water to a final salinity of 30 ppt or 20 ppt. The source of the laboratory water was the City of Baltimore municipal tap water that was passed through a high-capacity, activated carbon filtration system. This synthetic seawater formulation has proven acceptable for aquatic toxicological studies, and has been used successfully at EA for maintaining multigeneration cultures of opossum shrimp, and for holding healthy populations of estuarine and marine species. Batches of artificial seawater were aerated and aged at least 24 hours prior to use in testing.

2.3 CONTROL AND REFERENCE SEDIMENT

A sample of sediment from Pretty Boy Reservoir, Maryland was collected for use as the control sediment for the *L. plumulosus* testing. Sediment collected from this location has historically been non-toxic and is routinely utilized as a control sediment in EA's toxicity tests. A natural sediment from the organism collection site was used as laboratory controls in the bioaccumulation testing. Control sediment used in the *N. virens* test was collected from the Damariscotta River, Booth Bay Harbor, Maine.

2.4 TOXICITY TEST METHODS

The toxicity tests performed during this study were conducted in accordance with the appropriate guidance, as indicated in the following sections. The test methodologies followed EA's standard toxicity testing protocols (EA 2013) and the results comply with current NELAC standards, except where noted in the report.

2.4.1 *Leptocheirus plumulosus* 10-Day Toxicity Testing

The 10-day *L. plumulosus* acute toxicity testing was conducted in accordance with US EPA (1994) guidance. The *L. plumulosus* were acquired from Chesapeake Cultures (Hayes, Virginia). Lot LP-076 was received at EA on 30 October 2015 and was used to initiate the toxicity test on the same day. During the holding period, the organisms were gradually acclimated to laboratory water at 20°C and to the appropriate test salinity.

The tests were conducted in 1-liter beakers each containing 175 ml of sediment and 800 ml of overlying water. The tests were performed with five replicates per sediment sample. The sediment and overlying water were added to the chambers 7 days prior to introduction of the test organisms. The beakers were left undisturbed to allow any suspended sediment particles in the water column to settle and equilibrate. Twenty organisms were randomly introduced into each replicate beaker. The introduction of the test organisms to the test chambers marked the initiation of the toxicity tests. The tests were maintained at a target of 20±1°C, with a 24-hour light photoperiod. The test chambers were visually inspected daily for abnormal organism behavior or lack of burrowing. The test organisms were not fed during the 10-day exposure period.

The whole sediment toxicity tests were conducted as static, non-renewal tests with ten days of exposure to the composite sediments and overlying water. Artificial seawater (Crystal Sea artificial sea salts) at 20 ppt salinity was used as the overlying water. Water quality measurements of temperature, pH, dissolved oxygen, and salinity were recorded daily on one replicate of each sample and control. Oxidation/Reduction Potential was measured daily on five

randomly selected samples from day -7 through test termination on day 10. The ORP probes remained in the test chambers throughout the duration of the testing. Initial pore water was preserved upon sample receipt for analysis. The water quality parameters measured during the *L. plumulosus* toxicity tests are summarized in Tables 2, 4 and 7.

After ten days of exposure, the test organisms were retrieved from the samples and the number of live organisms per replicate was recorded, a summary of the results can be found in Table 8. Copies of the original data sheets for the *L. plumulosus* 10-day toxicity testing are included as Attachment II.

2.4.2 *Leptocheirus plumulosus* 28-Day Toxicity Testing

The 28-day *L. plumulosus* chronic toxicity testing was conducted in accordance with US EPA (2001) guidance. The *L. plumulosus* were acquired from Chesapeake Cultures (Hayes, Virginia). Lot LP-075 was received at EA on 21 October 2015 and was used to initiate the toxicity tests on the same day. However, upon retrieving the organisms from the sediment at the 28 day endpoint, it was determined that the control had unacceptable mortality (25 percent), which invalidated the testing. Evaluation of the health of the organisms upon receipt indicated no observable issues and the lot had an acceptable associated reference toxicant test. A reanalysis of the sediments was initiated on 25 November 2015, using lot LP-078, acquired from the same organism source. During the holding period, the organisms were gradually acclimated to laboratory water at 25°C and to the appropriate test salinity.

The tests were conducted in 1-liter beakers each containing 175 ml of sediment and 800 ml of overlying water. The tests were performed with five replicates per sediment sample. The sediment and overlying water were added to the chambers 7 days prior to introduction of the test organisms. The beakers were left undisturbed to allow any suspended sediment particles in the water column to settle and equilibrate. Twenty organisms were randomly introduced into each replicate beaker. The introduction of the test organisms to the test chambers marked the initiation of the toxicity tests. The test chambers were placed in an environmental chamber and maintained at a target temperature of 25±1°C with a 16-hour light/8-hour dark photoperiod. The overlying water was gently aerated at a rate of 100 bubbles per minute throughout the 28-day exposure period. During the first two weeks of the exposure period, the *L. plumulosus* were fed three times a week with 1 ml/replicate of a 20 mg/ml slurry of finely ground Tetramin in

deionized water. This feeding schedule was maintained during weeks three and four, however the concentration of the slurry was increased to 40 mg/ml Tetramin, to provide additional food for the older (larger) test organisms.

The overlying water in the exposure chambers was renewed three times each week by siphoning 400 ml of the old overlying water from each test chamber, and then slowly siphoning fresh replacement water into the chamber, taking care not to disturb the sediment. Temperature, pH, dissolved oxygen, and salinity measurements were recorded daily on the overlying water in one replicate of each sediment. Ammonia measurements were conducted on composite samples of pore and overlying water from each sediment sample at test initiation and termination. Additionally, initial pore water was preserved upon sample receipt for analysis. Oxidation/Reduction Potential was measured daily on five randomly selected samples from day -7 through test termination on day 28. The ORP probes remained in the test chambers throughout the duration of the testing. These water quality measurements are summarized in Tables 3, 5 and 7.

At the end of the 28-day exposure period, the surviving adult organisms from each replicate were retrieved by screening through a 500 μm sieve. The number of surviving adult *L. plumulosus* from each replicate was recorded, and the surviving adults from each replicate were placed in a dried, pre-weighed tin and placed in a drying oven overnight at 100°C. The tins were then removed from the oven and placed in a desiccator to cool. Each pan was weighed to the nearest 0.01 mg to determine a mean dry weight per replicate, obtained by dividing the total organism dry weight per replicate by the number of surviving organisms per replicate. The growth rate per replicate was calculated by subtracting the mean initial dry weight of the test organisms from the final mean dry weight per replicate, divided by 28 days. Initial dry weights were determined prior to test initiation, using three replicates of 20 randomly selected organisms. Material that passed through the 500 μm sieve when recovering the adult organisms was retained on a 250 μm sieve to retrieve the offspring. Amphipods and residual sediment that was retained on the 250 μm sieve was rinsed with freshwater to remove salts, and was washed into a sample jar. The offspring were stained with a 1g/L solution of rose bengal, and preserved with 70% alcohol. The offspring were counted, and the reproduction endpoint was calculated as the number of offspring per surviving adult. A summary of survival, growth rate and reproduction

for the *L. plumulosus* exposed to each sediment sample is provided in Table 9. Copies of the original data sheets for the 25 November 2015 *L. plumulosus* 28-day toxicity testing are included as Attachment III.

2.4.3 *Nereis virens* Bioaccumulation Testing

Bioaccumulation testing was conducted using the sand worm (*Nereis virens*) according to USEPA/USACE (1998) guidance. The adult worms (NV-055) were received from Aquatic Research Organisms (Hampton, New Hampshire) on 22 October 2015. The *N. virens* were loaded into the test immediately to minimize cannibalism/holding stress.

The sediment samples and overlying water were added to the test chambers 7 days prior to test initiation to allow time for the suspended sediments to settle and equilibrate. The overlying water was 30 ppt artificial seawater (Crystal Sea artificial sea salts). The bioaccumulation tests were 28 days in duration and were conducted as static renewal assays. The overlying water was replaced three times a week by siphoning approximately 80 percent of the overlying water from the aquaria, and replacing with new overlying water, taking care not to disturb the sediment surface.

The bioaccumulation tests were conducted in 10-gallon aquaria with 5 L of sediment and 22 L of overlying water per aquarium. There were five replicates per reference and test sediment, and three replicates per control sediment. Based on the analytical tissue biomass requirements, 25 organisms were randomly introduced into each replicate chamber for the *N. virens* testing.

During the 28-day exposure period, the test chambers were maintained at a target temperature of $20\pm 1^{\circ}\text{C}$ with a 16-hour light/8-hour dark photoperiod. Gentle aeration was provided to each aquarium throughout the test period. Observations of mortality and abnormal organism behavior were recorded daily, and dead organisms were removed, as observed, from the test chambers. Measurements of temperature, pH, dissolved oxygen, and salinity of the overlying water were recorded on one replicate of each sample and control at test initiation, termination, and three times a week prior to replacement of the overlying water. Oxidation/Reduction Potential was measured daily on five randomly selected samples from day -7 through test termination on day

28. The ORP probes remained in the test chambers throughout the duration of the testing. The water quality measurements are summarized in Table 6 and 7. The organisms were not fed during the exposure period.

The bioaccumulation tests were initiated on 22 October and completed on 19 November 2015. After 28 days of exposure, the organisms were recovered from the samples and placed into clean artificial sea water for 24 hours to purge their digestive tracts, a summary of the percent recovery can be found in Table 10. After the depuration period, the organism tissues were collected and submitted for chemical analyses. Copies of the original data sheets are included in Attachment IV.

2.4.4 Reference Toxicant Testing

In conformance with EA's quality assurance/quality control program requirements, reference toxicant testing was performed by EA on the acquired lots of *L. plumulosus* and *N. virens* utilized in the testing program. The reference toxicant tests consisted of a graded concentration series of a specific toxicant in water only tests, with no sediment present in the test chambers. The results of the reference toxicant tests were compared to established control chart limits. Table 11 presents the results of the reference toxicant testing. Cumulative reference toxicant test data are included in Attachment V.

2.5 ARCHIVES

Original data sheets, records, memoranda, notes, and computer printouts are archived at EA's office in Hunt Valley, Maryland. These data will be retained for a period of 5 years unless a longer period of time is requested by Tierra Solutions, Inc.

3. RESULTS AND DISCUSSION

This bioassay/bioaccumulation study with the composited sediments from Newark Bay, New Jersey Study Area was conducted in support of Tierra's development of a risk assessment pursuant to an Administrative Order on Consent (AOC) with the United States Environmental Protection Agency (US EPA). The results of these toxicity tests met the current NELAC standards, where applicable. All testing met the minimum test acceptability criteria outlined in US EPA (1994, 2001) and US EPA/USACE (1998) guidance, with exceptions noted.

3.1 *Leptocheirus plumulosus* 10-DAY TOXICITY TESTING

Table 8 summarizes the results of the 10-day whole sediment toxicity testing with *L. plumulosus*. Survival in the sediment samples NB03SED-TOX151, NB03SED-TOX154, NB03SEDDUP-02 and NB03SEDDUP-03 was 39, 32, 36 and 46 percent, respectively, which was significantly different ($p=0.05$) than the control (90 percent survival). Survival in the remaining sediment samples ranged from 81 to 98 percent, none of which were significantly different than the control.

3.2 *Leptocheirus plumulosus* 28-DAY TOXICITY TESTING

Results of the *L. plumulosus* chronic sediment toxicity test are summarized in Table 9. After 28 days of exposure, samples NB03SED-TOX141, NB03SED-TOX151, NB03SEDDUP-02, NB03SED-TOX154, NB03SEDDUP-03, NB03SED-TOX158, NB03SED-TOX160, and NB03SED-TOX143 had 67, 0, 0, 7, 11, 39, 0 and 30 percent survival, respectively, and were significantly less ($p=0.05$) than the control sample, which had 81 percent survival. Survival in sample NB03SED-TOX138, NB03SED-TOX142, NB03SED-TOX146 and NB03SED-TOX145 was 46, 53, 54 and 59 percent, respectively, which were greater than 25 percent different from the control, however due to a high degree in variability the samples were not found to be significantly different than the control. Survival in the remaining sediment samples ranged from 62 to 96 percent, and were not significantly different from the control sample.

Growth rate was significantly reduced in 17 samples compared to the control sediment, while the growth rate was not calculable in the three samples that had no surviving organisms after 28 days

exposure. The growth rate for significantly different samples ranged from 0.001 to 0.037 mg/surviving organism/day, while the control sediment had a growth rate of 0.045 mg/surviving organism/day. It should be noted that the growth rates in samples NB03SED-TOX161, NB03SED-TOX156 and NB03SED-TOX162, ranged from 0.034 to 0.037 mg/surviving organism/day, and were found to be significantly different than the control, however, they were less than 25 percent different than the control sample. Additionally, the percent minimum significant differences (PMSDs) for the comparisons ranged from 8.8 to 15.6, which indicated high test sensitivity. The PMSD is a measure of within-test variability, and a low PMSD indicates an unusually high precision, that is, a small difference between a test concentration and the control can be detected as a significant toxic effect and should be considered when interpreting the data. The growth rate in 11 sediment samples were not significantly less than the control sediment and ranged from 0.028 to 0.050 mg/surviving organism/day.

Mean young production in the test sediments 11 sediment samples was significantly different than the control, with mean young production ranging from 0.00 to 0.68 young per surviving adult, compared to 1.97 young per surviving adult. Additionally, the mean young production was not calculable in the three samples that had no surviving organisms after 28 days exposure. Mean young production in 18 samples was not significantly different than the control and ranged from 0.58 to 1.93 young per surviving adult.

3.3 *Nereis virens* 28- DAY BIOACCUMULATION TESTING

Tables 10, summarizes the survival of *N. virens* following 28 days of exposure to the sediment samples. Percent recovery of *N. virens* exposed to the samples ranged from 92 to 100 percent. Percent recovery in the laboratory control was 100 percent. It should be noted that any site having less than 97 percent recovery was found to be significantly different than the control. The percent minimum significant differences (PMSDs) for comparisons that were statistically significant ranged from 2.5 to 5.2, which indicates very high test sensitivity. The PMSD is a measure of within-test variability, and a low PMSD indicates an unusually high precision, that is, a very small difference between a test concentration and the control can be detected as a significant toxic effect and should be considered when interpreting the data. Additionally, based

on the fact that there was greater than 90 percent survival of organisms in all test sediments, the statistically significant differences are not considered biologically meaningful.

3.4 REFERENCE TOXICANT TESTS

The results of the reference toxicant tests are summarized in Table 11. All of the reference toxicant test results fell within the established laboratory control chart limits.

4. REFERENCES CITED

- EA. 2013. EA Ecotoxicology Laboratory Quality Assurance and Standard Operating Procedures Manual. EA Manual ATS-102. Internal document prepared by EA's Ecotoxicology Laboratory, EA Engineering, Science, and Technology, Inc., Hunt Valley, Maryland.
- US EPA. 1994. Methods for Measuring the Toxicity of sediment-associated contaminants with estuarine and marine amphipods. EPA-600/R-94/025. Narragansett, RI.
- US EPA. 2001. Methods for Assessing the Chronic Toxicity of Marine and Estuarine Sediment-associated Contaminants with the Amphipod *Leptocheirus plumulosus*. First Edition. EPA/600/R-01/020. U.S. Environmental Protection Agency, Office of Research and Development, Washington, D.C.
- US EPA and USACE. 1998. Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S.-Inland Testing Manual. EPA/823/B-94/004. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. and Department of the Army, U.S. Army Corps of Engineers, Washington, D.C.

TABLE 1 SUMMARY OF COLLECTION AND RECEIPT INFORMATION FOR SEDIMENT SAMPLES – NEWARK BAY STUDY AREA, NEW JERSEY

Sample Identification	EA Accession Number	Composite Time and Date	Receipt Time and Date
NB03SED-TOX164	AT5-392	0930, 14 September 2015	1450, 23 September 2015
NB03SED-TOX165	AT5-393	1230, 14 September 2015	1450, 23 September 2015
NB03SED-TOX138	AT5-394	0810, 15 September 2015	1450, 23 September 2015
NB03SED-BIO138	AT5-394	0810, 15 September 2015	1450, 23 September 2015
NB03SED-TOX137	AT5-395	1000, 15 September 2015	1450, 23 September 2015
NB03SED-TOX136	AT5-396	1225, 15 September 2015	1450, 23 September 2015
NB03SED-BIO136	AT5-396	1225, 15 September 2015	1450, 23 September 2015
NB03SED-TOX139	AT5-397	0810, 16 September 2015	1450, 23 September 2015
NB03SED-TOX161	AT5-398	1055, 16 September 2015	1450, 23 September 2015
NB03SED-BIO161	AT5-398	1055, 16 September 2015	1450, 23 September 2015
NB03SED-TOX141	AT5-399	0820, 17 September 2015	1450, 23 September 2015
NB03SED-BIO141	AT5-399	0820, 17 September 2015	1450, 23 September 2015
NB03SED-TOX157	AT5-400	1045, 17 September 2015	1450, 23 September 2015
NB03SED-TOX144	AT5-401	0825, 18 September 2015	1450, 23 September 2015
NB03SED-TOX156	AT5-402	1020, 18 September 2015	1450, 23 September 2015
NB03SED-TOX151	AT5-403	0815, 21 September 2015	1450, 23 September 2015
NB03SEDDUP-02 ^(a)	AT5-404	0000, 21 September 2015	1450, 23 September 2015
NB03SED-TOX155	AT5-405	1030, 21 September 2015	1450, 23 September 2015
NB03SED-TOX154	AT5-406	1225, 21 September 2015	1450, 23 September 2015
NB03SEDDUP-03 ^(b)	AT5-407	0000, 21 September 2015	1450, 23 September 2015
NB03SED-TOX147	AT5-408	0800, 22 September 2015	1450, 23 September 2015
NB03SED-BIO147	AT5-408	0800, 22 September 2015	1450, 23 September 2015
NB03SED-TOX162	AT5-409	1030, 22 September 2015	1450, 23 September 2015
NB03SED-TOX148	AT5-410	1205, 22 September 2015	1450, 23 September 2015
NB03SED-TOX146	AT5-411	1405, 22 September 2015	1450, 23 September 2015
NB03SED-BIO146	AT5-411	1405, 22 September 2015	1450, 23 September 2015
NB03SED-TOX149	AT5-427	0830, 23 September 2015	1605, 1 October 2015
NB03SED-BIO149	AT5-427	0830, 23 September 2015	1605, 1 October 2015
NB03SED-BIO149MS	AT5-428	0830, 23 September 2015	1605, 1 October 2015
NB03SED-BIO149MSD	AT5-429	0830, 23 September 2015	1605, 1 October 2015
NB03SEDDUP-05 ^(c)	AT5-430	0000, 23 September 2015	1605, 1 October 2015
NB03SED-TOX163	AT5-431	1110, 23 September 2015	1605, 1 October 2015
NB03SED-TOX150	AT5-432	1300, 23 September 2015	1605, 1 October 2015
NB03SED-TOX153	AT5-433	0945, 24 September 2015	1605, 1 October 2015
NB03SED-TOX159	AT5-434	0825, 25 September 2015	1605, 1 October 2015
NB03SED-TOX158	AT5-435	0955, 25 September 2015	1605, 1 October 2015
NB03SED-TOX160	AT5-436	0835, 29 September 2015	1605, 1 October 2015
NB03SED-BIO160	AT5-436	0835, 29 September 2015	1605, 1 October 2015
NB03SED-TOX142	AT5-437	1020, 29 September 2015	1605, 1 October 2015
NB03SED-TOX140	AT5-438	0805, 30 September 2015	1605, 1 October 2015
NB03SED-TOX145	AT5-439	0935, 30 September 2015	1605, 1 October 2015
NB03SED-TOX143	AT5-440	1100, 30 September 2015	1605, 1 October 2015
NB03SED-TOX152	AT5-441	1300, 30 September 2015	1605, 1 October 2015

(a) Parent sample: NB03SED-TOX151.

(b) Parent sample: NB03SED-TOX154.

(c) Parent sample: NB03SED-BIO149.

TABLE 2 AMMONIA CONCENTRATIONS MEASURED ON SEDIMENT OVERLYING WATER AND PORE WATER PRIOR TO 10-DAY SOLID PHASE TOXICITY TESTING WITH *Leptocheirus plumulosus* – NEWARK BAY STUDY AREA, NEW JERSEY

Test Number: TN-15-403

Testing Dates: 10/30/15 – 11/9/15

Sample Identification	EA Accession Number	Initial Pore Water ^(a)	Day 0 Overlying Water	Day 10 Overlying Water
Control	AT4-590	N/A	2.0	<0.1
NB03SED-TOX164	AT5-392	63.1	3.0	<0.1
NB03SED-TOX165	AT5-393	9.3	<0.1	<0.1
NB03SED-TOX138	AT5-394	10.3	<0.1	<0.1
NB03SED-TOX137	AT5-395	5.5	<0.1	<0.1
NB03SED-TOX136	AT5-396	10.2	<0.1	<0.1
NB03SED-TOX139	AT5-397	13.8	<0.1	<0.1
NB03SED-TOX161	AT5-398	6.6	<0.1	<0.1
NB03SED-TOX141	AT5-399	5.6	<0.1	0.2
NB03SED-TOX157	AT5-400	4.5	<0.1	<0.1
NB03SED-TOX144	AT5-401	9.1	0.8	<0.1
NB03SED-TOX156	AT5-402	14.6	<0.1	<0.1
NB03SED-TOX151	AT5-403	5.7	0.7	<0.1
NB03SEDDUP-02	AT5-404	3.2	0.6	<0.1
NB03SED-TOX155	AT5-405	5.1	<0.1	<0.1
NB03SED-TOX154	AT5-406	5.2	1.1	<0.1
NB03SEDDUP-03	AT5-407	5.2	0.6	<0.1
NB03SED-TOX147	AT5-408	5.9	<0.1	<0.1
NB03SED-TOX162	AT5-409	6.5	<0.1	<0.1
NB03SED-TOX148	AT5-410	6.6	<0.1	0.3
NB03SED-TOX146	AT5-411	3.5	<0.1	<0.1
NB03SED-TOX149	AT5-427	4.2	0.1	<0.1
NB03SED-TOX163	AT5-431	2.5	<0.1	<0.1
NB03SED-TOX150	AT5-432	5.6	<0.1	<0.1
NB03SED-TOX153	AT5-433	3.8	<0.1	<0.1
NB03SED-TOX159	AT5-434	3.5	<0.1	<0.1
NB03SED-TOX158	AT5-435	19.5	9.5	<0.1
NB03SED-TOX160	AT5-436	4.2	1.4	<0.1
NB03SED-TOX142	AT5-437	7.7	2.5	<0.1
NB03SED-TOX140	AT5-438	2.1	0.1	<0.1
NB03SED-TOX145	AT5-439	2.8	0.2	<0.1
NB03SED-TOX143	AT5-440	3.4	0.1	<0.1
NB03SED-TOX152	AT5-441	2.9	<0.1	<0.1

(a) Initial pore water was preserved for each sample upon receipt at the laboratory.

TABLE 3 AMMONIA CONCENTRATIONS MEASURED ON SEDIMENT OVERLYING WATER AND PORE WATER PRIOR TO 28-DAY SOLID PHASE TOXICITY TESTING WITH *Leptocheirus plumulosus* – NEWARK BAY STUDY AREA, NEW JERSEY

Test Number: TN-15-491

Testing Dates: 11/25/15 – 12/23/15

Sample Identification	EA Accession Number	Pore Water Ammonia (mg/L)			Overlying Water Ammonia (mg/L)	
		Initial ^(a)	Day 0	Day 28	Day 0	Day 28
Control	AT4-590	N/A	29.0	26.9	2.2	<0.1
NB03SED-TOX164	AT5-392	63.1	29.8	9.4	1.8	<0.1
NB03SED-TOX165	AT5-393	9.3	3.0	3.0	<0.1	<0.1
NB03SED-TOX138	AT5-394	10.3	4.0	2.8	<0.1	<0.1
NB03SED-TOX137	AT5-395	5.5	6.0	2.4	<0.1	<0.1
NB03SED-TOX136	AT5-396	10.2	6.0	3.9	<0.1	<0.1
NB03SED-TOX139	AT5-397	13.8	13.0	40.1	<0.1	<0.1
NB03SED-TOX161	AT5-398	6.6	9.0	2.6	<0.1	<0.1
NB03SED-TOX141	AT5-399	5.6	3.1	3.8	<0.1	<0.1
NB03SED-TOX157	AT5-400	4.5	5.0	1.5	<0.1	<0.1
NB03SED-TOX144	AT5-401	9.1	6.0	3.0	0.9	<0.1
NB03SED-TOX156	AT5-402	14.6	12.3	4.7	<0.1	<0.1
NB03SED-TOX151	AT5-403	5.7	13.0	2.1	0.4	<0.1
NB03SEDDUP-02	AT5-404	3.2	7.6	1.8	0.2	<0.1
NB03SED-TOX155	AT5-405	5.1	21.8	<2.0	0.3	<0.1
NB03SED-TOX154	AT5-406	5.2	5.3	1.5	0.4	<0.1
NB03SEDDUP-03	AT5-407	5.2	9.5	2.4	0.7	<0.1
NB03SED-TOX147	AT5-408	5.9	7.7	6.2	<0.1	<0.1
NB03SED-TOX162	AT5-409	6.5	11.5	4.6	<0.1	<0.1
NB03SED-TOX148	AT5-410	6.6	15.5	7.6	<0.1	<0.1
NB03SED-TOX146	AT5-411	3.5	6.0	3.4	<0.1	<0.1
NB03SED-TOX149	AT5-427	4.2	6.4	4.6	<0.1	<0.1
NB03SED-TOX163	AT5-431	2.5	3.5	3.7	<0.1	<0.1
NB03SED-TOX150	AT5-432	5.6	11.4	4.9	<0.1	<0.1
NB03SED-TOX153	AT5-433	3.8	3.0	3.1	<0.1	<0.1
NB03SED-TOX159	AT5-434	3.5	4.1	4.0	<0.1	<0.1
NB03SED-TOX158	AT5-435	19.5	108.0 ^(b)	22.8	3.7	<0.1
NB03SED-TOX160	AT5-436	4.2	29.3	6.25	2.0	<0.1
NB03SED-TOX142	AT5-437	7.7	31.2	18.6	1.9	<0.1
NB03SED-TOX140	AT5-438	2.1	21.4	5.0	<0.1	<0.1
NB03SED-TOX145	AT5-439	2.8	10.1	4.7	<0.1	<0.1
NB03SED-TOX143	AT5-440	3.4	8.8	2.5	0.2	<0.1
NB03SED-TOX152	AT5-441	2.9	3.1	4.3	0.1	<0.1

(a) Initial pore water was preserved for each sample upon receipt at the laboratory.

(b) Porewater preserved on Day 0 for analysis. Analysis occurred after test initiation and measured pore water ammonia on Day 0 was reviewed for procedural abnormalities and none were noted. Sufficient sample was not available for reanalysis. No corrective action was implemented.

TABLE 4 SUMMARY OF WATER QUALITY PARAMETERS MEASURED DURING 10-DAY SOLID PHASE BIOASSAY TESTING WITH *Leptocheirus plumulosus* – NEWARK BAY STUDY AREA, NEW JERSEY

Test Number: TN-15-403

Testing Dates: 10/30/15 – 11/9/15

Sediment Sample Identification	EA Accession Number	Range			
		Temperature (°C)	pH	Dissolved Oxygen (mg/L)	Salinity (ppt) ^(a)
Control	AT4-590	24.0 – 25.3	6.1 – 8.2	7.2 – 8.0	18.0 – 21.8
NB03SED-TOX164	AT5-392	24.0 – 25.1	7.3 – 8.2	7.2 – 7.8	20.7 – 22.3
NB03SED-TOX165	AT5-393	24.0 – 25.3	7.6 – 8.4	7.1 – 7.7	20.3 – 23.0
NB03SED-TOX138	AT5-394	24.0 – 25.3	7.8 – 8.5	7.1 – 7.8	18.0 – 22.4
NB03SED-TOX137	AT5-395	24.0 – 25.3	7.8 – 8.5	6.6 – 8.0	20.5 – 22.2
NB03SED-TOX136	AT5-396	24.0 – 25.6	7.8 – 8.5	6.9 – 7.7	19.6 – 21.8
NB03SED-TOX139	AT5-397	24.0 – 25.6	7.9 – 8.5	6.9 – 7.6	19.9 – 23.0
NB03SED-TOX161	AT5-398	24.0 – 25.5	8.0 – 8.5	6.9 – 7.6	19.6 – 23.0
NB03SED-TOX141	AT5-399	24.0 – 25.5	8.1 – 8.6	6.8 – 7.6	19.7 – 23.0
NB03SED-TOX157	AT5-400	24.0 – 25.5	8.1 – 8.6	7.0 – 7.7	20.7 – 22.7
NB03SED-TOX144	AT5-401	24.0 – 25.6	8.2 – 8.6	7.0 – 7.6	20.8 – 22.2
NB03SED-TOX156	AT5-402	24.0 – 25.6	8.3 – 8.7	7.0 – 7.6	20.7 – 22.2
NB03SED-TOX151	AT5-403	24.0 – 25.6	8.3 – 8.7	7.0 – 7.6	18.0 – 23.0
NB03SEDDUP-02	AT5-404	24.0 – 25.6	8.4 – 8.7	7.0 – 7.8	19.0 – 23.6
NB03SED-TOX155	AT5-405	24.0 – 25.6	8.4 – 8.7	6.4 – 7.9	20.5 – 23.0
NB03SED-TOX154	AT5-406	24.0 – 25.7	8.4 – 8.7	6.5 – 7.8	19.9 – 22.6
NB03SEDDUP-03	AT5-407	24.0 – 25.8	8.4 – 8.7	6.9 – 7.7	20.9 – 22.8
NB03SED-TOX147	AT5-408	24.0 – 25.6	8.4 – 8.7	7.0 – 8.0	19.3 – 23.0
NB03SED-TOX162	AT5-409	24.0 – 25.4	8.4 – 8.7	7.0 – 7.7	20.4 – 22.3
NB03SED-TOX148	AT5-410	24.0 – 25.3	8.4 – 8.7	7.0 – 7.6	18.9 – 22.9
NB03SED-TOX146	AT5-411	24.0 – 25.4	8.5 – 8.7	7.1 – 7.6	20.0 – 21.6
NB03SED-TOX149	AT5-427	24.0 – 25.4	8.5 – 8.7	7.0 – 7.6	19.9 – 22.7
NB03SED-TOX163	AT5-431	24.0 – 25.3	8.5 – 8.8	7.0 – 7.7	18.6 – 22.8
NB03SED-TOX150	AT5-432	24.0 – 25.4	8.5 – 8.7	7.0 – 7.7	20.2 – 21.7
NB03SED-TOX153	AT5-433	24.0 – 25.6	8.5 – 8.7	6.7 – 7.7	19.3 – 23.0
NB03SED-TOX159	AT5-434	24.0 – 25.7	8.5 – 8.7	6.2 – 7.7	19.8 – 22.4
NB03SED-TOX158	AT5-435	24.0 – 25.5	8.4 – 8.8	6.0 – 7.7	19.4 – 23.0
NB03SED-TOX160	AT5-436	24.0 – 25.3	8.5 – 8.9	6.7 – 7.7	19.9 – 21.9
NB03SED-TOX142	AT5-437	24.0 – 25.4	8.4 – 8.8	6.9 – 7.8	20.4 – 23.0
NB03SED-TOX140	AT5-438	24.0 – 25.4	8.5 – 8.8	7.0 – 7.8	19.7 – 21.7
NB03SED-TOX145	AT5-439	24.0 – 25.3	8.5 – 8.7	6.9 – 7.7	21.1 – 23.0
NB03SED-TOX143	AT5-440	24.0 – 25.2	8.5 – 8.8	7.0 – 8.0	17.9 – 21.9
NB03SED-TOX152	AT5-441	24.0 – 25.5	8.5 – 8.7	7.0 – 7.8	20.5 – 24.0

(a) Salinity was outside the target range of 20±3 ppt for limited duration, 10 day mean salinity values were within 20±2 ppt.

TABLE 5 SUMMARY OF WATER QUALITY PARAMETERS MEASURED DURING 28-DAY SOLID PHASE BIOASSAY TESTING WITH *Leptocheirus plumulosus* – NEWARK BAY STUDY AREA, NEW JERSEY

Test Number: TN-15-491

Testing Dates: 11/25/15 – 12/23/15

Sediment Sample Identification	EA Accession Number	Range			
		Temperature (°C)	pH	Dissolved Oxygen (mg/L)	Salinity (ppt) ^(a)
Control	AT4-590	24.0 – 24.8	6.6 – 7.9	7.1 – 8.1	19.3 – 21.8
NB03SED-TOX164	AT5-392	24.0 – 25.3	7.0 – 8.6	6.9 – 8.0	20.9 – 23.1
NB03SED-TOX165	AT5-393	24.0 – 25.9	7.2 – 8.4	7.1 – 7.7	20.9 – 23.2
NB03SED-TOX138	AT5-394	24.0 – 25.2	7.4 – 8.4	6.9 – 7.7	20.4 – 22.9
NB03SED-TOX137	AT5-395	24.0 – 25.3	7.6 – 8.3	5.0 – 7.6	20.4 – 22.0
NB03SED-TOX136	AT5-396	24.0 – 25.4	7.6 – 8.4	6.7 – 8.0	21.0 – 23.2
NB03SED-TOX139	AT5-397	24.0 – 25.4	7.5 – 8.4	6.2 – 7.8	20.8 – 22.5
NB03SED-TOX161	AT5-398	24.0 – 25.6	7.8 – 8.5	6.9 – 7.8	20.5 – 22.6
NB03SED-TOX141	AT5-399	24.0 – 25.1	7.9 – 8.5	6.4 – 7.7	18.9 – 21.6
NB03SED-TOX157	AT5-400	24.0 – 25.3	7.9 – 8.6	6.1 – 7.4	20.7 – 22.4
NB03SED-TOX144	AT5-401	24.0 – 25.4	8.0 – 8.6	7.0 – 7.8	21.2 – 26.8
NB03SED-TOX156	AT5-402	24.0 – 25.8	8.0 – 8.6	6.7 – 7.7	20.8 – 23.0
NB03SED-TOX151	AT5-403	24.0 – 25.2	8.1 – 8.6	6.5 – 7.7	21.2 – 22.8
NB03SEDDUP-02	AT5-404	24.0 – 25.5	7.8 – 8.7	7.0 – 7.8	19.1 – 22.8
NB03SED-TOX155	AT5-405	24.0 – 25.6	8.2 – 8.7	6.3 – 7.8	19.9 – 22.5
NB03SED-TOX154	AT5-406	24.0 – 25.6	8.2 – 8.7	6.8 – 7.7	20.0 – 23.5
NB03SEDDUP-03	AT5-407	24.0 – 25.1	8.2 – 8.6	7.0 – 7.9	20.6 – 24.8
NB03SED-TOX147	AT5-408	24.0 – 25.3	8.2 – 8.6	6.7 – 8.0	19.8 – 22.4
NB03SED-TOX162	AT5-409	24.0 – 25.4	8.2 – 8.6	4.6 – 7.8	20.8 – 24.3
NB03SED-TOX148	AT5-410	24.0 – 25.5	8.1 – 8.6	5.2 – 7.6	19.3 – 23.2
NB03SED-TOX146	AT5-411	24.0 – 25.6	8.2 – 8.7	6.8 – 8.0	20.0 – 23.0
NB03SED-TOX149	AT5-427	24.0 – 25.5	8.2 – 8.7	6.5 – 8.0	20.0 – 23.7
NB03SED-TOX163	AT5-431	24.0 – 25.6	8.2 – 8.7	6.2 – 8.0	20.2 – 22.4
NB03SED-TOX150	AT5-432	24.0 – 25.6	8.2 – 8.7	6.9 – 7.6	20.3 – 23.3
NB03SED-TOX153	AT5-433	24.0 – 25.4	8.3 – 8.6	7.0 – 7.6	20.9 – 22.6
NB03SED-TOX159	AT5-434	24.0 – 25.5	8.3 – 8.6	7.0 – 7.8	20.0 – 22.0
NB03SED-TOX158	AT5-435	24.0 – 25.5	8.2 – 8.7	7.0 – 7.8	19.7 – 22.8
NB03SED-TOX160	AT5-436	24.0 – 25.7	8.2 – 8.7	7.0 – 7.5	19.4 – 22.4
NB03SED-TOX142	AT5-437	24.0 – 25.7	8.3 – 8.8	6.8 – 7.7	20.3 – 21.3
NB03SED-TOX140	AT5-438	24.0 – 25.6	8.3 – 8.6	6.7 – 7.8	20.0 – 22.7
NB03SED-TOX145	AT5-439	24.0 – 25.3	8.3 – 8.6	7.0 – 7.6	20.3 – 22.5
NB03SED-TOX143	AT5-440	24.0 – 25.4	7.6 – 8.7	6.9 – 7.7	19.7 – 22.1
NB03SED-TOX152	AT5-441	24.0 – 25.4	7.8 – 8.6	7.0 – 7.8	20.4 – 22.0

(a) Salinity was outside the target range of 20±3 ppt for limited duration, 28 day mean salinity values were within 20±3 ppt.

TABLE 6 SUMMARY OF WATER QUALITY PARAMETERS MEASURED DURING 28-DAY SOLID PHASE BIOACCUMULATION TESTING WITH *Nereis virens* – NEWARK BAY STUDY AREA, NEW JERSEY

Test Number: TN-15-405

Testing Dates: 10/22-11/19/15

Sediment Sample Identification	EA Accession Number	Range			
		Temperature (°C)	pH	Dissolved Oxygen (mg/L)	Salinity (ppt)
Control	AT5-463	19.1 – 21.0	7.1 – 8.4	7.0 – 7.9	29.0 – 31.5
NB03SED-BIO138	AT5-394	19.0 – 20.7	7.3 – 8.4	6.8 – 7.8	29.1 – 31.2
NB03SED-BIO136	AT5-396	19.0 – 20.4	7.3 – 8.4	7.0 – 7.8	29.0 – 31.5
NB03SED-BIO161	AT5-398a	19.0 – 20.3	7.4 – 8.4	6.6 – 7.9	29.5 – 31.6
NB03SED-BIO161	AT5-398b	19.0 – 20.3	7.5 – 8.4	6.8 – 7.8	29.4 – 32.4
NB03SED-BIO141	AT5-399a	19.0 – 20.3	7.6 – 8.4	6.6 – 7.8	29.4 – 31.5
NB03SED-BIO141	AT5-399b	19.1 – 20.3	7.6 – 8.4	6.5 – 7.7	29.3 – 31.3
NB03SED-BIO147	AT5-408	19.0 – 20.3	7.6 – 8.3	6.6 – 7.7	29.2 – 32.1
NB03SED-BIO146	AT5-411	19.0 – 20.3	7.8 – 8.4	6.7 – 7.8	29.2 – 32.2
NB03SED-BIO149	AT5-427	19.0 – 20.3	7.8 – 8.4	6.8 – 7.9	29.2 – 31.9
NB03SED-BIO149MS	AT5-428	19.0 – 20.1	7.8 – 8.3	6.8 – 7.8	29.5 – 31.7
NB03SED-BIO149MSD	AT5-429	19.0 – 20.1	7.8 – 8.3	6.9 – 7.8	29.4 – 31.5
NB03SEDDUP-05	AT5-430	19.0 – 20.1	7.8 – 8.3	6.7 – 7.8	29.4 – 31.7
NB03SED-BIO160	AT5-436	19.0 – 20.1	7.8 – 8.3	6.9 – 7.8	29.4 – 31.6

TABLE 7 SUMMARY OF OXIDATION/REDUCTION POTENTIAL MEASURED DURING TOXICITY AND BIOACCUMULATION TESTING – NEWARK BAY STUDY AREA, NEW JERSEY

Test Number: TN-15-403

Testing Dates: 10/30/15 – 11/9/15

Sediment Sample Identification	EA Accession Number	ORP Range
NB03SED-TOX138	AT5-394	-256.4 – 40.5
NB03SED-TOX157	AT5-400	-258.9 – -131.8
NB03SED-TOX154	AT5-406	-262.1 – -120.3
NB03SED-TOX163	AT5-431	-272.5 – -34.7
NB03SED-TOX140	AT5-438	-262.0 – -134.4

Test Number: TN-15-491

Testing Dates: 11/25/15 – 12/23/15

Sediment Sample Identification	EA Accession Number	ORP Range
Control	AT4-590	-220.3 – -165.5
NB03SED-TOX161	AT5-398	-223.5 – -161.1
NB03SED-TOX151	AT5-403	-274.2 – -132.6
NB03SEDDUP-03	AT5-407	-243.3 – -172.7
NB03SED-TOX153	AT5-433	-259.5 – -217.8

Test Number: TN-15-405

Testing Dates: 10/22-11/19/15

Sediment Sample Identification	EA Accession Number	ORP Range
NB03SED-BIO141	AT5-399a	-248.6 – 192.0
NB03SED-BIO147	AT5-408	-206.7 – 322.1
NB03SED-BIO146	AT5-411	-236.4 – 120.3
NB03SED-BIO149	AT5-427	-94.0 – 175.1
NB03SED-BIO149MS	AT5-428	-151.6 – 465.2

TABLE 8 RESULTS OF 10-DAY WHOLE SEDIMENT TOXICITY TESTING WITH
Leptocheirus plumulosus - NEWARK BAY STUDY AREA, NEW JERSEY

Test Number: TN-15-403

Testing Dates: 10/30/15 - 11/9/15

Sample Identification	EA Accession Number	No. Alive/No. Exposed	10-Day Mean Percent Survival
Control	AT4-590	90 / 100	90
NB03SED-TOX164	AT5-392	96 / 100	96
NB03SED-TOX165	AT5-393	95 / 100	95
NB03SED-TOX138	AT5-394	89 / 100	89
NB03SED-TOX137	AT5-395	96 / 100	96
NB03SED-TOX136	AT5-396	92 / 100	92
NB03SED-TOX139	AT5-397	92 / 100	92
NB03SED-TOX161	AT5-398	95 / 100	95
NB03SED-TOX141	AT5-399	92 / 100	92
NB03SED-TOX157	AT5-400	92 / 100	92
NB03SED-TOX144	AT5-401	93 / 100	93
NB03SED-TOX156	AT5-402	96 / 100	96
NB03SED-TOX151	AT5-403	39 / 100	39 ^(a)
NB03SEDDUP-02	AT5-404	36 / 100	36 ^(a)
NB03SED-TOX155	AT5-405	95 / 100	95
NB03SED-TOX154	AT5-406	32 / 100	32 ^(a)
NB03SEDDUP-03	AT5-407	46 / 100	46 ^(a)
NB03SED-TOX147	AT5-408	90 / 100	90
NB03SED-TOX162	AT5-409	92 / 100	92
NB03SED-TOX148	AT5-410	97 / 100	97
NB03SED-TOX146	AT5-411	83 / 100	83
NB03SED-TOX149	AT5-427	98 / 100	98
NB03SED-TOX163	AT5-431	94 / 100	94
NB03SED-TOX150	AT5-432	89 / 100	89
NB03SED-TOX153	AT5-433	98 / 100	98
NB03SED-TOX159	AT5-434	90 / 100	90
NB03SED-TOX158	AT5-435	93 / 100	93
NB03SED-TOX160	AT5-436	90 / 100	90
NB03SED-TOX142	AT5-437	98 / 100	98
NB03SED-TOX140	AT5-438	81 / 100	81
NB03SED-TOX145	AT5-439	97 / 100	97
NB03SED-TOX143	AT5-440	90 / 100	90
NB03SED-TOX152	AT5-441	97 / 100	97

(a) Significantly different than the control (p=0.05).

TABLE 9 RESULTS OF 28-DAY WHOLE SEDIMENT TOXICITY TESTING WITH
Leptocheirus plumulosus - NEWARK BAY STUDY AREA, NEW JERSEY

Test Number: TN-15-491

Testing Dates: 11/25/15 – 12/23/15

Sample Identification	EA Accession Number	No. Alive/No. Exposed	28-Day Mean Percent Survival	Growth Rate as mg/Organism/Day (\pm S.D.)	Mean Reproduction as Young per Surviving Adult
Control	AT4-590	81 / 100	81	0.045 (\pm 0.002)	1.97
NB03SED-TOX164	AT5-392	84 / 100	84	0.021 (\pm 0.009) ^(a)	0.83
NB03SED-TOX165	AT5-393	89 / 101	88	0.028 (\pm 0.007) ^(a)	0.68 ^(a)
NB03SED-TOX138	AT5-394	46 / 100	46	0.017 (\pm 0.012) ^(a)	0.33 ^(a)
NB03SED-TOX137	AT5-395	75 / 100	75	0.029 (\pm 0.010) ^(a)	0.28 ^(a)
NB03SED-TOX136	AT5-396	63 / 100	63	0.028 (\pm 0.017)	0.69
NB03SED-TOX139	AT5-397	92 / 100	92	0.033 (\pm 0.013)	0.56 ^(a)
NB03SED-TOX161	AT5-398	96 / 100	96	0.034 (\pm 0.007) ^(a)	0.71
NB03SED-TOX141	AT5-399	67 / 100	67 ^(a)	0.036 (\pm 0.015)	0.80
NB03SED-TOX157	AT5-400	80 / 100	80	0.024 (\pm 0.016) ^(a)	0.94
NB03SED-TOX144	AT5-401	65 / 100	65	0.021 (\pm 0.014) ^(a)	1.13
NB03SED-TOX156	AT5-402	86 / 100	86	0.035 (\pm 0.008) ^(a)	0.79
NB03SED-TOX151	AT5-403	0 / 100	0 ^(a)	--- ^(b)	--- ^(b)
NB03SEDDUP-02	AT5-404	0 / 100	0 ^(a)	--- ^(b)	--- ^(b)
NB03SED-TOX155	AT5-405	71 / 101	70	0.035 (\pm 0.017)	0.60
NB03SED-TOX154	AT5-406	7 / 100	7 ^(a)	0.001 (\pm 0.002) ^(a)	0.96
NB03SEDDUP-03	AT5-407	11 / 100	11 ^(a)	0.004 (\pm 0.000) ^(a)	0.00 ^(a)
NB03SED-TOX147	AT5-408	79 / 100	79	0.035 (\pm 0.013)	0.28 ^(a)
NB03SED-TOX162	AT5-409	88 / 102	86	0.037 (\pm 0.004) ^(a)	0.95
NB03SED-TOX148	AT5-410	92 / 100	92	0.032 (\pm 0.007) ^(a)	0.84
NB03SED-TOX146	AT5-411	84 / 100	54	0.029 (\pm 0.014) ^(a)	0.60 ^(a)
NB03SED-TOX149	AT5-427	63 / 100	63	0.020 (\pm 0.009) ^(a)	0.64
NB03SED-TOX163	AT5-431	69 / 100	69	0.031 (\pm 0.016)	1.02
NB03SED-TOX150	AT5-432	73 / 100	73	0.030 (\pm 0.019)	0.67 ^(a)
NB03SED-TOX153	AT5-433	83 / 100	83	0.037 (\pm 0.019)	0.73
NB03SED-TOX159	AT5-434	62 / 100	62	0.029 (\pm 0.022)	0.67
NB03SED-TOX158	AT5-435	39 / 100	39 ^(a)	0.010 (\pm 0.013) ^(a)	0.00 ^(a)
NB03SED-TOX160	AT5-436	0 / 100	0 ^(a)	--- ^(b)	--- ^(b)
NB03SED-TOX142	AT5-437	53 / 100	53	0.050 (\pm 0.006)	1.93
NB03SED-TOX140	AT5-438	79 / 100	79	0.032 (\pm 0.015)	0.77
NB03SED-TOX145	AT5-439	59 / 100	59	0.040 (\pm 0.016)	0.58
NB03SED-TOX143	AT5-440	30 / 100	30 ^(a)	0.012 (\pm 0.007) ^(a)	0.21 ^(a)
NB03SED-TOX152	AT5-441	86 / 100	86	0.025 (\pm 0.014) ^(a)	0.37 ^(a)

(a) Significantly different than the control ($p=0.05$).

(b) Growth rate or reproduction not calculable for samples with no surviving organisms.

TABLE 10 RESULTS OF 28-DAY BIOACCUMULATION TESTING WITH
Nereis virens - NEWARK BAY STUDY AREA, NEW JERSEY

Test Number: TN-15-405

Testing Dates: 10/22/15 - 11/19/15

Sample Identification	EA Accession Number	No. Alive/No. Exposed	28-Day Mean Percent Recovery
Control	AT5-463	100 / 100	100
NB03SED-BIO138	AT5-394	93 / 100	93 ^(a)
NB03SED-BIO136	AT5-396	100 / 100	100
NB03SED-BIO161	AT5-398a	92 / 100	92 ^(a)
NB03SED-BIO161	AT5-398b	95 / 100	95 ^(a)
NB03SED-BIO141	AT5-399a	96 / 100	96 ^(a)
NB03SED-BIO141	AT5-399b	99 / 100	99
NB03SED-BIO147	AT5-408	92 / 100	92 ^(a)
NB03SED-BIO146	AT5-411	102 / 102	100
NB03SED-BIO149	AT5-427	97 / 100	97
NB03SED-BIO149MS	AT5-428	95 / 100	95 ^(a)
NB03SED-BIO149MSD	AT5-429	99 / 101	98
NB03SEDDUP-05	AT5-430	98 / 101	97
NB03SED-BIO160	AT5-436	99 / 100	99

(a) Significantly different than the control (p=0.05). See discussion in Results section.

TABLE 11 RESULTS OF REFERENCE TOXICANT TESTING ON ACQUIRED LOTS OF TEST ORGANISMS –
NEWARK BAY STUDY AREA, NEW JERSEY

Test Species	Organism Lot Number	Reference Toxicant	Test Endpoint	Acceptable Control Chart Limits
<i>Leptocheirus plumulosus</i>	LP-075	Cadmium chloride (CdCl ₂)	48-Hour LC50: 14.5 mg/L Cd	3.7 – 21.7 mg/L Cd
<i>Leptocheirus plumulosus</i>	LP-076	Cadmium chloride (CdCl ₂)	48-Hour LC50: 7.1 mg/L Cd	3.3 – 22.1 mg/L Cd
<i>Leptocheirus plumulosus</i>	LP-078	Cadmium chloride (CdCl ₂)	48-Hour LC50: 13.6 mg/L Cd	1.8 – 21.4 mg/L Cd
<i>Nereis virens</i>	NV-055	Potassium chloride (KCl)	48-Hour LC50: 1,439 mg/L KCl	584 – 1,584 mg/L KCl

ATTACHMENT I

Chain-of-Custody Record
(6 pages)



EA Ecotoxicology Laboratory
 231 Schilling Circle
 Hurtt Valley, Maryland 21031
 Telephone: 410-584-7000
 Fax: 410-584-1057



Sample Shipped By: (circle)
 Fed. Ex. UPS Other: Courier
 Tracking #: _____

Client: Tierra Solutions Project No.: 80009989.0044
 NPDES Number: _____ Client Purchase Order Number: _____
 City/State Collected: Newark Bay, New Jersey

PLEASE READ SAMPLING INSTRUCTIONS ON BACK OF FORM

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Accession Number (office use only)	Grab	Composite	Collection		Sample Description (including Site, Station Number, and Outfall Number)	Number/Volume of Container
			Start Date/Time	End Date/Time		
AT5-392	X		09/14/15 0930	09/14/15 0930	NB03SED-TOX164 5.7°C	1x5 gallons
393	X		09/14/15 1230	09/14/15 1230	NB03SED-TOX165 5.3°C	1x5 gallons
394	X		09/15/15 0810	09/15/15 0810	NB03SED-TOX138 4.1°C	shares with BIO138
↓	X		09/15/15 0810	09/15/15 0810	NB03SED-BIO138 5.9°C	2x5 gallons
395	X		09/15/15 1000	09/15/15 1000	NB03SED-TOX137 5.8°C	1x5 gallons
396	X		09/15/15 1225	09/15/15 1225	NB03SED-TOX136 3.4°C	shares with BIO136
↓	X		09/15/15 1225	09/15/15 1225	NB03SED-BIO136 5.3°C	2x5 gallons
397	X		09/16/15 0810	09/16/15 0810	NB03SED-TOX139 4.9°C	1x5 gallons
398	X		09/16/15 1055	09/16/15 1055	5.8°C NB03SED-TOX161 5.9°C	shares with BIO161
↓	X		09/16/15 1055	09/16/15 1055	4.9°C NB03SED-BIO161 5.1°C	2x5 gallons
399	X		09/17/15 0820	09/17/15 0820	NB03SED-TOX141 4.9°C	shares with BIO141
↓	X		09/17/15 0820	09/17/15 0820	NB03SED-BIO141 4.5°C	2x5 gallons

Sampled By: <i>Gandhi</i>	Date/Time	Received By: <i>[Signature]</i>	Date/Time 9/23/15 0930
Sampler's Printed Name: Kavin Gandhi	Title: ARCADIS 880j Engineer	Relinquished By: <i>[Signature]</i>	Date/Time 9/23/15 1750
Relinquished By: Kavin Gandhi / Gandhi	Date/Time 09/23/15 : 0930	Received By Laboratory: Vickie Church	Date/Time 9/23/15 1450

Was Sample Chilled During Collection? (Yes/ No) Yes

Comments:

Temperatures taken upon receipt. by

Sample Collection Parameters

Visual Description:

Temperature (°C):

pH:

TRC (mg/L):

Other:



EA Ecotoxicology Laboratory
 231 Schilling Circle
 Hunt Valley, Maryland 21031
 Telephone: 410-584-7000
 Fax: 410-584-1057



Sample Shipped By: (circle)
 Fed. Ex. UPS Other: Courier
 Tracking #: _____

Client: Tierra Solutions Project No.: 80009989.0044
 NPDES Number: _____ Client Purchase Order Number: _____
 City/State Collected: Newark Bay, New Jersey

Pg 2/3

PLEASE READ SAMPLING INSTRUCTIONS ON BACK OF FORM

Accession Number (office use only)	Grab	Composite	Collection		Sample Description (including Site, Station Number, and Outfall Number)	Number/Volume of Container
			Start Date/Time	End Date/Time		
A75-400	X		09/17/15 1045	09/17/15 1045	NB03SED-TOX157 5.3°C	1x5 gallons
401	X		09/18/15 0825	09/18/15 0825	NB03SED-TOX144 5.7°C	1x5 gallons
402	X		09/18/15 1020	09/18/15 1020	NB03SED-TOX156 3.6°C	1x5 gallons
403	X		09/21/15 0815	09/21/15 0815	NB03SED-TOX151 4.9°C	1x5 gallons
404	X		09/21/15 0000	09/21/15 0000	NB03SEDDUP-02 4.3°C	1x5 gallons
405	X		09/21/15 1030	09/21/15 1030	NB03SED-TOX155 5.8°C	1x5 gallons
406	X		09/21/15 1225	09/21/15 1225	NB03SED-TOX154 4.3°C	1x5 gallons
407	X		09/21/15 0000	09/21/15 0000	NB03SEDDUP-03 3.3°C	1x5 gallons
408	X		09/22/15 0800	09/22/15 0800	NB03SED-TOX147 5.1°C	shares with BIO147
↓	X		09/22/15 0800	09/22/15 0800	NB03SED-BIO147 5.3°C	2x5 gallons
409	X		09/22/15 1030	09/22/15 1030	NB03SED-TOX162 4.8°C	1x5 gallons
410	X		09/22/15 1205	09/22/15 1205	NB03SED-TOX148 4.1°C	1x5 gallons

Sampled By: <i>Gandhi</i>	Date/Time	Received By: <i>[Signature]</i>	Date/Time 9/23/15 0930
Sampler's Printed Name: Kavin Gandhi	Title: ARCADIS Proj. Engineer	Relinquished By: <i>[Signature]</i>	Date/Time 9/23/15 1450
Relinquished By: Kavin Gandhi / Gandhi	Date/Time 09/23/15 ; 0930	Received By Laboratory: <i>[Signature]</i>	Date/Time 9/23/15 1450

Was Sample Chilled During Collection? Yes No

Comments:

Temperatures taken upon receipt. by

Sample Collection Parameters

Visual Description:
 Temperature (°C):
 pH:
 TRC (mg/L):
 Other:



EA Ecotoxicology Laboratory
 231 Schilling Circle
 Hunt Valley, Maryland 21031
 Telephone: 410-584-7000
 Fax: 410-584-1057



Sample Shipped By: (circle)
 Fed. Ex. UPS Other: Courier
 Tracking #: _____

Client: Tierra Solutions Project No.: B0009989.0044
 NPDES Number: _____ Client Purchase Order Number: _____
 City/State Collected: Newark Bay, New Jersey

PLEASE READ SAMPLING INSTRUCTIONS ON BACK OF FORM

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Accession Number (office use only)	Grab	Composite	Collection		Sample Description (including Site, Station Number, and Outfall Number)	Number/Volume of Container
			Start Date/Time	End Date/Time		
ATS-411	X		09/22/15 1405	09/22/15 1405	NB03SED-TOX146 5.4°C	shares with BIO146
↓	X		09/22/15 1405	09/22/15 1405	NB03SED-BIO146 4.6°C	2x5 gallons

Sampled By: <i>Gandhi</i>	Date/Time	Received By: <i>[Signature]</i>	Date/Time 9/23/15 0930
Sampler's Printed Name: Kavin Gandhi	Title: ARCADIS Proj Engineer	Relinquished By: <i>[Signature]</i>	Date/Time 9/23/15 1750
Relinquished By: Kavin Gandhi / Gandhi	Date/Time 09/23/15 ; 0930	Received By Laboratory: <i>[Signature]</i>	Date/Time 9/23/15 1450

Was Sample Chilled During Collection? Yes / No

Comments: Temperatures taken upon receipt. *ug*

Sample Collection Parameters
 Visual Description:
 Temperature (°C):
 pH:
 TRC (mg/L):
 Other:



EA Ecotoxicology Laboratory
 231 Schilling Circle
 Hunt Valley, Maryland 21031
 Telephone: 410-584-7000
 Fax: 410-584-1057



Sample Shipped By: (circle)
 Fed. Ex. UPS Other: Courier
 Tracking #: _____

Client: Tierra Solutions Project No.: _____

NPDES Number: _____ Client Purchase Order Number: _____

City/State Collected: Newark, New Jersey

PLEASE READ SAMPLING INSTRUCTIONS ON BACK OF FORM

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Accession Number (office use only)	Grab	Composite	Collection		Sample Description (including Site, Station Number, and Outfall Number) °C	Number/Volume of Container
			Start Date/Time	End Date/Time		
ATS-427	X		09/23/15 0830	09/23/15 0830	NB03SED-TOX149 3.2	shares with BIO149
↓	X		09/23/15 0830	09/23/15 0830	NB03SED-BIO149 1.8	2x5 gallons
428	X		09/23/15 0830	09/23/15 0830	NB03SED-BIO149MS 3.8 4.0	2x5 gallons
429	X		09/23/15 0830	09/23/15 0830	NB03SED-BIO149MSD 2.8	2x5 gallons 3.7
430	X		09/23/15 0000	09/23/15 0000	NB03SEDDUP-05 1.8 2.4	2x5 gallons
431	X		09/23/15 1110	09/23/15 1110	NB03SED-TOX163 3.0	1x5 gallons
432	X		09/23/15 1300	09/23/15 1300	NB03SED-TOX150 3.2	1x5 gallons
433	X		09/24/15 0945	09/24/15 0945	NB03SED-TOX153 3.5	1x5 gallons
434	X		09/25/15 0825	09/25/15 0825	NB03SED-TOX159 3.9	1x5 gallons
435	X		09/25/15 0955	09/25/15 0955	NB03SED-TOX158 3.8	1x5 gallons
436	X		09/29/15 0835	09/29/15 0835	NB03SED-TOX160 3.6	shares with BIO160
↓	X		09/29/15 0835	09/29/15 0835	NB03SED-BIO160 3.3	2x5 gallons

Sampled By: <i>Julianne Haggerty</i>	Date/Time 10/1/15 1125	Received By: <i>Julianne Haggerty</i>	Date/Time 10/1/15 1125
Sampler's Printed Name: Julianne Haggerty	Title: ARCADIS Engineer II	Relinquished By: <i>Julianne Haggerty</i>	Date/Time 10/1/15 1605
Relinquished By: <i>Julianne Haggerty</i>	Date/Time 10/1/15 1125	Received By: Laboratory <i>Wendy McFadden</i>	Date/Time 10/1/15 1605

Was Sample Chilled During Collection? Yes / No Comments:

Sample Collection Parameters

Visual Description:
 Temperature (°C):
 pH:
 TRC (mg/L):
 Other:



EA Ecotoxicology Laboratory
 231 Schilling Circle
 Hunt Valley, Maryland 21031
 Telephone: 410-584-7000
 Fax: 410-584-1057



Sample Shipped By: (circle)
 Fed. Ex. UPS Other: Courier
 Tracking #: _____

Client: Tierra Solutions Project No.: _____

NPDES Number: _____ Client Purchase Order Number: _____

City/State Collected: Newark, New Jersey

PLEASE READ SAMPLING INSTRUCTIONS ON BACK OF FORM

pg. 2/2

Accession Number (office use only)	Grab	Composite	Collection		Sample Description (including Site, Station Number, and Outfall Number)	Number/Volume of Container
			Start Date/Time	End Date/Time		
ATS-437	X		09/29/15 1020	09/29/15 1020	NB03SED-TOX142 3.6	1x5 gallons
438	X		09/30/15 0805	09/30/15 0805	NB03SED-TOX140 3.6	1x5 gallons
439	X		09/30/15 0935	09/30/15 0935	NB03SED-TOX145 2.6	1x5 gallons
440	X		09/30/15 1100	09/30/15 1100	NB03SED-TOX143 2.8	1x5 gallons
441	X		09/30/15 1300	09/30/15 1300	NB03SED-TOX152 3.2	1x5 gallons
—	X		09/21/15 1030	09/21/15 1030	NB03SED-TOX155	1x5 gallons
399(B)	X		09/17/15 0800	09/17/15 0820	NB03SED-B10141-LB 2.9 2.7	2x5 gallons

Sampled By: <i>[Signature]</i>	Date/Time: 10/1/15 1125	Received By: <i>[Signature]</i> (EA)	Date/Time: 10/1/15 1125
Sampler's Printed Name: Julianne Haggerty	Title: ARCADIS Engineer II	Relinquished By: <i>[Signature]</i>	Date/Time: 10/1/15 1605
Relinquished By: <i>[Signature]</i>	Date/Time: 10/1/15 1125	Received By Laboratory: <i>[Signature]</i>	Date/Time: 10/1/15 1605

Was Sample Chilled During Collection? Yes / No

Comments:

Sample Collection Parameters

Visual Description:
 Temperature (°C):
 pH:
 TRC (mg/L):
 Other:

ATTACHMENT II

Leptocheirus plumulosus 10-Day Whole Sediment Test
Data Sheets and Statistical Analyses
(90 pages)



SEDIMENT TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70005.15

Client: Tierra Solutions

QC Test Number: TN-15-403

TEST ORGANISM INFORMATION

Common Name: Amphipod Adults Isolated (Time, Date): _____

Scientific Name: Leptocheirus plumulosus Neonates Pulled (Time, Date): _____

Lot Number: LP-076 Acclimation: 24hrs Age: 2-4 mm

Source: Chesapeake Cultures Culture Water (T/S): 23.9 °C 22.2 ppt

TEST INITIATION

<u>Date</u>	<u>Time</u>	<u>Initials</u>	<u>Activity</u>
10/23/15	1400	IM/MJ	Sediment Added to Chambers
↓	1610	MJ	Overlying Water Added to Chambers
10/30/15	1430	MJ/IM	Organisms Transferred

TEST SET-UP

Sample Number(s): AT4-590, AT5-392→411, 427, 431→441

Overlying Water: 20 ppt Crystal Sea (LD5-464)

Treatment

Volume Test Sediment

Volume Overlying Water

AT4-590 (Lab Control)
AT5-392

175 ml

725 ml

↓
AT5-411
AT5-427
AT5-431

↓
AT5-441



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM RECOVERY RECORD

Project Number: 70005.15

TEST ORGANISM

Client: Tierra Solutions

Common Name: Amphipod

QC Test Number: TN-15-403

Scientific Name: Leptocheirus plumulosus

Organisms Recovered (date, time, initials): 11/9/15 1330 MKL, WLM, VT, LM

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
AT4-590 (Lab Control)	A	20	20
	B	20	18
	C	20	16
	D	20	16
	E	20	20
AT5-392	A	20	19
	B	20	20
	C	20	19
	D	20	20
	E	20	18
AT5-393	A	20	19
	B	20	20
	C	20	19
	D	20	18
	E	20	19
AT5-394	A	20	17
	B	20	19
	C	20	20
	D	20	17
	E	20	16
AT5-395	A	20	20
	B	20	18
	C	20	20
	D	20	20
	E	20	18



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM RECOVERY RECORD

Project Number: 70005.15 TEST ORGANISM
 Client: Tierra Solutions Common Name: Amphipod
 QC Test Number: TN-15-403 Scientific Name: Leptocheirus plumulosus
 Organisms Recovered (date, time, initials): 11/9/15 1330 MRC, WLM, VT, IM

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
AT5-396	A	20	16
	B	20	19
	C	20	18
	D	20	19
	E	20	20
AT5-397	A	20	18
	B	20	19
	C	20	19
	D	20	20
	E	20	16
AT5-398	A	20	20
	B	20	18
	C	20	19
	D	20	19 20
	E	20	18
AT5-399	A	20	20
	B	20	19
	C	20	15
	D	20	20 18
	E	20	20
AT5-400	A	20	15
	B	20	19
	C	20	20
	D	20	20
	E	20	18



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM RECOVERY RECORD

Project Number: 70005.15 TEST ORGANISM
 Client: Tierra Solutions Common Name: Amphipod
 QC Test Number: TN-15-403 Scientific Name: Leptocheirus plumulosus
 Organisms Recovered (date, time, initials): 11/9/15 1330 MKL, WLM, VT, JA

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
AT5-401	A	20	17
	B	20	17
	C	20	20
	D	20	20 19
	E	20	20
AT5-402	A	20	20
	B	20	20
	C	20	18
	D	20	19
	E	20	19
AT5-403	A	20	10
	B	20	4
	C	20	7
	D	20	5
	E	20	13
AT5-404	A	20	3
	B	20	8
	C	20	9
	D	20	14
	E	20	2
AT5-405	A	20	20
	B	20	19
	C	20	18
	D	20	20
	E	20	18



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM RECOVERY RECORD

Project Number: 70005.15 TEST ORGANISM
 Client: Tierra Solutions Common Name: Amphipod
 QC Test Number: TN-15-403 Scientific Name: Leptocheirus plumulosus
 Organisms Recovered (date, time, initials): 11/9/15 1330 MUC, WEA, US, LM

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
AT5-406	A	20	7
	B	20	9
	C	20	8
	D	20	7
	E	20	1
AT5-407	A	20	13
	B	20	7
	C	20	9
	D	20	4
	E	20	13
AT5-408	A	20	16
	B	20	19
	C	20	20
	D	20	20
	E	20	15
AT5-409	A	20	20
	B	20	19
	C	20	19
	D	20	19
	E	20	15
AT5-410	A	20	19
	B	20	20
	C	20	19
	D	20	19
	E	20	20



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM RECOVERY RECORD

Project Number: 70005.15

TEST ORGANISM

Client: Tierra Solutions

Common Name: Amphipod

QC Test Number: TN-15-403

Scientific Name: Leptocheirus plumulosus

Organisms Recovered (date, time, initials): 11/9/15 1730 MKL, WLM, vY, Jm

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
AT5-411	A	20	17
	B	20	18
	C	20	15
	D	20	16
	E	20	17
AT5-427	A	20	20
	B	20	19
	C	20	20
	D	20	20
	E	20	19
AT5-431	A	20	18
	B	20	20
	C	20	19
	D	20	20
	E	20	17
AT5-432	A	20	17
	B	20	18
	C	20	19
	D	20	19
	E	20	16
AT5-433	A	20	20
	B	20	20
	C	20	19
	D	20	20
	E	20	19



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM RECOVERY RECORD

Project Number: 70005.15

TEST ORGANISM

Client: Tierra Solutions

Common Name: Amphipod

QC Test Number: TN-15-403

Scientific Name: Leptocheirus plumulosus

Organisms Recovered (date, time, initials): 11/9/15 1330 MBL, WLM, JY, JLM

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
AT5-434	A	20	20
	B	20	19
	C	20	19
	D	20	16
	E	20	16
AT5-435	A	20	19
	B	20	18
	C	20	20
	D	20	19
	E	20	17
AT5-436	A	20	20
	B	20	18
	C	20	17
	D	20	17
	E	20	18
AT5-437	A	20	18
	B	20	20
	C	20	20
	D	20	20
	E	20	20
AT5-438	A	20	17
	B	20	20
	C	20	17
	D	20	15
	E	20	12



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM RECOVERY RECORD

Project Number: 70005.15 TEST ORGANISM
 Client: Tierra Solutions Common Name: Amphipod
 QC Test Number: TN-15-403 Scientific Name: Leptocheirus plumulosus
 Organisms Recovered (date, time, initials): 11/9/15 1245 IM, Vg, MC, WM
1330 11/9/15

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
AT5-439	A	20	19
	B	20	20
	C	20	18
	D	20	20
	E	20	20
AT5-440	A	20	17
	B	20	16
	C	20	20
	D	20	17
	E	20	20
AT5-441	A	20	18
	B	20	20
	C	20	20
	D	20	20
	E	10	19



TOXICITY TEST WATER QUALITY DATA SHEET - NEW SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Amphipod Beginning Date: 10/30/15 Time: 1430
 Client: Tierra Solutions Common Name: Amphipod Ending Date: 11/9/15 Time: 1330
 QC Test Number: TN-15-403 Scientific Name: Leptocheirus plumulosus

TARGET VALUES: Temp: 25 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 24 hr light Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)						
	0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6
AT4-590 Lab Control	24.0							7.7							7.5							18.0						
AT5-392	24.0							7.8							7.3							21.9						
AT5-393	24.0							8.1							7.3							21.8						
AT5-394	24.0							8.2							7.3							22.4						
AT5-395	24.0							8.2							7.4							22.0						
AT5-396	24.0							8.3							7.2							21.8						
AT5-397	24.0							8.3							7.1							22.5						
AT5-398	24.0							8.3							7.2							21.9						
AT5-399	24.0							8.4							7.4							22.8						
AT5-400	24.0							8.4							7.3							22.7						
AT5-401	24.0							8.4							7.3							22.2						
AT5-402	24.0							8.4							7.1							21.8						
AT5-403	24.0							8.4							7.1							23.0						
AT5-404	24.0							8.5							7.1							23.6						
Meter Number	679							679							679							679						
Time	0755							0755							0755							0755						
Initials	MJ							MJ							MJ							MJ						

TOXICITY TEST WATER QUALITY DATA SHEET - NEW SOLUTIONS

Project Number: 70005.15 TEST ORGANISM Amphipod Beginning Date: 10/30/15 Time: 1430
 Client: Tierra Solutions Common Name: Amphipod Ending Date: 11/9/15 Time: 1330
 QC Test Number: TN-15-403 Scientific Name: Leptocheirus plumulosus

TARGET VALUES: Temp: 25 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 24 hr light Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)						
	0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6
AT5-405	24.0							8.5							7.5							22.2						
AT5-406	24.0							8.5							7.2							22.0						
AT5-407	24.0							8.5							7.3							21.3						
AT5-408	24.0							8.5							7.2							22.2						
AT5-409	24.0							8.5							7.2							21.9						
AT5-410	24.0							8.5							7.2							22.5						
AT5-411	24.0							8.0							7.3							21.0						
AT5-427	24.0							8.0							7.1							22.7						
AT5-431	24.0							8.5							7.2							22.4						
AT5-432	24.0							8.5							7.3							21.4						
AT5-433	24.0							8.0							7.2							20.1						
AT5-434	24.0							8.5							7.2							22.2						
AT5-435	24.0							8.4							7.3							22.5						
AT5-436	24.0							8.5							7.2							21.9						
Meter Number	679							679						679							679							
Time	0755							0755						0755						0755								
Initials	MS							MS						MS						MS								

10/30/15
MS



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Amphipod Beginning Date: 10/30/15 Time: 1430
 Client: Tierra Solutions Common Name: Amphipod Ending Date: 11/9/15 Time: 1730
 QC Test Number: TN-15-403 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25 °C pH: 6.0 - 9.0 DO: >4.0 mg/L Salinity: 20 ppt Photoperiod: 24 hr light Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
AT4-590 Lab Control	24.0	24.0	24.0	24.0	24.0	24.0	25.3	8.2	8.1	7.1	7.4	7.2	7.9	8.7	7.5	7.8	8.0	7.5	7.9	7.2	18.0	18.2	14.2	19.9	20.3	19.9	20.4	
AT5-392	24.0	24.3	24.0	24.0	24.0	24.0	25.1	8.2	8.0	8.0	7.3	7.8	7.8	7.7	7.5	7.3	7.8	7.3	7.6	7.2	21.0	20.8	21.5	21.8	21.9	21.9	21.9	
AT5-393	24.0	24.3	24.0	24.0	24.0	24.0	25.3	8.4	8.1	8.2	7.6	8.3	8.1	7.5	7.2	7.5	7.6	7.3	7.0	7.1	22.0	21.7	22.0	23.0	23.0	22.5	22.5	
AT5-394	24.0	24.0	24.0	24.0	24.0	24.0	25.3	8.4	8.3	8.3	7.8	8.0	8.4	7.7	7.3	7.4	7.5	7.4	7.6	7.1	18.0	18.0	18.8	19.6	19.1	18.8	19.0	
AT5-395	24.0	24.3	24.0	24.0	24.0	24.0	25.3	8.3	8.2	8.3	7.8	8.0	8.3	7.8	7.3	7.7	7.7	7.6	7.1	21.7	21.1	21.9	22.2	21.1	20.5	20.5		
AT5-396	24.0	24.5	24.0	24.0	24.0	24.0	25.6	8.4	8.3	8.3	7.8	8.0	8.3	7.5	7.2	7.4	7.6	7.1	6.9	7.1	19.9	19.7	20.4	20.7	20.9	19.7	19.6	
AT5-397	24.0	24.6	24.0	24.0	24.0	24.0	25.6	8.4	8.3	8.3	7.9	8.1	8.4	7.4	7.2	7.5	7.5	7.2	7.2	6.9	21.4	21.4	22.5	23.0	22.7	21.7	21.7	
AT5-398	24.0	24.1	24.0	24.0	24.0	24.0	25.5	8.5	8.3	8.4	8.0	8.1	8.4	7.5	7.2	7.6	7.5	7.3	7.1	6.9	21.7	21.6	22.0	22.9	23.0	21.0	21.2	
AT5-399	24.0	24.2	24.0	24.0	24.0	24.0	25.5	8.5	8.4	8.4	8.1	8.2	8.5	7.6	7.2	7.6	7.6	7.4	6.8	7.0	22.0	22.0	22.0	22.9	23.0	21.0	21.2	
AT5-400	24.0	24.1	24.0	24.0	24.0	24.0	25.5	8.5	8.4	8.4	8.1	8.3	8.5	7.7	7.1	7.3	7.6	7.5	7.4	7.0	21.2	21.0	21.6	22.0	22.1	21.8	20.7	
AT5-401	24.0	24.2	24.0	24.0	24.0	24.0	25.6	8.5	8.5	8.5	8.2	8.4	8.6	7.6	7.4	7.4	7.5	7.4	7.5	7.0	20.8	20.8	21.4	21.8	22.0	20.9	20.9	
AT5-402	24.0	24.3	24.0	24.0	24.0	24.0	25.6	8.5	8.5	8.5	8.3	8.4	8.6	7.6	7.3	7.4	7.5	7.4	7.4	7.0	21.1	20.9	21.5	21.9	22.2	20.7	20.7	
AT5-403	24.0	24.0	24.0	24.0	24.0	24.0	25.6	8.5	8.5	8.5	8.3	8.6	8.6	7.5	7.2	7.4	7.6	7.4	7.2	7.0	21.9	21.8	22.0	23.0	23.0	19.7	19.7	
AT5-404	24.0	24.0	24.0	24.0	24.0	24.0	25.6	8.5	8.5	8.5	8.4	8.5	8.6	7.8	7.3	7.4	7.7	7.5	7.4	7.0	21.1	20.9	21.7	22.1	22.3	19.0	19.0	
Meter Number	678	679	677	679	678	678	679	678	679	679	679	678	679	678	679	677	679	679	678	679	678	679	679	679	679	678	679	
Time	1430	1430	1430	1438	1410	1505	1505	1430	1450	1410	1388	1410	1505	1410	1420	1450	1410	1388	1410	1505	1430	1430	1450	1410	1388	1410	1505	
Initials	JM	W	W	W	W	W	W	JM	W	W	W	W	W	JM	W	W	W	W	W	W	JM	W	W	W	W	W	W	



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM Amphipod Beginning Date: 10/30/15 Time: 1430
 Client: Tierra Solutions Common Name: Amphipod Ending Date: 11/9/15 Time: 1320
 QC Test Number: TN-15-403 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25 °C pH: 6.0-9.0 DO: >4.0 mg/L Salinity: 20 ppt Photoperiod: 24 hr light Light Intensity: 50-100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
AT5-405	24.0	24.0	24.0	24.0	24.0	24.0	25.6	8.5	8.5	8.5	8.4	8.5	8.6	8.6	7.9	7.5	7.5	7.5	7.5	7.5	7.0	22.7	22.0	22.0	22.0	23.0	20.5	20.6
AT5-406	24.0	24.0	24.0	24.0	24.0	24.1	25.7	8.5	8.5	8.6	8.4	8.5	8.6	8.6	7.7	7.7	7.3	7.5	7.2	7.4	7.0	21.2	20.8	21.2	21.3	21.5	19.9	20.0
AT5-407	24.0	24.0	24.0	24.0	24.0	24.1	25.8	8.5	8.5	8.5	8.4	8.5	8.6	8.6	7.5	7.2	7.0	7.4	6.9	7.4	7.0	20.9	21.1	21.8	22.3	22.8	21.2	21.2
AT5-408	24.0	24.0	24.0	24.0	24.0	24.0	25.6	8.5	8.5	8.5	8.4	8.5	8.6	8.6	8.0	7.2	7.3	7.6	7.3	7.5	7.0	22.0	21.3	22.0	22.6	23.0	23.0	23.0
AT5-409	24.0	24.0	24.0	24.0	24.0	24.0	25.4	8.5	8.5	8.5	8.4	8.5	8.7	8.6	7.7	7.4	7.3	7.6	7.4	7.5	7.0	21.1	21.1	21.8	22.3	21.7	20.4	20.5
AT5-410	24.0	24.0	24.0	24.0	24.0	24.0	25.3	8.7	8.5	8.5	8.4	8.5	8.6	8.6	7.0	7.4	7.3	7.5	7.4	7.5	7.0	21.1	21.3	22.0	22.8	22.9	21.4	21.6
AT5-411	24.0	24.0	24.0	24.0	24.0	24.0	25.4	8.7	8.6	8.6	8.5	8.6	8.7	8.6	7.6	7.4	7.4	7.6	7.5	7.1	20.3	20.1	20.0	21.0	21.2	20.3	20.3	
AT5-427	24.0	24.0	24.0	24.0	24.0	24.0	25.4	8.6	8.6	8.6	8.5	8.6	8.7	8.6	7.6	7.4	7.5	7.4	7.5	7.0	21.1	21.1	21.9	22.1	21.8	19.9	20.1	
AT5-431	24.0	24.0	24.0	24.0	24.0	24.0	25.3	8.6	8.6	8.6	8.5	8.6	8.7	8.6	7.7	7.4	7.5	7.4	7.4	7.6	7.0	21.0	21.2	22.0	22.8	22.5	20.7	21.1
AT5-432	24.0	24.0	24.0	24.0	24.0	24.0	25.4	8.5	8.5	8.5	8.4	8.5	8.6	8.6	7.7	7.2	7.4	7.6	7.5	7.6	7.0	20.2	20.2	20.9	21.3	21.7	20.4	20.5
AT5-433	24.0	24.0	24.0	24.0	24.0	24.0	25.6	8.7	8.6	8.6	8.5	8.6	8.7	8.6	7.7	7.3	7.2	7.5	7.4	7.6	6.7	20.0	20.6	22.0	23.0	22.8	19.3	19.4
AT5-434	24.0	24.0	24.0	24.0	24.0	24.0	25.7	8.6	8.6	8.6	8.5	8.6	8.7	8.6	7.7	7.4	7.5	7.6	7.5	7.6	6.2	20.5	21.1	21.9	22.4	21.9	19.8	19.9
AT5-435	24.0	24.0	24.0	24.0	24.0	24.0	25.5	8.6	8.5	8.6	8.6	8.5	8.6	8.6	7.7	7.5	7.5	7.6	7.4	7.6	6.0	21.3	21.6	22.0	23.0	23.0	21.0	21.3
AT5-436	24.0	24.0	24.0	24.0	24.0	24.0	25.3	8.7	8.6	8.7	8.6	8.7	8.8	8.7	7.7	7.4	7.5	7.6	7.5	7.7	6.7	19.9	20.2	21.0	21.4	21.9	20.2	20.3
Meter Number	678	679	679	679	679	678	679	678	679	679	679	678	679	678	679	679	679	679	678	679	678	679	679	679	679	678	679	
Time	1450	1450	1450	1450	1450	1450	1505	1450	1450	1450	1450	1450	1505	1450	1450	1450	1450	1450	1450	1505	1450	1450	1450	1450	1450	1450	1505	
Initials	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM 10/30/15 Beginning Date: 10/30/15 Time: 1430
 Client: Tierra Solutions Amphipod Ending Date: 11/9/15 Time: 1330
 QC Test Number: TN-15-403 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25 °C pH: 6.0 - 9.0 DO: >4.0 mg/L Salinity: 20 ppt Photoperiod: 24 hr light Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7		
AT5-437	24.0	24.0	24.0	24.0	24.0	24.0	25.4	8.5	8.5	8.6	8.6	8.7	8.7	7.8	7.4	7.6	7.6	7.4	7.6	7.4	7.6	7.6	6.9	20.7	20.9	20.4	22.4	23.0	21.0	21.2
AT5-438	24.0	24.0	24.0	24.0	24.0	24.0	25.4	8.6	8.6	8.6	8.7	8.6	8.6	7.8	7.5	7.4	7.5	7.5	7.5	7.5	7.0	6.9	6.9	19.8	19.7	20.0	20.7	21.1	20.9	20.8
AT5-439	24.0	24.0	24.0	24.0	24.0	24.0	25.3	8.5	8.5	8.5	8.6	8.6	8.6	7.7	7.3	7.4	7.6	7.4	6.9	6.9	7.0	6.9	6.9	21.3	21.9	22.6	23.0	23.0	21.1	21.7
AT5-440	24.0	24.0	24.0	24.0	24.0	24.0	25.2	8.6	8.5	8.5	8.6	8.7	8.7	7.8	7.5	7.6	7.6	7.5	7.4	7.0	7.0	7.0	7.0	20.5	20.5	21.2	21.5	21.9	18.0	17.9
AT5-441	24.0	24.0	24.0	24.0	24.0	24.0	25.5	8.4	8.5	8.5	8.6	8.6	8.6	7.8	7.3	7.3	7.6	7.4	7.5	7.0	7.0	7.0	7.0	22.1	22.0	22.0	23.0	21.3	20.5	20.8
Meter Number	678	679	679	679	679	679	679	679	679	679	679	679	679	678	679	679	679	679	679	678	679	679	678	679	679	679	679	679	679	
Time	1043	1420	1450	1510	1138	0910	1508	1043	1420	1450	1508	0910	1508	1043	1420	1450	0910	1138	0910	1508	0910	1508	1043	1420	1450	0910	1138	0910	1508	
Initials	JM	W	W	W	W	W	MJ	JM	W	W	W	MJ	MJ	JM	W	W	W	MJ	MJ	MJ	MJ	MJ	MJ	W	W	W	MJ	MJ	MJ	



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Amphipod Beginning Date: 10/30/15 Time: 1430
 Client: Tierra Solutions Common Name: Amphipod Ending Date: 11/9/15 Time: 1330
 QC Test Number: TN-15-403 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 24-hr light Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)								pH								Dissolved Oxygen (mg/L)								Salinity (ppt)							
	8	9	10	11	12	13	14		8	9	10	11	12	13	14		8	9	10	11	12	13	14		8	9	10	11	12	13	14	
AT4-590	24.0	24.0	24.0	24.0	24.0	24.0	24.0	7.4	8.1	8.1	8.1	8.1	8.1	8.1	8.1	7.9	7.7	7.8	7.8	7.8	7.8	7.8	7.8	21.2	21.8	20.9						
AT5-392	24.0	24.0	24.0	24.0	24.0	24.0	24.0	7.8	7.8	8.2	8.2	8.2	8.2	8.2	8.2	7.7	7.8	7.6	7.6	7.6	7.6	7.6	22.3	22.0	20.7							
AT5-393	24.0	24.0	24.0	24.0	24.0	24.0	24.0	8.2	8.4	8.4	8.4	8.4	8.4	8.4	8.4	7.7	7.6	7.6	7.6	7.6	7.6	7.6	22.9	20.3	20.7							
AT5-394	24.0	24.0	24.0	24.0	24.0	24.0	24.0	8.4	8.5	8.4	8.4	8.4	8.4	8.4	8.4	7.5	7.4	7.8	7.8	7.8	7.8	7.8	19.5	19.9	21.0							
AT5-395	24.0	24.0	24.0	24.0	24.0	24.0	24.0	8.4	8.5	8.5	8.5	8.5	8.5	8.5	8.5	7.3	7.6	8.0	8.0	8.0	8.0	8.0	20.8	20.9	21.4							
AT5-396	24.1	24.0	24.0	24.0	24.0	24.0	24.0	8.4	8.5	8.4	8.4	8.4	8.4	8.4	8.4	7.1	7.5	7.7	7.7	7.7	7.7	7.7	19.9	20.0	20.5							
AT5-397	24.0	24.0	24.0	24.0	24.0	24.0	24.0	8.4	8.5	8.4	8.4	8.4	8.4	8.4	8.4	7.1	7.4	7.6	7.6	7.6	7.6	7.6	21.9	19.9	20.6							
AT5-398	24.0	24.1	24.0	24.0	24.0	24.0	24.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	7.0	7.3	7.6	7.6	7.6	7.6	7.6	21.6	19.6	20.4							
AT5-399	24.0	24.0	24.0	24.0	24.0	24.0	24.0	8.6	8.5	8.6	8.6	8.6	8.6	8.6	8.6	7.3	7.5	7.4	7.4	7.4	7.4	7.4	21.8	19.7	20.3							
AT5-400	24.1	24.0	24.0	24.0	24.0	24.0	24.0	8.6	8.5	8.5	8.5	8.5	8.5	8.5	8.5	7.4	7.5	7.2	7.2	7.2	7.2	7.2	21.0	21.2	21.6							
AT5-401	24.3	24.0	24.0	24.0	24.0	24.0	24.0	8.6	8.5	8.5	8.5	8.5	8.5	8.5	8.5	7.3	7.5	7.4	7.4	7.4	7.4	7.4	21.2	21.4	21.8							
AT5-402	24.2	24.0	24.0	24.0	24.0	24.0	24.0	8.7	8.6	8.7	8.7	8.7	8.7	8.7	8.7	7.4	7.2	7.5	7.5	7.5	7.5	7.5	21.0	21.3	21.6							
AT5-403	24.0	24.0	24.0	24.0	24.0	24.0	24.0	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	7.4	7.4	7.6	7.6	7.6	7.6	7.6	21.9	18.0	18.4							
AT5-404	24.0	24.0	24.0	24.0	24.0	24.0	24.0	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	7.6	7.6	7.4	7.4	7.4	7.4	7.4	19.4	19.6	19.8							
Meter Number	678	679	678	678	678	678	678	678	679	678	678	678	678	678	678	678	678	679	678	678	678	678	678	678	679	678						
Time	1452	0122	0912	0912	0912	0912	0912	0912	0912	0912	0912	0912	0912	0912	0912	1452	0122	0912	0912	0912	0912	0912	1452	0122	0912							
Initials	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS						



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM Amphipod Beginning Date: 10/30/15 Time: 1430
 Client: Tierra Solutions Common Name: Amphipod Ending Date: 11/9/15 Time: 1330
 QC Test Number: TN-15-403 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 24-hr light Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)				pH				Dissolved Oxygen (mg/L)				Salinity (ppt)											
	8	9	10	11	12	13	14	14	8	9	10	11	12	13	14	14	8	9	10	11	12	13	14	
AT5-405	24.0	24.0	24.0						7.5	7.7	6.4						21.0	21.4	21.7					
AT5-406	24.0	24.0	24.0						7.5	7.8	6.5						20.3	20.5	21.2					
AT5-407	24.2	24.0	24.0						7.4	7.7	7.3						21.5	21.7	22.0					
AT5-408	24.0	24.0	24.0						7.5	7.4	7.5						23.0	19.3	22.0					
AT5-409	24.0	24.0	24.0						7.5	7.5	7.6						20.9	21.2	21.9					
AT5-410	24.0	24.0	24.0						7.5	7.5	7.3						22.1	18.9	19.7					
AT5-411	24.0	24.0	24.0						7.6	7.4	7.1						26.6	20.7	21.3					
AT5-427	24.0	24.0	24.0						7.5	7.4	7.4						20.6	20.7	21.6					
AT5-431	24.0	24.0	24.0						7.6	7.5	7.6						21.7	18.6	19.6					
AT5-432	24.0	24.0	24.0						7.6	7.4	7.7						20.9	21.1	21.6					
AT5-433	24.0	24.0	24.0						7.6	7.6	7.7						19.7	20.0	20.5					
AT5-434	24.0	24.0	24.0						7.6	7.5	7.6						20.4	20.8	21.6					
AT5-435	24.0	24.0	24.0						7.6	7.5	7.7						22.0	19.4	20.4					
AT5-436	24.0	24.0	24.0						7.6	7.5	7.7						20.7	21.0	21.5					
Meter Number	678	679	678						678	679	678						678	679	678					
Time	1452	1452	0912						1452	0822	0912						1452	0822	0912					
Initials	MJ	VY	IM/ly						MJ	VY	IM/ly						MJ	VY	IM/ly					



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Amphipod Beginning Date: 10/30/15 Time: 1430
 Client: Tierra Solutions Common Name: Amphipod Ending Date: 11/9/15 Time: 1330
 QC Test Number: TN-15-403 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 24-hr light Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)						
	8	9	10	11	12	13	14	8	9	10	11	12	13	14	8	9	10	11	12	13	14	8	9	10	11	12	13	14
AT5-437	24.0	24.0	24.0					8.8	8.8	8.8					7.6	7.8	7.6					21.8	22.0	20.5				
AT5-438	24.0	24.0	24.0					8.8	8.8	8.8					7.7	7.7	7.7					21.2	21.7	19.9				
AT5-439	24.0	24.0	24.0					8.1	8.7	8.7					7.5	7.4	7.7					22.4	22.0	21.9				
AT5-440	24.0	24.0	24.0					8.8	8.8	8.8					7.8	7.8	8.0					18.3	18.6	18.9				
AT5-441	24.0	24.0	24.0					8.7	8.7	8.7					7.6	7.6	7.7					21.3	21.8	22.0				
Meter Number	618	619	678					618	619	678				618	619	678				618	619	678						
Time	1452	0912	0912					1452	0912	0912				1452	0912	0912				1452	0912	0912						
Initials	MS	MS	IMH					MS	MS	IMH				MS	MS	IMH				MS	MS	IMH						



**TOXICOLOGY LABORATORY BENCH SHEET -
ORP MEASUREMENT RECORD**

Client: Tierra Solutions

QC Test Number: TN-15-403

EA Sample Number	Measurement (mv)	Date/Time / Init	Measurement (mv)	Date/Time / Init	Measurement (mv)	Date/Time / Init	Measurement (mv)	Date/Time / Init
AT4-590								
AT5-392								
AT5-393								
AT5-394	-49.0	10/24/15 MS 0845	-64.6	10/24/15 MS 1515	-226.9	10/25/15 JN 0942	-240.6	10/26/15 MT 0836
AT5-395								
AT5-396								
AT5-397								
AT5-398								
AT5-399								
AT5-400	-175.4	10/24/15 MS 0845	-131.8	10/24/15 MS 1515	-226.5	10/25/15 JN 0942	-241.8	10/26/15 MT 0836
AT5-401								
AT5-402								
AT5-403								
AT5-404								
AT5-405								
AT5-406	-234.4	10/24/15 MS 0845	-220.8	10/24/15 MS 1515	-120.3	10/25/15 JN 0942	-236.1	10/26/15 MT 0836
AT5-407								
AT5-408								
AT5-409								
AT5-410								
AT5-411								
AT5-427								
AT5-431	-34.7	10/24/15 MS 0845	-54.6	10/24/15 MS 1515	-164.0	10/25/15 JN 0942	-272.5	10/26/15 MT 0836
AT5-432								
AT5-433								
AT5-434								
AT5-435								
AT5-436								
AT5-437								
AT5-438	-134.4	10/24/15 MS 0845	-138.8	10/24/15 MS 1515	-170.4	10/25/15 JN 0942	-233.8	10/26/15 MT 0836
AT5-439								
AT5-440								
AT5-441								



**TOXICOLOGY LABORATORY BENCH SHEET -
ORP MEASUREMENT RECORD**

Client: Tierra Solutions

QC Test Number: TN-15-403

EA Sample Number	Measurement (mv)	Date/Time / Init	Measurement (mv)	Date/Time / Init	Measurement (mv)	Date/Time / Init	Measurement (mv)	Date/Time / Init
AT4-590								
AT5-392								
AT5-393								
AT5-394	-241.4	10/27/15 MGT 0842	-216.8	10/28/15 AM 1320	-256.4	10/29/15 MGT 0820	-249.2	10/30/15 0700MGT
AT5-395								
AT5-396								
AT5-397								
AT5-398								
AT5-399								
AT5-400	-251.9	10/27/15 MGT 0842	-258.9	10/28/15 1320AM	-256.2	10/29/15 MGT 0820	-236.2	10/30/15 0700MGT
AT5-401								
AT5-402								
AT5-403								
AT5-404								
AT5-405								
AT5-406	-248.0	10/27/15 MGT 0842	-244.7	10/28/15 AM 1320	-251.6	10/29/15 MGT 0820	-237.0	10/30/15 0700MGT
AT5-407								
AT5-408								
AT5-409								
AT5-410								
AT5-411								
AT5-427								
AT5-431	-225.1	10/27/15 MGT 0842	-228.9	10/28/15 AM 1320	-227.0	10/29/15 MGT 0820	-201.8	10/30/15 0700MGT
AT5-432								
AT5-433								
AT5-434								
AT5-435								
AT5-436								
AT5-437								
AT5-438	-244.9	10/27/15 MGT 0842	-236.4	10/28/15 AM 1320	-247.5	10/29/15 MGT 0820	-245.6	10/30/15 0700MGT
AT5-439								
AT5-440								
AT5-441								



**TOXICOLOGY / LABORATORY BENCH SHEET -
ORP MEASUREMENT RECORD**

Client: Tierra Solutions

QC Test Number: TN-15-403

EA Sample Number	Measurement (mv)	Date/Time / Init	Measurement (mv)	Date/Time / Init	Measurement (mv)	Date/Time / Init	Measurement (mv)	Date/Time / Init
AT4-590								
AT5-392								
AT5-393								
AT5-394	-173.6	11/11/15 1155 VV	40.5	11/11/15 1500 VV	-228.2	11/13/15 1500 VV	-228.4	11/13/15 MT 0800
AT5-395								
AT5-396								
AT5-397								
AT5-398								
AT5-399								
AT5-400	-240.4	11/11/15 0948 JTM	-230.4	11/11/15 1155 VV	-220.9	11/21/15 1500 VV	-212.9	11/13/15 MT 0800
AT5-401								
AT5-402								
AT5-403								
AT5-404								
AT5-405								
AT5-406	-247.3	11/13/15 0948 JTM	-254.1	11/11/15 1155 VV	-262.1	11/21/15 1500 VV	-257.1	11/13/15 MT 0800
AT5-407								
AT5-408								
AT5-409								
AT5-410								
AT5-411								
AT5-427								
AT5-431	-175.0	11/13/15 0948 JTM	-176.2	11/11/15 1155 VV	-129.7	11/11/15 1500 VV	-197.7	11/13/15 MT 0800
AT5-432								
AT5-433								
AT5-434								
AT5-435								
AT5-436								
AT5-437								
AT5-438	-243.6	11/13/15 0948 JTM	-248.1	11/11/15 1155 VV	-252.7	11/21/15 1500 VV	-253.6	11/13/15 MT 0800
AT5-439								
AT5-440								
AT5-441								



**TOXICOLOGY LABORATORY BENCH SHEET -
ORP MEASUREMENT RECORD**

Client: Tierra Solutions

QC Test Number: TN-15-403

EA Sample Number	Measurement (mv)	Date/Time / Init	Measurement (mv)	Date/Time / Init	Measurement (mv)	Date/Time / Init	Measurement (mv)	Date/Time / Init
AT4-590								
AT5-392								
AT5-393								
AT5-394	-229.4	11/14/15 0940 MST	-229.6	11/15/15 0920 MST	-225.2	11/16/15 1433 MST	-229.0	11/17/15 0910 MST
AT5-395								
AT5-396								
AT5-397								
AT5-398								
AT5-399								
AT5-400	-217.2	11/14/15 0940 MST	-223.2	11/15/15 0920 MST	-226.3	11/16/15 1433 MST	-235.9	11/17/15 1400 MST
AT5-401								
AT5-402								
AT5-403								
AT5-404								
AT5-405								
AT5-406	-249.3	11/14/15 0940 MST	-247.7	11/15/15 0920 MST	-253.6	11/16/15 1433 MST	-232.0	11/17/15 1400 MST
AT5-407								
AT5-408								
AT5-409								
AT5-410								
AT5-411								
AT5-427								
AT5-431	-203.9	11/14/15 0940 MST	-220.1	11/15/15 0920 MST	-186.6	11/16/15 1433 MST	-226.4	11/17/15 1400 MST
AT5-432								
AT5-433								
AT5-434								
AT5-435								
AT5-436								
AT5-437								
AT5-438	-255.8	11/14/15 0940 MST	-261.4	11/15/15 0920 MST	-262.0	11/16/15 1433 MST	-257.6	11/17/15 1400 MST
AT5-439								
AT5-440								
AT5-441								



**TOXICOLOGY LABORATORY BENCH SHEET -
ORP MEASUREMENT RECORD**

Client: Tierra Solutions

QC Test Number: TN-15-403

EA Sample Number	Measurement (mv)	Date/Time / Init	Measurement (mv)	Date/Time / Init	Measurement (mv)	Date/Time / Init
AT4-590						
AT5-392						
AT5-393						
AT5-394	-226.1	11/18/15 0930 ✓	-222.4	11/18/15 0845 ✓		
AT5-395						
AT5-396						
AT5-397						
AT5-398						
AT5-399						
AT5-400	-223.7	11/18/15 0930 ✓	-208.3	11/19/15 0845 ✓		
AT5-401						
AT5-402						
AT5-403						
AT5-404						
AT5-405						
AT5-406	-251.1	11/18/15 0930 ✓	-258.3	11/19/15 0845 ✓		
AT5-407						
AT5-408						
AT5-409						
AT5-410						
AT5-411						
AT5-427						
AT5-431	-203.5	11/18/15 0930 ✓	-225.3	11/19/15 0845 ✓		
AT5-432						
AT5-433						
AT5-434						
AT5-435						
AT5-436						
AT5-437						
AT5-438	-225.2	11/18/15 0930 ✓	-240.8	11/19/15 0845 ✓		
AT5-439						
AT5-440						
AT5-441						



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70005.15

Client: Tierra Solutions

QC Test Number: TN-15-403

<u>Date/Time/Initials</u>	<u>Comments/Activity</u>
11/9/15 1330 MK	Sample # ATS-438 had multiple <u>Anthuridea sp.</u> present.

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							Rank Sum	1-Tailed Critical
	Mean	N-Mean	Mean	Min	Max	CV%	N		
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5		
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5	31.50	19.00
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5	30.50	19.00
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5	27.00	19.00
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5	32.00	19.00
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5	28.50	19.00
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5	28.50	19.00
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5	31.00	19.00
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5	28.50	19.00
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5	28.50	19.00
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5	30.00	19.00
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5	31.50	19.00
*AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5	15.00	19.00
*AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5	15.00	19.00
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5	31.00	19.00
*AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5	15.00	19.00
*AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5	15.00	19.00
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5	27.00	19.00
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5	28.00	19.00
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5	32.00	19.00
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5	22.50	19.00
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5	33.00	19.00
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5	30.50	19.00

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5	26.50	19.00
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5	33.00	19.00
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5	27.00	19.00
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5	29.50	19.00
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5	28.00	19.00
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5	33.50	19.00
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5	23.00	19.00
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5	32.50	19.00
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5	28.00	19.00
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5	32.50	19.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Kolmogorov D Test indicates non-normal distribution ($p \leq 0.01$)	1.19911	1.035	-0.1995	-0.0837
Bartlett's Test indicates equal variances ($p = 0.39$)	33.667	53.4858		

Hypothesis Test (1-tail, 0.05)Wilcoxon Rank Sum Test indicates significant differences

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							t-Stat	1-Tailed Critical	MSD
	Mean	N-Mean	Mean	Min	Max	CV%	N			
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5	-1.078	1.860	0.1643
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptochairus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.90739	0.781	0.11913	-1.2959		
F-Test indicates equal variances (p = 0.21)	3.94171	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedestic t Test indicates no significant differences	0.11192	0.12223	0.02268	0.01952	0.31245	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5	-0.847	1.860	0.1592
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.91009	0.781	0.18954	-0.9671		
F-Test indicates equal variances ($p = 0.12$)	5.6411	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.1079	0.11783	0.01316	0.01833	0.42139	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							t-Stat	1-Tailed Critical	MSD
	Mean	N-Mean	Mean	Min	Max	CV%	N			
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5	0.241	1.860	0.1903
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.8616	0.781	0.32312	-1.8046		
F-Test indicates equal variances ($p = 0.72$)	1.46731	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.13296	0.1452	0.00152	0.02618	0.81537	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Data:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5	-1.048	1.860	0.1751
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.86879	0.781	0.01421	-1.8061		
F-Test indicates equal variances (p = 0.43)	2.35999	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.12056	0.13166	0.02435	0.02217	0.32517	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5	-0.253	1.860	0.1830
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.89534	0.781	-0.0374	-1.5558		
F-Test indicates equal variances (p = 0.58)	1.80278	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.12695	0.13864	0.00155	0.0242	0.80636	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							t-Stat	1-Tailed Critical	MSD
	Mean	N-Mean	Mean	Min	Max	CV%	N			
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5	-0.253	1.860 0.1830	
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.89534	0.781	-0.0374	-1.5558		
F-Test indicates equal variances (p = 0.58)	1.80278	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.12695	0.13864	0.00155	0.0242	0.80636	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5	-0.828	1.860	0.1707
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus
Comments:		

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.89702	0.781	0.14755	-1.6398		
F-Test indicates equal variances (p = 0.34)	2.82816	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.11705	0.12782	0.01444	0.02107	0.43176	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acuta	Test Species: LP-Laptocheirus plumulusus
Comments:		

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5	-0.323	1.860	0.2049
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.90239	0.781	-0.3101	-1.4285		
F-Test indicates equal variances ($p = 0.96$)	1.05312	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.14512	0.15849	0.00317	0.03035	0.75467	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID:	Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type:	Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species:	LP-Leptocheirus plumulosus
Comments:			

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root					N	t-Stat	1-Tailed Critical	MSD
			Mean	Min	Max	CV%					
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5				
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5				
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5				
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5				
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5				
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5				
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5				
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5				
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5				
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5	-0.323	1.860	0.2049	
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5				
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5				
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5				
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5				
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5				
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5				
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5				
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5				
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5				
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5				
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5				
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5				
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5				

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.90239	0.781	-0.3101	-1.4285		
F-Test indicates equal variances ($p = 0.96$)	1.05312	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.14512	0.15849	0.00317	0.03035	0.75467	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5	-0.449	1.860	0.1891
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.83525	0.781	0.04271	-2.0511		
F-Test indicates equal variances ($p = 0.70$)	1.5135	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.13199	0.14414	0.0052	0.02586	0.66558	1, 8

10-Day Test-Survival

Start Date: 10/30/2015 Test ID: TN-15-403 Sample ID: Tierra Solutions
 End Date: 11/9/2015 Lab ID: Sample Type: Sediment
 Sample Date: Protocol: EPAA 91-EPA Acute Test Species: LP-Leptocheirus plumulosus
 Comments:

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5	-1.078	1.860	0.1643
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.90739	0.781	0.11913	-1.2959		
F-Test indicates equal variances (p = 0.21)	3.94171	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.11192	0.12223	0.02268	0.01952	0.31245	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
*AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5	5.181	1.860	0.2180
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.89291	0.781	0.30811	-1.6509		
F-Test indicates equal variances (p = 0.86)	1.20735	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	0.15625	0.17064	0.92259	0.03437	8.4E-04	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
*AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5	4.497	1.860	0.2688
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.95619	0.781	0.17373	-0.9929		
F-Test indicates equal variances (p = 0.43)	2.3559	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	0.20095	0.21945	1.05639	0.05225	0.00201	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID:	Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type:	Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species:	LP-Leptocheirus plumulosus
Comments:			

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5	-0.828	1.860	0.1707
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.89702	0.781	0.14755	-1.6398		
F-Test indicates equal variances (p = 0.34)	2.82816	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.11705	0.12782	0.01444	0.02107	0.43176	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
*AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5	5.753	1.860	0.2243
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.89438	0.781	-0.9087	-0.0072		
F-Test indicates equal variances ($p = 0.79$)	1.33563	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	0.16161	0.1765	1.20354	0.03636	4.3E-04	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
*AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5	4.436	1.860	0.2241
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Data:	Protocol: EPAA 91-EPA Acuta	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.8743	0.781	-0.1225	-1.634		
F-Test indicates equal variances (p = 0.79)	1.33301	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	0.1615	0.17638	0.71468	0.03632	0.00218	1, 8

10-Day Test-Survival

Start Date: 10/30/2015 Test ID: TN-15-403 Sample ID: Tierra Solutions
 End Date: 11/9/2015 Lab ID: Sample Type: Sediment
 Sample Date: Protocol: EPAA 91-EPA Acute Test Species: LP-Leptocheirus plumulosus
 Comments:

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5	-0.062	1.860	0.2187
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.82525	0.781	-0.1326	-2.0678		
F-Test indicates equal variances ($p = 0.85$)	1.2219	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.15687	0.17131	0.00013	0.03459	0.95232	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5	-0.307	1.860	0.1948
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.90885	0.781	-0.4291	-1.0267		
F-Test indicates equal variances (p = 0.80)	1.31221	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.13668	0.14927	0.00259	0.02743	0.76647	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5	-1.369	1.860	0.1556
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus
Comments:		

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.90737	0.781	0.20382	-0.8114		
F-Test indicates equal variances ($p = 0.07$)	8.06035	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.10504	0.11471	0.03278	0.0175	0.20834	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5	1.469	1.860	0.1599
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.93006	0.781	0.15395	-1.0489		
F-Test indicates equal variances (p = 0.13)	5.3497	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.10841	0.11839	0.03985	0.01848	0.18015	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5	-1.640	1.860	0.1556
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.91843	0.781	0.15361	-0.8114		
F-Test indicates equal variances (p = 0.07)	8.06035	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.10504	0.11471	0.04706	0.0175	0.13968	1, 8

10-Day Test-Survival

Start Date: 10/30/2015 Test ID: TN-15-403 Sample ID: Tierra Solutions
 End Date: 11/9/2015 Lab ID: Sample Type: Sediment
 Sample Date: Protocol: EPAA 91-EPA Acute Test Species: LP-Leptocheirus plumulosus
 Comments:

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5	-0.626	1.860	0.1807

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.87166	0.781	0.04687	-1.8233		
F-Test indicates equal variances ($p = 0.54$)	1.93643	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.12511	0.13663	0.00925	0.02361	0.54886	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5	0.350	1.860	0.1709
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5			
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5			
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5			
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5			
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5			
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5			
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5			
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.90474	0.781	0.08967	-1.5847		
F-Test indicates equal variances (p = 0.34)	2.81166	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.11715	0.12794	0.00259	0.02111	0.73505	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID:	Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type:	Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species:	LP-Leptocheirus plumulosus
Comments:			

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				CV%	N	1-Tailed	
			Mean	Min	Max	t-Stat			Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus
Comments:		

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5			
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5	-1.640	1.860	0.1556
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5			
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5			
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5			
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5			
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5			
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5			
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5			
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.91843	0.781	0.15361	-0.8114		
F-Test indicates equal variances (p = 0.07)	8.06035	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.10504	0.11471	0.04706	0.0175	0.13968	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5			
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5	0.033	1.860	0.1970
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5			
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5			
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5			
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5			
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5			
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5			
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.81266	0.781	0.02187	-2.0204		
F-Test indicates equal variances (p = 0.84)	1.24588	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.13854	0.1513	3E-05	0.02806	0.97484	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root						1-Tailed			
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Data:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5			
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5			
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5	-0.412	1.860	0.1722
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5			
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5			
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5			
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5			
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5			
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.89931	0.781	0.13082	-1.5102		
F-Test indicates equal variances (p = 0.37)	2.65085	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.11824	0.12913	0.00363	0.02144	0.69142	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID:	Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type:	Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species:	LP-Leptocheirus plumulosus
Comments:			

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5			
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5			
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5			
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5	0.164	1.860	0.1761
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5			
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5			
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5			
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5			
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.86612	0.781	0.44087	-1.31		
F-Test indicates equal variances ($p = 0.45$)	2.27083	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.12138	0.13256	0.00061	0.02242	0.87355	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID:	Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type:	Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species:	LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Data:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5			
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5			
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5			
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5			
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5	-1.574	1.860	0.1662
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5			
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5			
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5			
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.86103	0.781	-0.1134	-1.1102		
F-Test indicates equal variances ($p = 0.25$)	3.53998	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.11341	0.12386	0.04945	0.01997	0.15419	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID:	Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type:	Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species:	LP-Leptocheirus plumulosus
Comments:			

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root							t-Stat	1-Tailed Critical	MSD
	Mean	N-Mean	Mean	Min	Max	CV%	N			
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5			
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5			
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5			
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5			
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5			
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5	1.047	1.860	0.2282
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5			
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5			
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.95816	0.781	0.31163	-0.8288		
F-Test indicates equal variances (p = 0.74)	1.41787	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.16499	0.18019	0.0413	0.03764	0.32552	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Transform: Arcsin Square Root						N	t-Stat	1-Tailed	
	Mean	N-Mean	Mean	Min	Max	CV%			Critical	MSD
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5			
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5			
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5			
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5			
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5			
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5			
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5			
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5			
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5			
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5			
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5			
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5			
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5			
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5			
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5			
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5			
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5			
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5			

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5			
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5			
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5			
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5			
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5			
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5			
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5	-1.317	1.860	0.1666
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5			
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.89938	0.781	0.00798	-1.3499		
F-Test indicates equal variances (p = 0.26)	3.46297	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.11374	0.12421	0.03478	0.02006	0.22444	1, 8

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				Rank Sum	1-Tailed Critical
			Mean	Min	Max	CV%		
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5	
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5	
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5	
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5	
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5	
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5	
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5	
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5	
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5	
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5	
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5	
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5	
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5	
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5	
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5	
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5	
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5	
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5	
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5	
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5	
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5	
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5	
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5	

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5		
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5		
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5		
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5		
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5		
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5		
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5		
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5		
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5	28.00	19.00
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5		

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.7737	0.781	0.26464	-2.159
F-Test indicates equal variances (p = 0.95)	1.06934	23.1545		

Hypothesis Test (1-tail, 0.05)
 Wilcoxon Two-Sample Test indicates no significant differences

10-Day Test-Survival

Start Date:	10/30/2015	Test ID:	TN-15-403	Sample ID:	Tierra Solutions
End Date:	11/9/2015	Lab ID:		Sample Type:	Sediment
Sample Date:		Protocol:	EPAA 91-EPA Acute	Test Species:	LP-Leptocheirus plumulosus
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	0.9000	0.8000	0.8000	1.0000
AT5-392	0.9500	1.0000	0.9500	1.0000	0.9000
AT5-393	0.9500	1.0000	0.9500	0.9000	0.9500
AT5-394	0.8500	0.9500	1.0000	0.8500	0.8000
AT5-395	1.0000	0.9000	1.0000	1.0000	0.9000
AT5-396	0.8000	0.9500	0.9000	0.9500	1.0000
AT5-397	0.9000	0.9500	0.9500	1.0000	0.8000
AT5-398	1.0000	0.9000	0.9500	1.0000	0.9000
AT5-399	1.0000	0.9500	0.7500	0.9000	1.0000
AT5-400	0.7500	0.9500	1.0000	1.0000	0.9000
AT5-401	0.8500	0.8500	1.0000	0.9500	1.0000
AT5-402	1.0000	1.0000	0.9000	0.9500	0.9500
AT5-403	0.5000	0.2000	0.3500	0.2500	0.6500
AT5-404	0.1500	0.4000	0.4500	0.7000	0.1000
AT5-405	1.0000	0.9500	0.9000	1.0000	0.9000
AT5-406	0.3500	0.4500	0.4000	0.3500	0.0500
AT5-407	0.6500	0.3500	0.4500	0.2000	0.6500
AT5-408	0.8000	0.9500	1.0000	1.0000	0.7500
AT5-409	1.0000	0.9500	0.9500	0.9500	0.7500
AT5-410	0.9500	1.0000	0.9500	0.9500	1.0000
AT5-411	0.8500	0.9000	0.7500	0.8000	0.8500
AT5-427	1.0000	0.9500	1.0000	1.0000	0.9500
AT5-431	0.9000	1.0000	0.9500	1.0000	0.8500
AT5-432	0.8500	0.9000	0.9500	0.9500	0.8000
AT5-433	1.0000	1.0000	0.9500	1.0000	0.9500
AT5-434	1.0000	0.9500	0.9500	0.8000	0.8000
AT5-435	0.9500	0.9000	1.0000	0.9500	0.8500
AT5-436	1.0000	0.9000	0.8500	0.8500	0.9000
AT5-437	0.9000	1.0000	1.0000	1.0000	1.0000
AT5-438	0.8500	1.0000	0.8500	0.7500	0.6000
AT5-439	0.9500	1.0000	0.9000	1.0000	1.0000
AT5-440	0.8500	0.8000	1.0000	0.8500	1.0000
AT5-441	0.9000	1.0000	1.0000	1.0000	0.9500

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root					N	t-Stat	1-Tailed Critical	MSD
			Mean	Min	Max	CV%					
Control	0.9000	1.0000	1.2762	1.1071	1.4588	13.827	5				
AT5-392	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5				
AT5-393	0.9500	1.0556	1.3487	1.2490	1.4588	5.509	5				
AT5-394	0.8900	0.9889	1.2515	1.1071	1.4588	11.640	5				
AT5-395	0.9600	1.0667	1.3749	1.2490	1.4588	8.355	5				
AT5-396	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5				
AT5-397	0.9200	1.0222	1.3011	1.1071	1.4588	10.101	5				
AT5-398	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5				
AT5-399	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5				
AT5-400	0.9200	1.0222	1.3118	1.0472	1.4588	13.108	5				
AT5-401	0.9300	1.0333	1.3218	1.1731	1.4588	10.851	5				
AT5-402	0.9600	1.0667	1.3714	1.2490	1.4588	6.481	5				
AT5-403	0.3900	0.4333	0.6687	0.4636	0.9377	28.996	5				
AT5-404	0.3600	0.4000	0.6261	0.3218	0.9912	43.257	5				
AT5-405	0.9500	1.0556	1.3522	1.2490	1.4588	7.760	5				
AT5-406	0.3200	0.3556	0.5823	0.2255	0.7353	35.020	5				
AT5-407	0.4600	0.5111	0.7415	0.4636	0.9377	27.475	5				
AT5-408	0.9000	1.0000	1.2834	1.0472	1.4588	15.198	5				
AT5-409	0.9200	1.0222	1.3084	1.0472	1.4588	11.774	5				
AT5-410	0.9700	1.0778	1.3907	1.3453	1.4588	4.469	5				
AT5-411	0.8300	0.9222	1.1499	1.0472	1.2490	6.635	5				
AT5-427	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5				
AT5-431	0.9400	1.0444	1.3370	1.1731	1.4588	9.484	5				

10-Day Test-Survival

Start Date: 10/30/2015	Test ID: TN-15-403	Sample ID: Tierra Solutions
End Date: 11/9/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.8900	0.9889	1.2440	1.1071	1.3453	8.460	5			
AT5-433	0.9800	1.0889	1.4134	1.3453	1.4588	4.398	5			
AT5-434	0.9000	1.0000	1.2727	1.1071	1.4588	12.421	5			
AT5-435	0.9300	1.0333	1.3143	1.1731	1.4588	8.246	5			
AT5-436	0.9000	1.0000	1.2606	1.1731	1.4588	9.289	5			
AT5-437	0.9800	1.0889	1.4168	1.2490	1.4588	6.620	5			
AT5-438	0.8100	0.9000	1.1476	0.8861	1.4588	18.308	5			
AT5-439	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5			
AT5-440	0.9000	1.0000	1.2742	1.1071	1.4588	13.392	5			
AT5-441	0.9700	1.0778	1.3941	1.2490	1.4588	6.802	5	-1.317	1.860	0.1666

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.89938	0.781	0.00798	-1.3499		
F-Test indicates equal variances ($p = 0.26$)	3.46297	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.11374	0.12421	0.03478	0.02006	0.22444	1, 8

ATTACHMENT III

Leptocheirus plumulosus 28-Day Whole Sediment Test
Data Sheets and Statistical Analyses
(227 pages)



SEDIMENT TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70005.15

Client: Tierra Solutions

QC Test Number: TN-15-491

TEST ORGANISM INFORMATION

Common Name: Amphipod Adults Isolated (Time, Date): -

Scientific Name: Leptocheirus plumulosus Neonates Pulled (Time, Date): -

Lot Number: LP-078 Acclimation: <24h Age: >250 µm <500 µm

Source: Chesapeake Cultures Culture Water (T/S): 23.5 °C 21.4 ppt

TEST INITIATION

Date	Time	Initials	Activity
11/18/15	1400	VY, JM, MJ, JM, KM	Sediment Added to Chambers
11/18/15	1500	↓	Overlying Water Added to Chambers
11/25/15	1540	MC, MD, WM	Organisms Transferred

TEST SET-UP

Sample Number(s): AT4-590, AT5-392→411, 427, 431→441

Overlying Water: 20 ppt Crystal Sea (LD5-546)

Treatment

Volume Test Sediment

Volume Overlying Water

AT4-590 (Lab Control)
AT5-392

175 ml

725 ml

↓
AT5-411
AT5-427
AT5-431

↓
AT5-441





TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM RECOVERY RECORD

Project Number: 70005.15 TEST ORGANISM
 Client: Tierra Solutions Common Name: Amphipod
 QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus
 Organisms Recovered (date, time, initials): 12/23/15 1115 MK, VT, MS, LM, NM, SB

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered	Total Neonates
AT4-590 (Lab Control)	A	20	17	21
	B	20	16	64
	C	20	17	24
	D	20	15	5
	E	20	16	46
AT5-392	A	20	18	18
	B	20	16	0
	C	20	14	8
	D	20	19	8
	E	20	17	37
AT5-393	A	20	20	13
	B	20	17	19
	C	^{1/25} 20 21	21	17
	D	20	20	11
	E	20	11	3
AT5-394	A	20	14	11
	B	20	0	2
	C	20	19	10
	D	20	4	0
	E	20	9	0
AT5-395	A	20	17	0 11
	B	20	18	9 11
	C	20	15	8 11
	D	20	16	6 10
	E	20	9	0

NM
1/5



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM RECOVERY RECORD

Project Number: 70005.15 TEST ORGANISM
 Client: Tierra Solutions Common Name: Amphipod
 QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus
 Organisms Recovered (date, time, initials): 12/23/15 11:5 AM, VT, NJ, IM, NM, JB

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered	Total Neonates
AT5-396	A	20	5	4
	B	20	15	9
	C	20	20	20
	D	20	6	2
	E	20	17	12
AT5-397	A	20	20	9
	B	20	17	21
	C	20	20	14
	D	20	19	2
	E	20	16	5
AT5-398	A	20	18	11
	B	20	19	16
	C	20	20	9
	D	20	20	21
	E	20	19	11
AT5-399	A	20	11	15
	B	20	15	0
	C	20	16	32
	D	20	10	5
	E	20	15	2
AT5-400	A	20	4	5
	B	20	20	8
	C	20	19	29
	D	20	20	25
	E	20	17	5



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM RECOVERY RECORD

Subject Number: 70005.15 TEST ORGANISM
 Client: Tierra Solutions Common Name: Amphipod
 QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus
 Organisms Recovered (date, time, initials): 12/23/15 1115 MKL, VT, MS, LM, NN, SB

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered	Total Neonates
AT5-401	A	20	18	0
	B	20	10	3
	C	20	19	25
	D	20	4	11
	E	20	14	18
AT5-402	A	20	19	1
	B	20	13	16
	C	20	16	19
	D	20	20	3
	E	20	18	24
AT5-403	A	20	0	0
	B	20	0	0
	C	20	0	1
	D	20	0	0
	E	20	0	1
AT5-404	A	20	0	0
	B	20	0	0
	C	20	0	5
	D	20	0	1
	E	20	0	0
AT5-405	A	20	16	10 17
	B	20	18	15 17 17 8
	C	21	21	11 9 9 6
	D	20	10	7 6 6 8
	E	20	0	2



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM RECOVERY RECORD

Subject Number: 70005.15 TEST ORGANISM
 Client: Tierra Solutions Common Name: Amphipod
 QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus
 Organisms Recovered (date, time, initials): 12/23/15 1115 AM, VY, MJ, IM, NM, JB

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered	Total Neonates
AT5-406	A	20	3	5
	B	20	0	1
	C	20	0	0
	D	20	0	0
	E	20	4	1
AT5-407	A	20	6	0
	B	20	5	0
	C	20	0	0
	D	20	0	0
	E	20	0	0
AT5-408	A	20	20	7
	B	20	12	6
	C	20	18	7
	D	20	18	3
	E	20	11	0
AT5-409	A	20	15	14
	B	20	20	21
	C	22	22	19
	D	20	17	14
	E	20	17	15
AT5-410	A	20	18	30
	B	20	19	15
	C	20	17	4
	D	20	18	14
	E	20	20	15



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM RECOVERY RECORD

Subject Number: 70005.15 TEST ORGANISM
 Client: Tierra Solutions Common Name: Amphipod
 QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus
 Organisms Recovered (date, time, initials): 12/23/15 1115 MK, VT, MS, LM, NM, JB

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered	Total Neonates
AT5-411	A	20	13	3
	B	20	20	14
	C	20	19	12
	D	20	16	20
	E	20	16	3
AT5-427	A	20	17	10
	B	20	10	0
	C	20	16	8
	D	20	19	2
	E	20	1	2
AT5-431	A	20	3	03
	B	20	19	19
	C	20	18	20
	D	20	12	5
	E	20	17	33
AT5-432	A	20	18	4
	B	20	9	8
	C	20	17	20
	D	20	9	6
	E	20	20	8
AT5-433	A	20	15	4
	B	20	18	12
	C	20	18	1
	D	20	15	17
	E	20	17	26

NM
1/18



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM RECOVERY RECORD

Project Number: 70005.15

TEST ORGANISM

Client: Tierra Solutions

Common Name: Amphipod

QC Test Number: TN-15-491

Scientific Name: Leptocheirus plumulosus

Organisms Recovered (date, time, initials): 12/23/15 1115 MM, VT, MM, MS, JM, JB

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered	Total Neonates
AT5-434	A	20	14	9
	B	20	17	14
	C	20	19	20
	D	20	12	2
	E	20	0	0
AT5-435	A	20	15	0
	B	20	0	0
	C	20	14	0
	D	20	10	0
	E	20	0	0
AT5-436	A	20	0	0
	B	20	0	2
	C	20	0	1
	D	20	0	0
	E	20	0	0
AT5-437	A	20	0	4
	B	20	0	1
	C	20	19	12 16
	D	20	16	32 58
	E	20	18	15 24
AT5-438	A	20	4	8
	B	20	19	0
	C	20	18	5
	D	20	19	6
	E	20	19	10 24

117MJ



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM RECOVERY RECORD

 Project Number: 70005.15

TEST ORGANISM

 Client: Tierra Solutions

 Common Name: Amphipod

 QC Test Number: TN-15-491

 Scientific Name: Leptocheirus plumulosus

 Organisms Recovered (date, time, initials): 12/23/15 1115, MK, VT, MS, LM, NM, JB

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered	Total Neonates
AT5-439	A	20	19	0
	B	20	13	3
	C	20	0	0
	D	20	15	4
	E	20	17	31
AT5-440	A	20	2	2
	B	20	1	0
	C	20	16	1
	D	20	3	0
	E	20	8	0
AT5-441	A	20	16	7
	B	20	11	1
	C	20	19	13
	D	20	20	4
	E	20	20	9



WEIGHT DATA (Test Species: L. plumulosus)

Project Number: 70005.15Client: Tierra SolutionsQC Test Number: TN-15-491Tin Lot: BLACK 150Oven Temp (°C): Start: 96 End: 99Loaded tins placed in oven: Date 11/25/15 Time 1620 Initials MJKLoaded tins removed from oven: 12/10/15 1630 MJKLoaded tins weighed: 12/10/15 1700 MJKOven Number: BLM-01 Balance Number: P0115825

Test Concentration Initials	Rep	Tin #	A Weight of Tin (mg)	B Weight of Tin and Dried Organisms (mg)	B-A Total Dry Organism Weight (mg)	C Number of Organisms Weighed	(B-A)/C Mean Dry Organism Weight (mg)	(if applicable) Mean Biomass (mg/exposed org.)
	A	105	23.62	24.68	1.06	20	0.053	0.053
	B	145	26.42	26.99	0.57	20	0.029	0.029
	C	146	24.81	26.19	1.38	20	0.069	0.069
	D	151	26.19	27.40	1.21	20	0.061	0.061
							(0.053)	
							MEAN	

Dry wt. calculations checked (date, initials): 1/18/16 MJKBiomass calculations checked (date, initials): 1/18/16 MJK



WEIGHT DATA (Test Species: L. plumulosus)

Project Number: 70005.15

Client: Tierra Solutions

QC Test Number: TN-15-491

Tin Lot: Blue 152

Oven Temp (°C): Start: 98.0 End: 105.0

Date: 12/23/15 Time: 1445 Initials: UY

Loaded tins placed in oven: 12/23/15 1445

Loaded tins removed from oven: 1/4/16 1445

Loaded tins weighed: 1/4/16 1545

Oven Number: BLM-01

Balance Number: P0115825

Test Concentration	Rep	Tin #	A Weight of Tin (mg)	B Weight of Tin and Dried Organisms (mg)	B-A Total Dry Organism Weight (mg)	C Number of Organisms Weighed	(B-A)/C Mean Dry Organism Weight (mg)	(if applicable) Mean Biomass (mg/exposed org.)
AT4-590 (Lab Control)	A	18	43.58	63.74	20.16	17	1.186	—
	B	9	43.86	64.83	20.97	16	1.311	—
	C	151	43.47	65.95	22.48	17	1.322	—
	D	158	43.76	63.57	19.81	15	1.321	—
	E	62	43.72	65.34	21.62	16	1.351	—
AT5-392	A	23	44.72	56.83	12.11	18	0.673	—
	B	25	43.46	48.16	4.70	16	0.294	—
	C	123	43.93	53.98	10.05	14	0.718	—
	D	82	46.77	56.57	9.80	19	0.516	—
	E	36	43.71	60.59	16.88	17	0.993	—
AT5-393	A	22	43.36	64.96	21.60	20	1.08	—
	B	7	44.03	57.87	13.84	17	0.814	—
	C	32	45.08	64.74	19.66	21	0.936	—
	D	28	43.21	56.32	13.11	20	0.656	—
	E	79	42.47	49.71	7.24	11	0.658	—

Dry wt. calculations checked (date, initials): 1/16/16 MKC

Biomass calculations checked (date, initials): 1/16/16 MKC



WEIGHT DATA (Test Species: L. plumulosus)

Project Number: 70005.15
 Client: Tierra Solutions
 QC Test Number: TN-15-491
 Tin Lot: Bluc 152
 Oven Temp (°C): Start: 98.0 End: 105.0
 Loaded tins placed in oven: 12/23/15 1445 WJ
 Loaded tins removed from oven: 1/4/16 1445 WJ
 Loaded tins weighed: 1/4/16 1515 WJ
 Oven Number: BLM-01 Balance Number: P0115825

Test Concentration	Rep	Tin #	A Weight of Tin (mg)	B Weight of Tin and Dried Organisms (mg)	B-A Total Dry Organism Weight (mg)	C Number of Organisms Weighed	(B-A)/C Mean Dry Organism Weight (mg)	(if applicable) Mean Biomass (mg/exposed org.)
AT5-394	A	21	44.85	58.44	13.59	14	0.971	-
	B	-	-	-	-	-	-	-
	C	10	43.73	54.85	11.12	19	0.585	-
	D	33	43.10	43.89	0.79	4	0.198	-
	E	27	43.27	46.57	3.30	9	0.367	-
AT5-395	A	17	43.85	52.60	8.75	17	0.515	-
	B	38	44.08	63.09	19.01	18	1.056	-
	C	52	44.58	57.58	13.00	15	0.867	-
	D	56	43.89	63.07	19.18	16	1.199	-
	E	118	44.60	50.67	6.07	9	0.674	-
AT5-396	A	59	42.61	44.88	2.27	5	0.454	-
	B	43	43.38	55.48	12.10	75	0.807	-
	C	16	42.42	67.91	25.49	20	1.275	-
	D	8	43.29	45.16	1.87	6	0.312	-
	E	2	44.30	67.59	23.29	17	1.370	-

Dry wt. calculations checked (date, initials): 1/16/16 M
 Biomass calculations checked (date, initials): 1/16/16 M
 ATS-T46
 09/29/08



WEIGHT DATA (Test Species: L. plumulosus)

Project Number: 70005.15

Client: Tierra Solutions

QC Test Number: TN-15-491

Tin Lot: Bluc 152

Oven Temp (°C): Start: 98.0 End: 105.0

Date: 12/23/15 Time: 1445 Initials: WY

Loaded tins placed in oven: 1/4/16

Loaded tins removed from oven: 1/4/16

Loaded tins weighed: 1/4/16

Oven Number: BLM-01 Balance Number: P0115825

Test Concentration	Rep	Tin #	A Weight of Tin (mg)	B Weight of Tin and Dried Organisms (mg)	B-A Total Dry Organism Weight (mg)	C Number of Organisms Weighed	(B-A)/C Mean Dry Organism Weight (mg)	(if applicable) Mean Biomass (mg/exposed org.)
AT5-397	A	1	42.40	61.76	19.36	20	0.968	-
	B	115	44.55	64.43	19.88	17	1.169	-
	C	89	43.81	66.97	23.16	20	1.158	-
	D	5	44.32	68.16	23.84	19	1.255	-
	E	3	43.59	49.34	5.75	16	0.359	-
AT5-398	A	14	43.16	63.29	20.13	18	1.118	-
	B	26	44.91	63.61	18.70	19	0.984	-
	C	13	43.68	67.06	23.38	20	1.169	-
	D	4	41.59	62.94	21.35	20	1.068	-
	E	134	43.52	56.66	13.14	19	0.692	-
AT5-399	A	57	43.49	48.85	5.36	11	0.487	-
	B	140	44.85	66.33	21.48	15	1.432	-
	C	135	43.47	60.01	16.54	16	1.034	-
	D	12	43.45	52.20	8.75	10	0.875	-
	E	35	43.31	65.48	22.17	15	1.478	-

Dry wt. calculations checked (date, initials): 1/19/16 MM

Biomass calculations checked (date, initials): 1/16/16 MM



WEIGHT DATA (Test Species: L. plumulosus)

Project Number: 70005.15
 Client: Tierra Solutions
 QC Test Number: TN-15-491
 Tin Lot: Blue 52
 Oven Temp (°C): Start: 98.0 End: 105.0
 Loaded tins placed in oven: 12/23/15 1445 WY
 Loaded tins removed from oven: 1/4/16 1445 WY
 Loaded tins weighed: 1/4/16 1545 WY
 Oven Number: BLM-01 Balance Number: P0115825

Test Concentration	Rep	Tin #	A Weight of Tin (mg)	B Weight of Tin and Dried Organisms (mg)	B-A Total Dry Organism Weight (mg)	C Number of Organisms Weighed	(B-A)/C Mean Dry Organism Weight (mg)	(if applicable) Mean Biomass (mg/exposed org.)
AT5-400	A	51	44.57	44.93	0.36	4	0.09	-
	B	76	43.25	56.49	13.24	20	0.662	-
	C	37	43.56	62.74	19.18	19	1.009	-
	D	47	43.99	69.49	25.50	20	1.275	-
	E	24	43.49	52.28	8.79	17	0.517	-
AT5-401	A	136	43.81	50.24	6.43	18	0.357	-
	B	87	45.80	49.09	3.29	10	0.329	-
	C	58	43.97	66.06	22.09	19	1.163	-
	D	90	44.57	46.28	1.71	4	0.428	-
	E	60	43.17	56.94	13.77	14	0.984	-
AT5-402	A	113	43.71	60.10	16.39	19	0.863	-
	B	63	43.99	59.68	15.69	13	1.207	-
	C	137	43.18	62.13	18.95	16	1.184	-
	D	39	42.35	56.61	14.26	20	0.713	-
	E	142	48.43	69.44	21.01	18	1.167	-

Dry wt. calculations checked (date, initials): 1/16/16 MM
 Biomass calculations checked (date, initials): 1/16/16 MM
 ATS-T46



WEIGHT DATA (Test Species: L. plumulosus)

Project Number: 70005.15 Date: 12/23/15 Time: 1445 Initials: WY
 Client: Tierra Solutions
 QC Test Number: TN-15-491 Loaded tins placed in oven: 14/16 1445 WY
 Tin Lot: Blue 152 Loaded tins removed from oven: 14/16 1445 WY
 Oven Temp (°C): Start: 980 End: 105.0 Loaded tins weighed: 14/16 1545 WY
 Oven Number: BLM-01 Balance Number: P0115825

Test Concentration	Rep	Tin #	A Weight of Tin (mg)	B Weight of Tin and Dried Organisms (mg)	B-A Total Dry Organism Weight (mg)	C Number of Organisms Weighed	(B-A)/C Mean Dry Organism Weight (mg)	(if applicable) Mean Biomass (mg/exposed org.)
AT5-403	A	—	—	—	—	0	—	—
	B	—	—	—	—	—	—	—
	C	—	—	—	—	—	—	—
	D	—	—	—	—	—	—	—
	E	—	—	—	—	—	—	—
AT5-404	A	—	—	—	—	—	—	—
	B	—	—	—	—	—	—	—
	C	—	—	—	—	—	—	—
	D	—	—	—	—	—	—	—
	E	—	—	—	—	—	—	—
AT5-405	A	31	43.65	66.97	23.32	16	1.458	—
	B	49	43.27	69.32	26.05	18	1.447	—
	C	39	43.32	68.20	24.88	21	1.185	—
	D	20	42.16	49.31	7.15	10	0.715	—
	E	41	44.16	46.33	2.17	6	0.362	—

Dry wt. calculations checked (date, initials): 1/16/16 MW Biomass calculations checked (date, initials): 1/16/16 MW



WEIGHT DATA (Test Species: L. plumulosus)

Project Number: 70005.15

Client: Tierra Solutions

QC Test Number: TN-15-491

Tin Lot: Blw 152

Oven Temp (°C): 98.0 Start: 105.0 End:

Loaded tins placed in oven: 12/23/15 1445 WY

Loaded tins removed from oven: 1/4/16 1445 WY

Loaded tins weighed: 1/4/16 1545 WY

Oven Number: BLM-01 Balance Number: P0115825

Test Concentration	Rep	Tin #	A Weight of Tin (mg)	B Weight of Tin and Dried Organisms (mg)	B-A Total Dry Organism Weight (mg)	C Number of Organisms Weighed	(B-A)/C Mean Dry Organism Weight (mg)	(if applicable) Mean Biomass (mg/exposed org.)
AT5-406	A	127	44.20	44.42	0.22	3	0.073	-
	B	-	-	-	-	-	-	-
	C	-	-	-	-	-	-	-
	D	-	-	-	-	-	-	-
	E	19	43.22	43.83	0.61	4	0.153	-
AT5-407	A	48	45.13	46.08	0.95	6	0.158	-
	B	117	44.81	45.55	0.74	5	0.148	-
	C	-	-	-	-	-	-	-
	D	-	-	-	-	-	-	-
	E	-	-	-	-	-	-	-
AT5-408	A	50	42.73	69.66	26.93	20	1.347	-
	B	80	43.50	49.25	5.75	12	0.479	-
	C	121	44.67	64.29	19.62	18	1.090	-
	D	139	43.81	60.73	16.92	18	0.940	-
	E	83	45.76	60.12	14.36	11	1.305	-

Dry wt. calculations checked (date, initials): 1/16/16 MW

Biomass calculations checked (date, initials): 1/16/16 MW



WEIGHT DATA (Test Species: L. plumulosus)

Project Number: 70005.15 Date: 12/23/15 Time: 1445 Initials: WY
 Client: Tierra Solutions
 QC Test Number: TN-15-491
 Tin Lot: Blue 152
 Loaded tins placed in oven: 14/16 1445 WY
 Loaded tins removed from oven: 14/16 1545 WY
 Loaded tins weighed: 14/16 1545 WY
 Oven Temp (°C): Start: 98.0 End: 105.0
 Oven Number: BLM-01 Balance Number: P0115825

Test Concentration	Rep	Tin #	A Weight of Tin (mg)	B Weight of Tin and Dried Organisms (mg)	B-A Total Dry Organism Weight (mg)	C Number of Organisms Weighed	(B-A)/C Mean Dry Organism Weight (mg)	(if applicable) Mean Biomass (mg/exposed org.)
AT5-409	A	130	44.53	60.01	15.48	15	1.032	-
	B	104	43.88	66.46	22.58	20	1.129	-
	C	116	43.71	71.75	28.04	22	1.275	-
	D	71	43.85	58.08	14.23	14	1.016	-
	E	101	43.21	60.24	17.03	17	1.002	-
AT5-410	A	126	43.72	62.30	18.58	18	1.032	-
	B	107	43.30	64.78	21.48	19	1.131	-
	C	132	43.51	57.73	14.22	17	0.836	-
	D	46	43.67	55.66	11.99	18	0.666	-
	E	78	43.56	65.41	21.85	20	1.093	-
AT5-411	A	94	45.15	49.03	3.88	13	0.298	-
	B	40	43.88	69.56	25.68	20	1.284	-
	C	29	43.65	56.42	12.77	19	0.672	-
	D	67	44.17	61.79	17.62	16	1.101	-
	E	45	43.56	57.94	14.38	16	0.899	-



WEIGHT DATA (Test Species: L. plumulosus)

Project Number: 70005.15
 Client: Tierra Solutions
 QC Test Number: TN-15-491
 Tin Lot: Blue 52
 Oven Temp (°C): Start: 980 End: 105.0
 Loaded tins placed in oven: 12/23/15 1445 WY
 Loaded tins removed from oven: 1/4/16 1445 WY
 Loaded tins weighed: 1/4/16 1515 WY
 Oven Number: BLM-01 Balance Number: P0115825

Test Concentration	Rep	Tin #	A Weight of Tin (mg)	B Weight of Tin and Dried Organisms (mg)	B-A Total Dry Organism Weight (mg)	C Number of Organisms Weighed	(B-A)/C Mean Dry Organism Weight (mg)	(if applicable) Mean Biomass (mg/exposed org.)
AT5-427	A	76	43.51	60.54	17.03	17	1.002	-
	B	141	45.60	48.84	3.24	10	0.324	-
	C	125	43.31	53.81	10.50	16	0.656	-
	D	98	44.30	57.33	13.03	19	0.686	-
	E	73	43.39	43.84	0.45	1	0.450	-
AT5-431	A	114	43.61	45.06	1.45	3	0.483	-
	B	96	45.09	75.24	30.15	19	1.587	-
	C	74	44.06	62.11	18.05	18	1.003	-
	D	42	43.38	49.36	5.98	12	0.498	-
	E	124	44.11	61.78	17.67	17	1.039	-
AT5-432	A	92	43.32	53.42	10.10	18	0.561	-
	B	55	43.08	46.85	3.77	9	0.419	-
	C	3295	42.37	71.06	28.69	17	1.688	-
	D	110	43.60	49.21	5.61	9	0.623	-
	E	131	44.36	67.31	22.95	20	1.148	-

Dry wt. calculations checked (date, initials): 1/16/16 WY
 Biomass calculations checked (date, initials): 1/16/16 WY
 ATS-T46 na/20/08



WEIGHT DATA (Test Species: L. plumulosus)

Project Number: 70005.15 Date: 12/23/15 Time: 1445 Initials: WV
 Client: Tierra Solutions
 QC Test Number: TN-15-491
 Tin Lot: BLW 152
 Loaded tins placed in oven: 1/4/16 1445 WV
 Loaded tins removed from oven: 1/4/16 1545 WV
 Loaded tins weighed: 1/4/16 1545 WV
 Oven Temp (°C): Start: 98.0 End: 105.0
 Oven Number: BLM-01 Balance Number: P0115825

Test Concentration	Rep	Tin #	A Weight of Tin (mg)	B Weight of Tin and Dried Organisms (mg)	B-A Total Dry Organism Weight (mg)	C Number of Organisms Weighed	(B-A)/C Mean Dry Organism Weight (mg)	(if applicable) Mean Biomass (mg/exposed org.)
AT5-433	A	112	43.92	51.56	7.64	15	0.509	—
	B	105	43.67	72.26	28.59	18	1.588	—
	C	128	43.85	62.20	18.35	18	1.019	—
	D	91	43.12	52.68	9.56	15	0.637	—
	E	85	43.46	71.71	28.31	17	1.665	—
AT5-434	A	77	43.26	53.59	10.33	14	0.738	—
	B	65	43.78	68.62	24.84	17	1.461	—
	C	75	42.99	72.08	29.09	19	1.531	—
	D	91	42.27	49.21	6.94	+5 12	0.578	—
	E	—	—	—	—	—	—	—
AT5-435	A	130	44.08	57.12	13.04	15	0.869	—
	B	—	—	—	—	—	—	—
	C	122	43.97	47.56	3.59	14	0.256	—
	D	81	44.96	46.87	1.91	10	0.191	—
	E	—	—	—	—	—	—	—

IM 12/23



WEIGHT DATA (Test Species: L. plumulosus)

Project Number: 70005.15 Date: 12/23/15 Time: 1445 Initials: WY
 Client: Tierra Solutions
 QC Test Number: IN-15-491
 Tin Lot: Blue 152 Loaded tins placed in oven: 1/4/16 1445 WY
 Loaded tins removed from oven: 1/4/16 1545 WY
 Loaded tins weighed: 1/4/16 1545 WY
 Oven Temp (°C): Start: 98.0 End: 105.0 Balance Number: P0115825
 Oven Number: BLM-01

Test Concentration	Rep	Tin #	A Weight of Tin (mg)	B Weight of Tin and Dried Organisms (mg)	B-A Total Dry Organism Weight (mg)	C Number of Organisms Weighed	(B-A)/C Mean Dry Organism Weight (mg)	(if applicable) Mean Biomass (mg/exposed org.)
AT5-436	A	—	—	—	—	—	—	—
	B	—	—	—	—	—	—	—
	C	—	—	—	—	—	—	—
	D	—	—	—	—	—	—	—
	E	—	—	—	—	—	—	—
AT5-437	A	—	—	—	—	—	—	—
	B	—	—	—	—	—	—	—
	C	66	43.79	68.60	24.81	19	1.306	—
	D	106	43.61	69.94	26.33	16	1.646	—
	E	99	43.14	68.23	25.09	18	1.394	—
AT5-438	A	68	43.24	48.41	5.17	4	1.293	—
	B	30	42.91	51.43	8.52	19	0.448	—
	C	103	43.94	63.35	19.41	18	1.078	—
	D	100	43.63	54.24	10.61	19	0.558	—
	E	108	44.11	70.50	26.39	19	1.389	—

Dry wt. calculations checked (date, initials): 1/10/16 M Biomass calculations checked (date, initials): 1/10/16 M
 ATS-T46
 ng/20/na



WEIGHT DATA (Test Species: L. plumulosus)

Project Number: 70005.15 Date: 12/23/15 Time: 1445 Initials: WY
 Client: Tierra Solutions
 QC Test Number: TN-15-491
 Tin Lot: BLM 52
 Loaded tins placed in oven: 14/16 1445 WY
 Loaded tins removed from oven: 14/16 1445 WY
 Loaded tins weighed: 14/16 1545 WY
 Oven Temp (°C): Start: 98.0 End: 105.0
 Oven Number: BLM-01 Balance Number: P0115825

Test Concentration	Rep	Tin #	A Weight of Tin (mg)	B Weight of Tin and Dried Organisms (mg)	B-A Total Dry Organism Weight (mg)	C Number of Organisms Weighed	(B-A)/C Mean Dry Organism Weight (mg)	(if applicable) Mean Biomass (mg/exposed org.)
AT5-439	A	109	43.30	52.56	9.26	14	0.661	-
	B	64	43.82	56.51	12.69	13	0.976	-
	C	-	-	-	-	-	-	-
	D	53	43.88	68.51	24.63	15	1.642	-
	E	102	44.48	68.28	23.80	17	1.400	-
AT5-440	A	165	44.09	44.93	0.84	2	0.420	-
	B	88	44.43	44.70	0.27	1	0.270	-
	C	97	44.10	54.89	10.79	16	0.674	-
	D	182	43.29	43.66	0.37	3	0.123	-
	E	86	45.85	49.60	3.75	8	0.469	-
AT5-441	A	108	44.18	54.59	10.41	16	0.651	-
	B	163	42.61	46.48	3.87	11	0.352	-
	C	119	44.02	69.88	25.86	19	1.361	-
	D	167	43.96	61.59	17.63	20	0.882	-
	E	175	44.00	54.86	10.86	20	0.543	-

Dry wt. calculations checked (date, initials): 1/18/16 M
 Biomass calculations checked (date, initials): 1/18/16 M



TOXICITY TEST WATER QUALITY DATA SHEET - NEW SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Amphibod Beginning Date: 11/25/15 Time: 1540
 Client: Tierra Solutions Common Name: Amphibod Ending Date: 12/23/15 Time: 1115
 QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 16-hr / 8 d Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)												
	0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6						
AT4-590	24.0							7.9							7.8													19.3						
AT5-392	24.0							7.6							7.9													21.6						
AT5-393	24.0							8.2							7.6													22.8						
AT5-394	24.0							8.0							7.7													22.3						
AT5-395	24.0							8.1							7.6													21.0						
AT5-396	24.0							8.3							8.0													23.2						
AT5-397	24.0							8.4							7.8													22.1						
AT5-398	24.0							8.5							7.8													21.6						
AT5-399	24.0							8.5							7.7													21.3						
AT5-400	24.0							8.6							7.4													21.9						
AT5-401	24.0							8.6							7.8													22.6						
AT5-402	24.0							8.5							7.7													21.6						
AT5-403	24.0							8.6							7.7													22.4						
AT5-404	24.0							8.7							7.8													21.1						
Meter Number	678							678							678												678							
Time	1012							1012							1012												1012							
Initials	JM							JM							JM												JM							

11/25/15



TOXICITY TEST WATER QUALITY DATA SHEET - NEW SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Amphipod Beginning Date: 11/25/15 Time: 1540
 Client: Tierra Solutions Common Name: Amphipod Ending Date: 12/23/15 Time: 1115
 QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 16-hr / 8-d Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)						
	0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6
AT5-405	24.0							8.7							7.8							22.5						
AT5-406	24.0							8.6							7.7							20.0						
AT5-407	24.0							8.5							7.9							22.8						
AT5-408	24.0							8.6							8.0							21.3						
AT5-409	24.0							8.5							7.8							21.2						
AT5-410	24.0							8.5							7.6							19.3						
AT5-411	24.0							8.6							8.0							21.1						
AT5-427	24.1							8.6							8.0							21.4						
AT5-431	24.0							8.6							8.0							21.4						
AT5-432	24.0							8.5							7.6							21.5						
AT5-433	24.2							8.6							7.6							22.0						
AT5-434	24.0							8.5							7.8							21.2						
AT5-435	24.0							8.5							7.8							21.2						
AT5-436	24.1							8.6							7.5							20.8						
Meter Number	678							678							678							678						
Time	1012							1012							1012							1012						
Initials	JM							JM							JM							JM						



TOXICITY TEST WATER QUALITY DATA SHEET - NEW SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Amphipod Beginning Date: 11/25/15 Time: 1540
 Client: Tierra Solutions Common Name: Amphipod Ending Date: 12/23/15 Time: 1115
 QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 16-hr / 8 d Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)						
	0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6
AT5-437	21.3						8.5								7.5							2.3						
AT5-438	21.0						8.5								7.8							2.1						
AT5-439	21.0						8.5								7.6							2.7						
AT5-440	21.0						8.6								7.6							1.7						
AT5-441	21.0						8.6								7.8							2.0						
Meter Number	678							678							678							678						
Time	1012							1012							1012							1012						
Initials	JMN							JMN							JMN							JMN						



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Amphipod Beginning Date: 11/25/15 Time: 1540
 Client: Tierra Solutions Common Name: Amphipod Ending Date: 12/23/15 Time: 1115
 QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 16-hr / 8 d Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
AT4-590	21.5				24.0	24.6	24.6	7.5				6.6	7.3															
AT5-392	24.3				24.2	24.7	24.7	7.6				7.0	7.5															
AT5-393	24.1				24.3	24.5	24.5	7.9				7.2	7.8															
AT5-394	25.1				24.0	24.1	24.1	8.1				7.4	7.9															
AT5-395	24.3				24.0	24.3	24.3	8.1				7.6	8.1															
AT5-396	24.2				24.2	24.6	24.6	8.1				7.6	8.1															
AT5-397	24.3				24.2	24.7	24.7	8.2				7.5	8.2															
AT5-398	24.2				24.0	24.6	24.6	8.3				7.8	8.4															
AT5-399	24.3				24.2	24.7	24.7	8.2				7.9	8.4															
AT5-400	24.3				24.5	25.0	25.0	8.2				7.9	8.3															
AT5-401	24.8				24.5	24.6	24.6	8.3				8.0	8.4															
AT5-402	24.5				24.4	24.7	24.7	8.3				8.0	8.4															
AT5-403	24.4				24.4	24.9	24.9	8.4				8.1	8.4															
AT5-404	24.7				24.1	24.8	24.8	8.4				8.2	8.5															
Meter Number	679				679	678	678	679				679	678															
Time	105				105	1139	1139	1015				0955	1139															
Initials	JJA				JJA	MJT	MJT	JJA				JJA	MJT															



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM
 Client: Tierra Solutions Common Name: Amphipod
 OC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus
Beginning Date: 11/25/15 Time: 1540
Ending Date: 12/23/15 Time: 1115

TARGET VALUES Temp: 25 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 16-hr/18 d Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
AT5-405	24.9	24.2	24.7	24.7	24.7	24.7	24.7	8.3	8.3	8.3	8.3	8.3	8.3	8.3	6.3	7.2	7.2	7.2	7.2	7.2	7.2	19.9	19.9	20.7	20.7	20.7	20.7	21.3
AT5-406	24.5	24.1	24.7	24.7	24.7	24.7	24.7	8.4	8.4	8.4	8.4	8.4	8.4	8.4	6.8	7.3	7.3	7.3	7.3	7.3	7.3	20.9	20.9	21.5	21.5	21.5	21.5	22.1
AT5-407	24.3	24.1	24.8	24.8	24.8	24.8	24.8	8.5	8.5	8.5	8.5	8.5	8.5	8.5	7.1	7.5	7.5	7.5	7.5	7.5	7.5	21.4	21.4	22.3	22.3	22.3	22.3	22.1
AT5-408	24.4	24.6	24.9	24.9	24.9	24.9	24.9	8.5	8.5	8.5	8.5	8.5	8.5	8.5	7.4	7.2	7.2	7.2	7.2	7.2	7.2	19.8	19.8	20.0	20.0	20.0	20.0	21.0
AT5-409	24.8	24.4	24.7	24.7	24.7	24.7	24.7	8.4	8.4	8.4	8.4	8.4	8.4	8.4	7.3	7.2	7.2	7.2	7.2	7.2	7.2	20.8	20.8	21.8	21.8	21.8	21.8	22.3
AT5-410	24.7	24.0	24.4	24.4	24.4	24.4	24.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	7.3	7.3	7.3	7.3	7.3	7.3	7.3	19.8	19.8	20.7	20.7	20.7	20.7	21.8
AT5-411	24.9	24.0	24.5	24.5	24.5	24.5	24.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	7.3	7.6	7.6	7.6	7.6	7.6	7.6	20.0	20.0	20.2	20.2	20.2	20.2	20.7
AT5-427	24.5	24.4	25.1	25.1	25.1	25.1	25.1	8.5	8.5	8.5	8.5	8.5	8.5	8.5	7.5	7.3	7.3	7.3	7.3	7.3	7.3	20.0	20.0	20.1	20.1	20.1	20.1	20.7
AT5-431	24.1	24.7	25.2	25.2	25.2	25.2	25.2	8.5	8.5	8.5	8.5	8.5	8.5	8.5	7.7	7.3	7.3	7.3	7.3	7.3	7.3	20.0	20.0	20.9	20.9	20.9	20.9	21.1
AT5-432	24.3	24.7	26.1	26.1	26.1	26.1	26.1	8.5	8.5	8.5	8.5	8.5	8.5	8.5	7.6	7.6	7.6	7.6	7.6	7.6	7.6	20.3	20.3	20.5	20.5	20.5	20.5	21.0
AT5-433	24.4	24.6	24.9	24.9	24.9	24.9	24.9	8.5	8.5	8.5	8.5	8.5	8.5	8.5	7.5	7.2	7.2	7.2	7.2	7.2	7.2	21.3	21.3	21.3	21.3	21.3	21.3	21.8
AT5-434	24.1	24.2	24.9	24.9	24.9	24.9	24.9	8.5	8.5	8.5	8.5	8.5	8.5	8.5	7.4	7.4	7.4	7.4	7.4	7.4	7.4	20.0	20.0	20.5	20.5	20.5	20.5	21.0
AT5-435	24.7	24.6	25.2	25.2	25.2	25.2	25.2	8.5	8.5	8.5	8.5	8.5	8.5	8.5	7.3	7.4	7.4	7.4	7.4	7.4	7.4	19.7	19.7	19.9	19.9	19.9	19.9	20.4
AT5-436	25.0	24.3	24.9	24.9	24.9	24.9	24.9	8.5	8.5	8.5	8.5	8.5	8.5	8.5	7.4	7.4	7.4	7.4	7.4	7.4	7.4	20.3	20.3	20.4	20.4	20.4	20.4	21.0
Meter Number	679	679	678	678	678	678	678	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679	678	
Time	1015	1015	1139	1139	1139	1139	1139	1015	1015	1015	1015	1015	1015	1015	1015	1015	1015	1015	1015	1015	1015	1015	1015	1015	1015	1015	1139	
Initials	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	IVN	



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Amphipod Beginning Date: 11/25/15 Time: 1540
 Client: Tierra Solutions Common Name: Amphipod Ending Date: 12/23/15 Time: 115
 QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 16-hr / 8 d Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
AT5-437	25.0				21.8		24.8	8.5					8.6	7.2					7.3	20.5					20.9	21.2		
AT5-438	24.7				25.0		24.8	8.5					8.6	7.4					7.3	20.0					20.0	21.2		
AT5-439	25.1				25.0		25.0	8.5					8.6	7.3					7.2	20.3					20.3	21.0		
AT5-440	25.0				21.3		25.1	8.6					8.6	7.2					7.4	20.4					20.8	21.0		
AT5-441	21.8				24.4		25.1	8.5					8.6	7.3					7.2	20.4					21.0	20.6 ^{PM}		
					21.6			8.6						7.5											20.4			
Meter Number	679				679		678	679					678	679					679	679					679	678		
Time	1015				0955		1139	1015					1139	1015					0955	1015					0955	1139		
Initials	JM				JM		JM	JM					JM	JM					JM	JM					JM	JM		



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Amphipod Beginning Date: 11/25/15 Time: 1540
 Client: Tierra Solutions Common Name: Amphipod Ending Date: 12/23/15 Time: 115
 QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25 °C pH: 6.0-9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 16-hr / 8 d Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)								pH								Dissolved Oxygen (mg/L)								Salinity (ppt)							
	8	9	10	11	12	13	14		8	9	10	11	12	13	14		8	9	10	11	12	13	14		8	9	10	11	12	13	14	
AT4-590	24.5	24.1	24.1	24.2	24.2	24.2	24.2		7.3	7.5	7.5	7.5	7.5	7.5	7.5		7.4	7.4	7.4	7.4	7.4	7.4	7.4		19.8	20.9	20.9	20.9	20.9	20.9	20.9	
AT5-392	24.0	24.1	24.1	24.1	24.1	24.1	24.1		7.7	7.5	7.5	7.5	7.5	7.5	7.5		7.3	7.3	7.3	7.3	7.3	7.3	7.3		20.9	20.9	20.9	20.9	20.9	20.9	20.9	
AT5-393	24.0	24.0	24.0	24.0	24.0	24.0	24.0		7.8	7.7	7.7	7.7	7.7	7.7	7.7		7.3	7.3	7.3	7.3	7.3	7.3	7.3		22.6	22.6	22.6	22.6	22.6	22.6	22.6	
AT5-394	24.0	24.0	24.0	24.0	24.0	24.0	24.0		7.9	7.8	7.8	7.8	7.8	7.8	7.8		7.4	7.4	7.4	7.4	7.4	7.4	7.4		21.9	21.9	21.9	21.9	21.9	21.9	21.9	
AT5-395	24.0	24.0	24.0	24.0	24.0	24.0	24.0		7.9	7.9	7.9	7.9	7.9	7.9	7.9		7.4	7.4	7.4	7.4	7.4	7.4	7.4		21.5	21.5	21.5	21.5	21.5	21.5	21.5	
AT5-396	24.0	24.0	24.0	24.0	24.0	24.0	24.0		8.0	8.0	8.0	8.0	8.0	8.0	8.0		7.3	7.3	7.3	7.3	7.3	7.3	7.3		21.7	21.7	21.7	21.7	21.7	21.7	21.7	
AT5-397	24.0	24.0	24.0	24.0	24.0	24.0	24.0		8.1	8.1	8.1	8.1	8.1	8.1	8.1		7.3	7.3	7.3	7.3	7.3	7.3	7.3		22.0	22.0	22.0	22.0	22.0	22.0	22.0	
AT5-398	24.0	24.0	24.0	24.0	24.0	24.0	24.0		8.2	8.2	8.2	8.2	8.2	8.2	8.2		7.3	7.3	7.3	7.3	7.3	7.3	7.3		20.4	20.4	20.4	20.4	20.4	20.4	20.4	
AT5-399	24.0	24.0	24.0	24.0	24.0	24.0	24.0		8.2	8.2	8.2	8.2	8.2	8.2	8.2		7.5	7.5	7.5	7.5	7.5	7.5	7.5		21.8	21.8	21.8	21.8	21.8	21.8	21.8	
AT5-400	24.0	24.0	24.0	24.0	24.0	24.0	24.0		8.2	8.2	8.2	8.2	8.2	8.2	8.2		7.4	7.4	7.4	7.4	7.4	7.4	7.4		21.4	21.4	21.4	21.4	21.4	21.4	21.4	
AT5-401	24.0	24.0	24.0	24.0	24.0	24.0	24.0		8.3	8.3	8.3	8.3	8.3	8.3	8.3		7.5	7.5	7.5	7.5	7.5	7.5	7.5		20.8	20.8	20.8	20.8	20.8	20.8	20.8	
AT5-402	24.0	24.0	24.0	24.0	24.0	24.0	24.0		8.3	8.3	8.3	8.3	8.3	8.3	8.3		7.4	7.4	7.4	7.4	7.4	7.4	7.4		21.6	21.6	21.6	21.6	21.6	21.6	21.6	
AT5-403	24.0	24.0	24.0	24.0	24.0	24.0	24.0		8.3	8.3	8.3	8.3	8.3	8.3	8.3		7.3	7.3	7.3	7.3	7.3	7.3	7.3		21.7	21.7	21.7	21.7	21.7	21.7	21.7	
AT5-404	24.0	24.0	24.0	24.0	24.0	24.0	24.0		8.3	8.3	8.3	8.3	8.3	8.3	8.3		7.4	7.4	7.4	7.4	7.4	7.4	7.4		21.7	21.7	21.7	21.7	21.7	21.7	21.7	
Meter Number									679								678								678							
Time									1452								1452								1452							
Initials									MS								MS								MS							



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Amphipod Beginning Date: 11/25/15 Time: 1540
 Client: Tierra Solutions Common Name: Amphipod Ending Date: 12/23/15 Time: 1115
 QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 16-hr / 8-d Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)								pH								Dissolved Oxygen (mg/L)								Salinity (ppt)							
	8	9	10	11	12	13	14	14	8	9	10	11	12	13	14	14	8	9	10	11	12	13	14	14	8	9	10	11	12	13	14	
AT5-405		24.0		24.0	24.6	24.2		24.2	8.4	8.4		8.6	8.6	8.5		8.5	7.4	7.4		7.6	7.6	7.5		7.5	21.2	21.2		21.2	21.5	21.5	21.1	
AT5-406		24.0		24.0	24.6	24.3		24.3	8.4	8.4		8.6	8.6	8.5		8.5	7.4	7.4		7.5	7.5	7.5		7.5	22.4	22.4		22.4	20.4	22.5	22.5	
AT5-407		24.1		24.1	24.6	24.0		24.0	8.4	8.4		8.6	8.6	8.5		8.5	7.5	7.5		7.7	7.7	7.5		7.5	21.2	21.2		21.2	20.9	23.0	23.0	
AT5-408		24.6		24.6	24.8	24.0		24.0	8.4	8.4		8.6	8.6	8.5		8.5	7.1	7.1		7.1	7.1	7.4		7.4	20.7	20.7		20.7	21.1	21.0	21.0	
AT5-409		24.4		24.4	24.3	24.4		24.4	8.4	8.4		8.6	8.6	8.5		8.5	7.1	7.1		7.3	7.3	6.8		6.8	21.8	21.8		21.8	22.0	22.4	22.4	
AT5-410		24.4		24.4	24.3	24.1		24.1	8.4	8.4		8.6	8.6	8.5		8.5	7.2	7.2		7.2	7.2	7.2		7.2	21.4	21.4		21.4	20.6	21.8	21.8	
AT5-411		24.5		24.5	24.2	24.0		24.0	8.4	8.4		8.6	8.6	8.6		8.6	7.3	7.3		7.3	7.3	7.3		7.3	20.3	20.3		20.3	20.5	21.1	21.1	
AT5-427		24.7		24.7	24.7	24.0		24.0	8.4	8.4		8.6	8.6	8.5		8.5	7.3	7.3		7.2	7.2	7.2		7.2	20.1	20.1		20.1	20.1	22.5	22.5	
AT5-431		24.9		24.9	24.7	24.0		24.0	8.4	8.4		8.5	8.5	8.6		8.6	7.2	7.2		7.2	7.2	7.5		7.5	20.9	20.9		20.9	21.3	20.7	20.7	
AT5-432		24.0		24.0	24.5	24.4		24.4	8.4	8.4		8.6	8.6	8.6		8.6	7.2	7.2		7.3	7.3	7.5		7.5	20.7	20.7		20.7	21.2	22.7	22.7	
AT5-433		24.5		24.5	24.0	24.4		24.4	8.4	8.4		8.6	8.6	8.6		8.6	7.3	7.3		7.3	7.3	7.2		7.2	21.7	21.7		21.7	22.6	22.0	22.0	
AT5-434		24.6		24.6	24.0	24.1		24.1	8.4	8.4		8.6	8.6	8.6		8.6	7.4	7.4		7.5	7.5	7.3		7.3	21.1	21.1		21.1	22.0	21.9	21.9	
AT5-435		24.9		24.9	24.2	24.2		24.2	8.4	8.4		8.6	8.6	8.6		8.6	7.3	7.3		7.3	7.3	7.0		7.0	20.1	20.1		20.1	20.0	20.7	20.7	
AT5-436		24.2		24.2	24.0	24.4		24.4	8.4	8.4		8.6	8.6	8.6		8.6	7.5	7.5		7.2	7.2	7.1		7.1	21.3	21.3		21.3	22.1	22.0	22.0	
Meter Number		679		678	678	678		678	679	679		678	678	678		678	679	679		678	678	678		678	679	679		679	678	678	678	
Time		1449		1452	1452	1425		1425	1449	1449		1452	1452	1425		1425	1449	1449		1452	1452	1425		1425	1449	1449		1449	1450	1425	1425	
Initials		MS		MS	MS	MS		MS	MS	MS		MS	MS	MS		MS	MS	MS		MS	MS	MS		MS	MS	MS		MS	MS	MS	MS	



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Amphipod Beginning Date: 10/25/15 Time: 1540
Client: Tierra Solutions Common Name: Amphipod Ending Date: 12/23/15 Time: 1115
QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25.0 °C pH: 6.0-9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 16-hr / 8 d Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)						
	8	9	10	11	12	13	14	8	9	10	11	12	13	14	8	9	10	11	12	13	14	8	9	10	11	12	13	14
AT5-437		24.5			24.8		24.4		8.5				8.0			7.4				7.5				20.5				20.7
AT5-438		24.0			24.5		24.0		8.4				8.0			7.3				7.4				20.2				21.0
AT5-439		24.3			24.4		24.1		8.4				8.0			7.3				7.4				21.4				21.4
AT5-440		24.1			24.0		24.3		8.4				8.0			7.4				7.7				21.0				21.6
AT5-441		24.5			24.5		24.1		8.4				8.0			7.4				7.6				20.5				21.4
Meter Number	679				678		678		679				678			679				678				679				678
Time	1449				1453		1625		1440				1625			1449				1453				1449				1425
Initials	MS				W		MS		MS				MS			MS				W			MS				W	



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Amphipod Beginning Date: 11/25/15 Time: 15:40
 Client: Tierra Solutions Common Name: Amphipod Ending Date: 12/23/15 Time: 11:5
 QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 16-hr / 8 d Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)						pH						Dissolved Oxygen (mg/L)						Salinity (ppt)									
	15	16	17	18	19	20	21	15	16	17	18	19	20	21	15	16	17	18	19	20	21	15	16	17	18	19	20	21
AT4-590		21.2			24.8		24.2	7.7				7.7		1.6	7.1				7.1		1.7	20.1				20.3		20.6
AT5-392		21.1			25.3		24.4	7.8				7.7		7.7	6.9				7.0		7.5	22.2				21.4		21.7
AT5-393		21.0			24.8		24.4	7.8				7.7		7.8	7.3				7.2		7.5	21.9				21.7		21.5
AT5-394		21.0			25.3		24.8	7.9				8.0		7.9	7.1				7.2		7.4	21.1				21.5		21.4
AT5-395		21.1			25.3		25.1	8.1				8.1		8.0	7.1				6.8		7.3	21.9				20.8		20.9
AT5-396		21.0			25.4		24.6	8.2				8.1		8.0	6.9				6.7		7.1	21.0				21.8		21.9
AT5-397		21.0			25.1		24.4	8.2				8.1		8.0	6.9				6.7		7.1	21.0				21.8		21.9
AT5-398		21.1			25.2		24.4	8.2				8.1		8.0	6.9				6.7		7.4	20.9				21.3		21.4
AT5-399		21.1			24.7		24.4	8.2				8.2		8.1	7.3				7.0		7.4	21.1				22.2		22.1
AT5-400		21.0			25.1		24.6	8.2				8.3		8.1	7.3				7.1		7.5	20.9				20.9		21.0
AT5-401		21.0			24.7		24.6	8.3				8.3		8.1	7.3				7.0		7.4	20.7				21.5		21.7
AT5-402		21.0			25.8		24.2	8.4				8.2		8.2	7.1				7.1		7.4	21.2				21.4		21.6
AT5-403		21.0			24.3		24.5	8.9				8.4		8.2	7.0				7.2		7.3	22.4				21.4		21.5
AT5-404		21.1			24.3		24.6	8.9				8.4		8.2	7.1				7.1		7.3	22.0				22.8		22.5
AT5-404		21.1			24.3		24.3	8.1				8.4		8.2	7.3				7.1		7.2	21.9				22.0		22.2
Meter Number		679			679		679	679				679		679	679				679		679	679				679		679
Time		10:15			15:30		09:47	10:15				15:30		09:47	10:15				15:30		09:47	10:15				15:30		09:47
Initials		h			h		h	h				h		h	h				h		h	h				h		h



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Amphipod Beginning Date: 11/25/15 Time: 1540
 Client: Tierra Solutions Common Name: Amphipod Ending Date: 12/23/15 Time: 1115
 QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 16-hr / 8 d Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)					pH					Dissolved Oxygen (mg/L)					Salinity (ppt)				
	15	16	17	18	19	20	21	15	16	17	18	19	20	21	15	16	17	18	19	20
AT5-405	24.2	24.9	25.2	25.2	24.9	8.3	8.2	7.1	7.3	21.2	7.0	20.4	20.6	21.2	20.6					
AT5-406	24.2	24.9	25.6	24.9	24.9	8.3	8.2	7.1	7.2	21.2	7.0	23.0	23.0	21.2	23.0					
AT5-407	24.1	24.5	25.0	24.5	24.5	8.2	8.3	7.0	7.4	21.9	7.1	20.6	21.9	21.1	21.3					
AT5-408	24.0	24.9	25.3	24.9	24.9	8.3	8.2	6.9	7.0	21.1	6.7	21.3	21.3	21.1	21.3					
AT5-409	24.0	24.7	25.4	24.7	24.7	8.3	8.2	7.3	7.0	21.1	6.9	21.2	21.2	21.1	21.2					
AT5-410	24.1	24.6	25.5	24.6	24.6	8.4	8.2	7.2	7.2	21.1	6.7	21.2	21.2	21.1	21.2					
AT5-411	24.1	24.7	25.6	24.7	24.7	8.3	8.2	7.2	7.3	21.0	6.8	20.4	20.7	21.0	21.6					
AT5-427	24.3	25.0	25.5	25.0	25.0	8.3	8.2	7.1	7.2	21.1	6.9	20.7	20.5	21.1	20.5					
AT5-431	24.2	25.3	25.6	25.3	25.3	8.4	8.3	7.1	7.2	21.1	6.8	20.8	21.0	21.1	21.0					
AT5-432	24.3	25.3	25.6	25.3	25.3	8.4	8.2	7.2	7.1	21.6	6.9	20.8	21.0	21.6	21.0					
AT5-433	24.2	24.9	25.4	24.9	24.9	8.4	8.3	7.2	7.1	22.1	7.0	21.9	22.2	22.1	22.2					
AT5-434	24.2	24.9	25.3	24.9	24.9	8.4	8.3	7.1	7.2	22.0	7.0	21.7	21.0	22.0	21.0					
AT5-435	24.0	25.1	25.4	25.1	25.1	8.4	8.3	7.4	7.2	22.1	7.0	20.8	20.8	22.1	20.8					
AT5-436	24.0	25.0	25.0	25.0	25.0	8.4	8.4	7.2	7.2	22.1	7.1	20.9	21.5	22.1	21.5					
Meter Number	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679					
Time	1015	0941	1530	0941	0941	1015	0941	1015	0941	1015	1540	0941	0941	1015	0941					
Initials	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~					



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15
 Client: Tierra Solutions
 QC Test Number: TN-15-491

TEST ORGANISM
 Common Name: Amphipod
 Scientific Name: Leptocheirus plumulosus

Beginning Date: 11/25/15 Time: 1540
 Ending Date: 12/23/15 Time: 115

TARGET VALUES Temp: 25 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 16-hr / 8 d Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)						pH						Dissolved Oxygen (mg/L)						Salinity (ppt)								
	15	16	17	18	19	20	21	15	16	17	18	19	20	21	15	16	17	18	19	20	21	15	16	17	18	19	20
AT5-437		21.1			25.7		25.0		8.3			8.5		8.4		7.4			20.7		20.3						20.6
AT5-438		11.0			25.6		25.0		8.3			8.5		8.3		7.1			21.7		21.8						22.0
AT5-439		21.7			25.3		24.8		8.4			8.5		8.3		7.2			21.0		21.4						21.5
AT5-440		24.2			25.4		24.8		8.7			8.5		8.3		7.0			22.1		21.6						21.2
AT5-441		21.1			25.2		24.8		8.4			8.5		8.3		7.1			21.7		20.4						20.8
Meter Number		679			679		679		64			679		679		679			679		679						679
Time		1015			0747		0747		1015			1530		0747		1015			1015		1530						0747
Initials							MS					W		MS					W		W						MS



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Amphipod Beginning Date: 11/25/15 Time: 1540
 Client: Tierra Solutions Common Name: Amphipod Ending Date: 12/23/15 Time: 1115
 QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 16-hr / 8 d Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)						
	22	23	24	25	26	27	28	22	23	24	25	26	27	28	22	23	24	25	26	27	28	22	23	24	25	26	27	28
AT4-590		24.3			24.3		24.7	7.9				7.7		7.6	7.3				7.5		7.8	20.6				20.5		21.8
AT5-392		24.5			24.5		24.9	7.8				7.8		8.6	7.1				7.5		7.3	21.4				21.5		23.1
AT5-393		24.5			24.5		25.9	7.9				7.8		8.4	7.1				7.5		7.2	21.5				22.1		20.7
AT5-394		24.6			24.3		25.2	8.0				8.0		8.4	7.3				7.4		7.3	21.4				21.7		22.9
AT5-395		25.0			24.0		25.1	8.0				8.1		8.3	7.2				7.6		7.2	20.9				22.0		21.7
AT5-396		24.9			24.2		25.2	8.0				8.2		8.4	7.2				7.5		7.5	21.0				22.4		21.6
AT5-397		24.9			24.5		25.4	8.0				8.2		8.3	7.2				7.5		7.4	21.4				21.7		21.2
AT5-398		24.9			24.2		25.6	8.0				8.4		8.4	7.3				7.6		7.3	21.2				22.5		20.8
AT5-399		24.6			24.5		25.1	8.1				8.4		8.4	7.1				7.4		6.6	21.6				20.8		21.6
AT5-400		24.0			24.7		25.3	8.1				8.4		8.5	7.7				6.1		6.4	21.6				22.2		21.3
AT5-401		24.6			24.6		25.4	8.1				8.5		8.4	7.2				7.6		7.0	21.4				22.2		23.8
AT5-402		24.6			24.0		24.9	8.1				8.6		8.5	7.2				7.6		7.4	21.2				21.7		22.8
AT5-403		24.4			24.1		25.2	8.1				8.6		8.4	7.2				7.5		7.0	21.4				22.8		22.2
AT5-404		24.6			24.0		25.5	8.1				7.8		8.4	7.2				7.2		7.2	21.9				22.4		22.1
Meter Number		671			678		678	671				678		678	671				678		678	671				678		678
Time		1402			1145		1030	1402				1145		1030	1402				1145		1030	1402				1145		1030
Initials		A			WY		WY	A				WY		WY	A				WY		WY	A				WY		WY



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Amphipod Beginning Date: 11/25/15 Time: 1540
 Client: Tierra Solutions Common Name: Amphipod Ending Date: 12/23/15 Time: 1115
 QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 16-hr / 8 d Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)						
	22	23	24	25	26	27	28	22	23	24	25	26	27	28	22	23	24	25	26	27	28	22	23	24	25	26	27	28
AT5-405		24.9			24.0		25.0	8.2				8.7		8.5	7.1				7.6		7.2					21.2		21.0
AT5-406		24.4			24.6		25.0	8.2				8.7		8.5	7.2				7.4		7.2					21.5		21.2
AT5-407		25.1			24.0		24.8	8.2				8.4		8.6	7.1				7.6		7.3					21.2		21.8
AT5-408		25.1			24.3		24.8	8.2				8.3		8.4	7.2				7.0		6.9					21.6		22.4
AT5-410		25.0			24.7		24.3	8.2				8.2		8.6	7.2				4.6		7.5					21.0		24.3
AT5-411		24.9			24.4		24.5	8.2				8.3		8.6	7.1				5.2		7.5					22.9		23.2
AT5-427		25.1			25.0		24.6	8.3				8.3		8.7	7.0				7.4		7.4					21.6		22.7
AT5-431		25.2			25.1		24.9	8.2				8.3		8.7	7.1				7.2		7.4					20.6		23.7
AT5-432		25.2			24.9		25.2	8.2				8.3		8.7	7.2				7.4		7.3					21.2		21.1
AT5-433		25.2			24.8		25.1	8.2				8.3		8.6	7.3				7.3		7.3					21.5		23.3
AT5-434		25.1			24.5		25.5	8.3				8.4		8.6	7.1				7.2		7.2					22.5		20.9
AT5-435		25.1			25.3		25.5	8.2				8.5		8.6	7.1				7.4		7.0					21.6		21.0
AT5-436		25.1			25.0		25.7	8.2				8.5		8.7	7.1				7.4		7.0					21.6		22.8
Meter Number		624			678		678	644				678		678	174				678		678					678		678
Time		1400			1115		1030	1400				1115		1030	1400				1115		1030					1145		1030
Initials																												



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Amphipod Beginning Date: 11/25/15 Time: 1540
 Client: Tierra Solutions Common Name: Amphipod Ending Date: 12/03/15 Time: 1115
 QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus

TARGET VALUES Temp: 25 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 20 ppt Photoperiod: 16-hr/8 d Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)								pH								Dissolved Oxygen (mg/L)								Salinity (ppt)							
	22	23	24	25	26	27	28	22	23	24	25	26	27	28	22	23	24	25	26	27	28	22	23	24	25	26	27	28				
AT5-437		24.7			24.0		25.0	8.1				8.8		8.6	7.1				7.7		7.2					20.7		21.1				
AT5-438		24.1			25.2		25.2	8.7				8.4		8.4	7.2				7.3		7.2					20.2		20.7				
AT5-439		24.1			25.1		25.1	8.3				8.1		8.6	7.1				7.3		7.3					21.0		20.8				
AT5-440		25.1			24.9		25.4	8.3				7.0		8.7	7.0				7.4		7.1					22.0		19.9				
AT5-441		25.1			24.9		25.4	8.3				7.8		8.4	7.0				7.2		7.2					20.9		21.0				
Meter Number	679				678		678	679				678		678	679				678		678	679				678		678				
Time	1400				1415		1030	1400				1030		1145	1400				1145		1145	1400				1145		1030				
Initials	~				~		~	~				~		~	~				~		~	~				~		~				



TOXICOLOGY LABORATORY BENCH SHEET - ORP MEASUREMENT RECORD

Client: Tierra Solutions

QC Test Number: TN-15-491

AT4-570

EA Sample Number	AT5-401 Control 3/3 min	AT5-398	AT5-403	AT5-407	AT5-433	Date/Initials/ Time
Measurement (mV)	-204.1	-215.0	-204.1	-237.4	-249.8	11/20/15 MJ 1549
Measurement (mV)	-213.5	-216.8	-238.2	-242.0	-251.4	11/21/15 JB 1600
Measurement (mV)	-197.5	-221.3	-240.4	-243.3	-245.0	11/22/15 MM 1022
Measurement (mV)	-212.6	-222.6	-258.2	-238.2	-259.5	11/23/15 1700 W
Measurement (mV)	-213.5	-223.5	-252.7	-231.7	-234.7	11/24/15 0900 MJ
Measurement (mV)	-215.9	-219.6	-274.2	-241.2	-233.7	11/25/15 0823 MJ
Measurement (mV)	-213.8	-222.7	-228.7	-172.7	-237.7	11/26/15 0820 JM
Measurement (mV)	-210.3	-218.2	-226.4	-182.3	-234.4	11/27/15 0922 JM
Measurement (mV)	-212.7	-213.9	-239.8	-189.1	-231.8	11/28/15 0840 MJ
Measurement (mV)	-183.4	-221.4	-243.5	-211.7	-217.8	11/29/15 1140 W
Measurement (mV)	-174.0	-220.0	-249.6	-232.7	-226.2	11/30/15 1020 JM
Measurement (mV)	-198.6	-219.7	-252.4	-233.4	-225.5	12/1/15 MJ 0820
Measurement (mV)	-220.3	-218.9	-252.4	-219.9	-239.1	12/2/15 MJ 0825
Measurement (mV)	-205.2	-221.2	-242.2	-230.3	-241.5	12/3/15 MJ 0845
Measurement (mV)	-199.0	-216.6	-252.9	-228.1	-241.3	12/4/15 MJ 0830
Measurement (mV)	-175.0	-192.1	-249.2	-227.4	-245.0	12/5/15 MJ 0851
Measurement (mV)	-171.1	-205.5	-244.9	-226.1	-244.7	12/6/15 W 1310
Measurement (mV)	-171.3	-203.9	-240.1	-237.8	-245.7	12/7/15 W 1258
Measurement (mV)	-165.5	-201.9	-236.3	-227.6	-245.1	12/8/15 MJ 0750
Measurement (mV)	-174.3	-212.9	-228.5	-223.6	-244.9	12/8/15 MJ 1530
Measurement (mV)	-183.2	-161.1	-230.1	-226.6	-247.0	12/10/15 MJ 0820
Measurement (mV)	-176.9	-192.4	-246.3	-229.4	-246.7	12/11/15 1015
Measurement (mV)	-190.8	-174.3	-233.6	-222.4	-240.2	12/12/15 MJ 0850
Measurement (mV)	-208.4	-184.1	-224.8	-220.6	-238.4	12/13/15 W 1650
Measurement (mV)	-201.8	-192.1	-221.7	-222.6	-235.5	12/14/15 JM 1530
Measurement (mV)	-193.4	-191.1	-221.8	-221.5	-241.5	12/15/15 MJ 0825
Measurement (mV)	-191.3	-191.1	-204.8	-218.5	-239.8	12/16/15 MJ 0840
Measurement (mV)	-184.4	-195.8	-198.4	-217.5	-244.5	12/17/15 1645
Measurement (mV)	-186.6	-194.3	-206.1	-219.7	-239.7	12/18/15 1610
Measurement (mV)	-211.0	-189.0	-199.5	-213.1	-247.8	12/19/15 1100 JB
Measurement (mV)	-202.7	-187.0	-198.6	-203.4	-245.4	12/20/15 1050 JM
Measurement (mV)	-207.8	-185.9	-132.6	-216.9	-236.7	12/21/15 1100 JM
Measurement (mV)	-210.7	-187.7	-225.7	-217.0	-234.5	12/22/15 0850 JM
Measurement (mV)	-211.4	-186.2	-197.7	-207.4	-231.9	12/23/15 0830 W
Measurement (mV)						



TOXICOLOGY LABORATORY BENCH SHEET - FEEDING RECORD

Project Number: 70005.15

Client: Tierra Solutions

QC Test Number: TN-15-491

Food: Tetramin

Day	Date	Time	Initials
0			
1			
2	11/27/15	1130	IM
3			
4			
5	11/30/15	1042	IM
6			
7	12/2/15	1330	MJ
8			
9	12/4/15	1559	MJ
10			
11			
12	12/7/15	1520	Ug
13			
14	12/9/15	1640	MJ
15			
16	12/11/15	1351	M
17			
18			
19	12/14/15	1635	IM
20			
21	12/16/15	1400	MJ
22			
23	12/18/15	1500	M
24			
25			
26	12/21/15	1325	IM
27			
28			



TOXICOLOGY LABORATORY BENCH SHEET - RENEWAL RECORD

Project Number: 70005.15

Client: Tierra Solutions

QC Test Number: TN-15-491

Day	Date	Time	Initials
0			
1			
2	11/27/15	1130	IM
3			
4			
5	11/30/15	1035	WJ/IM
6			
7	12/2/15	1320	MJ
8			
9	12/4/15	1419	MJ
10			
11			
12	12/7/15	1500	WJ
13			
14	12/9/15	1630	MRC
15			
16	12/11/15	1330	m
17			
18			
19	12/14/15	1630	IM/WJ
20			
21	12/16/15	1330	MJ
22			
23	12/18/15	1430	m
24			
25			
26	12/21/15	1325	IM/WJ
27			
28			



TOXICOLOGY LABORATORY BENCH SHEET - OVERLYING WATER PREPARATION / USAGE LOG

Project Number: 70005.15 TEST ORGANISM _____
Client: Tierra Solutions Common Name: Amphipod
QC Test Number: TN-15-491 Scientific Name: Leptocheirus plumulosus
Overlying Water: 20 ppt Crystal Sea Artificial Seawater

Sample Number	Preparation Time, Date	Initials	Date of First Use	Date of Final Use
LD5-546	11/18/15 1000	JM	11/18/15	12/4/15
LD5-568	12/5/15 1318	MJ	12/7/15	12/18/15
LD5-599	12/21/15 1345	JM	12/21/15	12/21/15



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70005.15

Client: Tierra Solutions

QC Test Number: TN-15-491

Date/Time/Initials

Comments/Activity

Growth, Survival and Reproduction Test-Survival

Start Date:	11/25/2015	Test ID:	TN-15-491	Sample ID:	Tierra Solutions
End Date:	12/23/2015	Lab ID:		Sample Type:	Sediment
Sample Date:		Protocol:	EPAM 87-EPA Marine	Test Species:	LP-Leptocheirus plumulosus
Comments:					

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				Rank Sum	1-Tailed Critical
			Mean	Min	Max	CV%		
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5	
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5	31.00 19.00
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5	34.00 19.00
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5	20.00 19.00
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5	26.50 19.00
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5	24.50 19.00
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5	36.00 19.00
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5	40.00 19.00
*AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5	18.00 19.00
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5	34.00 19.00
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5	25.00 19.00
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5	32.00 19.00
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5	
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5	
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5	27.00 19.00
*AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5	15.00 19.00
*AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5	15.00 19.00
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5	30.00 19.00
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5	29.50 19.00
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5	39.00 19.00
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5	29.00 19.00
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5	26.00 19.00
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5	29.00 19.00

Growth, Survival and Reproduction Test-Survival

Start Date:	11/25/2015	Test ID:	TN-15-491	Sample ID:	Tierra Solutions
End Date:	12/23/2015	Lab ID:		Sample Type:	Sediment
Sample Date:		Protocol:	EPAM 87-EPA Marine	Test Species:	LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5	29.00	19.00
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5	30.00	19.00
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5	24.00	19.00
*AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5	15.50	19.00
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5		
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5	27.00	19.00
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5	35.00	19.00
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5	19.50	19.00
*AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5	17.00	19.00
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5	32.00	19.00

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Kolmogorov D Test indicates non-normal distribution ($p \leq 0.01$)	1.13834	1.035	-0.6404	0.27866
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)

Wilcoxon Rank Sum Test indicates significant differences

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5	-0.796	1.860	0.1206
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.97565	0.781	-0.1414	0.8363		
F-Test indicates equal variances ($p = 0.10$)	6.47296	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.10246	0.12628	0.00666	0.01052	0.44915	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5	-1.239	2.132	0.2684
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.84846	0.781	-1.46	2.98288		
F-Test indicates unequal variances ($p = 7.38E-03$)	27.1678	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.24388	0.30058	0.06082	0.03964	0.25056	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root					N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%	Critical			MSD	
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5				
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5				
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5				
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5	1.837	2.132	0.4550	
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5				
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5				
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5				
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5				
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5				
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5				
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5				
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5				
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5				
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5				
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5				
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5				
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5				
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5				
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5				
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5				
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5				
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5				
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5				

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marina	Test Species: LP-Leptocherius plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.92356	0.781	-0.0125	2.02877		
F-Test indicates unequal variances ($p = 9.09E-04$)	79.9151	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.42909	0.52884	0.38426	0.11386	0.10351	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID:	Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type:	Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species:	LP-Leptocherius plumulosus
Comments:			

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5	0.647	1.860	0.1702
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.86383	0.781	-1.4855	3.75383		
F-Test indicates equal variances (p = 0.03)	13.8852	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.14848	0.183	0.00875	0.02095	0.53605	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015 Test ID: TN-15-491 Sample ID: Tierra Solutions
 End Date: 12/23/2015 Lab ID: Sample Type: Sediment
 Sample Date: Protocol: EPAM 87-EPA Marine Test Species: LP-Leptocheirus plumulosus
 Comments:

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5	0.917	2.132	0.3838
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:								
AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5	
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5	
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5	
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5	
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5	
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5	
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5	
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5	
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5	
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5	

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.93405	0.781	0.02081	0.76377		
F-Test indicates unequal variances (p = 1.79E-03)	56.5708	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.35893	0.44237	0.06813	0.08101	0.38593	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root					N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%	Critical			MSD	
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5				
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5				
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5				
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5				
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5				
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5				
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5	-2.450	1.860	0.1420	
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5				
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5				
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5				
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5				
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5				
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5				
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5				
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5				
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5				
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5				
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5				
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5				
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5				
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5				
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5				
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5				

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.94991	0.781	-0.3754	-0.3793		
F-Test indicates equal variances (p = 0.05)	9.36149	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.1221	0.15048	0.08749	0.01458	0.03996	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root					N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%	Critical			MSD	
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5				
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5				
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5				
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5				
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5				
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5				
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5				
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5	-5.398	1.860	0.0861	
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5				
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5				
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5				
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5				
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5				
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5				
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5				
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5				
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5				
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5				
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5				
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5				
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5				
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5				
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5				

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.93065	0.781	-0.2871	-0.6204		
F-Test indicates equal variances ($p = 0.34$)	2.80689	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.07162	0.08827	0.15611	0.00536	6.5E-04	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root					N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%	Critical			MSD	
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5				
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5				
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5				
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5				
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5				
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5				
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5				
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5				
*AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5	2.291	1.860	0.1275	
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5				
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5				
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5				
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5				
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5				
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5				
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5				
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5				
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5				
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5				
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5				
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5				
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5				
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5				

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.94882	0.781	-0.5201	-0.6221		
F-Test indicates equal variances ($p = 0.08$)	7.35078	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedestic t Test indicates significant differences	0.10874	0.13402	0.06166	0.01175	0.0512	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				Rank Sum	1-Tailed Critical
			Mean	Min	Max	CV%		
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5	
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5	
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5	
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5	
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5	
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5	
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5	
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5	
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5	
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5	34.00
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5	19.00
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5	
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5	
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5	
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5	
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5	
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5	
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5	
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5	
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5	
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5	
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5	
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5	

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution ($p \leq 0.01$)	0.76643	0.781	-2.016	5.41981
F-Test indicates unequal variances ($p = 1.50E-03$)	61.8215	23.1545		

Hypothesis Test (1-tail, 0.05)

Wilcoxon Two-Sample Test indicates no significant differences

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root					N	1-Tailed		
			Mean	Min	Max	CV%	t-Stat		Critical	MSD	
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5				
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5				
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5				
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5				
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5				
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5				
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5				
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5				
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5				
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5				
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5	0.958	2.132	0.3440	
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5				
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5				
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5				
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5				
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5				
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5				
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5				
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5				
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5				
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5				
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5				
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5				

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.92775	0.781	-0.568	1.66358		
F-Test indicates unequal variances (p = 2.76E-03)	45.2663	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.31927	0.39349	0.05978	0.0651	0.36601	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5	-1.042	1.860	0.1750
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicatas normal distribution ($p > 0.01$)	0.96795	0.781	-0.4154	1.31159		
F-Test indicatas equal variances ($p = 0.02$)	14.7414	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicatas no significant differences	0.15306	0.18864	0.02404	0.02215	0.32799	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
*AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5	42.551	2.132	0.0506
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.83647	0.781	-0.4479	1.90502		
Equality of variance cannot be confirmed						
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	0.0411	0.05065	2.54773	0.00141	1.0E-10	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
*AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5	42.551	2.132	0.0506
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0884	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.83647	0.781	-0.4479	1.90502
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	0.0411	0.05065	2.54773	0.00141	1.0E-10	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5	0.530	2.132	0.3417
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:							
AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.95479	0.781	-0.2514	1.17018		
F-Test indicates unequal variances ($p = 2.84E-03$)	44.6414	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.31694	0.39061	0.01806	0.06422	0.6103	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
*AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5	10.725	1.860	0.1529
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.90323	0.781	0.66851	-0.4865		
F-Test indicates equal variances (p = 0.04)	11.0159	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	0.13225	0.16299	1.94501	0.01691	5.0E-06	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-436	0.7500	0.0000	0.7000	0.6000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9600
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
*AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5	7.537	1.860	0.2057
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	6			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.89465	0.781	0.6656	-0.4283		
F-Test indicates equal variances (p = 0.01)	20.7376	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	0.18241	0.22481	1.7375	0.03059	6.7E-05	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptacherius plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root						N	t-Stat	1-Tailed	
	Mean	N-Mean	Mean	Min	Max	CV%			Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5	-0.117	2.132	0.2584
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocharius plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.94917	0.781	-0.1439	0.42847		
F-Test indicates unequal variances ($p = 8.59E-03$)	25.0953	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.23393	0.28831	0.0005	0.03672	0.90997	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5	-1.023	1.860	0.1914
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marina	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.94106	0.781	0.25453	-0.3126		
F-Test indicates equal variances ($p = 0.02$)	17.8316	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.16871	0.20792	0.02772	0.0265	0.33633	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptacherius plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5	-3.176	1.860	0.1016
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.94936	0.781	0.60786	0.62111		
F-Test indicates equal variances ($p = 0.19$)	4.30205	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.08534	0.10518	0.07526	0.00746	0.01307	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5	-0.725	1.860	0.1788
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.96206	0.781	0.24474	0.80763		
F-Test indicates equal variances ($p = 0.02$)	15.4299	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.15665	0.19307	0.01214	0.02312	0.48936	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root						1-Tailed			
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5	0.977	2.132	0.4241
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.88179	0.781	-1.3579	3.51442		
F-Test indicates unequal variances ($p = 1.20E-03$)	69.2986	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.39886	0.49157	0.09433	0.09892	0.3574	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5	0.644	2.132	0.3685

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.87885	0.781	-1.4311	3.46103		
F-Test indicates unequal variances ($p = 2.10E-03$)	52.0933	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.34376	0.42367	0.03097	0.07471	0.53771	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5	0.350	2.132	0.3123
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5			
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5			
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5			
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5			
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5			
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5			
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5			
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.93343	0.781	-0.1323	0.37799		
F-Test indicates unequal variances ($p = 4.06E-03$)	37.1181	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.28752	0.35436	0.00656	0.05364	0.73555	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015 Test ID: TN-15-491 Sample ID: Tierra Solutions
 End Date: 12/23/2015 Lab ID: Sample Type: Sediment
 Sample Date: Protocol: EPAM 87-EPA Marine Test Species: LP-Leptocheirus plumulosus
 Comments:

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root						1-Tailed			
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5			
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5	-0.616	1.860	0.0953
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5			
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5			
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5			
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5			
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5			
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5			
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.91079	0.781	-0.2325	-1.3502		
F-Test indicates equal variances (p = 0.24)	3.66357	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.07973	0.09826	0.00249	0.00656	0.55478	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root						N	t-Stat	1-Tailed	
	Mean	N-Mean	Mean	Min	Max	CV%			Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5			
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5			
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5	1.029	2.132	0.4556
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5			
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5			
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5			
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5			
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5			
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.79988	0.781	-1.6498	4.83031		
F-Test indicates unequal variances (p = 9.04E-04)	80.147	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.42972	0.52962	0.12101	0.11419	0.33339	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5			
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5			
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5			
*AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5	2.449	2.132	0.4457
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5			
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5			
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5			
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5			
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.90646	0.781	-0.4662	-0.144		
F-Test indicates unequal variances ($p = 9.86E-04$)	76.6723	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	0.42012	0.51778	0.65529	0.1093	0.04003	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Terra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				N	1-Tailed		
			Mean	Min	Max	CV%		t-Stat	Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5			
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5			
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5			
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5			
*AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5	42.551	2.132	0.0506
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5			
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5			
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5			
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5			
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shepro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.83647	0.781	-0.4479	1.90502
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	0.0411	0.05065	2.54773	0.00141	1.0E-10	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5			
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5			
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5			
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5			
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5	1.208	2.132	0.5935
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5			
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5			
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5			
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.89452	0.781	-0.5848	-0.1743		
F-Test indicates unequal variances ($p = 3.15E-04$)	136.693	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.55752	0.68712	0.28296	0.19376	0.26137	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root						Rank Sum	1-Tailed Critical
	Mean	N-Mean	Mean	Min	Max	CV%		
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5	
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5	
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5	
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5	
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5	
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5	
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5	
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5	
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5	
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5	
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5	
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5	
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5	
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5	
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5	
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5	
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5	
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5	
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5	
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5	
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5	
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5	
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5	

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5		
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5		
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5		
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5		
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5		
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5		
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5	35.00	19.00
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5		
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5		
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5		

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution ($p \leq 0.01$)	0.70445	0.781	-2.3786	6.52381
F-Test indicates unequal variances ($p = 2.04E-03$)	52.8811	23.1545		

Hypothesis Test (1-tail, 0.05)

Wilcoxon Two-Sample Test indicates no significant differences

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							Rank Sum	1-Tailed Critical
	Mean	N-Mean	Mean	Min	Max	CV%	N		
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5		
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5		
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5		
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5		
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5		
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5		
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5		
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5		
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5		
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5		
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5		
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5		
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5		
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5		
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5		
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5		
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5		
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5		
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5		
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5		
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5		
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5		
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5		

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5		
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5		
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5		
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5		
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5		
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5		
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5		
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5	19.50	19.00
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5		
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5		

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.75885	0.781	-2.191	6.12865
F-Test indicates unequal variances (p = 1.42E-03)	63.556	23.1545		

Hypothesis Test (1-tail, 0.05)

Wilcoxon Two-Sample Test indicates no significant differences

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root					N	t-Stat	1-Tailed Critical	MSD
			Mean	Min	Max	CV%					
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5				
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5				
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5				
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5				
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5				
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5				
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5				
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5				
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5				
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5				
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5				
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5				
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5				
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5				
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5				
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5				
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5				
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5				
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5				
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5				
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5				
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5				
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5				

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5			
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5			
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5			
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5			
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5			
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5			
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5			
*AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5	3.560	2.132	0.3439
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.89886	0.781	1.29552	2.99994		
F-Test indicates unequal variances ($p = 2.77E-03$)	45.2254	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	0.31912	0.3933	0.82418	0.06505	0.00741	1, 8

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	0.8500	0.8000	0.8500	0.7500	0.8000
AT5-392	0.9000	0.8000	0.7000	0.9500	0.8500
AT5-393	1.0000	0.8500	1.0000	1.0000	0.5500
AT5-394	0.7000	0.0000	0.9500	0.2000	0.4500
AT5-395	0.8500	0.9000	0.7500	0.8000	0.4500
AT5-396	0.2500	0.7500	1.0000	0.3000	0.8500
AT5-397	1.0000	0.8500	1.0000	0.9500	0.8000
AT5-398	0.9000	0.9500	1.0000	1.0000	0.9500
AT5-399	0.5500	0.7500	0.8000	0.5000	0.7500
AT5-400	0.2000	1.0000	0.9500	1.0000	0.8500
AT5-401	0.9000	0.5000	0.9500	0.2000	0.7000
AT5-402	0.9500	0.6500	0.8000	1.0000	0.9000
AT5-403	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-404	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-405	0.8000	0.9000	1.0000	0.5000	0.3000
AT5-406	0.1500	0.0000	0.0000	0.0000	0.2000
AT5-407	0.3000	0.2500	0.0000	0.0000	0.0000
AT5-408	1.0000	0.6000	0.9000	0.9000	0.5500
AT5-409	0.7500	1.0000	1.0000	0.7000	0.8500
AT5-410	0.9000	0.9500	0.8500	0.9000	1.0000
AT5-411	0.6500	1.0000	0.9500	0.8000	0.8000
AT5-427	0.8500	0.5000	0.8000	0.9500	0.0500
AT5-431	0.1500	0.9500	0.9000	0.6000	0.8500
AT5-432	0.9000	0.4500	0.8500	0.4500	1.0000
AT5-433	0.7500	0.9000	0.9000	0.7500	0.8500
AT5-434	0.7000	0.8500	0.9500	0.6000	0.0000
AT5-435	0.7500	0.0000	0.7000	0.5000	0.0000
AT5-436	0.0000	0.0000	0.0000	0.0000	0.0000
AT5-437	0.0000	0.0000	0.9500	0.8000	0.9000
AT5-438	0.2000	0.9500	0.9000	0.9500	0.9500
AT5-439	0.7000	0.6500	0.0000	0.7500	0.8500
AT5-440	0.1000	0.0500	0.8000	0.1500	0.4000
AT5-441	0.8000	0.5500	0.9500	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.8100	1.0000	1.1215	1.0472	1.1731	4.730	5			
AT5-392	0.8400	1.0370	1.1731	0.9912	1.3453	11.505	5			
AT5-393	0.8800	1.0864	1.2775	0.8355	1.4615	21.645	5			
AT5-394	0.4600	0.5679	0.7295	0.1120	1.3453	65.010	5			
AT5-395	0.7500	0.9259	1.0624	0.7353	1.2490	18.608	5			
AT5-396	0.6300	0.7778	0.9565	0.5236	1.4588	41.717	5			
AT5-397	0.9200	1.1358	1.3086	1.1071	1.4588	12.404	5			
AT5-398	0.9600	1.1852	1.3714	1.2490	1.4588	6.481	5			
AT5-399	0.6700	0.8272	0.9645	0.7854	1.1071	14.913	5			
AT5-400	0.8000	0.9877	1.1799	0.4636	1.4588	35.351	5			
AT5-401	0.6500	0.8025	0.9669	0.4636	1.3453	36.914	5			
AT5-402	0.8600	1.0617	1.2196	0.9377	1.4588	16.701	5			
AT5-403	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-404	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-405	0.7000	0.8642	1.0365	0.5796	1.4615	34.195	5			
AT5-406	0.0700	0.0864	0.2395	0.1120	0.4636	73.520	5			
AT5-407	0.1100	0.1358	0.2879	0.1120	0.5796	83.921	5			
AT5-408	0.7900	0.9753	1.1357	0.8355	1.4588	23.401	5			
AT5-409	0.8600	1.0617	1.2268	0.9912	1.4640	18.260	5			
AT5-410	0.9200	1.1358	1.2950	1.1731	1.4588	8.496	5			
AT5-411	0.8400	1.0370	1.1912	0.9377	1.4588	17.494	5			
AT5-427	0.6300	0.7778	0.9273	0.2255	1.3453	47.625	5			
AT5-431	0.6900	0.8519	1.0102	0.3977	1.3453	37.901	5			

Growth, Survival and Reproduction Test-Survival

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-432	0.7300	0.9012	1.0703	0.7353	1.4588	30.198	5			
AT5-433	0.8300	1.0247	1.1531	1.0472	1.2490	8.806	5			
AT5-434	0.6200	0.7654	0.9015	0.1120	1.3453	52.680	5			
AT5-435	0.3900	0.4815	0.6096	0.1120	1.0472	76.205	5			
AT5-436	0.0000	0.0000	0.1120	0.1120	0.1120	0.000	5			
AT5-437	0.5300	0.6543	0.7851	0.1120	1.3453	79.000	5			
AT5-438	0.7900	0.9753	1.1497	0.4636	1.3453	33.554	5			
AT5-439	0.5900	0.7284	0.8522	0.1120	1.1731	49.625	5			
AT5-440	0.3000	0.3704	0.5474	0.2255	1.1071	65.178	5			
AT5-441	0.8600	1.0617	1.2411	0.8355	1.4588	21.623	5	-0.977	2.132	0.2608

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.9115	0.781	-1.088	1.98237		
F-Test indicates unequal variances ($p = 8.27E-03$)	25.5901	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.23634	0.29127	0.03573	0.03742	0.35709	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5	S.D.
Control	0.0405	0.0449	0.0453	0.0453	0.0464	0.00231
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336	0.00923
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216	0.00654
AT5-394	0.0328	0.0190	0.0052	0.0112		0.01193
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222	0.00989
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470	0.01693
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109	0.01298
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228	0.00674
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509	0.01468
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166	0.0163
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332	0.01397
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398	0.00803
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110	0.01719
AT5-406	0.0007	0.0000	0.0036			0.00188
AT5-407	0.0038	0.0034				0.00026
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447	0.01251
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339	0.00408
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371	0.00699
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302	0.01371
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142	0.00924
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352	0.01631
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391	0.01876
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576	0.01895
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000	0.02228
AT5-435	0.0292	0.0000	0.0073	0.0049		0.01291
AT5-437	0.0447	0.0569	0.0479			0.0063
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477	0.01527
AT5-439	0.0217	0.0330	0.0568	0.0481		0.01559
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148	0.00744
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175	0.01385

Conc-%	Transform: Untransformed						1-Tailed			
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5	2.863	2.989	0.0246
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5	2.038	2.989	0.0246
*AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4	3.144	2.989	0.0261
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5	1.893	2.989	0.0246
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5	1.974	2.989	0.0246
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5	1.373	2.989	0.0246
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5	1.268	2.989	0.0246
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5	1.029	2.989	0.0246
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5	2.550	2.989	0.0246
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5	2.805	2.989	0.0246
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5	1.178	2.989	0.0246
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5	1.150	2.989	0.0246
*AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3	4.531	2.989	0.0284
*AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2	3.758	2.989	0.0325
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5	1.154	2.989	0.0246
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5	0.900	2.989	0.0246
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5	1.505	2.989	0.0246
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5	1.942	2.989	0.0246
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5	2.929	2.989	0.0246
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5	1.632	2.989	0.0246
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5	1.782	2.989	0.0246
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5	0.930	2.989	0.0246
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5	1.849	2.989	0.0246
*AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4	3.912	2.989	0.0261
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3	-0.565	2.989	0.0284

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5	1.497	2.989	0.0246
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4	0.525	2.989	0.0261
*AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5	3.937	2.989	0.0246
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5	2.347	2.989	0.0246

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Kolmogorov D Test indicates normal distribution ($p > 0.01$)	0.44504	1.035	0.01598	-0.3753
Bartlett's Test indicates equal variances ($p = 0.02$)	46.3847	49.5879		

Hypothesis Test (1-tail, 0.05)

	MSDu	MSDp	MSB	MSE	F-Prob	df
Bonferroni t Test indicates significant differences	0.02459	0.55303	0.00044	0.00017	1.6E-04	29, 110

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
*AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5	5.538	1.860	0.0079
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.90216	0.781	0.02256	2.32621		
F-Test indicates equal variances ($p = 0.02$)	16.0155	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	0.00791	0.17786	0.00139	4.5E-05	5.5E-04	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed Critical	MSD
			Mean	Min	Max	CV%				
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
*AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5	5.408	1.860	0.0058
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date:	11/25/2015	Test ID:	TN-15-491	Sample ID:	Tierra Solutions
End Date:	12/23/2015	Lab ID:		Sample Type:	Sediment
Sample Date:		Protocol:	EPAM 87-EPA Marine	Test Species:	LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.93674	0.781	0.36407	0.3582
F-Test indicates equal variances ($p = 0.07$)	8.037	23.1545		

Hypothesis Test (1-tail, 0.05)

	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	0.00576	0.12962	0.0007	2.4E-05	6.4E-04	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
*AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4	4.533	2.353	0.0142
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.89287	0.764	0.75794	2.49367		
F-Test indicates unequal variances ($p = 8.32E-03$)	26.7527	24.2591				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	0.01424	0.32024	0.00167	6.4E-05	0.00138	1, 7

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0362
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed Critical	MSD
			Mean	Min	Max	CV%				
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
*AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5	3.428	1.860	0.0084
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	36.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.95676	0.781	-0.0886	0.76595
F-Test indicates equal variances ($p = 0.02$)	18.4076	23.1545		

Hypothesis Test (1-tail, 0.05)

	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	0.00845	0.18995	0.00061	5.2E-05	0.00898	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed Critical	MSD
			Mean	Min	Max	CV%				
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5	2.126	2.132	0.0163
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.92581	0.781	0.06662	0.18554
F-Test indicates unequal variances ($p = 1.97E-03$)	53.9152	23.1545		

Hypothesis Test (1-tail, 0.05)

	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.01629	0.36632	0.00066	0.00015	0.06624	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5	1.916	2.132	0.0126
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.79495	0.781	-1.9585	5.0699		
F-Test indicates unequal variances ($p = 5.50E-03$)	31.6903	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.01257	0.28263	0.00032	8.7E-05	0.09171	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed Critical	MSD
			Mean	Min	Max	CV%				
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
*AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5	3.275	1.860	0.0059
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015 Test ID: TN-15-491 Sample ID: Tierra Solutions
End Date: 12/23/2015 Lab ID: Sample Type: Sediment
Sample Date: Protocol: EPAM 87-EPA Marine Test Species: LP-Leptocheirus plumulosus
Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5						
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4						
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5						
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5						
Auxiliary Tests								Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)								0.86458	0.781	-1.5621	3.23826		
F-Test indicates equal variances ($p = 0.06$)								8.53557	23.1545				
Hypothesis Test (1-tail, 0.05)								MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences								0.00592	0.13315	0.00027	2.5E-05	0.01126	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed Critical	MSD
			Mean	Min	Max	CV%				
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5	1.273	2.132	0.0142
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.91014	0.781	-0.4773	1.51704
F-Test indicates unequal variances ($p = 3.42E-03$)	40.5488	23.1545		

Hypothesis Test (1-tail, 0.05)

	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.01417	0.31863	0.00018	0.00011	0.23869	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed Critical	MSD
			Mean	Min	Max	CV%				
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
*AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5	2.850	2.132	0.0157
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015 Test ID: TN-15-491 Sample ID: Tierra Solutions
End Date: 12/23/2015 Lab ID: Sample Type: Sediment
Sample Date: Protocol: EPAM 87-EPA Marine Test Species: LP-Leptocherius plumulosus
Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5						
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4						
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5						
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5						
Auxiliary Tests								Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)								0.92584	0.781	-0.1983	2.01474		
F-Test indicates unequal variances ($p = 2.28E-03$)								49.9541	23.1545				
Hypothesis Test (1-tail, 0.05)								MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences								0.01569	0.35286	0.0011	0.00014	0.02147	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Mean	N-Mean	Transform: Untransformed					N	t-Stat	1-Tailed Critical	MSD
			Mean	Min	Max	CV%					
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5				
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5				
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5				
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4				
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5				
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5				
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5				
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5				
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5				
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5				
*AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5	3.644	2.132	0.0135	
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5				
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5				
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3				
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2				
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5				
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5				
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5				
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5				
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5				
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5				
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5				
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5				
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5				
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4				
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3				

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptacherius plumulosus

Comments:								
AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5	
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4	
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5	
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5	

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.92094	0.781	0.73491	0.184		
F-Test indicates unequal variances ($p = 4.14E-03$)	36.7266	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	0.0135	0.30362	0.00133	0.0001	0.00655	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Data:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptacherius plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Transform: Untransformed							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
*AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5	2.592	1.860	0.0070
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.91807	0.781	-0.8797	0.32024		
F-Test indicates equal variances ($p = 0.03$)	12.1409	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	0.00695	0.15631	0.00023	3.5E-05	0.03199	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5	1.220	2.132	0.0165
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.91964	0.781	-0.7594	1.14673
F-Test indicates unequal variances ($p = 1.85E-03$)	55.5795	23.1545		

Hypothesis Test (1-tail, 0.05)

	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.01654	0.37183	0.00022	0.00015	0.25725	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
*AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3	27.131	1.943	0.0031
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5					
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4					
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5					
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5					
Auxiliary Tests							Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)							0.90357	0.749	-1.1712	1.32968		
F-Test indicates equal variances (p = 0.87)							1.50823	199.25				
Hypothesis Test (1-tail, 0.05)							MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences							0.00308	0.06932	0.00347	4.7E-06	1.7E-07	1, 6

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
*AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2	23.662	2.015	0.0035
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.78254	0.73	-1.9628	4.65719		
F-Test indicates equal variances ($p = 0.17$)	78.0689	22499.6				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	0.00348	0.07831	0.00239	4.3E-06	2.5E-06	1, 5

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5	1.669	2.132	0.0121
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015 Test ID: TN-15-491 Sample ID: Tierra Solutions
End Date: 12/23/2015 Lab ID: Sample Type: Sediment
Sample Date: Protocol: EPAM 87-EPA Marine Test Species: LP-Leptocherius plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.86245	0.781	-1.2389	3.14269
F-Test indicates unequal variances ($p = 6.33E-03$)	29.4589	23.1545		

Hypothesis Test (1-tail, 0.05)

	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.01213	0.27282	0.00023	8.1E-05	0.13369	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Transform: Untransformed							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
*AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5	3.536	1.860	0.0039
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015 Test ID: TN-15-491 Sample ID: Tierra Solutions
End Date: 12/23/2015 Lab ID: Sample Type: Sediment
Sample Date: Protocol: EPAM 87-EPA Marine Test Species: LP-Leptocheirus plumulosus
Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.91798	0.781	0.7706	0.94744
F-Test indicates equal variances ($p = 0.30$)	3.12724	23.1545		

Hypothesis Test (1-tail, 0.05)

	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	0.0039	0.0876	0.00014	1.1E-05	0.00766	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Transform: Untransformed						N	t-Stat	1-Tailed	
	Mean	N-Mean	Mean	Min	Max	CV%			Critical	MSD
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
*AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5	3.762	1.860	0.0061
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.92884	0.781	-0.9094	0.83908		
F-Test indicates equal variances ($p = 0.05$)	9.1846	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	0.00612	0.13761	0.00038	2.7E-05	0.00553	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Transform: Untransformed						1-Tailed			
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
*AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5	2.569	2.132	0.0133
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.91934	0.781	-0.6237	2.0772
F-Test indicates unequal variances ($p = 4.45E-03$)	35.3704	23.1545		

Hypothesis Test (1-tail, 0.05)

	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	0.01326	0.29812	0.00064	9.7E-05	0.0332	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0484
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0298	0.0175

Conc-%	Transform: Untransformed						N	t-Stat	1-Tailed	
	Mean	N-Mean	Mean	Min	Max	CV%			Critical	MSD
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
*AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5	5.656	1.860	0.0079
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date:	11/25/2015	Test ID:	TN-15-491	Sample ID:	Tierra Solutions				
End Date:	12/23/2015	Lab ID:		Sample Type:	Sediment				
Sample Date:		Protocol:	EPAM 87-EPA Marine	Test Species:	LP-Leptocheirus plumulosus				
Comments:									
AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5		
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4		
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5		
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5		
Auxiliary Tests				Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)				0.89464	0.781	0.51955	2.12608		
F-Test indicates equal variances ($p = 0.02$)				16.0652	23.1545				
Hypothesis Test (1-tail, 0.05)				MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences				0.00792	0.17812	0.00145	4.5E-05	4.8E-04	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocharius plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0316	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Mean	N-Mean	Transform: Untransformed				N	1-Tailed		
			Mean	Min	Max	CV%		t-Stat	Critical	MSD
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5	1.823	2.132	0.0157
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015 Test ID: TN-15-491 Sample ID: Tierra Solutions
End Date: 12/23/2015 Lab ID: Sample Type: Sediment
Sample Date: Protocol: EPAM 87-EPA Marine Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.86456	0.781	0.64004	2.12963
F-Test indicates unequal variances ($p = 2.27E-03$)	50.0387	23.1545		

Hypothesis Test (1-tail, 0.05)

	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedestic t Test indicates no significant differences	0.0157	0.35315	0.00045	0.00014	0.10577	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015 Test ID: TN-15-491 Sample ID: Tierra Solutions
 End Date: 12/23/2015 Lab ID: Sample Type: Sediment
 Sample Date: Protocol: EPAM 87-EPA Marine Test Species: LP-Leptocherius plumulosus
 Comments:

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Transform: Untransformed						N	t-Stat	1-Tailed Critical	MSD
	Mean	N-Mean	Mean	Min	Max	CV%				
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5	1.734	2.132	0.0180
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.90361	0.781	1.17582	2.40335		
F-Test indicates unequal variances (p = 1.32E-03)	66.2034	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic f Test indicates no significant differences	0.01802	0.40524	0.00054	0.00018	0.12111	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Transform: Untransformed						N	t-Stat	1-Tailed Critical	MSD
	Mean	N-Mean	Mean	Min	Max	CV%				
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5	0.896	2.132	0.0182
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.9158	0.781	0.13651	0.0994		
F-Test indicates unequal variances ($p = 1.26E-03$)	67.5487	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.0182	0.40927	0.00015	0.00018	0.39636	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Mean	N-Mean	Transform: Untransformed				CV%	N	1-Tailed		
			Mean	Min	Max	t-Stat			Critical	MSD	
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5				
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5				
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5				
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4				
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5				
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5				
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5				
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5				
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5				
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5				
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5				
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5				
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5				
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3				
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2				
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5				
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5				
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5				
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5				
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5				
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5				
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5				
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5				
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5	1.518	2.132	0.0214	
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4				
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3				

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:							
AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.90935	0.781	-0.1689	1.14051		
F-Test indicates unequal variances ($p = 6.69E-04$)	93.3583	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.02135	0.48018	0.00058	0.00025	0.16737	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Transform: Untransformed							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
*AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4	5.223	2.353	0.0154
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.83583	0.764	1.62576	4.14837
F-Test indicates unequal variances ($p = 6.16E-03$)	31.3278	24.2591		

Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	0.01538	0.34581	0.00259	7.4E-05	6.0E-04	1, 7

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3	-1.795	1.943	0.0058

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015 Test ID: TN-15-491 Sample ID: Tierra Solutions
End Date: 12/23/2015 Lab ID: Sample Type: Sediment
Sample Date: Protocol: EPAM 87-EPA Marine Test Species: LP-Leptocherius plumulosus
Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.93987	0.749	0.5358	0.77655		
F-Test indicates equal variances ($p = 0.09$)	7.46242	26.2843				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.00581	0.13068	5.4E-05	1.7E-05	0.12285	1, 6

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Transform: Untransformed							N	t-Stat	1-Tailed Critical	MSD
	Mean	N-Mean	Mean	Min	Max	CV%					
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5				
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5				
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5				
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4				
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5				
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5				
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5				
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5				
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5				
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5				
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5				
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5				
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5				
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3				
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2				
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5				
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5				
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5				
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5				
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5				
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5				
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5				
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5				
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5				
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4				
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3				

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5	1.783	2.132	0.0147
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4			
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5			
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5			

Auxiliary Tests

	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.93705	0.781	-0.3936	0.05179		
F-Test indicates unequal variances ($p = 2.94E-03$)	43.8645	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.01472	0.3311	0.00038	0.00012	0.11242	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Transform: Untransformed							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5			
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4	0.582	2.353	0.0185
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5			
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.95224	0.764	-0.1817	1.41129		
F-Test indicates unequal variances ($p = 2.98E-03$)	45.7377	24.2591				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.01851	0.4162	4.7E-05	0.00011	0.53074	1, 7

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocherius plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Mean	N-Mean	Transform: Untransformed				CV%	N	t-Stat	1-Tailed	
			Mean	Min	Max	MSD				Critical	
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5				
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5				
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5				
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4				
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5				
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5				
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5				
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5				
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5				
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5				
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5				
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5				
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5				
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3				
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2				
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5				
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5				
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5				
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5				
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5				
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5				
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5				
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5				
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5				
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4				
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3				

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5			
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4			
*AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5	9.301	1.860	0.0065
AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.92379	0.781	0.04122	1.52721		
F-Test indicates equal variances ($p = 0.04$)	10.4051	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	0.00648	0.14562	0.00262	3E-05	1.5E-05	1, 8

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	0.0405	0.0449	0.0453	0.0453	0.0464
AT5-392	0.0221	0.0086	0.0237	0.0165	0.0336
AT5-393	0.0367	0.0272	0.0315	0.0215	0.0216
AT5-394	0.0328	0.0190	0.0052	0.0112	
AT5-395	0.0165	0.0358	0.0291	0.0409	0.0222
AT5-396	0.0143	0.0269	0.0436	0.0092	0.0470
AT5-397	0.0327	0.0399	0.0395	0.0429	0.0109
AT5-398	0.0380	0.0333	0.0399	0.0362	0.0228
AT5-399	0.0155	0.0493	0.0350	0.0294	0.0509
AT5-400	0.0013	0.0218	0.0342	0.0436	0.0166
AT5-401	0.0109	0.0099	0.0396	0.0134	0.0332
AT5-402	0.0289	0.0412	0.0404	0.0236	0.0398
AT5-405	0.0502	0.0498	0.0404	0.0236	0.0110
AT5-406	0.0007	0.0000	0.0036		
AT5-407	0.0038	0.0034			
AT5-408	0.0462	0.0152	0.0370	0.0317	0.0447
AT5-409	0.0350	0.0384	0.0436	0.0344	0.0339
AT5-410	0.0350	0.0385	0.0280	0.0219	0.0371
AT5-411	0.0088	0.0440	0.0221	0.0374	0.0302
AT5-427	0.0339	0.0097	0.0215	0.0226	0.0142
AT5-431	0.0154	0.0548	0.0339	0.0159	0.0352
AT5-432	0.0181	0.0131	0.0584	0.0204	0.0391
AT5-433	0.0163	0.0548	0.0345	0.0209	0.0576
AT5-434	0.0245	0.0503	0.0528	0.0188	0.0000
AT5-435	0.0292	0.0000	0.0073	0.0049	
AT5-437	0.0447	0.0569	0.0479		
AT5-438	0.0443	0.0141	0.0366	0.0181	0.0477
AT5-439	0.0217	0.0330	0.0568	0.0481	
AT5-440	0.0131	0.0078	0.0222	0.0025	0.0148
AT5-441	0.0213	0.0107	0.0467	0.0296	0.0175

Conc-%	Transform: Untransformed							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.0445	1.0000	0.0445	0.0405	0.0464	5.185	5			
AT5-392	0.0209	0.4703	0.0209	0.0086	0.0336	44.118	5			
AT5-393	0.0277	0.6231	0.0277	0.0215	0.0367	23.592	5			
AT5-394	0.0170	0.3831	0.0170	0.0052	0.0328	70.000	4			
AT5-395	0.0289	0.6498	0.0289	0.0165	0.0409	34.233	5			
AT5-396	0.0282	0.6348	0.0282	0.0092	0.0470	59.978	5			
AT5-397	0.0332	0.7460	0.0332	0.0109	0.0429	39.125	5			
AT5-398	0.0340	0.7655	0.0340	0.0228	0.0399	19.789	5			
AT5-399	0.0360	0.8097	0.0360	0.0155	0.0509	40.776	5			
AT5-400	0.0235	0.5282	0.0235	0.0013	0.0436	69.377	5			
AT5-401	0.0214	0.4811	0.0214	0.0099	0.0396	65.319	5			
AT5-402	0.0348	0.7821	0.0348	0.0236	0.0412	23.100	5			
AT5-405	0.0350	0.7872	0.0350	0.0110	0.0502	49.101	5			
AT5-406	0.0014	0.0321	0.0014	0.0000	0.0036	131.606	3			
AT5-407	0.0036	0.0804	0.0036	0.0034	0.0038	7.295	2			
AT5-408	0.0350	0.7864	0.0350	0.0152	0.0462	35.784	5			
AT5-409	0.0371	0.8334	0.0371	0.0339	0.0436	11.002	5			
AT5-410	0.0321	0.7216	0.0321	0.0219	0.0385	21.774	5			
AT5-411	0.0285	0.6408	0.0285	0.0088	0.0440	48.120	5			
AT5-427	0.0204	0.4582	0.0204	0.0097	0.0339	45.353	5			
AT5-431	0.0310	0.6980	0.0310	0.0154	0.0548	52.545	5			
AT5-432	0.0298	0.6704	0.0298	0.0131	0.0584	62.933	5			
AT5-433	0.0368	0.8280	0.0368	0.0163	0.0576	51.468	5			
AT5-434	0.0293	0.6580	0.0293	0.0000	0.0528	76.139	5			
AT5-435	0.0103	0.2325	0.0103	0.0000	0.0292	124.845	4			
AT5-437	0.0498	1.1207	0.0498	0.0447	0.0569	12.638	3			

Growth, Survival and Reproduction Test-Growth

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.0322	0.7231	0.0322	0.0141	0.0477	47.492	5			
AT5-439	0.0399	0.8970	0.0399	0.0217	0.0568	39.092	4			
AT5-440	0.0121	0.2717	0.0121	0.0025	0.0222	61.560	5			
*AT5-441	0.0252	0.5659	0.0252	0.0107	0.0467	55.043	5	3.074	2.132	0.0134

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.89151	0.781	1.09898	3.16873		
F-Test indicates unequal variances (p = 4.28E-03)	36.0881	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	0.01339	0.30104	0.00093	9.9E-05	0.01525	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5	S.D.
Control	1.2353	4.0000	1.4118	0.3333	2.8750	1.45516
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765	0.83139
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727	0.31304
AT5-394	0.7857	0.5263	0.0000	0.0000		0.39328
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000	0.26381
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059	0.24685
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125	0.43467
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789	0.23851
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333	0.85617
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941	0.55782
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857	1.07807
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333	0.63261
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333	0.18837
AT5-406	1.6667	0.2500				1.00173
AT5-407	0.0000	0.0000				0
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000	0.19773
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824	0.07862
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500	0.51563
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875	0.43011
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000	0.80116
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412	0.58569
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000	0.38008
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294	0.60731
AT5-434	0.6429	0.8235	1.0526	0.1667		0.37597
AT5-435	0.0000	0.0000	0.0000			0
AT5-437	0.8421	3.6250	1.3333			1.48535
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632	0.8363
AT5-439	0.0000	0.2308	0.2667	1.8235		0.83724
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000	0.44106
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500	0.23262

Transform: Untransformed

Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5
*AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5
*AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4
*AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5
*AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5
*AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015 Test ID: TN-15-491 Sample ID: Tierra Solutions
End Date: 12/23/2015 Lab ID: Sample Type: Sediment
Sample Date: Protocol: EPAM 87-EPA Marine Test Species: LP-Leptocheirus plumulosus
Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Kolmogorov D Test indicates non-normal distribution ($p \leq 0.01$)	1.10192	1.035	0.75359	1.52224
Equality of variance cannot be confirmed				

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocal: EPAM 87-EPA Marine	Test Species: LP-Leptacheirus plumulusus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Transform: Untransformed							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5	1.517	1.860	1.3937
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.94969	0.781	0.58572	-0.2822		
F-Test indicates equal variances ($p = 0.30$)	3.06351	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	1.39372	0.70709	3.23356	1.40435	0.16764	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Transform: Untransformed							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
*AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5	1.940	1.860	1.2378
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.5000	0.3044	0.6000	0.1875	1.2500	71.589	5			
AT5-427	0.5387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.9668	0.781	0.5886	1.3476		
F-Test indicates equal variances ($p = 0.01$)	21.6082	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	1.23782	0.62799	4.16734	1.10775	0.0884	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
*AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4	2.168	1.895	1.4358
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015 Test ID: TN-15-491 Sample ID: Tierra Solutions
End Date: 12/23/2015 Lab ID: Sample Type: Sediment
Sample Date: Protocol: EPAM 87-EPA Marine Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.96859	0.764	0.5662	0.8554
F-Test indicates equal variances ($p = 0.06$)	13.6908	46.1946		

Hypothesis Test (1-tail, 0.05)

	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	1.4358	0.72843	5.99929	1.27629	0.06681	1, 7

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Transform: Untransformed							t-Stat	1-Tailed	
	Mean	N-Mean	Mean	Min	Max	CV%	N		Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
*AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5	2.554	2.132 1.4100	
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.95716	0.781	0.59521	1.48566		
F-Test indicates unequal variances ($p = 5.95E-03$)	30.4251	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	1.40996	0.71532	7.13528	1.09355	0.03394	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5	1.944	2.132	1.4072
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date:	11/25/2015	Test ID:	TN-15-491	Sample ID:	Tierra Solutions
End Date:	12/23/2015	Lab ID:		Sample Type:	Sediment
Sample Date:		Protocol:	EPAM 87-EPA Marine	Test Species:	LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.95973	0.781	0.59936	1.5336		
F-Test indicates unequal variances ($p = 4.61E-03$)	34.7502	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	1.40716	0.7139	4.11673	1.08922	0.08779	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015 Test ID: TN-15-491 Sample ID: Tierra Solutions
 End Date: 12/23/2015 Lab ID: Sample Type: Sediment
 Sample Date: Protocol: EPAM 87-EPA Marine Test Species: LP-Leptocheirus plumulosus
 Comments:

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Transform: Untransformed							t-Stat	1-Tailed Critical	MSD
	Mean	N-Mean	Mean	Min	Max	CV%	N			
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
*AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5	2.077	1.860	1.2630
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015 Test ID: TN-15-491 Sample ID: Tierra Solutions
End Date: 12/23/2015 Lab ID: Sample Type: Sediment
Sample Data: Protocol: EPAM 87-EPA Marine Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.96671	0.781	0.57856	0.94738
F-Test indicates equal variances ($p = 0.04$)	11.2073	23.1545		

Hypothesis Test (1-tail, 0.05)

	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	1.26297	0.64075	4.97354	1.15322	0.07148	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5	1.918	2.132	1.4059
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3080	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.158	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marina	Test Species: LP-Leptacheirus plumulosus

Comments:								
AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5	
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4	
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5	
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5	

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.95796	0.781	0.6064	1.55396		
F-Test indicates unequal variances ($p = 4.03E-03$)	37.224	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	1.40585	0.71324	3.99832	1.08719	0.09144	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5	1.552	1.860	1.4041
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.94039	0.781	0.50664	-0.5331		
F-Test indicates equal variances ($p = 0.33$)	2.88869	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	1.40406	0.71233	3.43211	1.42527	0.15931	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Transform: Untransformed							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5	1.474	1.860	1.2960
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date:	11/25/2015	Test ID:	TN-15-491	Sample ID:	Tierra Solutions
End Date:	12/23/2015	Lab ID:		Sample Type:	Sediment
Sample Date:		Protocol:	EPAM 87-EPA Marine	Test Species:	LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.95604	0.781	0.4884	0.45565
F-Test indicates equal variances ($p = 0.09$)	6.80516	23.1545		

Hypothesis Test (1-tail, 0.05)

	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	1.296	0.65751	2.63678	1.21433	0.17882	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Transform: Untransformed							t-Stat	1-Tailed Critical	MSD
	Mean	N-Mean	Mean	Min	Max	CV%	N			
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5	1.038	1.860	1.5061
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptacheirus plumulasus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.94549	0.781	0.50251	-0.8273		
F-Test indicates equal variances ($p = 0.58$)	1.82191	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Hamoscedastic t Test indicates no significant differences	1.50606	0.76408	1.76727	1.63987	0.32957	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Transform: Untransformed							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5	1.663	1.860	1.3195
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.94738	0.781	0.44193	0.16013		
F-Test indicates equal variances (p = 0.14)	5.2911	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	1.31955	0.66945	3.48237	1.25885	0.13484	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5	2.085	2.132	1.3989
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.95105	0.781	0.61097	1.66915		
F-Test indicates unequal variances ($p = 1.61E-03$)	59.6742	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	1.39892	0.70972	4.67845	1.07649	0.0706	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2	0.879	2.015	2.3206
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.93796	0.73	0.48509	-0.5888		
F-Test indicates equal variances (p = 0.94)	2.11018	22499.6				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicetes no significant differences	2.32062	1.17734	1.46522	1.8947	0.41944	1, 5

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
*AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2	3.029	2.132 1.3873	
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.96624	0.73	0.5738	0.50088
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)

	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	1.38734	0.70385	5.55021	1.694	0.13006	1, 5

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.3333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
*AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5	2.573	2.132	1.4001
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.95183	0.781	0.60875	1.64918		
F-Test indicates unequal variances ($p = 1.95E-03$)	54.1578	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	1.40009	0.71032	7.13997	1.0783	0.03296	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5	1.573	2.132 1.3894	
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.92602	0.781	0.62479	1.83413		
F-Test indicates unequal variances ($p = 5.07E-05$)	342.54	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	1.38936	0.70488	2.62766	1.06184	0.15434	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015 Test ID: TN-15-491 Sample ID: Tierra Solutions
 End Date: 12/23/2015 Lab ID: Sample Type: Sediment
 Sample Date: Protocol: EPAM 87-EPA Marine Test Species: LP-Leptocheirus plumulosus
 Comments:

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Transform: Untransformed						N	t-Stat	1-Tailed	
	Mean	N-Mean	Mean	Min	Max	CV%			Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5	1.633	1.860	1.2839
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.95243	0.781	0.56755	0.67794		
F-Test indicates equal variances ($p = 0.07$)	7.9643	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	1.28386	0.65135	3.17665	1.19169	0.14118	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Mean	N-Mean	Transform: Untransformed				N	1-Tailed		
			Mean	Min	Max	CV%		t-Stat	Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
*AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5	2.020	1.860	1.2619
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.96523	0.781	0.5742	0.9596		
F-Test indicates equal variances ($p = 0.04$)	11.4462	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	1.26189	0.6402	4.69985	1.15125	0.078	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015 Test ID: TN-15-491 Sample ID: Tierra Solutions
 End Date: 12/23/2015 Lab ID: Sample Type: Sediment
 Sample Date: Protocol: EPAM 87-EPA Marine Test Species: LP-Leptocheirus plumulosus
 Comments:

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed Critical	MSD
			Mean	Min	Max	CV%				
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5	1.794	1.860 1.3814	
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.92935	0.781	0.63733	-0.1483		
F-Test indicates equal variances (p = 0.27)	3.29905	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Hamoscedastic t Test indicates no significant differences	1.38142	0.70085	4.43808	1.37968	0.11064	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5	1.356	1.860	1.3045
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.95548	0.781	0.56211	0.41921		
F-Test indicates equal variances (p = 0.11)	6.17281	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	1.30448	0.66181	2.26087	1.23027	0.21225	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
*AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5	1.933	1.860	1.2507
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.97109	0.781	0.57238	1.12689		
F-Test indicates equal variances (p = 0.02)	14.6581	23.1545				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences	1.25073	0.63454	4.22649	1.13098	0.08929	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015 Test ID: TN-15-491 Sample ID: Tierra Solutions
 End Date: 12/23/2015 Lab ID: Sample Type: Sediment
 Sample Date: Protocol: EPAM 87-EPA Marine Test Species: LP-Leptocheirus plumulosus
 Comments:

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5	1.760	1.860 1.3113	
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.96207	0.781	0.51331	0.28749
F-Test indicates equal variances (p = 0.12)	5.74121	23.1545		

Hypothesis Test (1-tail, 0.05)

	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	1.3113	0.66527	3.84866	1.24316	0.11653	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Transform: Untransformed							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4	1.719	1.895	1.4326
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.97112	0.764	0.55593	0.90816		
F-Test indicates equal variances ($p = 0.05$)	14.9805	46.1946				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	1.43258	0.7268	3.75358	1.27058	0.12935	1, 7

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Transform: Untransformed							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
*AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3	3.029	2.132	1.3873
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marina	Test Species: LP-Leptacheirus plumulusus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.94914	0.749	0.59026	1.00088		
Equality of variance cannot be confirmed						
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	1.38734	0.70385	7.28466	1.41167	0.06353	1, 6

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Transform: Untransformed							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3	0.035	1.943	2.0794

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.89084	0.749	0.56826	-1.3637		
F-Test indicates equal variances ($p = 0.86$)	1.04191	26.2843				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	2.0794	1.05495	0.00265	2.14709	0.97311	1, 6

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5	1.598	1.860	1.3958
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4			
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5			
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5			

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.93381	0.781	0.53784	-0.4414
F-Test indicates equal variances ($p = 0.31$)	3.02762	23.1545		

Hypothesis Test (1-tail, 0.05)

	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	1.39575	0.70812	3.5984	1.40845	0.14862	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marina	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Terre Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5			
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4	1.687	1.895	1.5620
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5			
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5			

Auxiliary Tests

	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.91921	0.764	0.61114	-0.3196		
F-Test indicates equal variances (p = 0.39)	3.02083	46.1946				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	1.56195	0.79243	4.29873	1.51042	0.13546	1, 7

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marina	Test Species: LP-Leptocheirus plumulosus

Comments:										
AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5			
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4			
*AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5	2.586	1.860	1.2645
AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.93459	0.781	0.61079	0.9501
F-Test indicates equal variances (p = 0.04)	10.8852	23.1545		
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE
Homoscedastic t Test indicates significant differences	1.2645	0.64153	7.7315	1.15602
			F-Prob	df
			0.03231	1, 8

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus
Comments:		

Conc-%	1	2	3	4	5
Control	1.2353	4.0000	1.4118	0.3333	2.8750
AT5-392	1.0000	0.0000	0.5714	0.4211	2.1765
AT5-393	0.6500	1.1176	0.8095	0.5500	0.2727
AT5-394	0.7857	0.5263	0.0000	0.0000	
AT5-395	0.0000	0.5000	0.5333	0.3750	0.0000
AT5-396	0.8000	0.6000	1.0000	0.3333	0.7059
AT5-397	0.4500	1.2353	0.7000	0.1053	0.3125
AT5-398	0.6111	0.8421	0.4500	1.0500	0.5789
AT5-399	1.3636	0.0000	2.0000	0.5000	0.1333
AT5-400	1.2500	0.4000	1.5263	1.2500	0.2941
AT5-401	0.0000	0.3000	1.3158	2.7500	1.2857
AT5-402	0.0526	1.2308	1.1875	0.1500	1.3333
AT5-405	0.6250	0.8333	0.5238	0.7000	0.3333
AT5-406	1.6667	0.2500			
AT5-407	0.0000	0.0000			
AT5-408	0.3500	0.5000	0.3889	0.1667	0.0000
AT5-409	0.9333	1.0500	0.8636	1.0000	0.8824
AT5-410	1.6667	0.7895	0.2353	0.7778	0.7500
AT5-411	0.2308	0.7000	0.6316	1.2500	0.1875
AT5-427	0.5882	0.0000	0.5000	0.1053	2.0000
AT5-431	1.0000	0.6316	1.1111	0.4167	1.9412
AT5-432	0.2222	0.8889	1.1765	0.6667	0.4000
AT5-433	0.2667	0.6667	0.0556	1.1333	1.5294
AT5-434	0.6429	0.8235	1.0526	0.1667	
AT5-435	0.0000	0.0000	0.0000		
AT5-437	0.8421	3.6250	1.3333		
AT5-438	2.0000	0.0000	0.2778	0.3158	1.2632
AT5-439	0.0000	0.2308	0.2667	1.8235	
AT5-440	1.0000	0.0000	0.0625	0.0000	0.0000
AT5-441	0.4375	0.0909	0.6842	0.2000	0.4500

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed Critical	MSD
			Mean	Min	Max	CV%				
Control	1.9711	1.0000	1.9711	0.3333	4.0000	73.826	5			
AT5-392	0.8338	0.4230	0.8338	0.0000	2.1765	99.712	5			
AT5-393	0.6800	0.3450	0.6800	0.2727	1.1176	46.037	5			
AT5-394	0.3280	0.1664	0.3280	0.0000	0.7857	119.899	4			
AT5-395	0.2817	0.1429	0.2817	0.0000	0.5333	93.661	5			
AT5-396	0.6878	0.3490	0.6878	0.3333	1.0000	35.888	5			
AT5-397	0.5606	0.2844	0.5606	0.1053	1.2353	77.536	5			
AT5-398	0.7064	0.3584	0.7064	0.4500	1.0500	33.762	5			
AT5-399	0.7994	0.4056	0.7994	0.0000	2.0000	107.103	5			
AT5-400	0.9441	0.4790	0.9441	0.2941	1.5263	59.086	5			
AT5-401	1.1303	0.5734	1.1303	0.0000	2.7500	95.379	5			
AT5-402	0.7908	0.4012	0.7908	0.0526	1.3333	79.992	5			
AT5-405	0.6031	0.3060	0.6031	0.3333	0.8333	31.234	5			
AT5-406	0.9583	0.4862	0.9583	0.2500	1.6667	104.529	2			
AT5-407	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	2			
AT5-408	0.2811	0.1426	0.2811	0.0000	0.5000	70.340	5			
AT5-409	0.9459	0.4799	0.9459	0.8636	1.0500	8.312	5			
AT5-410	0.8438	0.4281	0.8438	0.2353	1.6667	61.105	5			
AT5-411	0.6000	0.3044	0.6000	0.1875	1.2500	71.689	5			
AT5-427	0.6387	0.3240	0.6387	0.0000	2.0000	125.436	5			
AT5-431	1.0201	0.5175	1.0201	0.4167	1.9412	57.415	5			
AT5-432	0.6708	0.3403	0.6708	0.2222	1.1765	56.656	5			
AT5-433	0.7303	0.3705	0.7303	0.0556	1.5294	83.156	5			
AT5-434	0.6714	0.3406	0.6714	0.1667	1.0526	55.996	4			
AT5-435	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3			
AT5-437	1.9335	0.9809	1.9335	0.8421	3.6250	76.823	3			

Growth, Survival and Reproduction Test-Reproduction

Start Date: 11/25/2015	Test ID: TN-15-491	Sample ID: Tierra Solutions
End Date: 12/23/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAM 87-EPA Marine	Test Species: LP-Leptocheirus plumulosus

Comments:

AT5-438	0.7713	0.3913	0.7713	0.0000	2.0000	108.421	5			
AT5-439	0.5802	0.2944	0.5802	0.0000	1.8235	144.291	4			
AT5-440	0.2125	0.1078	0.2125	0.0000	1.0000	207.556	5			
*AT5-441	0.3725	0.1890	0.3725	0.0909	0.6842	62.444	5	2.426	2.132	1.4050

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.95741	0.781	0.60467	1.5685
F-Test indicates unequal variances ($p = 3.66E-03$)	39.1325	23.1545		

Hypothesis Test (1-tail, 0.05)

	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	1.40495	0.71278	6.38844	1.08581	0.04149	1, 8

ATTACHMENT IV

Nereis virens 28-Day Bioaccumulation Test
Data Sheets and Statistical Analyses
(35 pages)



SEDIMENT TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70005.15

Client: Tierra Solutions

QC Test Number: TN-15-405

TEST ORGANISM INFORMATION

Common Name: Sand worm Adults Isolated (Time, Date):
 Scientific Name: Neries virens Neonates Pulled (Time, Date):
 Lot Number: NV-055 Acclimation: 1 day Age: Adult
 Source: ARO Culture Water (T/S): 20.5 °C 30.5 ppt

TEST INITIATION

Date	Time	Initials	Activity
10/15/15	1300	MC	Sediment Added to Chambers
↓	1600	MC	Overlying Water Added to Chambers
10/22/15	1600	MC, WM, MS	Organisms Transferred

TEST SET-UP

Sample Number(s): AT5-463, 394, 396, 398a, 398b, 399a, 399b, 408, 411, 427, 428, 429, 430, 436

Overlying Water: 30 ppt Crystal Sea (LD5-465)

Treatment	Volume Test Sediment	Volume Overlying Water
AT5-463 (Lab Control)	5L	22L
AT5-394	↓	↓
AT5-396		
AT5-398a		
AT5-398b		
AT5-399a		
AT5-399b		
AT5-408		
AT5-411		
AT5-427		
AT5-428		
AT5-429		
AT5-430		
AT5-436		



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM LOADING RECORD

Project Number: 70005.15

TEST ORGANISM

Client: Tierra Solutions

Common Name: Sand worm

QC Test Number: TN-15-405

Scientific Name: Neries virens

Lot Number: NV-055 Source: ARO

Acclimation: <24 hour Age: Adult

Organisms Transferred (date, time, initials): 10/22/15 1600 MC, WM, MS

Treatment	Replicate	Number of Organisms Loaded
AT5-463 (Control)	A	
	B	
	C	
	D	
AT5-394	A	
	B	
	C	
	D	
AT5-396	A	
	B	
	C	
	D	
AT5-398a	A	
	B	
	C	
	D	
AT5-398b	A	
	B	
	C	
	D	
AT5-399a	A	
	B	
	C	
	D	



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM LOADING RECORD

Project Number: 70005.15

TEST ORGANISM

Client: Tierra Solutions

Common Name: Sand worm

QC Test Number: TN-15-405

Scientific Name: Neries virens

Lot Number: NV-055 Source: AR0

Acclimation: <24 hour Age: Adult

Organisms Transferred (date, time, initials): 10/22/15 1600 MC, WM, MJ

Treatment	Replicate	Number of Organisms Loaded
AT5-399b	A	UHT UHT UHT UHT UHT
	B	UHT UHT UHT UHT UHT
	C	UHT UHT UHT UHT UHT
	D	UHT UHT UHT UHT UHT
AT5-408	A	UHT UHT UHT UHT UHT
	B	UHT UHT UHT UHT UHT
	C	UHT UHT UHT UHT UHT
	D	UHT UHT UHT UHT UHT
AT5-411	A	UHT UHT UHT UHT UHT
	B	UHT UHT UHT UHT UHT
	C	UHT UHT UHT UHT UHT
	D	UHT UHT UHT UHT UHT
AT5-427	A	UHT UHT UHT UHT UHT
	B	UHT UHT UHT UHT UHT
	C	UHT UHT UHT UHT UHT
	D	UHT UHT UHT UHT UHT
AT5-428	A	UHT UHT UHT UHT UHT
	B	UHT UHT UHT UHT UHT
	C	UHT UHT UHT UHT UHT
	D	UHT UHT UHT UHT UHT
AT5-429	A	UHT UHT UHT UHT UHT = 26
	B	UHT UHT UHT UHT UHT
	C	UHT UHT UHT UHT UHT
	D	UHT UHT UHT UHT UHT

Project Number: 70005.15

TEST ORGANISM

Client: Tierra Solutions

Common Name: Sand worm

QC Test Number: TN-15-405

Scientific Name: Neries virens

Lot Number: NV-055 Source: ARO

Acclimation: <24 hour Age: Adult

Organisms Transferred (date, time, initials): 10/22/15 1600 MC, WM, MS

Treatment	Replicate	Number of Organisms Loaded
AT5-430	A	
	B	
	C	
	D	
AT5-436	A	
	B	
	C	
	D	



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM RECOVERY RECORD

Project Number: 70005.15

TEST ORGANISM

Client: Tierra Solutions

Common Name: Sand worm

QC Test Number: TN-15-405

Scientific Name: Neries virens

Organisms Recovered (date, time, initials): 11/19/15 1315 MKL, UT, MS, IM, JM, JB

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
AT5-463	A	25	25
(Lab Control)	B	25	25
	C	25	25
	D	25	25
AT5-394	A	25	22
	B	25	24
	C	25	23
	D	25	24
AT5-396	A	25	25
	B	25	25
	C	25	25
	D	25	25
AT5-398a	A	25	23
	B	25	25
	C	25	23
	D	25	21
AT5-398b	A	25	23
	B	25	23
	C	25	24
	D	25	25
AT5-399a	A	25	24
	B	25	25
	C	25	24
	D	25	23



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM RECOVERY RECORD

Project Number: 70005.15 TEST ORGANISM
 Client: Tierra Solutions Common Name: Sand worm
 QC Test Number: TN-15-405 Scientific Name: Neries virens
 Organisms Recovered (date, time, initials): 11/19/15 1315 MKC, VS, MS, LA, MM, JB

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
AT5-399b	A	25	25
	B	25	25
	C	25	24
	D	25	25
AT5-408	A	25	22
	B	25	22
	C	25	23
	D	26	26
AT5-411	A	25	25
	B	25	25
	C	25	25
	D	27	27
AT5-427	A	25	25
	B	25	24
	C	25	25
	D	25	23
AT5-428	A	25	24
	B	25	23
	C	25	25
	D	25	23
AT5-429	A	26	25
	B	25	24
	C	25	25
	D	25	25



TOXICOLOGY LABORATORY BENCH SHEET - ORGANISM RECOVERY RECORD

Project Number: 70005.15 TEST ORGANISM
Client: Tierra Solutions Common Name: Sand worm
QC Test Number: TN-15-405 Scientific Name: Neries virens
Organisms Recovered (date, time, initials): 11/19/15 1315 MEL, VT, MS, IM, NM, JB

Treatment	Replicate	Number of Organisms Loaded	Number of Organisms Recovered
AT5-430	A	25	27
	B	25	27
	C	25	27
	D	26	26
AT5-436	A	25	25
	B	25	27
	C	25	25
	D	25	25



SEDIMENT TOXICITY TEST OBSERVATION DATA SHEET

Project Number: 70005.15 TEST ORGANISM: 12/22/15 Beginning Date: 12/22/15 Time: 1600
 Client: Tierra Solutions Common Name: Sand worm Ending Date: 11/14/15 Time: 1315
 QC Test Number: TN-15-405 Scientific Name: Neries virens
 Test Material(s): SEDIMENT
 Accession Number(s): Multiple TEST TYPE: Static / Flowthrough Test Container: 10 gal aquarium
 Overlying Water: 30 PPT Crystal Sea Renewal / Non-renewal Test Volume: 5 L sed / 22 L water
 Accession Number: LD5-465 Photoperiod: 16 L 8 D Light Intensity: 50 - 100 fc Test Duration: 28 days

Treatment	Rep	Number Loaded	Number Removed										Total Removed	Total Recovered		
			Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date			Day Date	Day Date
CONTROL	A	25													0	25
	B	25													0	25
	C	25													0	25
	D	25													0	25
AT5-394	A	25													0	22
	B	25													0	24
	C	25													0	23
	D	25													0	24
AT5-396	A	25													0	25
	B	25													0	25
	C	25													0	25
	D	25													0	25
AT5-398a	A	25													0	23
	B	25													0	25
	C	25													0	23
	D	25													0	23
Time / Initials		1300 WGS													1315 WGS	1315 FGS



SEDIMENT TOXICITY TEST OBSERVATION DATA SHEET

Project Number: 70005.15 TEST ORGANISM: 10/22/15 Time: 1600
 Client: Tierra Solutions Common Name: Sand worm Ending Date: 11/19/15 Time: 1315
 QC Test Number: TN-15-405 Scientific Name: Neries virens
 Test Material(s): SEDIMENT TEST TYPE: Static / Flowthrough Test Container: 10 gal aquarium
 Accession Number(s): Multiple Renewal / Non-renewal Test Volume: 5 L sed / 22 L water
 Overlying Water: 30 PPT Crystal Sea Photoperiod: 16 L 8 d Light Intensity: 50 - 100 fc Test Duration: 28 days
 Accession Number: LD5-465

Treatment	Rep	Number Loaded	Number Removed												Total Removed	Total Recovered	
			Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date			Day Date
AT5-398b	A	25														0	23
	B	25														0	23
	C	25														0	24
	D	25														0	25
AT5-399a	A	25														0	24
	B	25														0	25
	C	25														0	24
	D	25														0	25
AT5-399b	A	25														0	23
	B	25														0	25
	C	25														0	24
	D	25														0	25
AT5-408	A	25														0	22
	B	25														0	23
	C	25														0	23
	D	25														0	26
Time / Initials		1600														1315	1315



SEDIMENT TOXICITY TEST OBSERVATION DATA SHEET

Project Number: 70005.15 TEST ORGANISM: 10/22/15 Time: 1600
 Client: Tierra Solutions Common Name: Sand worm Ending Date: 11/19/15 Time: 1315
 QC Test Number: TN-15-405 Scientific Name: Neries virens
 Test Material(s): SEDIMENT
 Accession Number(s): Multiple TEST TYPE: Static / Flowthrough Test Container: 10 gal aquarium
 Overlying Water: 30 PPT Crystal Sea Renewal / Non-renewal Test Volume: 5 L sed / 22 L water
 Accession Number: LD5-165 Photoperiod: 16L 8d Light Intensity: 50-100 fc Test Duration: 28 days

Treatment	Rep	Number Removed											Total Removed		Total Recovered			
		Day 0 Date 10/22/15	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day 28 Date 11/19	Day 28 Date 11/19	Day 28 Date 11/19	Day 28 Date 11/19		
AT5-411	A	25													0	25		25
	B	25													0	25		25
	C	25													0	25		25
	D	27													0	27		27
AT5-427	A	25													0	25		25
	B	25													0	24		24
	C	25													0	25		25
	D	25													0	23		23
AT5-428	A	25													0	24		24
	B	25													0	23		23
	C	25													0	25		25
	D	25													0	23		23
AT5-429	A	26													0	25		25
	B	25													0	24		24
	C	25													0	25		25
	D	25													0	25		25
Time / Initials		1600 VPK													1315 VPK			1315 VPK



SEDIMENT TOXICITY TEST OBSERVATION DATA SHEET

Project Number: 70005.15 TEST ORGANISM: 10/22/15 Time: 1600
 Client: Tierra Solutions Common Name: Sand worm Ending Date: 11/19/15 Time: 1315
 QC Test Number: TN-15-405 Scientific Name: Neries virens
 Test Material(s): SEDIMENT
 Accession Number(s): Multiple Test Container: 10 gal aquarium
 Overlying Water: 30 PPT Crystal Sea Test Volume: 5 L sed / 22 L water
 Accession Number: LD5-165 Photoperiod: 16 L 8 d Light Intensity: 50 - 100 fc Test Duration: 28 days

Treatment	Rep	Number Removed								Total Removed	Total Recovered
		Day 0 Date/Time	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date		
AT5-430	A	25								0	24
	B	25								0	24
	C	25								0	24
	D	26								0	26
AT5-436	A	25								0	25
	B	25								0	24
	C	25								0	25
	D	25								0	25
Time / Initials										1315	1315 FMS JB

M5



TOXICITY TEST WATER QUALITY DATA SHEET - NEW SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Nerfies virens Beginning Date: 10/22/15 Time: 1600
 Client: Tierra Solutions Common Name: Sand worm Ending Date: 11/19/15 Time: 1315
 OC Test Number: TN-15-405 Scientific Name: Nerfies virens

TARGET VALUES: Temp: 20 °C pH: 6.0 - 9.0 DO: ≥2.5 mg/L Salinity: 30 ppt Photoperiod: 16 L 8 d Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)						
	0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6
AT5-403 Leb Control	19.7							8.3							7.9							28.2						
AT5-394	19.6							8.3							7.8							30.3						
AT5-396	19.2							8.3							7.8							30.5						
AT5-398a	19.2							8.4							7.9							30.5						
AT5-398b	19.4							8.4							7.8							30.5						
AT5-399a	19.3							8.4							7.7							30.5						
AT5-399b	19.3							8.4							7.7							30.6						
AT5-408	19.3							8.3							7.7							30.6						
AT5-411	19.4							8.3							7.8							30.8						
AT5-427	19.4							8.3							7.8							30.6						
AT5-428	19.1							8.3							7.8							30.8						
AT5-429	19.1							8.3							7.8							30.8						
AT5-430	19.1							8.3							7.8							30.7						
AT5-436	19.2							8.3							7.8							30.8						
Meter Number	679							679							679							679						
Time	0930							0930							0930							0930						
Initials	JM							JM							JM							JM						



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: 10/22/15 Time: 1600
 Client: Tierra Solutions Common Name: Sand worm Ending Date: 11/19/15 Time: 1315
 QC Test Number: TN-15-405 Scientific Name: Neries virens

TARGET VALUES Temp: 20 °C pH: 6.0 - 9.0 DO: >2.5 mg/L Salinity: 30 ppt Photoperiod: 16 L 8 D Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
AT5-463	19.9			19.8		19.1		8.0			7.1		7.5		7.0			7.1		7.0		29.4			29.5		30.8	
AT5-394	19.7			19.2		19.0		8.1			7.3		7.6		6.8			7.2		6.9		30.6			30.9		30.7	
AT5-396	19.4			19.1		19.0		8.1			7.3		7.7		7.0			7.1		7.1		30.9			30.9		30.9	
AT5-398a	19.3			19.0		19.0		8.2			7.4		7.7		7.2			7.1		7.1		30.8			31.3		31.2	
AT5-398b	19.4			19.0		19.0		8.1			7.5		7.7		6.8			7.2		6.8		30.6			31.0		31.4	
AT5-399a	19.4			19.0		19.0		8.2			7.6		7.9		6.6			6.7		6.9		30.7			31.0		30.7	
AT5-399b	19.3			19.2		19.1		8.1			7.6		7.9		6.7			6.5		7.1		30.6			31.0		30.6	
AT5-408	19.4			19.1		19.0		8.1			7.6		7.9		6.7			6.6		7.0		30.6			31.0		30.9	
AT5-411	19.4			19.2		19.0		8.2			7.8		7.9		6.7			7.4		6.9		31.0			31.8		31.5	
AT5-427	19.3			19.2		19.0		8.1			7.8		7.9		6.9			7.3		6.8		30.7			31.1		31.7	
AT5-428	19.1			19.2		19.0		8.1			7.9		7.8		6.8			7.3		6.9		30.9			31.2		31.3	
AT5-429	19.1			19.1		19.0		8.1			7.9		7.8		6.9			7.1		7.0		30.8			31.2		30.3	
AT5-430	19.2			19.1		19.1		8.1			7.9		7.8		6.9			6.7		7.0		30.6			31.1		30.5	
AT5-436	19.2			19.0		19.1		8.1			7.9		7.8		6.9			6.9		7.0		30.8			31.4		30.4	
Meter Number	279			678		679		679			678		679		679			678		679		679			678		679	
Time	0946			0849		0941		0946			0849		0941		0946			0849		0941		0946			0849		0941	
Initials	IM			MS		MMC		IM			MS		MMC		IM			MS		MMC		IM			MS		MMC	



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: 10/22/15 Beginning Date: 10/22/15 Time: 1600
 Client: Tierra Solutions Common Name: Sand worm Ending Date: 11/19/15 Time: 1315
 QC Test Number: TN-15-405 Scientific Name: Neries virens

TARGET VALUES Temp: 20 °C pH: 6.0 - 9.0 DO: >2.5 mg/L Salinity: 30 ppt Photoperiod: 16L 8d Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)						
	8	9	10	11	12	13	14	8	9	10	11	12	13	14	8	9	10	11	12	13	14	8	9	10	11	12	13	14
AT5-463	21.0			20.6		19.6		7.6			7.5		8.2		7.2			7.4		31.1			30.1		29.7			
AT5-394	20.3			19.9		19.5		7.6			8.0		8.2		7.0			7.3		31.1			30.3		29.2			
AT5-396	19.8			19.8		19.5		7.7			8.0		8.2		7.1			7.2		31.5			30.5		29.0			
AT5-398a	19.6			19.9		19.4		7.8			8.0		8.2		7.3			7.2		31.5			30.9		29.7			
AT5-398b	19.7			19.9		19.4		7.8			8.1		8.2		7.2			7.3		31.3			30.0		29.4			
AT5-399a	19.7			19.9		19.5		7.9			8.0		8.2		7.1			7.3		31.4			31.5		29.4			
AT5-399b	19.8			20.0		19.5		7.9			8.1		8.2		6.9			7.2		31.1			30.3		29.3			
AT5-408	19.7			19.9		19.5		7.9			8.1		8.2		6.8			7.1		31.2			30.2		29.2			
AT5-411	19.7			19.9		19.6		8.0			8.1		8.2		7.0			7.3		31.3			30.3		29.9			
AT5-427	19.5			19.8		19.6		8.0			8.1		8.2		7.2			7.3		31.0			30.9		29.5			
AT5-428	19.6			19.7		19.7		8.0			8.1		8.2		7.1			7.1		31.0			30.8		29.8			
AT5-429	19.7			19.7		19.6		8.0			8.1		8.1		6.9			6.9		31.0			30.8		29.7			
AT5-430	19.7			19.7		19.7		8.0			8.1		8.1		7.0			6.7		31.5			30.7		29.5			
AT5-436	19.6			19.8		19.4		7.3			8.1		8.2		7.0			7.0		31.2			30.4		30.0			
Meter Number	679			679		679		679			679		679		679			679		679			679		679			
Time	0702			1320		0928		0702			1320		0928		1320			0928		0702			1320		0928			
Initials	JM			VV		MS		JM			VV		MS		VV			MS		JM			VV		MS			



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: 10/22/15 Beginning Date: 10/22/15 Time: 6600
 Client: Tierra Solutions Common Name: Sand worm Ending Date: 11/19/15 Time: 1315
 QC Test Number: TN-15-405 Scientific Name: Neries virens

TARGET VALUES Temp: 20 °C pH: 6.0 - 9.0 DO: >2.5 mg/L Salinity: 30 ppt Photoperiod: 16L 8d Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)						
	15	16	17	18	19	20	21	15	16	17	18	19	20	21	15	16	17	18	19	20	21	15	16	17	18	19	20	21
AT5-1403	20.8	20.1	19.8	19.8	19.8	19.8	19.8	7.6	7.9	8.0	8.0	8.0	8.0	8.4	7.0	7.2	7.4	7.4	7.7	7.7	7.7	29.8	29.0	29.5	29.5	29.5	29.6	29.4
AT5-394	20.7	19.8	19.8	19.8	19.8	19.8	19.8	7.8	8.0	8.0	8.0	8.0	8.4	7.0	7.4	7.4	7.4	7.7	7.7	29.1	29.5	29.5	29.5	29.5	29.6	29.6		
AT5-396	20.4	19.4	19.8	19.8	19.8	19.8	19.8	7.8	8.0	8.0	8.0	8.0	8.4	7.1	7.4	7.4	7.4	7.7	7.7	29.6	29.5	29.5	29.5	29.5	29.7	29.7		
AT5-398a	20.3	19.8	19.8	19.8	19.8	19.8	19.8	7.9	8.0	8.0	8.0	8.0	8.3	7.2	7.2	7.2	7.2	7.7	7.7	29.8	29.6	29.6	29.6	29.6	29.8	29.8		
AT5-398b	20.3	19.8	19.8	19.8	19.8	19.8	19.8	8.0	8.0	8.0	8.0	8.0	8.3	7.2	7.2	7.2	7.2	7.7	7.7	29.4	29.5	29.5	29.5	29.5	29.5	29.5		
AT5-399a	20.3	19.9	19.8	19.8	19.8	19.8	19.8	8.1	8.0	8.0	8.0	8.0	8.4	7.2	6.9	6.9	6.9	7.8	7.8	29.4	29.4	29.4	29.4	29.4	29.6	29.6		
AT5-399b	20.3	19.7	19.7	19.7	19.7	19.7	19.7	8.1	8.1	8.1	8.1	8.3	7.0	7.0	7.0	7.0	7.7	7.7	29.4	29.4	29.4	29.4	29.4	29.5	29.5			
AT5-408	20.3	19.7	19.7	19.7	19.7	19.7	19.7	8.1	8.1	8.1	8.1	8.3	7.0	7.1	7.1	7.1	7.6	7.6	29.4	29.4	29.4	29.4	29.4	29.4	29.4			
AT5-411	20.3	19.6	19.6	19.6	19.6	19.6	19.6	8.1	8.1	8.1	8.1	8.4	7.0	7.2	7.2	7.2	7.7	7.7	29.5	29.4	29.4	29.4	29.4	29.6	29.6			
AT5-427	20.3	19.6	19.6	19.6	19.6	19.6	19.6	8.2	8.2	8.2	8.2	8.4	7.0	7.2	7.2	7.2	7.9	7.9	29.2	29.3	29.3	29.3	29.3	29.9	29.9			
AT5-428	20.1	19.4	19.4	19.4	19.4	19.4	19.4	8.2	8.2	8.2	8.2	8.3	7.0	7.3	7.3	7.3	7.6	7.6	29.5	29.6	29.6	29.6	29.6	29.6	29.6			
AT5-429	20.1	19.2	19.2	19.2	19.2	19.2	19.2	8.2	8.2	8.2	8.2	8.3	7.1	7.5	7.5	7.5	7.6	7.6	29.5	29.5	29.5	29.5	29.5	29.8	29.8			
AT5-430	20.1	19.5	19.5	19.5	19.5	19.5	19.5	8.2	8.2	8.2	8.2	8.3	7.0	7.4	7.4	7.4	7.6	7.6	29.5	29.5	29.5	29.5	29.5	29.7	29.7			
AT5-436	20.1	19.3	19.3	19.3	19.3	19.3	19.3	8.2	8.2	8.2	8.2	8.3	7.1	7.4	7.4	7.4	7.6	7.6	29.5	29.5	29.5	29.5	29.5	29.8	29.8			
Meter Number	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679			
Time	0814	0831	0831	0831	0831	0831	0831	0814	0831	0831	0831	0831	0814	0831	0814	0831	0831	0831	0814	0831	0831	0814	0831	0831	1405			
Initials	JM	vb	vb	vb	vb	vb	JM	JM	vb	vb	vb	JM	JM	vb	JM	vb	vb	vb	JM	vb	vb	JM	vb	vb	vb			



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15 TEST ORGANISM: Neries virens Beginning Date: 10/22/15 Time: 1600
 Client: Tierra Solutions Common Name: Sand worm Ending Date: 11/19/15 Time: 1815
 QC Test Number: TN-15-405 Scientific Name: Neries virens

TARGET VALUES Temp: 20 °C pH: 6.0 - 9.0 DO: >2.5 mg/L Salinity: 30 ppt Photoperiod: 16L, 8D Light Intensity: 50 - 100 fc

Sample #	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Salinity (ppt)						
	22	23	24	25	26	27	28	22	23	24	25	26	27	28	22	23	24	25	26	27	28	22	23	24	25	26	27	28
AT5-402 ² Lab Control	19.9			19.1			20.0	8.0			8.2			8.0	7.7			7.4			7.3	29.6			30.4			31.5
AT5-394	19.8			19.0			19.9	8.1			8.2			8.1	7.6			7.4			7.2	31.0			31.2			31.1
AT5-396	19.9			19.0			19.8	8.1			8.2			8.1	7.8			7.4			7.3	30.4			30.8			31.1
AT5-398a	19.9			19.0			19.7	8.1			8.2			8.2	7.4			7.4			7.3	30.6			31.0			31.6
AT5-398b	19.8			19.0			19.7	8.1			8.2			8.2	7.6			7.5			7.3	29.4			32.4			31.5
AT5-399a	19.6			19.2			19.7	8.1			8.3			8.2	7.7			7.5			7.2	29.4			30.9			31.1
AT5-399b	19.6			19.3			19.7	8.1			8.3			8.2	7.7			7.4			7.2	29.6			30.5			31.3
AT5-408	19.2			19.1			19.6	8.1			8.3			8.2	7.7			7.4			7.4	29.4			30.4			32.1
AT5-411	19.4			19.0			19.9	7.9			8.4			8.3	7.8			7.5			7.4	29.2			31.2			32.2
AT5-427	19.4			19.0			20.1	8.1			8.4			8.3	7.9			7.6			7.3	29.4			31.1			31.9
AT5-428	19.4			19.0			20.1	8.1			8.3			8.3	7.4			7.4			7.2	29.6			30.6			31.7
AT5-429	19.4			19.0			19.8	8.1			8.3			8.3	7.6			7.4			7.2	29.4			30.8			31.3
AT5-430	19.4			19.0			19.7	8.1			8.3			8.3	7.7			7.4			7.2	29.4			30.8			31.7
AT5-436	19.4			19.0			19.6	8.0			8.3			8.3	7.7			7.4			7.3	29.6			31.1			31.6
Meter Number	676			679			679	676			679			679	670			679			679	670			679			679
Time	1645			1549			1549	1645			1549			1549	1645			1549			1549	1645			1549			1549
Initials	IM			IM			IM	IM			IM			IM	IM			IM			IM	IM			IM			IM



TOXICOLOGY LABORATORY BENCH SHEET - RENEWAL RECORD

Project Number: 70005.15

Client: Thimble Shoals

QC Test Number: TN-15-405

Day	Overlying Water	Date	Time	Initials
0	LD5-465	10/16/15	0900	M
1	LD5-481	10/23/15	1115	MJ
2				
3				
4	LD5-482	10/26/15	0950	MJ
5				
6	LD5-482	10/28/15	1040	MCC
7				
8	LD5-495	10/30/15	0725	MCC
9				
10	LA			
11	LD-495	11/2/15	1400	M
12				
13	LD5-503	11/4/15	0945	MJ
14				
15	LD5-503	11/6/15	1005	MJ
16				
17	LD5-514 514	11/8/15	1100	NM
18				
19				
20	LD5-514	11/11/15	1435	VY/MJ
21				
22	LD5-527	11/13/15	0700	M
23				
24				
25	LD5-527	11/16/15	1645	W
26				
27	LD5-542	11/18/15	1350	MJ
28				

VY
11/8



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70005.15

Client: Tierra Solutions

QC Test Number: TN-15-405

<u>Date/Time/Initials</u>	<u>Comments/Activity</u>
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TOXICOLOGY LABORATORY BENCH SHEET - ORP MEASUREMENT RECORD

Client: Tierra Solutions

QC Test Number: TN-15-405

EA Sample Number	AT5-399a	AT5-408	AT5-411	AT5-427	AT5-428	Date/Initials/ Time
Measurement (mV)	192.0	-70.1	-20.6	-78.9	-151.6	10/15/15 1630m
Measurement (mV)	96.4	-529	-15.7	175.1	188.7	10/16/15 1630m
Measurement (mV)	-89.8	-40.9	-112.5	11.5	244.4	10/17/15 vx 1640
Measurement (mV)	-149.1	-126.4	-169.0	31.4	155.4	10/18/15 vx 1600
Measurement (mV)	-156.2	-138.7	-171.0	52.2	179.8	10/19/15 Am 1313
Measurement (mV)	-222.7	-186.8	-198.4	2.8	104.7	10/20/15 NM 320
Measurement (mV)	-248.6	-200.6	-234.3	-1.3	140.2	10/21/15 MJ 0839
Measurement (mV)	-239.8	-206.7	-187.2	22.4	150.8	10/22/15 1210m
Measurement (mV)	-151.3	114.2	-215.8	-44.1	204.4	10/23/15 MJ 1044
Measurement (mV)	132.5	186.2	-244.6	-94.0	191.8	10/24/15 MJ 0813
Measurement (mV)	-148.4	50.1	-168.8	-52.5	133.3	10/25/15 JM 0930
Measurement (mV)	-132.2	-135.4	-213.5	-32.5	136.0	10/26/15 MJ 0826
Measurement (mV)	-144.9	38.1	-226.6	15.3	136.4	10/27/15 MJ 0832
Measurement (mV)	-143.2	53.8	120.3	50.8	115.1	10/28/15 M 0930
Measurement (mV)	-152.2	43.7	-131.5	35.7	122.0	10/29/15 MS 0844
Measurement (mV)	-168.4	40.3	-189.1	62.1	143.6	10/30/15 M 0649
Measurement (mV)	-221.6	55.1	-286.4	59.3	128.0	10/31/15 JM 0922
Measurement (mV)	-166.2	484.4 ^{am}	-200.4	67.4	104.2	11/1/15 vx 1202
Measurement (mV)	-188.7	45.3	-170.2	71.8	426.0	11/2/15 vx 1337
Measurement (mV)	-169.1	19.2	-43.1	63.9	208.2	11/3/15 MJ 0815
Measurement (mV)	-134.8	-60.5	-408.6	61.9	214.5	11/4/15 MJ 0900
Measurement (mV)	-159.2	-64.0	-153.8	95.8	213.4	11/5/15 MS 0930
Measurement (mV)	7.9	-89.8	-92.1	131.4	134.7	11/6/15 MJ 0922
Measurement (mV)	-151.2	-130.4	-2.1	144.5	170.9	11/7/15 JM 0824
Measurement (mV)	-148.8	-177.2	-175.8	126.8	337.7	11/8/15 vx 0847
Measurement (mV)	-86.4	148.6	-186.7	90.6	465.2	11/9/15 vx 1625
Measurement (mV)	-134.4	-28.7	-189.0	95.9	300.7	11/10/15 MJ 0847
Measurement (mV)	-146.4	-136.6	-193.2	126.4	135.5	11/11/15 vx 1345
Measurement (mV)	-7.4	-182.1	-40.9	100.2	264.5	11/12/15 JM 1419
Measurement (mV)	-82.4	-176.4	-90.1	108.4	196.7	11/13/15 Am 0649
Measurement (mV)	-153.2	-148.7	-38.8	22.4	119.4	11/14/15 MJ 1015
Measurement (mV)	-148.9	192.5	-54.7	25.0	272.2	11/15/15 NM 0906
Measurement (mV)	-144.7	-9.8	-89.7	-77.0	142.4	11/16/15 JM 1610
Measurement (mV)	-100.1	-73.8	-168.6	-4.8	117.0	11/17/15 MS 0918
Measurement (mV)	-114.7	-94.9	-183.4	-10.4	131.1	11/18/15 MJ 1127
	-105.3	-116.5	-127.1	8.4	220.0	11/19/15 JB 0825

Acute Test-28-Day Survival

Start Date: 10/22/2015	Test ID: TN-15-405	Sample ID: Tierra Solutions
End Date: 11/19/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: NV-Nereis virens

Comments:

Conc-%	1	2	3	4
Control	1.0000	1.0000	1.0000	1.0000
AT5-394	0.8800	0.9600	0.9200	0.9600
AT5-396	1.0000	1.0000	1.0000	1.0000
AT5-398a	0.9200	1.0000	0.9200	0.8400
AT5-398b	0.9200	0.9200	0.9600	1.0000
AT5-399a	0.9600	1.0000	0.9600	0.9200
AT5-399b	1.0000	1.0000	0.9600	1.0000
AT5-408	0.8800	0.8800	0.9200	1.0000
AT5-411	1.0000	1.0000	1.0000	1.0000
AT5-427	1.0000	0.9600	1.0000	0.9200
AT5-428	0.9600	0.9200	1.0000	0.9200
AT5-429	0.9615	0.9600	1.0000	1.0000
AT5-430	0.9600	0.9600	0.9600	1.0000
AT5-436	1.0000	0.9600	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							Rank Sum	1-Tailed Critical
	Mean	N-Mean	Mean	Min	Max	CV%	N		
Control	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4		
*AT5-394	0.9300	0.9300	1.3100	1.2171	1.3694	5.640	4	10.00	12.00
AT5-396	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4	18.00	12.00
*AT5-398a	0.9200	0.9200	1.2995	1.1593	1.4706	9.877	4	12.00	12.00
*AT5-398b	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4	12.00	12.00
*AT5-399a	0.9600	0.9600	1.3734	1.2840	1.4706	5.556	4	12.00	12.00
AT5-399b	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4	16.00	12.00
AT5-408	0.9200	0.9200	1.2977	1.2171	1.4726	9.309	4	14.00	12.00
AT5-411	1.0000	1.0000	1.4716	1.4706	1.4744	0.129	4	20.00	12.00
AT5-427	0.9700	0.9700	1.3987	1.2840	1.4706	6.441	4	14.00	12.00
*AT5-428	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4	12.00	12.00
AT5-429	0.9804	0.9804	1.4210	1.3694	1.4706	4.032	4	14.00	12.00
AT5-430	0.9700	0.9700	1.3952	1.3694	1.4726	3.696	4	14.00	12.00
AT5-436	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4	16.00	12.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Kolmogorov D Test indicates normal distribution ($p > 0.01$)	1.01749	1.035	0.50214	0.66001
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)

Wilcoxon Rank Sum Test indicates significant differences

Acute Test-28-Day Survival

Start Date: 10/22/2015	Test ID: TN-15-405	Sample ID: Tierra Solutions
End Date: 11/19/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: NV-Nereis virens

Comments:

Conc-%	1	2	3	4
Control	1.0000	1.0000	1.0000	1.0000
AT5-394	0.8800	0.9600	0.9200	0.9600
AT5-396	1.0000	1.0000	1.0000	1.0000
AT5-398a	0.9200	1.0000	0.9200	0.8400
AT5-398b	0.9200	0.9200	0.9600	1.0000
AT5-399a	0.9600	1.0000	0.9600	0.9200
AT5-399b	1.0000	1.0000	0.9600	1.0000
AT5-408	0.8800	0.8800	0.9200	1.0000
AT5-411	1.0000	1.0000	1.0000	1.0000
AT5-427	1.0000	0.9600	1.0000	0.9200
AT5-428	0.9600	0.9200	1.0000	0.9200
AT5-429	0.9615	0.9600	1.0000	1.0000
AT5-430	0.9600	0.9600	0.9600	1.0000
AT5-436	1.0000	0.9600	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4			
*AT5-394	0.9300	0.9300	1.3100	1.2171	1.3694	5.640	4	4.348	2.353	0.0869
AT5-396	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4			
AT5-398a	0.9200	0.9200	1.2995	1.1593	1.4706	9.877	4			
AT5-398b	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4			
AT5-399a	0.9600	0.9600	1.3734	1.2840	1.4706	5.556	4			
AT5-399b	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4			
AT5-408	0.9200	0.9200	1.2977	1.2171	1.4726	9.309	4			
AT5-411	1.0000	1.0000	1.4716	1.4706	1.4744	0.129	4			
AT5-427	0.9700	0.9700	1.3987	1.2840	1.4706	6.441	4			
AT5-428	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4			
AT5-429	0.9804	0.9804	1.4210	1.3694	1.4706	4.032	4			
AT5-430	0.9700	0.9700	1.3952	1.3694	1.4726	3.696	4			
AT5-436	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4			

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.86813	0.749	-0.6733	1.36481		
Equality of variance cannot be confirmed						
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	0.0246	0.02485	0.05161	0.00273	0.00483	1, 6

Acute Test-28-Day Survival

Start Date: 10/22/2015	Test ID: TN-15-405	Sample ID: Tierra Solutions
End Date: 11/19/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acuta	Test Species: NV-Nereis virens
Comments:		

Conc-%	1	2	3	4
Control	1.0000	1.0000	1.0000	1.0000
AT5-394	0.8800	0.9600	0.9200	0.9600
AT5-396	1.0000	1.0000	1.0000	1.0000
AT5-398a	0.9200	1.0000	0.9200	0.8400
AT5-398b	0.9200	0.9200	0.9600	1.0000
AT5-399a	0.9600	1.0000	0.9600	0.9200
AT5-399b	1.0000	1.0000	0.9600	1.0000
AT5-408	0.8800	0.8800	0.9200	1.0000
AT5-411	1.0000	1.0000	1.0000	1.0000
AT5-427	1.0000	0.9600	1.0000	0.9200
AT5-428	0.9600	0.9200	1.0000	0.9200
AT5-429	0.9615	0.9600	1.0000	1.0000
AT5-430	0.9600	0.9600	0.9600	1.0000
AT5-436	1.0000	0.9600	1.0000	1.0000

Transform: Arcsin Square Root

Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
Control	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4
AT5-394	0.9300	0.9300	1.3100	1.2171	1.3694	5.640	4
AT5-396	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4
AT5-398a	0.9200	0.9200	1.2995	1.1593	1.4706	9.877	4
AT5-398b	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4
AT5-399a	0.9600	0.9600	1.3734	1.2840	1.4706	5.556	4
AT5-399b	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4
AT5-408	0.9200	0.9200	1.2977	1.2171	1.4726	9.309	4
AT5-411	1.0000	1.0000	1.4716	1.4706	1.4744	0.129	4
AT5-427	0.9700	0.9700	1.3987	1.2840	1.4706	6.441	4
AT5-428	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4
AT5-429	0.9804	0.9804	1.4210	1.3694	1.4706	4.032	4
AT5-430	0.9700	0.9700	1.3952	1.3694	1.4726	3.696	4
AT5-436	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	1	0.749		
Equality of variance cannot be confirmed				

Acute Test-28-Day Survival

Start Date: 10/22/2015	Test ID: TN-15-405	Sample ID: Tierra Solutions
End Date: 11/19/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: NV-Nereis virens
Comments:		

Conc-%	1	2	3	4
Control	1.0000	1.0000	1.0000	1.0000
AT5-394	0.8800	0.9600	0.9200	0.9600
AT5-396	1.0000	1.0000	1.0000	1.0000
AT5-398a	0.9200	1.0000	0.9200	0.8400
AT5-398b	0.9200	0.9200	0.9600	1.0000
AT5-399a	0.9600	1.0000	0.9600	0.9200
AT5-399b	1.0000	1.0000	0.9600	1.0000
AT5-408	0.8800	0.8800	0.9200	1.0000
AT5-411	1.0000	1.0000	1.0000	1.0000
AT5-427	1.0000	0.9600	1.0000	0.9200
AT5-428	0.9600	0.9200	1.0000	0.9200
AT5-429	0.9615	0.9600	1.0000	1.0000
AT5-430	0.9600	0.9600	0.9600	1.0000
AT5-436	1.0000	0.9600	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root					N	1-Tailed		
			Mean	Min	Max	CV%	t-Stat		Critical	MSD	
Control	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4				
AT5-394	0.9300	0.9300	1.3100	1.2171	1.3694	5.640	4				
AT5-396	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4				
*AT5-398a	0.9200	0.9200	1.2995	1.1593	1.4706	9.877	4	2.667	2.353	0.1510	
AT5-398b	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4				
AT5-399a	0.9600	0.9600	1.3734	1.2840	1.4706	5.556	4				
AT5-399b	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4				
AT5-408	0.9200	0.9200	1.2977	1.2171	1.4726	9.309	4				
AT5-411	1.0000	1.0000	1.4716	1.4706	1.4744	0.129	4				
AT5-427	0.9700	0.9700	1.3987	1.2840	1.4706	6.441	4				
AT5-428	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4				
AT5-429	0.9804	0.9804	1.4210	1.3694	1.4706	4.032	4				
AT5-430	0.9700	0.9700	1.3952	1.3694	1.4726	3.696	4				
AT5-436	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4				

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.77737	0.749	0.72158	3.65771		
Equality of variance cannot be confirmed						
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	0.05179	0.05231	0.05857	0.00824	0.0372	1, 6

Acute Test-28-Day Survival

Start Date: 10/22/2015	Test ID: TN-15-405	Sample ID:	Tierra Solutions
End Date: 11/19/2015	Lab ID:	Sample Type:	Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species:	NV-Nereis virens

Comments:

Conc-%	1	2	3	4
Control	1.0000	1.0000	1.0000	1.0000
AT5-394	0.8800	0.9600	0.9200	0.9600
AT5-396	1.0000	1.0000	1.0000	1.0000
AT5-398a	0.9200	1.0000	0.9200	0.8400
AT5-398b	0.9200	0.9200	0.9600	1.0000
AT5-399a	0.9600	1.0000	0.9600	0.9200
AT5-399b	1.0000	1.0000	0.9600	1.0000
AT5-408	0.8800	0.8800	0.9200	1.0000
AT5-411	1.0000	1.0000	1.0000	1.0000
AT5-427	1.0000	0.9600	1.0000	0.9200
AT5-428	0.9600	0.9200	1.0000	0.9200
AT5-429	0.9615	0.9600	1.0000	1.0000
AT5-430	0.9600	0.9600	0.9600	1.0000
AT5-436	1.0000	0.9600	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4			
AT5-394	0.9300	0.9300	1.3100	1.2171	1.3694	5.640	4			
AT5-396	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4			
AT5-398a	0.9200	0.9200	1.2995	1.1593	1.4706	9.877	4			
*AT5-398b	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4	2.673	2.353	0.1044
AT5-399a	0.9600	0.9600	1.3734	1.2840	1.4706	5.556	4			
AT5-399b	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4			
AT5-408	0.9200	0.9200	1.2977	1.2171	1.4726	9.309	4			
AT5-411	1.0000	1.0000	1.4716	1.4706	1.4744	0.129	4			
AT5-427	0.9700	0.9700	1.3987	1.2840	1.4706	6.441	4			
AT5-428	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4			
AT5-429	0.9804	0.9804	1.4210	1.3694	1.4706	4.032	4			
AT5-430	0.9700	0.9700	1.3952	1.3694	1.4726	3.696	4			
AT5-436	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4			

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.82935	0.749	1.01529	2.35012		
Equality of variance cannot be confirmed						
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	0.03127	0.03158	0.02813	0.00394	0.03686	1, 6

Acute Test-28-Day Survival

Start Date: 10/22/2015	Test ID: TN-15-405	Sample ID: Tierra Solutions
End Date: 11/19/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: NV-Nereis virens
Comments:		

Conc-%	1	2	3	4
Control	1.0000	1.0000	1.0000	1.0000
AT5-394	0.8800	0.9600	0.9200	0.9600
AT5-396	1.0000	1.0000	1.0000	1.0000
AT5-398a	0.9200	1.0000	0.9200	0.8400
AT5-398b	0.9200	0.9200	0.9600	1.0000
AT5-399a	0.9600	1.0000	0.9600	0.9200
AT5-399b	1.0000	1.0000	0.9600	1.0000
AT5-408	0.8800	0.8800	0.9200	1.0000
AT5-411	1.0000	1.0000	1.0000	1.0000
AT5-427	1.0000	0.9600	1.0000	0.9200
AT5-428	0.9600	0.9200	1.0000	0.9200
AT5-429	0.9615	0.9600	1.0000	1.0000
AT5-430	0.9600	0.9600	0.9600	1.0000
AT5-436	1.0000	0.9600	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root					N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%	Critical			MSD	
Control	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4				
AT5-394	0.9300	0.9300	1.3100	1.2171	1.3694	5.640	4				
AT5-396	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4				
AT5-398a	0.9200	0.9200	1.2995	1.1593	1.4706	9.877	4				
AT5-398b	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4				
*AT5-399a	0.9600	0.9600	1.3734	1.2840	1.4706	5.556	4	2.549	2.353	0.0898	
AT5-399b	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4				
AT5-408	0.9200	0.9200	1.2977	1.2171	1.4726	9.309	4				
AT5-411	1.0000	1.0000	1.4716	1.4706	1.4744	0.129	4				
AT5-427	0.9700	0.9700	1.3987	1.2840	1.4706	6.441	4				
AT5-428	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4				
AT5-429	0.9804	0.9804	1.4210	1.3694	1.4706	4.032	4				
AT5-430	0.9700	0.9700	1.3952	1.3694	1.4726	3.696	4				
AT5-436	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4				

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.75518	0.749	0.31498	3.52982		
Equality of variance cannot be confirmed						
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	0.02565	0.02591	0.01891	0.00291	0.04357	1, 6

Acute Test-28-Day Survival

Start Date: 10/22/2015	Test ID: TN-15-405	Sample ID: Tierra Solutions
End Date: 11/19/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: NV-Nereis virens

Comments:

Conc-%	1	2	3	4
Control	1.0000	1.0000	1.0000	1.0000
AT5-394	0.8800	0.9600	0.9200	0.9600
AT5-396	1.0000	1.0000	1.0000	1.0000
AT5-398a	0.9200	1.0000	0.9200	0.8400
AT5-398b	0.9200	0.9200	0.9600	1.0000
AT5-399a	0.9600	1.0000	0.9600	0.9200
AT5-399b	1.0000	1.0000	0.9600	1.0000
AT5-408	0.8800	0.8800	0.9200	1.0000
AT5-411	1.0000	1.0000	1.0000	1.0000
AT5-427	1.0000	0.9600	1.0000	0.9200
AT5-428	0.9600	0.9200	1.0000	0.9200
AT5-429	0.9615	0.9600	1.0000	1.0000
AT5-430	0.9600	0.9600	0.9600	1.0000
AT5-436	1.0000	0.9600	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							Rank Sum	1-Tailed Critical
	Mean	N-Mean	Mean	Min	Max	CV%	N		
Control	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4		
AT5-394	0.9300	0.9300	1.3100	1.2171	1.3694	5.640	4		
AT5-396	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4		
AT5-398a	0.9200	0.9200	1.2995	1.1593	1.4706	9.877	4		
AT5-398b	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4		
AT5-399a	0.9600	0.9600	1.3734	1.2840	1.4706	5.556	4		
AT5-399b	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4	16.00	11.00
AT5-408	0.9200	0.9200	1.2977	1.2171	1.4726	9.309	4		
AT5-411	1.0000	1.0000	1.4716	1.4706	1.4744	0.129	4		
AT5-427	0.9700	0.9700	1.3987	1.2840	1.4706	6.441	4		
AT5-428	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4		
AT5-429	0.9804	0.9804	1.4210	1.3694	1.4706	4.032	4		
AT5-430	0.9700	0.9700	1.3952	1.3694	1.4726	3.696	4		
AT5-436	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4		

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.7064	0.749	-2.0367	4.9
Equality of variance cannot be confirmed				
Hypothesis Test (1-tail, 0.05)				
Wilcoxon Two-Sample Test indicates no significant differences				

Acute Test-28-Day Survival

Start Date: 10/22/2015	Test ID: TN-15-405	Sample ID: Tierra Solutions
End Date: 11/19/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: NV-Nereis virens
Comments:		

Conc-%	1	2	3	4
Control	1.0000	1.0000	1.0000	1.0000
AT5-394	0.8800	0.9600	0.9200	0.9600
AT5-396	1.0000	1.0000	1.0000	1.0000
AT5-398a	0.9200	1.0000	0.9200	0.8400
AT5-398b	0.9200	0.9200	0.9600	1.0000
AT5-399a	0.9600	1.0000	0.9600	0.9200
AT5-399b	1.0000	1.0000	0.9600	1.0000
AT5-408	0.8800	0.8800	0.9200	1.0000
AT5-411	1.0000	1.0000	1.0000	1.0000
AT5-427	1.0000	0.9600	1.0000	0.9200
AT5-428	0.9600	0.9200	1.0000	0.9200
AT5-429	0.9615	0.9600	1.0000	1.0000
AT5-430	0.9600	0.9600	0.9600	1.0000
AT5-436	1.0000	0.9600	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				CV%	N	t-Stat	1-Tailed Critical	MSD
			Mean	Min	Max						
Control	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4				
AT5-394	0.9300	0.9300	1.3100	1.2171	1.3694	5.640	4				
AT5-396	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4				
AT5-398a	0.9200	0.9200	1.2995	1.1593	1.4706	9.877	4				
AT5-398b	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4				
AT5-399a	0.9600	0.9600	1.3734	1.2840	1.4706	5.556	4				
AT5-399b	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4				
*AT5-408	0.9200	0.9200	1.2977	1.2171	1.4726	9.309	4	2.863	2.353	0.1421	
AT5-411	1.0000	1.0000	1.4716	1.4706	1.4744	0.129	4				
AT5-427	0.9700	0.9700	1.3987	1.2840	1.4706	6.441	4				
AT5-428	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4				
AT5-429	0.9804	0.9804	1.4210	1.3694	1.4706	4.032	4				
AT5-430	0.9700	0.9700	1.3952	1.3694	1.4726	3.696	4				
AT5-436	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4				

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.76109	0.749	1.65578	4.04391		
Equality of variance cannot be confirmed						
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	0.04757	0.04805	0.05982	0.0073	0.02867	1, 6

Acute Test-28-Day Survival

Start Date: 10/22/2015	Test ID: TN-15-405	Sample ID: Tierra Solutions
End Date: 11/19/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: NV-Nereis virens

Comments:

Conc-%	1	2	3	4
Control	1.0000	1.0000	1.0000	1.0000
AT5-394	0.8800	0.9600	0.9200	0.9600
AT5-396	1.0000	1.0000	1.0000	1.0000
AT5-398a	0.9200	1.0000	0.9200	0.8400
AT5-398b	0.9200	0.9200	0.9600	1.0000
AT5-399a	0.9600	1.0000	0.9600	0.9200
AT5-399b	1.0000	1.0000	0.9600	1.0000
AT5-408	0.8800	0.8800	0.9200	1.0000
AT5-411	1.0000	1.0000	1.0000	1.0000
AT5-427	1.0000	0.9600	1.0000	0.9200
AT5-428	0.9600	0.9200	1.0000	0.9200
AT5-429	0.9615	0.9600	1.0000	1.0000
AT5-430	0.9600	0.9600	0.9600	1.0000
AT5-436	1.0000	0.9600	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							Rank Sum	1-Tailed Critical
	Mean	N-Mean	Mean	Min	Max	CV%	N		
Control	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4		
AT5-394	0.9300	0.9300	1.3100	1.2171	1.3694	5.640	4		
AT5-396	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4		
AT5-398a	0.9200	0.9200	1.2995	1.1593	1.4706	9.877	4		
AT5-398b	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4		
AT5-399a	0.9600	0.9600	1.3734	1.2840	1.4706	5.556	4		
AT5-399b	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4		
AT5-408	0.9200	0.9200	1.2977	1.2171	1.4726	9.309	4		
AT5-411	1.0000	1.0000	1.4716	1.4706	1.4744	0.129	4	20.00	11.00
AT5-427	0.9700	0.9700	1.3987	1.2840	1.4706	6.441	4		
AT5-428	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4		
AT5-429	0.9804	0.9804	1.4210	1.3694	1.4706	4.032	4		
AT5-430	0.9700	0.9700	1.3952	1.3694	1.4726	3.696	4		
AT5-436	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4		

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.7064	0.749	2.0367	4.9
Equality of variance cannot be confirmed				
Hypothesis Test (1-tail, 0.05)				
Wilcoxon Two-Sample Test indicates no significant differences				

Acute Test-28-Day Survival

Start Date: 10/22/2015	Test ID: TN-15-405	Sample ID: Tierra Solutions
End Date: 11/19/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: NV-Nereis virens
Comments:		

Conc-%	1	2	3	4
Control	1.0000	1.0000	1.0000	1.0000
AT5-394	0.8800	0.9600	0.9200	0.9600
AT5-396	1.0000	1.0000	1.0000	1.0000
AT5-398a	0.9200	1.0000	0.9200	0.8400
AT5-398b	0.9200	0.9200	0.9600	1.0000
AT5-399a	0.9600	1.0000	0.9600	0.9200
AT5-399b	1.0000	1.0000	0.9600	1.0000
AT5-408	0.8800	0.8800	0.9200	1.0000
AT5-411	1.0000	1.0000	1.0000	1.0000
AT5-427	1.0000	0.9600	1.0000	0.9200
AT5-428	0.9600	0.9200	1.0000	0.9200
AT5-429	0.9615	0.9600	1.0000	1.0000
AT5-430	0.9600	0.9600	0.9600	1.0000
AT5-436	1.0000	0.9600	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root					N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%	Critical			MSD	
Control	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4				
AT5-394	0.9300	0.9300	1.3100	1.2171	1.3694	5.640	4				
AT5-396	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4				
AT5-398a	0.9200	0.9200	1.2995	1.1593	1.4706	9.877	4				
AT5-398b	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4				
AT5-399a	0.9600	0.9600	1.3734	1.2840	1.4706	5.556	4				
AT5-399b	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4				
AT5-408	0.9200	0.9200	1.2977	1.2171	1.4726	9.309	4				
AT5-411	1.0000	1.0000	1.4716	1.4706	1.4744	0.129	4				
AT5-427	0.9700	0.9700	1.3987	1.2840	1.4706	6.441	4	1.597	2.353	0.1060	
AT5-428	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4				
AT5-429	0.9804	0.9804	1.4210	1.3694	1.4706	4.032	4				
AT5-430	0.9700	0.9700	1.3952	1.3694	1.4726	3.696	4				
AT5-436	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4				

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.86271	0.749	-0.7307	1.53321		
Equality of variance cannot be confirmed						
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.03191	0.03223	0.01035	0.00406	0.16136	1, 6

Acute Test-28-Day Survival

Start Date: 10/22/2015	Test ID: TN-15-405	Sample ID: Tierra Solutions
End Date: 11/19/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: NV-Nereis virens
Comments:		

Conc-%	1	2	3	4
Control	1.0000	1.0000	1.0000	1.0000
AT5-394	0.8800	0.9600	0.9200	0.9600
AT5-396	1.0000	1.0000	1.0000	1.0000
AT5-398a	0.9200	1.0000	0.9200	0.8400
AT5-398b	0.9200	0.9200	0.9600	1.0000
AT5-399a	0.9600	1.0000	0.9600	0.9200
AT5-399b	1.0000	1.0000	0.9600	1.0000
AT5-408	0.8800	0.8800	0.9200	1.0000
AT5-411	1.0000	1.0000	1.0000	1.0000
AT5-427	1.0000	0.9600	1.0000	0.9200
AT5-428	0.9600	0.9200	1.0000	0.9200
AT5-429	0.9615	0.9600	1.0000	1.0000
AT5-430	0.9600	0.9600	0.9600	1.0000
AT5-436	1.0000	0.9600	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root					N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%	Critical			MSD	
Control	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4				
AT5-394	0.9300	0.9300	1.3100	1.2171	1.3694	5.640	4				
AT5-396	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4				
AT5-398a	0.9200	0.9200	1.2995	1.1593	1.4706	9.877	4				
AT5-398b	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4				
AT5-399a	0.9600	0.9600	1.3734	1.2840	1.4706	5.556	4				
AT5-399b	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4				
AT5-408	0.9200	0.9200	1.2977	1.2171	1.4726	9.309	4				
AT5-411	1.0000	1.0000	1.4716	1.4706	1.4744	0.129	4				
AT5-427	0.9700	0.9700	1.3987	1.2840	1.4706	6.441	4				
*AT5-428	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4	2.673	2.353	0.1044	
AT5-429	0.9804	0.9804	1.4210	1.3694	1.4706	4.032	4				
AT5-430	0.9700	0.9700	1.3952	1.3694	1.4726	3.696	4				
AT5-436	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4				

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.82935	0.749	1.01529	2.35012		
Equality of variance cannot be confirmed						
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates significant differences	0.03127	0.03158	0.02813	0.00394	0.03686	1, 6

Acute Test-28-Day Survival

Start Date: 10/22/2015	Test ID: TN-15-405	Sample ID: Tierra Solutions
End Date: 11/19/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: NV-Nereis virens
Comments:		

Conc-%	1	2	3	4
Control	1.0000	1.0000	1.0000	1.0000
AT5-394	0.8800	0.9600	0.9200	0.9600
AT5-396	1.0000	1.0000	1.0000	1.0000
AT5-398a	0.9200	1.0000	0.9200	0.8400
AT5-398b	0.9200	0.9200	0.9600	1.0000
AT5-399a	0.9600	1.0000	0.9600	0.9200
AT5-399b	1.0000	1.0000	0.9600	1.0000
AT5-408	0.8800	0.8800	0.9200	1.0000
AT5-411	1.0000	1.0000	1.0000	1.0000
AT5-427	1.0000	0.9600	1.0000	0.9200
AT5-428	0.9600	0.9200	1.0000	0.9200
AT5-429	0.9615	0.9600	1.0000	1.0000
AT5-430	0.9600	0.9600	0.9600	1.0000
AT5-436	1.0000	0.9600	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root					N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%	Critical			MSD	
Control	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4				
AT5-394	0.9300	0.9300	1.3100	1.2171	1.3694	5.640	4				
AT5-396	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4				
AT5-398a	0.9200	0.9200	1.2995	1.1593	1.4706	9.877	4				
AT5-398b	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4				
AT5-399a	0.9600	0.9600	1.3734	1.2840	1.4706	5.556	4				
AT5-399b	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4				
AT5-408	0.9200	0.9200	1.2977	1.2171	1.4726	9.309	4				
AT5-411	1.0000	1.0000	1.4716	1.4706	1.4744	0.129	4				
AT5-427	0.9700	0.9700	1.3987	1.2840	1.4706	6.441	4				
AT5-428	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4				
AT5-429	0.9804	0.9804	1.4210	1.3694	1.4706	4.032	4	1.731	2.353	0.0674	
AT5-430	0.9700	0.9700	1.3952	1.3694	1.4726	3.696	4				
AT5-436	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4				

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.85932	0.749	-0.0042	-0.6866
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Heteroscedastic t Test indicates no significant differences	0.01783	0.01801	0.00492	0.00164	0.1341	1, 6

Acute Test-28-Day Survival

Start Date: 10/22/2015	Test ID: TN-15-405	Sample ID: Tierra Solutions
End Date: 11/19/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: NV-Nereis virens
Comments:		

Conc-%	1	2	3	4
Control	1.0000	1.0000	1.0000	1.0000
AT5-394	0.8800	0.9600	0.9200	0.9600
AT5-396	1.0000	1.0000	1.0000	1.0000
AT5-398a	0.9200	1.0000	0.9200	0.8400
AT5-398b	0.9200	0.9200	0.9600	1.0000
AT5-399a	0.9600	1.0000	0.9600	0.9200
AT5-399b	1.0000	1.0000	0.9600	1.0000
AT5-408	0.8800	0.8800	0.9200	1.0000
AT5-411	1.0000	1.0000	1.0000	1.0000
AT5-427	1.0000	0.9600	1.0000	0.9200
AT5-428	0.9600	0.9200	1.0000	0.9200
AT5-429	0.9615	0.9600	1.0000	1.0000
AT5-430	0.9600	0.9600	0.9600	1.0000
AT5-436	1.0000	0.9600	1.0000	1.0000

Conc-%	Transform: Arcsin Square Root							Rank Sum	1-Tailed Critical
	Mean	N-Mean	Mean	Min	Max	CV%	N		
Control	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4		
AT5-394	0.9300	0.9300	1.3100	1.2171	1.3694	5.640	4		
AT5-396	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4		
AT5-398a	0.9200	0.9200	1.2995	1.1593	1.4706	9.877	4		
AT5-398b	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4		
AT5-399a	0.9600	0.9600	1.3734	1.2840	1.4706	5.556	4		
AT5-399b	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4		
AT5-408	0.9200	0.9200	1.2977	1.2171	1.4726	9.309	4		
AT5-411	1.0000	1.0000	1.4716	1.4706	1.4744	0.129	4		
AT5-427	0.9700	0.9700	1.3987	1.2840	1.4706	6.441	4		
AT5-428	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4		
AT5-429	0.9804	0.9804	1.4210	1.3694	1.4706	4.032	4		
AT5-430	0.9700	0.9700	1.3952	1.3694	1.4726	3.696	4	14.00	11.00
AT5-436	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4		

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.7064	0.749	2.0367	4.9
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)

Wilcoxon Two-Sample Test indicates no significant differences

Acute Test-28-Day Survival

Start Date: 10/22/2015	Test ID: TN-15-405	Sample ID: Tierra Solutions
End Date: 11/19/2015	Lab ID:	Sample Type: Sediment
Sample Date:	Protocol: EPAA 91-EPA Acute	Test Species: NV-Nereis virens

Conc-%	1	2	3	4
Control	1.0000	1.0000	1.0000	1.0000
AT5-394	0.8800	0.9600	0.9200	0.9600
AT5-396	1.0000	1.0000	1.0000	1.0000
AT5-398a	0.9200	1.0000	0.9200	0.8400
AT5-398b	0.9200	0.9200	0.9600	1.0000
AT5-399a	0.9600	1.0000	0.9600	0.9200
AT5-399b	1.0000	1.0000	0.9600	1.0000
AT5-408	0.8800	0.8800	0.9200	1.0000
AT5-411	1.0000	1.0000	1.0000	1.0000
AT5-427	1.0000	0.9600	1.0000	0.9200
AT5-428	0.9600	0.9200	1.0000	0.9200
AT5-429	0.9615	0.9600	1.0000	1.0000
AT5-430	0.9600	0.9600	0.9600	1.0000
AT5-436	1.0000	0.9600	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root					Rank Sum	1-Tailed Critical
			Mean	Min	Max	CV%	N		
Control	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4		
AT5-394	0.9300	0.9300	1.3100	1.2171	1.3694	5.640	4		
AT5-396	1.0000	1.0000	1.4706	1.4706	1.4706	0.000	4		
AT5-398a	0.9200	0.9200	1.2995	1.1593	1.4706	9.877	4		
AT5-398b	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4		
AT5-399a	0.9600	0.9600	1.3734	1.2840	1.4706	5.556	4		
AT5-399b	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4		
AT5-408	0.9200	0.9200	1.2977	1.2171	1.4726	9.309	4		
AT5-411	1.0000	1.0000	1.4716	1.4706	1.4744	0.129	4		
AT5-427	0.9700	0.9700	1.3987	1.2840	1.4706	6.441	4		
AT5-428	0.9500	0.9500	1.3520	1.2840	1.4706	6.562	4		
AT5-429	0.9804	0.9804	1.4210	1.3694	1.4706	4.032	4		
AT5-430	0.9700	0.9700	1.3952	1.3694	1.4726	3.696	4		
AT5-436	0.9900	0.9900	1.4453	1.3694	1.4706	3.501	4	16.00	11.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.7064	0.749	-2.0367	4.9
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)
 Wilcoxon Two-Sample Test indicates no significant differences

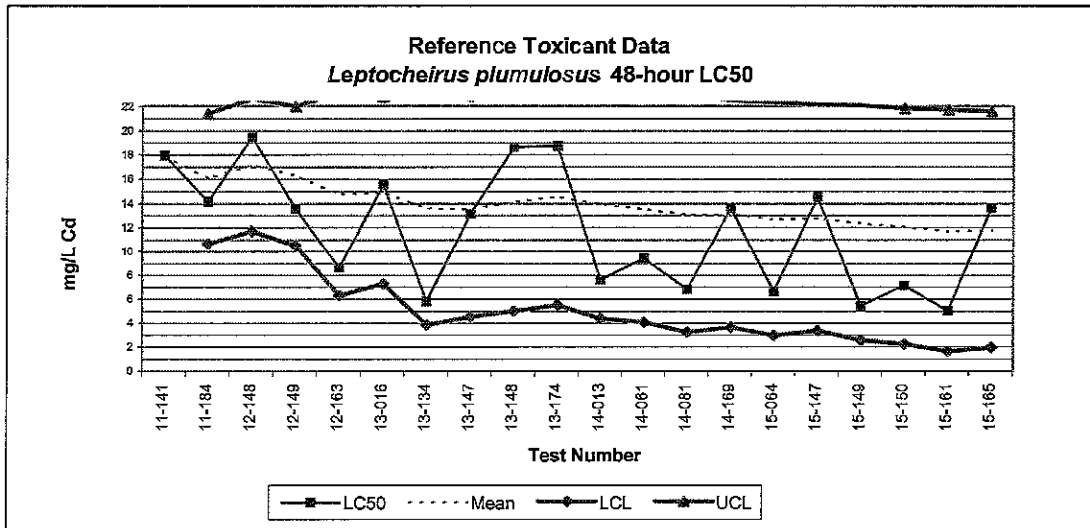
ATTACHMENT V

Cumulative Reference Toxicant Data
(9 pages)

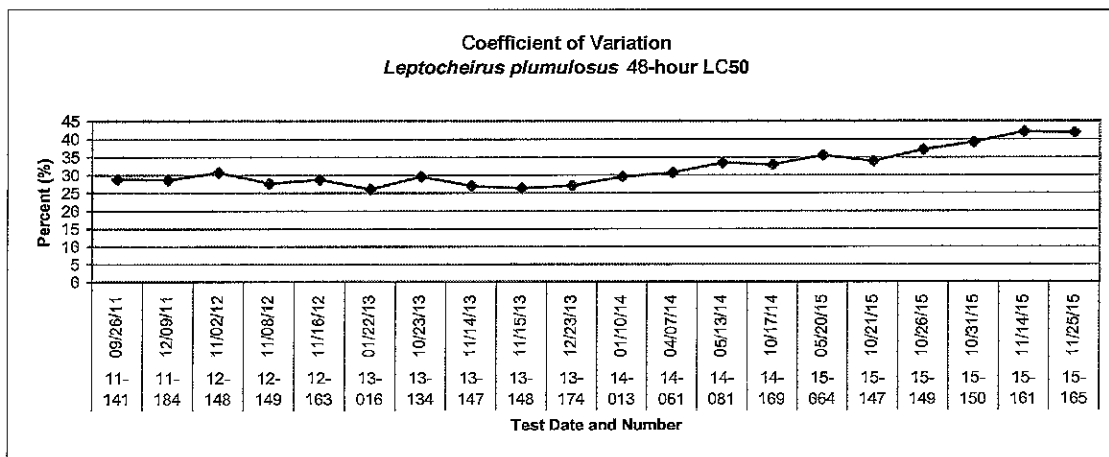
Leptocheirus plumulosus (amphipod)

48-hour LC50 (mg/L Cd)

Test #	Test Date	Lot #	Vendor	LC50	Mean	Std. Dev.	LCL	UCL	CV
11-141	09/26/11	LP-061	Chesapeake	17.9	17.900				28.7
11-184	12/09/11	LP-062	Chesapeake	14.1	16.000	2.687	10.626	21.374	28.5
12-148	11/02/12	LP-063	Chesapeake	19.4	17.133	2.732	11.670	22.597	30.6
12-149	11/08/12	LP-063	Chesapeake	13.5	16.225	2.877	10.471	21.979	27.5
12-163	11/16/12	LP-064	Chesapeake	8.6	14.700	4.223	6.254	23.146	28.6
13-016	01/22/13	LP-065	Chesapeake	16.5	14.833	3.791	7.251	22.416	25.9
13-134	10/23/13	LP-066	Chesapeake	5.8	13.543	4.862	3.819	23.266	29.4
13-147	11/14/13	LP-067	Chesapeake	13.1	13.488	4.504	4.480	22.495	26.8
13-148	11/15/13	LP-068	Chesapeake	18.6	14.056	4.545	4.966	23.145	26.2
13-174	12/23/13	LP-069	Chesapeake	18.7	14.520	4.529	5.461	23.579	26.9
14-013	01/10/14	LP-070	Chesapeake	7.6	13.891	4.777	4.337	23.444	29.4
14-061	04/07/14	LP-071	Chesapeake	9.4	13.517	4.735	4.046	22.987	30.6
14-081	05/13/14	LP-072	Chesapeake	6.8	13.000	4.902	3.197	22.803	33.3
14-169	10/17/14	LP-073	Chesapeake	13.6	13.043	4.712	3.619	22.467	32.8
15-064	05/20/15	LP-074	Chesapeake	6.6	12.613	4.836	2.942	22.285	35.5
15-147	10/21/15	LP-075	Chesapeake	14.5	12.731	4.695	3.340	22.122	33.8
15-149	10/26/15	LP-075	Chesapeake	5.4	12.300	4.882	2.537	22.063	37.1
15-150	10/31/15	LP-076	Chesapeake	7.1	12.011	4.892	2.227	21.795	39.1
15-161	11/14/15	LP-077	Chesapeake	5.0	11.642	5.019	1.604	21.680	42.1
15-165	11/25/15	LP-078	Chesapeake	13.6	11.740	4.905	1.931	21.549	41.8



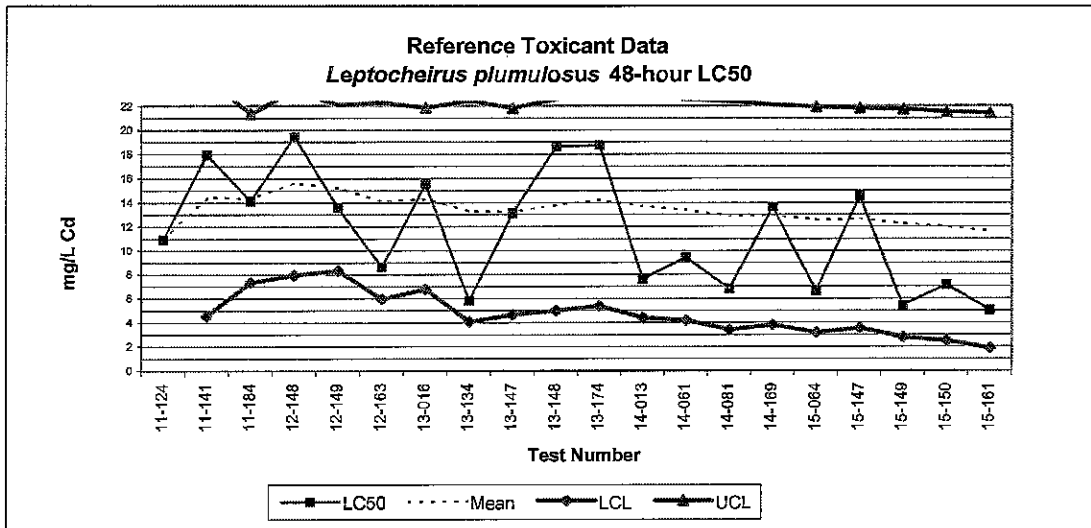
Coefficient of variation 41.8 %



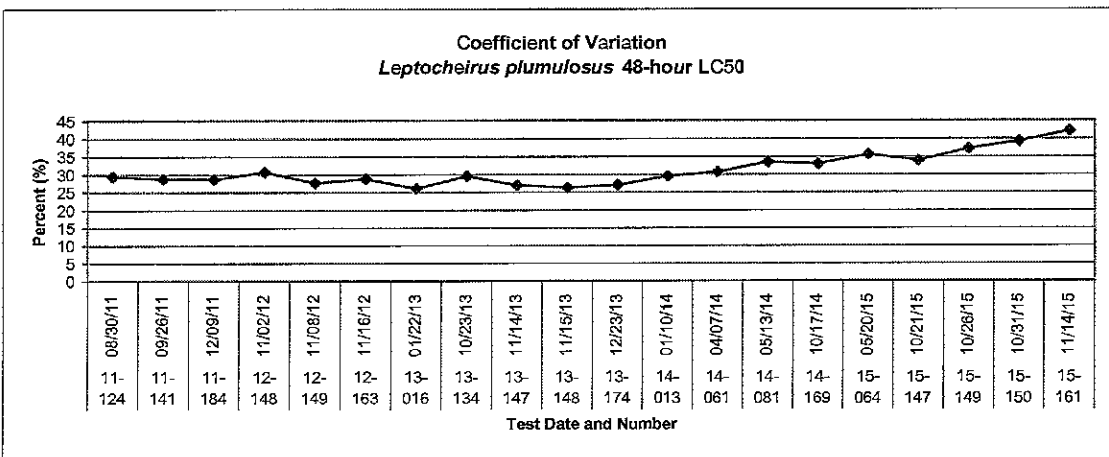
Leptocheirus plumulosus (amphipod)

48-hour LC50 (mg/L Cd)

Test #	Test Date	Lot #	Vendor	LC50	Mean	Std. Dev.	LCL	UCL	CV
11-124	08/30/11	LP-060	ABS	10.9	10.900				29.3
11-141	09/26/11	LP-061	Chesapeake	17.9	14.400	4.950	4.501	24.299	28.7
11-184	12/09/11	LP-062	Chesapeake	14.1	14.300	3.504	7.291	21.309	28.5
12-148	11/02/12	LP-063	Chesapeake	19.4	15.575	3.833	7.910	23.240	30.6
12-149	11/03/12	LP-063	Chesapeake	13.5	15.160	3.446	8.267	22.053	27.5
12-163	11/16/12	LP-064	Chesapeake	8.6	14.067	4.083	5.900	22.234	28.6
13-016	01/22/13	LP-065	Chesapeake	15.5	14.271	3.767	6.738	21.805	25.9
13-134	10/23/13	LP-066	Chesapeake	5.8	13.213	4.597	4.018	22.407	29.4
13-147	11/14/13	LP-067	Chesapeake	13.1	13.200	4.300	4.599	21.801	26.8
13-148	11/15/13	LP-068	Chesapeake	18.6	13.740	4.399	4.941	22.539	26.2
13-174	12/23/13	LP-069	Chesapeake	18.7	14.191	4.433	5.324	23.058	26.9
14-013	01/10/14	LP-070	Chesapeake	7.6	13.642	4.636	4.371	22.913	29.4
14-061	04/07/14	LP-071	Chesapeake	9.4	13.315	4.591	4.132	22.498	30.6
14-081	05/13/14	LP-072	Chesapeake	6.8	12.850	4.743	3.365	22.335	33.3
14-169	10/17/14	LP-073	Chesapeake	13.6	12.900	4.574	3.752	22.048	32.8
15-064	05/20/15	LP-074	Chesapeake	6.6	12.506	4.691	3.124	21.889	35.5
15-147	10/21/15	LP-075	Chesapeake	14.5	12.624	4.568	3.487	21.760	33.8
15-149	10/26/15	LP-075	Chesapeake	5.4	12.222	4.747	2.727	21.717	37.1
15-150	10/31/15	LP-076	Chesapeake	7.1	11.953	4.761	2.431	21.475	39.1
15-161	11/14/15	LP-077	Chesapeake	5.0	11.605	4.888	1.829	21.381	42.1



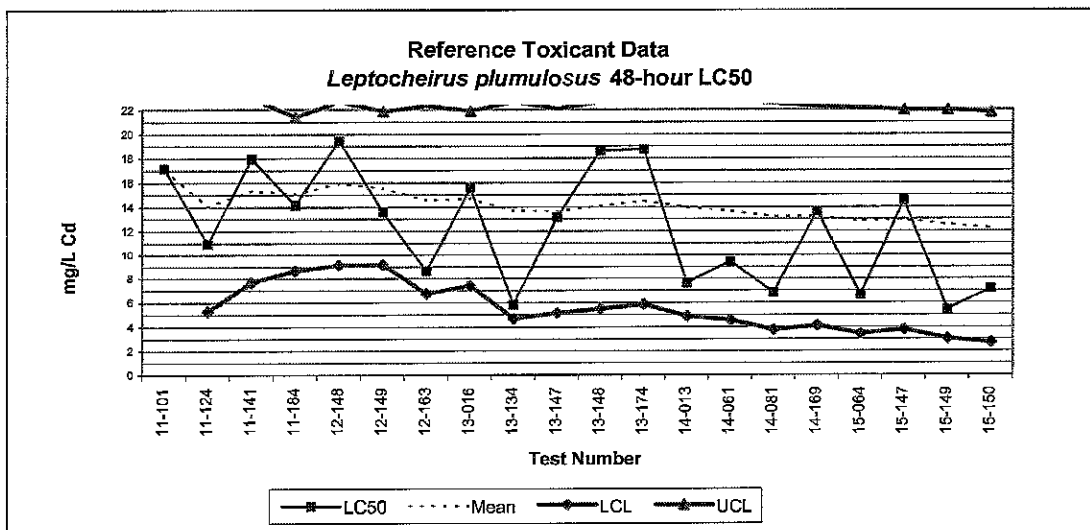
Coefficient of variation 42.1 %



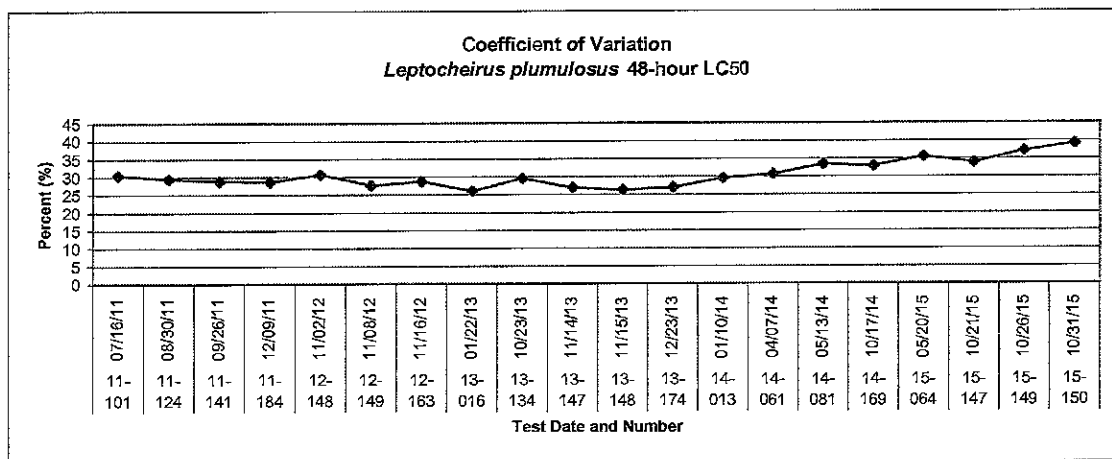
Leptocheirus plumulosus (amphipod)

48-hour LC50 (mg/L Cd)

Test #	Test Date	Lot #	Vendor	LC50	Mean	Std. Dev.	LCL	UCL	CV
11-101	07/16/11	LP-059	Chesapeake	17.1	17.100				30.3
11-124	08/30/11	LP-060	ABS	10.9	14.000	4.384	5.232	22.768	29.3
11-141	09/26/11	LP-061	Chesapeake	17.9	15.300	3.831	7.637	22.963	28.7
11-184	12/09/11	LP-062	Chesapeake	14.1	15.000	3.185	8.629	21.371	28.5
12-148	11/02/12	LP-063	Chesapeake	19.4	15.880	3.389	9.103	22.657	30.6
12-149	11/08/12	LP-063	Chesapeake	13.5	15.483	3.183	9.118	21.849	27.5
12-163	11/16/12	LP-064	Chesapeake	8.6	14.500	3.900	6.700	22.300	28.6
13-016	01/22/13	LP-065	Chesapeake	15.5	14.625	3.628	7.369	21.881	25.9
13-134	10/23/13	LP-066	Chesapeake	5.8	13.644	4.491	4.662	22.627	29.4
13-147	11/14/13	LP-067	Chesapeake	13.1	13.590	4.238	5.114	22.066	26.8
13-148	11/15/13	LP-068	Chesapeake	18.6	14.045	4.295	5.456	22.635	26.2
13-174	12/23/13	LP-069	Chesapeake	18.7	14.433	4.310	5.814	23.053	26.9
14-013	01/10/14	LP-070	Chesapeake	7.6	13.908	4.541	4.826	22.989	29.4
14-061	04/07/14	LP-071	Chesapeake	9.4	13.586	4.526	4.534	22.637	30.6
14-081	06/13/14	LP-072	Chesapeake	6.8	13.133	4.700	3.733	22.533	33.3
14-169	10/17/14	LP-073	Chesapeake	13.6	13.163	4.542	4.078	22.247	32.8
15-064	05/20/15	LP-074	Chesapeake	6.6	12.776	4.677	3.422	22.130	35.5
15-147	10/21/15	LP-075	Chesapeake	14.5	12.872	4.556	3.761	21.983	33.8
15-149	10/28/15	LP-075	Chesapeake	5.4	12.479	4.747	2.984	21.974	37.1
15-150	10/31/15	LP-076	Chesapeake	7.1	12.210	4.775	2.860	21.760	39.1



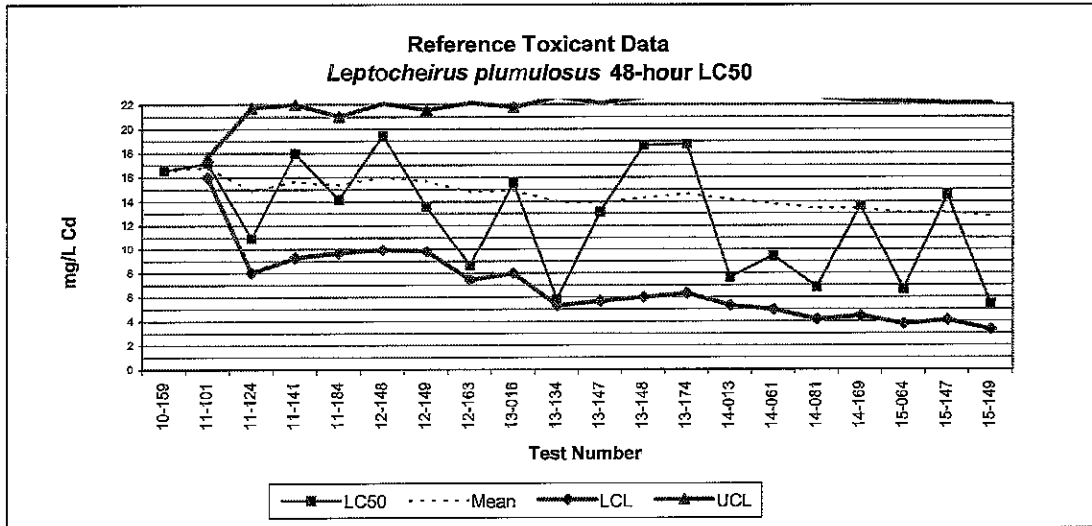
Coefficient of variation 39.1 %



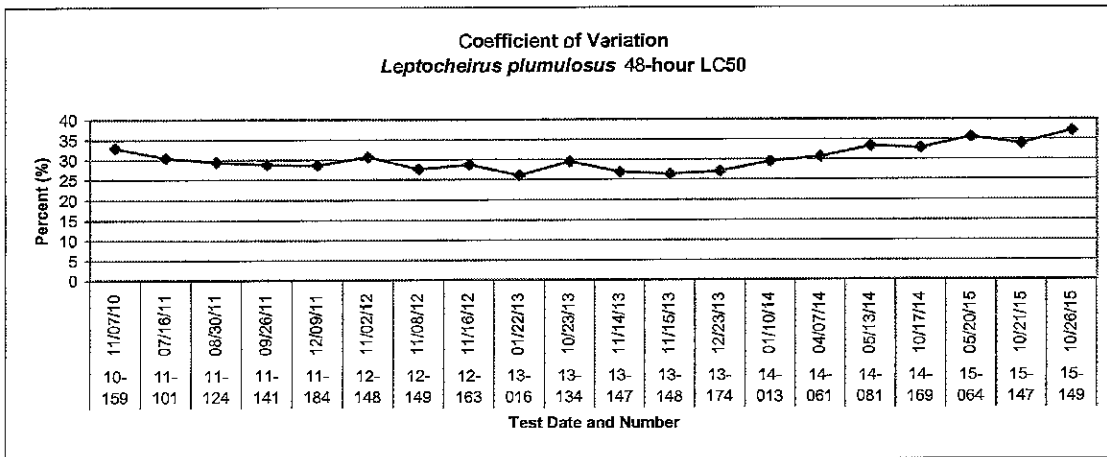
Leptocheirus plumulosus (amphipod)

48-hour LC50 (mg/L Cd)

Test #	Test Date	Lot #	Vendor	LC50	Mean	Std. Dev.	LCL	UCL	CV
10-159	11/07/10	LP-058	Chesapeake	16.5	16.500				32.9
11-101	07/16/11	LP-059	Chesapeake	17.1	16.800	0.424	15.951	17.649	30.3
11-124	08/30/11	LP-060	ABS	10.9	14.833	3.420	7.994	21.672	29.3
11-141	09/26/11	LP-061	Chesapeake	17.9	15.600	3.185	9.229	21.971	28.7
11-184	12/09/11	LP-062	Chesapeake	14.1	15.300	2.839	9.622	20.978	28.5
12-148	11/02/12	LP-063	Chesapeake	19.4	15.983	3.041	9.901	22.066	30.6
12-149	11/08/12	LP-063	Chesapeake	13.5	15.629	2.931	9.767	21.490	27.5
12-163	11/16/12	LP-064	Chesapeake	8.6	14.750	3.679	7.391	22.109	28.6
13-016	01/22/13	LP-065	Chesapeake	15.5	14.833	3.451	7.932	21.735	25.9
13-134	10/23/13	LP-066	Chesapeake	5.8	13.930	4.329	5.271	22.589	29.4
13-147	11/14/13	LP-067	Chesapeake	13.1	13.855	4.115	5.625	22.084	26.8
13-148	11/15/13	LP-068	Chesapeake	18.6	14.250	4.156	5.939	22.561	26.2
13-174	12/23/13	LP-069	Chesapeake	18.7	14.592	4.166	6.261	22.924	26.9
14-013	01/10/14	LP-070	Chesapeake	7.6	14.093	4.417	5.258	22.927	29.4
14-061	04/07/14	LP-071	Chesapeake	9.4	13.780	4.426	4.929	22.631	30.6
14-081	05/13/14	LP-072	Chesapeake	6.8	13.344	4.618	4.108	22.580	33.3
14-169	10/17/14	LP-073	Chesapeake	13.6	13.359	4.472	4.415	22.302	32.8
15-064	05/20/15	LP-074	Chesapeake	6.6	12.983	4.621	3.740	22.226	35.5
15-147	10/21/15	LP-075	Chesapeake	14.5	13.063	4.505	4.054	22.073	33.8
15-149	10/26/15	LP-075	Chesapeake	5.4	12.680	4.708	3.265	22.095	37.1



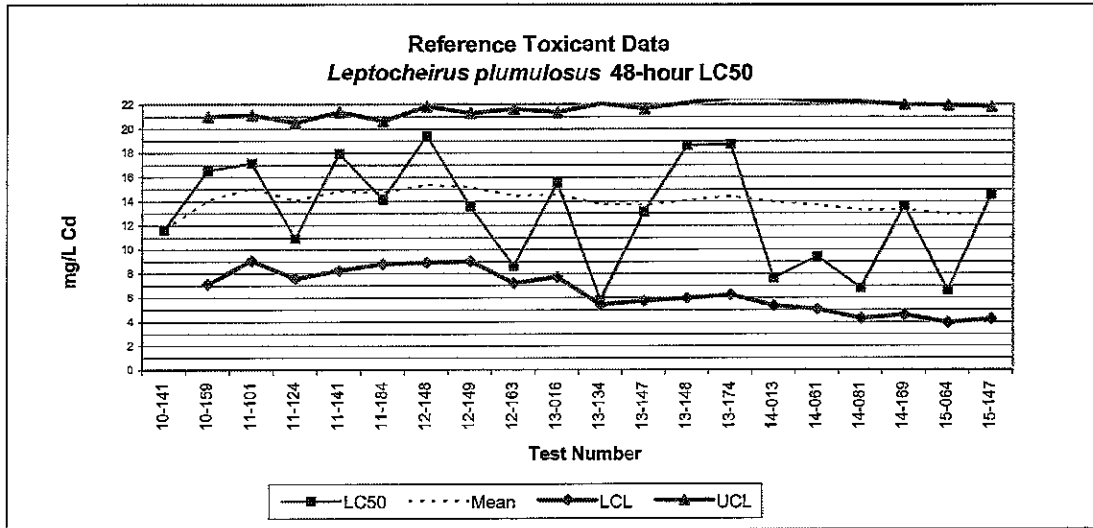
Coefficient of variation 37.1 %



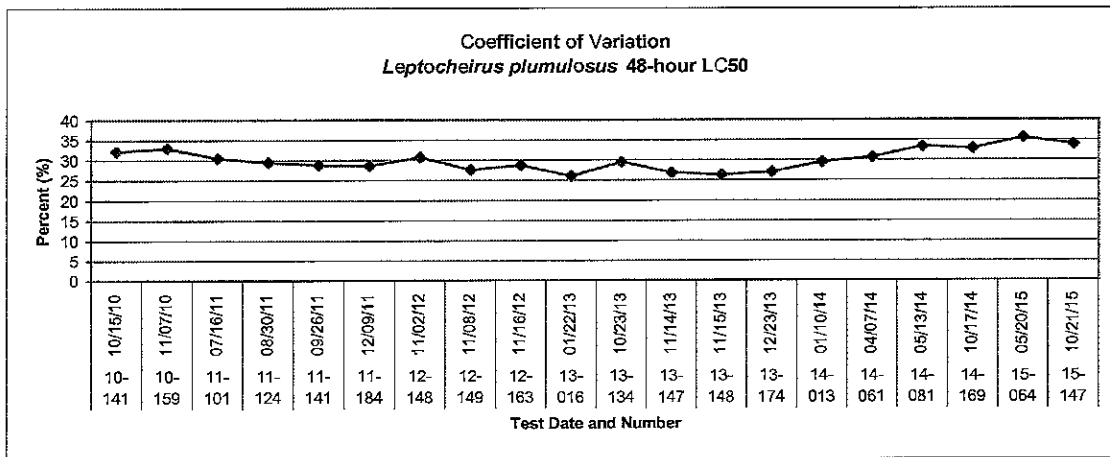
Leptocheirus plumulosus (amphipod)

48-hour LC50 (mg/L Cd)

Test #	Test Date	Lot #	Vendor	LC50	Mean	Std. Dev.	LCL	UCL	CV
10-141	10/15/10	LP-057	Chesapeake	11.6	11.600				32.1
10-159	11/07/10	LP-058	Chesapeake	16.5	14.050	3.465	7.120	20.980	32.9
11-101	07/16/11	LP-059	Chesapeake	17.1	15.067	3.017	9.032	21.101	30.3
11-124	08/30/11	LP-060	ABS	10.9	14.025	3.226	7.572	20.478	29.3
11-141	09/26/11	LP-061	Chesapeake	17.9	14.800	3.288	8.224	21.376	28.7
11-184	12/09/11	LP-062	Chesapeake	14.1	14.683	2.955	8.774	20.593	28.5
12-148	11/02/12	LP-063	Chesapeake	19.4	15.357	3.233	8.891	21.823	30.6
12-149	11/08/12	LP-063	Chesapeake	13.5	15.125	3.064	8.996	21.254	27.5
12-163	11/16/12	LP-064	Chesapeake	8.6	14.400	3.598	7.203	21.597	28.6
13-016	01/22/13	LP-065	Chesapeake	15.5	14.510	3.410	7.689	21.331	25.9
13-134	10/23/13	LP-066	Chesapeake	5.8	13.718	4.167	5.384	22.052	29.4
13-147	11/14/13	LP-067	Chesapeake	13.1	13.667	3.977	5.713	21.621	26.8
13-148	11/15/13	LP-068	Chesapeake	18.6	14.046	4.046	5.954	22.138	26.2
13-174	12/23/13	LP-069	Chesapeake	18.7	14.379	4.082	6.216	22.542	26.9
14-013	01/10/14	LP-070	Chesapeake	7.6	13.927	4.305	5.317	22.536	29.4
14-061	04/07/14	LP-071	Chesapeake	9.4	13.644	4.310	5.023	22.264	30.6
14-081	05/13/14	LP-072	Chesapeake	6.8	13.241	4.491	4.259	22.224	33.3
14-169	10/17/14	LP-073	Chesapeake	13.6	13.261	4.358	4.545	21.977	32.8
15-064	05/20/15	LP-074	Chesapeake	6.6	12.911	4.502	3.906	21.915	35.5
15-147	10/21/15	LP-075	Chesapeake	14.5	12.990	4.397	4.196	21.784	33.8



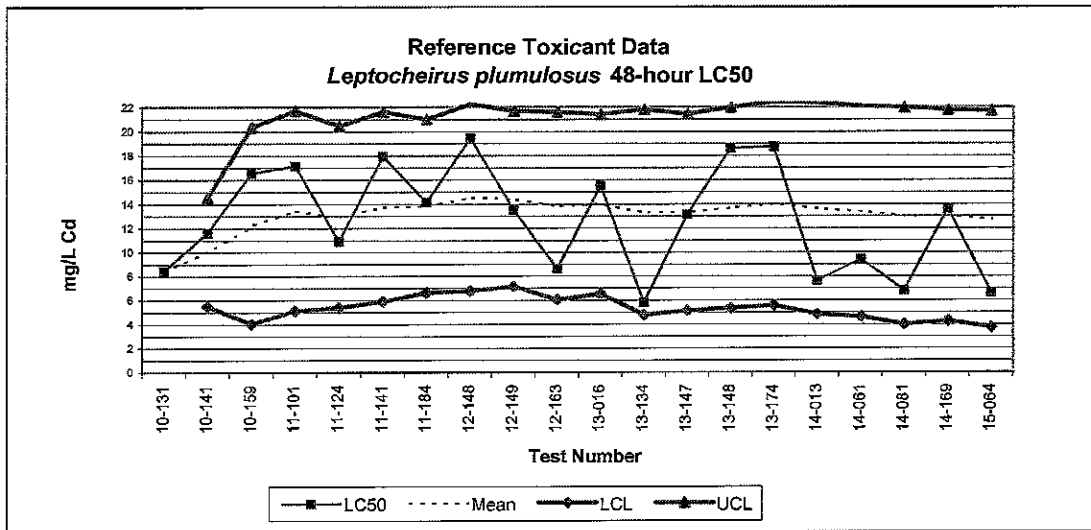
Coefficient of variation 33.8 %



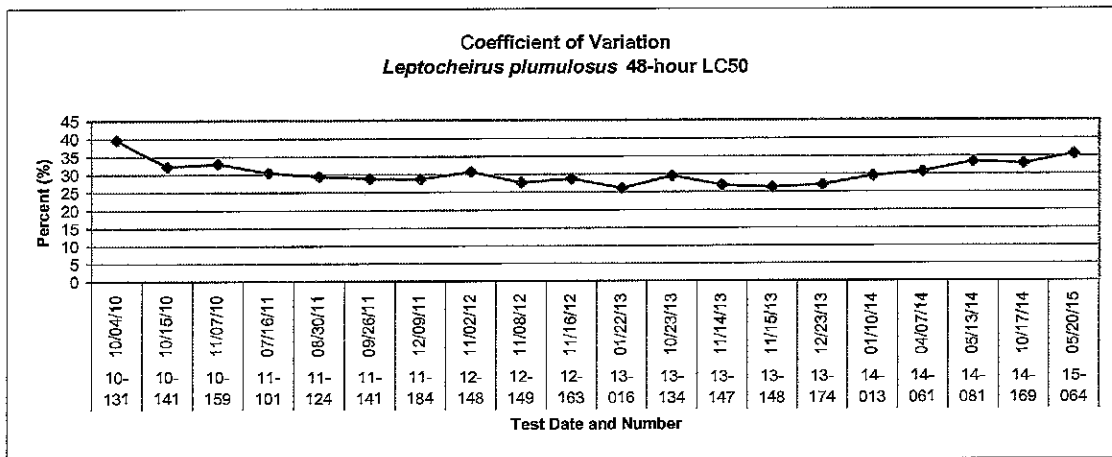
Leptocheirus plumulosus (amphipod)

48-hour LC50 (mg/L Cd)

Test #	Test Date	Lot #	Vendor	LC50	Mean	Std. Dev.	LCL	UCL	CV
10-131	10/04/10	LP-056	Chesapeake	8.4	8.400				39.5
10-141	10/15/10	LP-057	Chesapeake	11.6	10.000	2.263	5.475	14.525	32.1
10-159	11/07/10	LP-058	Chesapeake	16.5	12.167	4.080	4.007	20.326	32.9
11-101	07/16/11	LP-059	Chesapeake	17.1	13.400	4.145	5.110	21.690	30.3
11-124	08/30/11	LP-060	ABS	10.9	12.900	3.760	5.381	20.419	29.3
11-141	09/26/11	LP-061	Chesapeake	17.9	13.733	3.934	5.866	21.601	28.7
11-184	12/09/11	LP-062	Chesapeake	14.1	13.786	3.594	6.598	20.973	28.5
12-148	11/02/12	LP-063	Chesapeake	19.4	14.488	3.874	6.739	22.236	30.6
12-149	11/08/12	LP-063	Chesapeake	13.5	14.378	3.639	7.100	21.656	27.5
12-163	11/16/12	LP-064	Chesapeake	8.6	13.800	3.887	6.026	21.574	28.6
13-016	01/22/13	LP-065	Chesapeake	15.5	13.955	3.723	6.509	21.401	25.9
13-134	10/23/13	LP-066	Chesapeake	5.8	13.275	4.259	4.756	21.794	29.4
13-147	11/14/13	LP-067	Chesapeake	13.1	13.262	4.078	5.105	21.418	28.8
13-148	11/15/13	LP-068	Chesapeake	18.6	13.643	4.170	5.303	21.983	26.2
13-174	12/23/13	LP-069	Chesapeake	18.7	13.980	4.225	5.530	22.430	28.9
14-013	01/10/14	LP-070	Chesapeake	7.6	13.581	4.382	4.616	22.346	29.4
14-061	04/07/14	LP-071	Chesapeake	9.4	13.335	4.363	4.610	22.061	30.6
14-081	05/13/14	LP-072	Chesapeake	6.8	12.972	4.504	3.964	21.980	33.3
14-169	10/17/14	LP-073	Chesapeake	13.6	13.005	4.380	4.246	21.764	32.8
15-064	05/20/15	LP-074	Chesapeake	8.6	12.685	4.497	3.691	21.679	35.5



Coefficient of variation 35.5 %

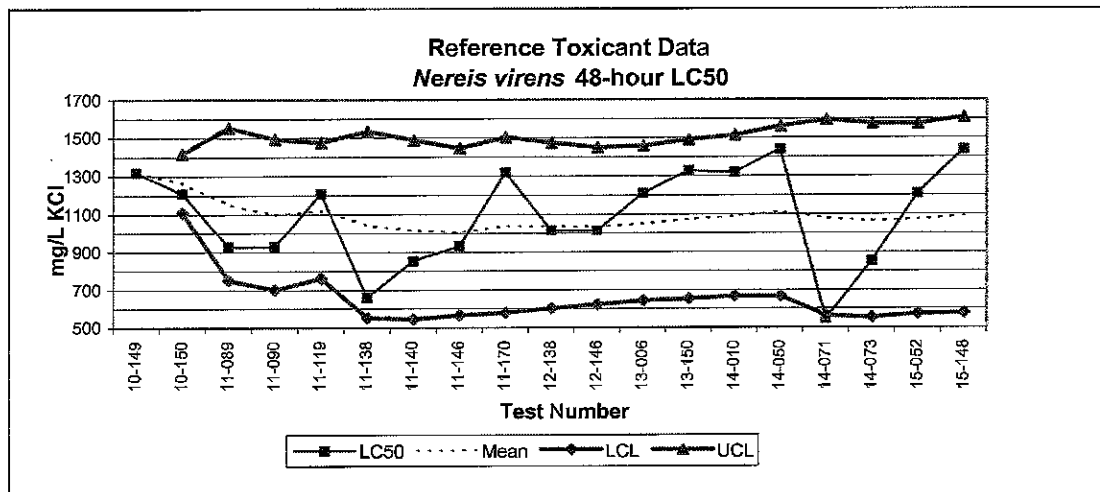


EA Engineering, Science, and Technology, Inc.
Reference Toxicant Data - Potassium chloride (KCl)

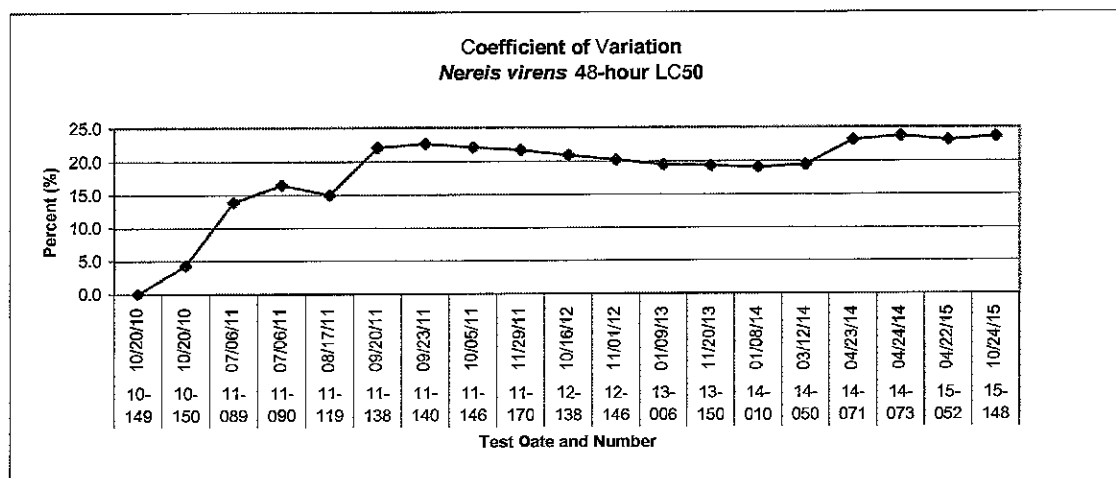
Nereis virens (sand worm)

48-hour LC50 (mg/L KCl)

Test #	Test Date	Lot #	Vendor	LC50	Mean	Std. Dev.	LCL	UCL	CV
10-149	10/20/10	NV-041	ARO	1318	1318.000				0.0
10-150	10/20/10	NV-041	ARO	1208	1263.000	77.782	1107.437	1418.563	4.3
11-089	07/06/11	NV-042	ARO	929	1151.570	200.686	750.198	1552.942	13.8
11-090	07/06/11	NV-042	ARO	929	1095.853	198.161	699.531	1492.174	16.4
11-119	08/17/11	NV-043	ARO	1208	1118.282	178.791	760.700	1475.864	14.9
11-138	09/20/11	NV-044	ARO	660	1041.902	246.123	549.655	1534.148	22.0
11-140	09/23/11	NV-044	ARO	853	1014.916	235.750	543.415	1486.417	22.5
11-146	10/05/11	NV-045	ARO	929	1004.176	220.366	563.444	1444.908	22.0
11-170	11/29/11	NV-046	ARO	1318	1039.068	231.188	576.692	1501.443	21.6
12-138	10/16/12	NV-047	ARO	1014	1036.529	218.114	600.301	1472.757	20.8
12-146	11/01/12	NV-048	ARO	1014	1034.481	207.032	620.416	1448.546	20.1
13-006	01/09/13	NV-049	ARO	1208	1048.941	203.654	641.633	1456.249	19.4
13-150	11/20/13	NV-050	ARO	1326	1070.238	209.559	651.120	1489.355	19.3
14-010	01/08/14	NV-051	ARO	1318	1087.935	211.947	664.041	1511.829	19.0
14-050	03/12/14	NV-052	ARO	1439	1111.339	223.449	664.442	1558.237	19.4
14-071	04/23/14	NV-053	ARO	545	1075.943	258.161	559.622	1592.265	23.1
14-073	04/24/14	NV-053	ARO	853	1062.829	255.745	551.340	1574.318	23.7
15-052	04/22/15	NV-054	ARO	1208	1070.894	250.457	569.980	1571.808	23.1
15-148	10/24/15	NV-055	ARO	1439	1090.255	257.616	575.024	1605.486	23.6



Coefficient of variator 23.6 %

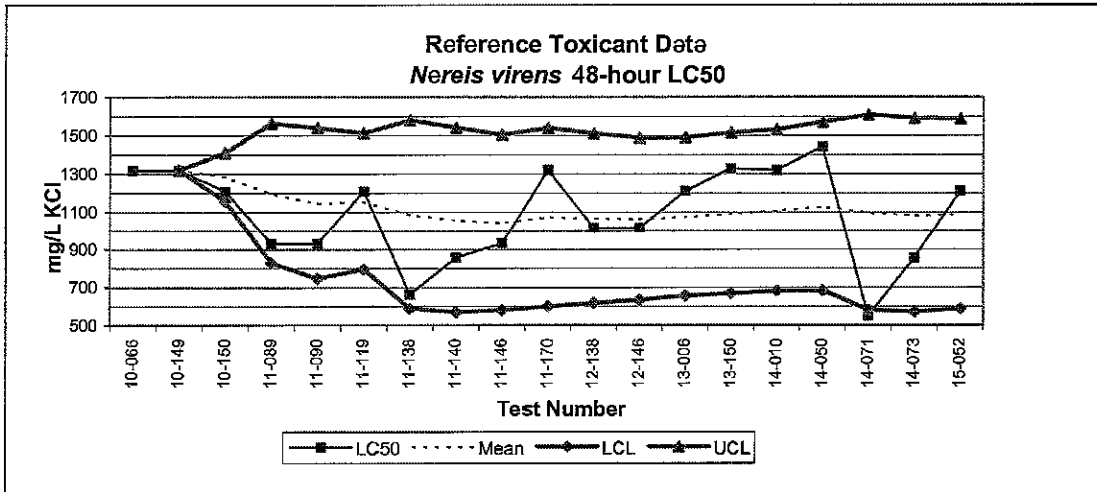


EA Engineering, Science, and Technology, Inc.
Reference Toxicant Data - Potassium chloride (KCl)

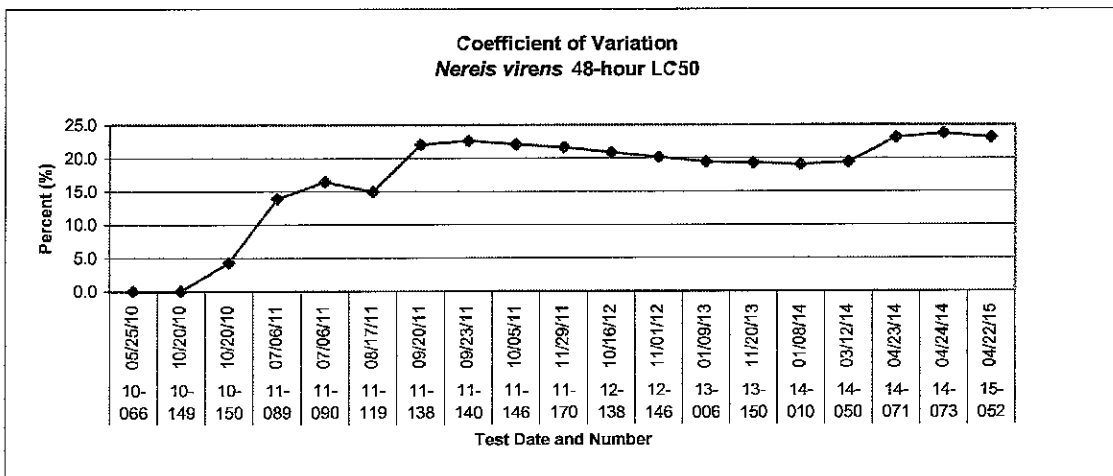
Nereis virens (sand worm)

48-hour LC50 (mg/L KCl)

Test #	Test Date	Lot #	Vendor	LC50	Mean	Std. Dev.	LCL	UCL	CV
10-066	05/25/10	NV-039	ARO	1318	1318.000				0.0
10-149	10/20/10	NV-041	ARO	1318	1318.000	0.000	1318.000	1318.000	0.0
10-150	10/20/10	NV-041	ARO	1208	1281.333	63.509	1154.316	1408.350	4.3
11-089	07/06/11	NV-042	ARO	929	1193.178	183.779	825.620	1560.735	13.8
11-090	07/06/11	NV-042	ARO	929	1140.282	198.294	743.693	1536.871	16.4
11-119	08/17/11	NV-043	ARO	1208	1151.568	179.502	792.565	1510.572	14.9
11-138	09/20/11	NV-044	ARO	660	1081.344	247.731	585.882	1576.806	22.0
11-140	09/23/11	NV-044	ARO	853	1052.801	243.148	566.505	1539.098	22.5
11-146	10/05/11	NV-045	ARO	929	1039.046	231.158	576.730	1501.361	22.0
11-170	11/29/11	NV-046	ARO	1318	1066.961	235.137	596.687	1537.235	21.6
12-138	10/16/12	NV-047	ARO	1014	1062.117	223.648	614.820	1509.414	20.8
12-146	11/01/12	NV-048	ARO	1014	1058.108	213.692	630.723	1485.492	20.1
13-006	01/09/13	NV-049	ARO	1208	1069.638	208.776	652.086	1487.189	19.4
13-150	11/20/13	NV-050	ARO	1326	1087.935	211.947	684.041	1511.829	19.3
14-010	01/08/14	NV-051	ARO	1318	1103.273	212.701	677.872	1528.874	19.0
14-050	03/12/14	NV-052	ARO	1439	1124.256	221.968	680.319	1568.192	19.4
14-071	04/23/14	NV-053	ARO	545	1090.182	256.765	576.653	1603.711	23.1
14-073	04/24/14	NV-053	ARO	853	1077.005	255.294	566.416	1587.594	23.7
15-052	04/22/15	NV-054	ARO	1208	1083.899	249.915	584.069	1583.730	23.1



Coefficient of variation 23.1 %



ATTACHMENT VI

Report Quality Assurance Record
(2 pages)



REPORT QUALITY ASSURANCE RECORD

Client: Tierra Solutions

Project Number: 70005.15

Author: Michael Chanar

EA Report Number: 7246

REPORT CHECKLIST

<u>QA/QC ITEM</u>	<u>REVIEWER</u>	<u>DATE</u>
1. Samples collected, transported, and received according to study plan requirements.	<u>[Signature]</u>	<u>1/19/16</u>
2. Samples prepared and processed according to study plan requirements.	<u>[Signature]</u>	<u>1/19/16</u>
3. Data collected using calibrated instruments and equipment.	<u>[Signature]</u>	<u>1/19/16</u>
4. Calculations checked:		
- Hand calculations checked	<u>[Signature]</u>	<u>1/19/16</u>
- Documented and verified statistical procedure used.	<u>[Signature]</u>	<u>1/19/16</u>
5. Data input/statistical analyses complete and correct.	<u>[Signature]</u>	<u>1/27/16</u>
6. Reported results and facts checked against original sources.	<u>[Signature]</u>	<u>1/27/16</u>
7. Data presented in figures and tables correct and in agreement with text.	<u>[Signature]</u>	<u>1/27/16</u>
8. Results reviewed for compliance with study plan requirements.	<u>[Signature]</u>	<u>1/19/16</u>

	<u>AUTHOR</u>	<u>DATE</u>
9. Commentary reviewed and resolved.	<u>[Signature]</u>	<u>2/2/16</u>
10. All study plan and quality assurance/control requirements have been met and the report is approved:		
	<u>[Signature]</u>	<u>2/2/16</u>
	PROJECT MANAGER	DATE
	<u>[Signature]</u>	<u>1/27/16</u>
	QUALITY CONTROL OFFICER	DATE
	<u>[Signature]</u>	<u>2/1/16</u>
	SENIOR TECHNICAL REVIEWER	DATE

Appendix B

MEMORANDUM

From: Upal Ghosh and Mehregan Jalalizadeh, University of Maryland Baltimore County

To: Clifford Firstenberg & Carlie Thompson, Tierra Solutions, Inc.

Date: April 10, 2017

Subject: Summary on the Calculation of Porewater Concentrations of Organic Compounds from Passive Samplers

This memorandum summarizes the calculation of porewater concentrations of organic compounds based on the ex-situ exposure of polyethylene (PE) and polyoxymethylene (POM) passive samplers to sediments in a laboratory-controlled setting at the University of Maryland Baltimore County (UMBC). Following exposure, the PE and POM samplers were transferred from UMBC to commercial contract laboratories where the target organic compounds (PAHs, PCBs, dioxins/furans, and pesticides) were extracted in solvent (acetone/hexane (1:1 by volume)) and the concentrations in final extracts were determined by the analytical lab.

Porewater concentrations were estimated using the laboratory-reported concentrations in the PE/POM extracts based on the *Standard Operation Procedure (SOP) for the Measurement of Hydrophobic Organic Constituents in Sediment Porewater by Passive Sampling*; (Ghosh 2015). This was SOP L-40 of the *Sediment Quality Triad and Porewater Sampling and Analysis Quality Assurance Project Plan (QAPP), Revision 2* (Tierra Solutions, Inc. 2015). PE passive samplers loaded with performance reference compounds (PRCs) were used to determine the freely dissolved porewater concentrations of PCBs, PAHs, and pesticides. POM passive samplers (without PRCs) were used to measure freely dissolved concentrations of dioxins and furans.

The porewater concentration estimation process is briefly summarized as follows:

1. Calculating concentrations of chemicals in PE/POM based on the concentrations in solvent extracts

Concentrations of PAHs, PCBs, and dioxins/furans in PE/POM solvent extracts were measured after concentrating to 1mL by the analytical lab. These values were converted to concentrations in PE (for PCBs, PAHs, and Pesticides) and POM (for dioxins):

$$C_{PS} = C_{solvent} * V_{solvent} / M_{PS} \quad \text{Equation 1}$$

Where C_{PS} is the concentration of the chemical in the passive sampler (ng/mg), $C_{solvent}$ is the concentration of the chemical in the final volume of solvent extract (ng/ml), $V_{solvent}$ is the final volume of the solvent extract (mL), and M_{PS} is the mass of the passive sampler (mg).

Pesticide concentrations were reported by the analytical lab as concentrations in PE passive samplers.

2. Determining loss of Performance Reference Compounds (PRCs) from PE and correction of porewater concentrations for non-equilibrium

According to Ghosh (2015), for PRC losses greater than 80%, no PRC correction is required and the porewater concentrations (C_{free}) can be calculated based on the polymer-water partition constant (K_{PS}):

$$C_{free} = C_{PS}/K_{PS} \quad \text{Equation 2}$$

The fractional loss of PCB PRCs was calculated using the initial and final concentrations in PE. The loss of PCB PRCs was greater than 80% in most sediment samples. Smaller fractional losses of at least one PCB PRC were detected in eight sediment samples (NB03SED138, NB03SED141, NB03SED143, NB03SED145, NB03SED146, NB03SED153, NB03SED154, and NB03SED161).

Thus, for sediment samples where all PCB PRCs were lost more than 80% no PRC corrections were performed. F_{eq} (fraction to equilibrium) of the PCB congeners, for which the corresponding PRC loss was more than 80%, is equal to 1 (F_{eq} values are indicated in the columns next to the PRC corrected values in the spreadsheet). That means equilibrium concentration is the same as the concentration detected in the passive sampler for those congeners and no PRC correction was performed. For the remaining 8 samples where some PRCs were lost less than 80%, PRC corrections were performed for PCB congeners based on Fernandez et al. (2009). For PCB congeners which were co-eluting, the average K_{PE} values were used¹. For the sediments that required PRC correction for PCBs, the average fractional equilibrium of co-elutes were used to calculate the equilibrium concentrations.

For the pesticides, fractional equilibrium of individual compounds was calculated based on the loss of PCB PRCs and was found to be >80%, as specified in the QAPP/SOP (Ghosh 2015). Thus, no PRC corrections were performed for the porewater concentrations of pesticides.

Risk assessment will address the uncertainty in the porewater concentration.

The four PAH PRCs used in the study were determined to be below the analytical reporting limits after exposure to sediments. If the reporting limit value is used to calculate the PRC loss, the losses are less than 80%, which does not provide the information necessary for the PRC correction. However, previous work by Perron et al. (2013), demonstrate for several sediments that when PCB and PAH PRCs are used simultaneously, the losses of PAH PRCs are similar or higher than corresponding PCB PRCs. The most hydrophobic PAH PRC, (Dibenz(a,h)anthracene-d14), has a log K_{OW} very close to PCB PRC ¹³C₁₂-PCB79. This PCB PRC was lost more than 95% in all sediment samples except for sediment sample NB03SED145.

¹The correlation provided by Ghosh et al. (2014) was used to estimate K_{PE-w} for PCBs. The correlation is: $1.18 * \log K_{ow} - 1.26$. For PCB congeners that were co-eluting, the average K_{PE-w} values were used.

Thus, it would be reasonable to anticipate that all PAH PRCs were lost at least 80% in the sediment samples except for NB03SED145. Thus, no PRC corrections were performed for PAH porewater concentrations except for sediment NB03SED145. For the sample NB03SED145, PCB PRC loss was used to correct for non-equilibrium of the PAH compounds.

Dioxin/furan porewater concentrations are potentially biased low, since they were derived from the POM passive samplers that were not impregnated with PRCs to assess equilibrium. The risk assessment will address the uncertainty in the porewater concentrations and the potential uncertainty in the partitioning values in the literature.

3. Source of K_{PE} , K_{POM} , and K_{OW} values used in the calculations of porewater concentration

In accordance with the QAPP/SOP (Ghosh 2015), the K_{PE} values were determined as follows:

- For PCBs and parent PAHs: correlation provided in Ghosh et al. (2014)
- For alkylated PAHs: correlation provided in Choi et al. (2013)
- O,P'-DDD, O,P'-DDE, O,P'-DDT, P,P'-DDD, P,P'-DDE, and P,P'-DDT: K_{PE} were obtained from Fernandez et al. (2014)
- Other pesticides: correlation provided in Fernandez et al. (2012)
- For all other hydrophobic organic compounds, a $K_{PE}:K_{OW}$ correlation based on data provided for pesticides and PCBs in Fernandez et al. (2012) was used.

K_{POM} values for dioxins and furans were obtained from Cornelissen et al. (2008).

The sources of K_{OW} values are indicated in Tables 1 and 2.

The log K_{OW} of all the congeners in C1-naphthalenes, C1-fluoranthenes/pyrenes, C2-naphthalenes, C2-phenanthrene/anthracene, C3-naphthalenes, C4-naphthalenes groups are provided in Choi et al. (2013) (Supporting Information Table 2). The log K_{OW} for the mentioned groups, were estimated by averaging the reported log K_{OW} values of the congeners associated with each group. For the rest of the alkylated groups, the log K_{OW} of the most available congener associated with the group was used. Log K_{OW} values were obtained from EPI software. As shown in Choi et al. (2013) (Supporting Information, Table 2), the log K_{OW} for the congeners under each alkylated group are not very different. The name of the congener for each log K_{OW} is mentioned as a comment on the cell. Log K_{OW} values for C3-fluorene, C3-chrysene, and C3-fluoranthene/pyrene were provided from different sources (as indicated in the spreadsheet), since they were not available in the software.

For alkylated PAHs, K_{PE-w} was estimated based on the correlation between log K_{PE-w} and log K_{OW} provided by Choi et al. (2013). This correlation was shown in Figure 3 (c) in the paper.

Log K_{PE-w} values were not corrected for temperature and salinity because the laboratory is maintained at approximately 25 degrees Celsius and salinity corrections on K_{PE-w} values are less than 1% (Lohmann 2011).

The risk assessment will address the uncertainty in the porewater concentration and the potential uncertainty in the various partitioning values in the literature.

Table 1. Sources of K_{ow} for PCBs, PAHs, and alkylated PAHs

Compound	Source of K_{ow} values
PCBs	Hawker and Connell (1988)
PAHs	Hilal et al. (2004)
Alkylated PAHs	USEPA (2012) estimation programs interface suite™ for Microsoft® Windows

Table 2. Sources of K_{ow} values for pesticides

Compound	Source of Log K_{ow}
Aldrin	Ochiai et al. (2011)
Alpha BHC (Alpha Hexachlorocyclohexane)	Noble (1993)
Alpha endosulfan	Hansch and Hoekman (1995)
Beta BHC (Beta Hexachlorocyclohexane)	Noble (1993)
Beta endosulfan	Hansch and Hoekman (1995)
cis-Chlordane	Ochiai et al. (2011)
cis-Nonachlor	Ochiai et al. (2011)
Delta BHC (Delta Hexachlorocyclohexane)	Noble (1993)
Dieldrin	Ochiai et al. (2011)
Endosulfan sulfate	Montgomery (2007)
Endrin	Ochiai et al. (2011)
Endrin aldehyde	USEPA (2012) Estimation programs interface suite™ for Microsoft® Windows
Endrin ketone	Debruijn and Hermens (1991)
Gamma BHC (Lindane)	Noble (1993)
Heptachlor	Ochiai et al. (2011)
Heptachlor epoxide	Koltz et al. (2001)
Hexachlorobenzene	Briggs (1983)
Methoxychlor	Noble (1993)
Mirex	Ochiai et al. (2011)
Oxychlordane	Ochiai et al. (2011)

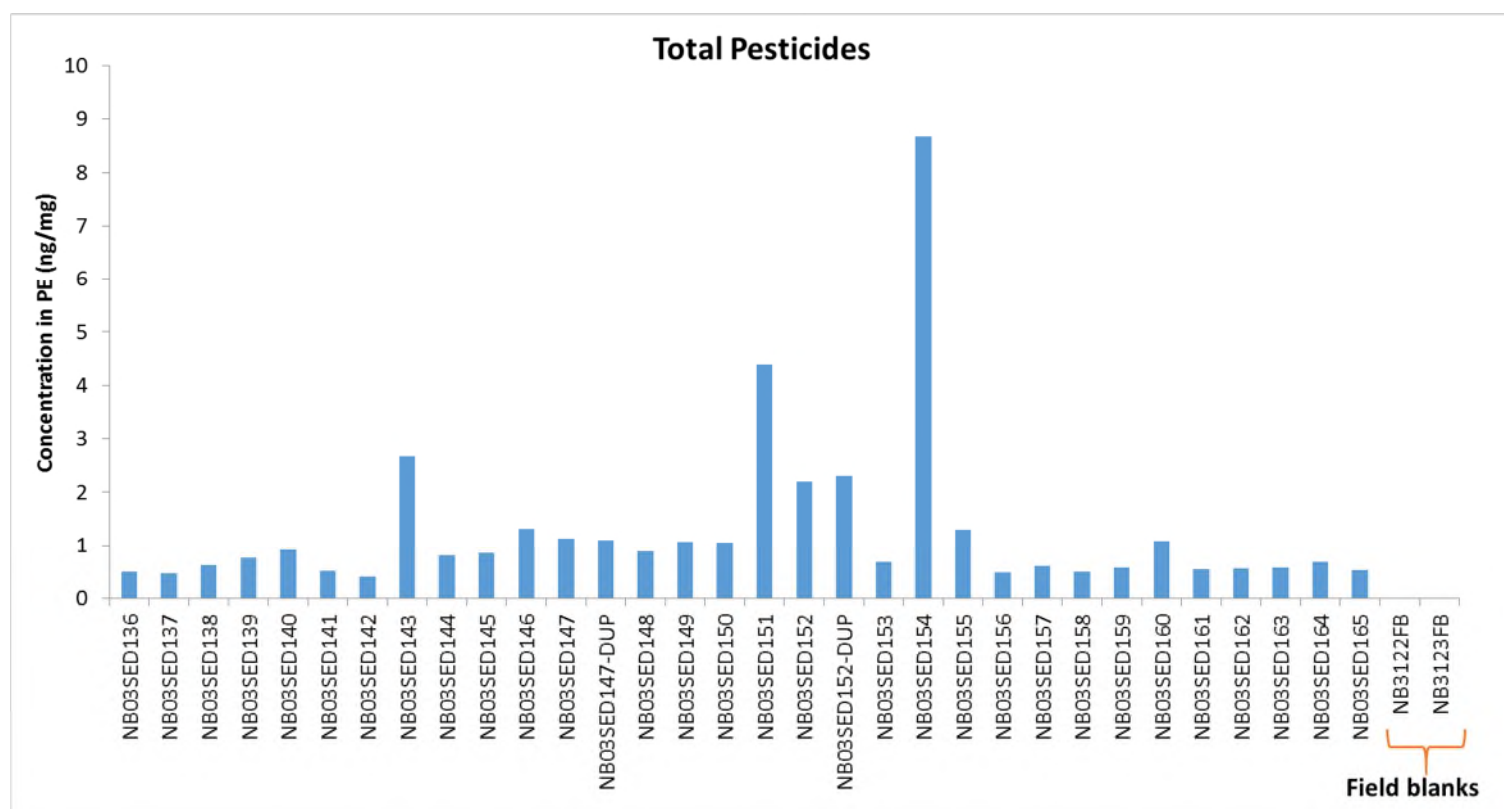
trans-Chlordane	Ochiai et al. (2011)
trans-Heptachlor epoxide	Ochiai et al. (2011)
trans-Nonachlor	Ochiai et al. (2011)

4. Quality assurance and quality control

The concentrations in field blanks were compared to concentrations in PE/POM exposed to sediment samples in order to check for contamination of the polymers from exposure to the laboratory or field atmosphere.

The concentration of all PCBs, PAHs, and dioxins/furans in field blanks were below the reporting limit of the respective analytical methods.

Five pesticides, trans-nonachlor, P,P'-DDE, hexachlorobenzene, beta-chlordane, and alpha-chlordane were detected in field blanks above the reporting limits. However, the total concentration of pesticides in field blanks was negligible compared to the total concentration in sediment samples (2-3 orders of magnitude smaller) as shown in the figure below.



The total concentration of pesticides in field blanks was negligible compared to the total concentration in sediment samples (2-3 orders of magnitude smaller).

A full report of the laboratory passive sampling program is being developed which will include the measurement of both organic and inorganic compounds in sediment porewater.

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Appendix C

14 March 2017

Mr. William Ettinger
Normandeau Associates, Inc.
23723 Woods Drive
Lewes, Delaware 19958

CASE NARRATIVE

SUBJECT: Tierra Solutions, Inc.: Newark Bay Benthic Macroinvertebrate Sample Analysis
Normandeau Associates, Inc. Project Number 23489.006/00/254
Revision 1 – 14 March 2017

Dear Bill:

During the period 7 October 2015 through 7 January 2016 Normandeau Associates, Inc. analyzed a set of 30 benthic macroinvertebrate samples with replicates, for a total of 90 samples, collected from the Newark Bay Study Area near Newark, New Jersey. The analysis was conducted to support Tierra Solutions, Inc. implementation of a Remedial Investigation and Feasibility Study.

Methodology

Collection

Samples were collected by Arcadis U.S., Inc. from bay sediments with Standard (sample area = 0.052 m²) and Petite (area = 0.023 m²) Ponar Grabs. The samples were taken during the period 13 through 29 September 2015. Geomorphic areas sampled included Intertidal Areas, Subtidal Flats and Transitional Slopes. Three replicate samples were collected from each of 30 sample locations and labelled: NB03SED-COM - 136 through 165. The samples were preserved in the field with alcohol and shipped to Normandeau's laboratories for processing (specimen removal) and taxonomic analysis. They were received on 30 September 2015.

Analysis

At the lab the sample matrices were processed in entirety to remove specimens from all phylogenetic groups, except for those within taxa that were particularly abundant (e.g., > 100). For these, all non-abundant taxa were first removed in entirety - and the matrices then placed into a Folsom Splitter. The matrices were divided into 1/2, 1/4, or 1/8 fractions and specimens from abundant taxa removed by randomly selecting and re-processing one of the fractions. The counts for abundant taxa were then estimated according to the amount of matrix re-processed. In addition, any non-abundant forms still

present were picked and subsequently used to calculate a Quality Assurance estimate for specimen removal.

All specimens were identified to the genus/species (lowest practicable) phylogenetic endpoint, given their age and condition, using dissection and compound microscopes.

Metrics calculated from the sample data were: Taxonomic Richness; Population and Community Density; and Shannon –Wiener Diversity. The results were submitted to Tierra as a data matrix and as report-ready data tables.

Quality Assurance/Quality Control

Quality Control pertaining to the efficiency of specimen removal was applied by randomly selecting and re-processing ten percent (9) of the matrices. The results were considered sufficient if 90.0 percent or more of both the taxa and specimens were removed during the initial effort. These are shown as follows:

<u>Sample / Rep.</u>	<u>Taxa Removal</u>	<u>Specimen Removal</u>
136 B	100.0 %	94.4%
140 B	100.0 %	100.0%
144 B	80.0 % (4 of 5)	88.9 % (8 of 9)
145 B	100.0 %	99.4 %
151 B	100.0 %	100.0 %
155 C	100.0 %	98.7 %
157 B	100.0 %	100.0 %
157 C	86.7 % (13 of 15)	93.0 %
165 A	100.0 %	97.2 %
Mean	96.6 %	96.8 %

Because sorting efficiency for two of the above samples (144B and 157C) fell below 90 percent for either taxa or specimen removal, a second sample processed by the same technician was selected for QA/QC analysis. These results were above 90 percent. For corrective action, the specimens obtained in the QA/QC process for samples 144B and 157C were added to those originally removed from the samples. The macroinvertebrate data reported for these two samples reflect this corrective action.

In addition, Quality Assurance estimates were calculated from re-processing the fractions that were sub-sampled:

<u>Sample / Rep.</u>	<u>Taxa Removal</u>	<u>Specimen Removal</u>
137 A	100.0 %	100.0%
137 B	100.0 %	100.0%
138 A	100.0 %	100.0 %
138 B	100.0 %	97.5 %
138 C	100.0 %	100.0 %
140 A	100.0 %	99.0 %
140 C	100.0 %	100.0 %
142 A	100.0 %	100.0 %
142 B	100.0 %	100.0 %
142 C	96.0 %	94.3%
143 B	100.0 %	99.4 %
143 C	100.0 %	99.4 %
145 C	100.0 %	99.7 %
147 A	100.0 %	100.0 %
152 B	100.0 %	100.0 %
154 A	100.0 %	100.0 %
158 A	100.0 %	98.9 %
158 C	100.0 %	98.8 %
159 A	100.0 %	98.0 %
162 C	100.0 %	100.0 %
163 A	90.9 %	97.3 %
164 A	100.0 %	100.0 %
164 B	100.0 %	95.7 %
164 C	100.0 %	98.3 %
165 B	100.0 %	98.8%
Mean	99.5 %	99.0 %

Taxonomic accuracy was verified through independent re-analyses of nine samples.

<u>Sample / Rep.</u>	<u>Identifications</u>	<u>Gross Count</u>
137 B	93.8 %	94.3 %
142 B	100.0 %	98.1 %
143 A	100.0 %	100.0 %
148 C	100.0 %	100.0 %
151 A	100.0 %	100.0 %
153 C	97.1 %	97.5 %
158 C	96.9 %	98.7 %
161 C	100.0 %	99.0 %
165 A	100.0 %	98.6 %
Mean	98.6 %	98.5 %

All sample tracking and quality control records are on file at Normandeau and available upon request. Laboratory Bench Sheets are also on file. Sample matrices and specimens will be retained at Normandeau for a period of three years.

Results

The analysis of 90 sample replicates produced a cumulative total of 106 taxa. The number of taxa identified from individual sample locations ranged between eight and 46, with a mean of 23 (n = 30).

The most abundant taxa ($\geq 5.0\%$ of the total) at one or more stations were:

Annelida

<i>Alitta succinea</i>	<i>Laeonereis culveri</i>	<i>Pectinaria gouldii</i>
<i>Glycera americana</i>	<i>Leitoscoloplos fragilis</i>	<i>Spiochaetopterus costarum</i>
<i>Glycinde solitaria</i>	<i>Mediomastus ambiseta</i>	<i>Streblospio benedicti</i>
<i>Hypereteone heteropoda</i>	<i>Oligochaeta</i>	<i>Tharyx acutus</i>

Mollusca

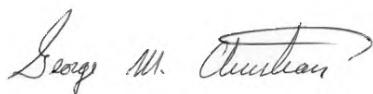
<i>Haminoea solitaria</i>	<i>Macoma balthica</i>	<i>Mya arenaria</i>
<i>Ilyanassa obsoleta</i>	<i>Mulinia lateralis</i>	

Arthropoda

<i>Ampelisca abdita</i>	<i>Grandidierella japonica</i>	<i>Microdeutopus gryllotalpa</i>
<i>Cyathura burbancki</i>	<i>Leucon americanus</i>	

Community Density calculations at particular stations produced values ranging between 406 and 11,237 individuals per square meter, with a mean of 4,771 (n = 30). Shannon-Wiener Diversity values ranged from 1.5 and 3.0 and the mean was 2.2 (n = 30).

Respectively Submitted,



George M. Christian
Senior Scientist/Laboratory Manager

Benthic Macroinvertebrates collected in Newark Bay in 2015 (summary of all stations)

Sample Dates: September 13-29, 2015																														
Taxon	Mean Density (no./m ²) at Sample Station																													
	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165
<i>Limulus polyphemus</i>																				6.4										
Crustacea																														
<i>Eusarsiella zostericola</i>		14.5		14.5						51.3							43.5	25.6				19.2								
<i>Doropygus laticornis</i>	260.9																	25.6												
<i>Amphibalanus improvisus</i>								12.8																						
<i>Neomysis americana</i>																				29.0										
<i>Leucon americanus</i>	87.0	14.5	43.5			14.5		14.5							29.0					144.9				29.0	14.5	14.5		753.6		
<i>Oxyurostylis smithi</i>																				43.5						14.5			43.5	
<i>Cyathura burbancki</i>					1449.3																			666.7				115.9		
Idoteidae																	14.5													
<i>Synidotea laevidorsalis</i>																											14.5			
<i>Edotia triloba</i>	14.5		14.5		72.5		115.4	29.0		14.5	12.8			25.6		14.5	32.1		12.8	12.8			6.4		96.2	14.5		58.0	43.5	
<i>Ampelisca abdita</i>	347.8	956.5	202.9	144.9		217.4	6.4	87.0		144.9	6.4							58.0				83.3	121.8				43.5	173.9	1565.2	
<i>Ampithoe valida</i>				14.5	14.5		205.1								14.5		89.7		64.1									101.4		
<i>Microdeutopus gryllotalpa</i>							3435.9	115.9		29.0				179.5			121.8	43.5	51.3											
<i>Cerapus</i> sp																					14.5									
<i>Unciola serrata</i>																												14.5		
<i>Grandidierella japonica</i>	1405.8	101.4	101.4	14.5	217.4	159.4	3237.2	855.1	29.0	173.9	25.6		2769.2	29.0	43.5	57.7	231.9	185.9	224.4		87.0	121.8		57.7	58.0		43.5	420.3	1391.3	
<i>Monocorophium acherusicum</i>																			6.4										58.0	
<i>Apocorophium acutum</i>						14.5																								
<i>Elasmopus levis</i>																		29.0												
<i>Gammarus mucronatus</i>	87.0				29.0												38.5	14.5	38.5				25.6					43.5		
<i>Gammarus</i> sp																	12.8													
<i>Melita nitida</i>									29.0								19.2						6.4							
<i>Haustorius canadensis</i>	14.5																													
<i>Ameroculodes edwardsi</i>																	6.4													
<i>Paracaprella tenuis</i>																		43.5												
<i>Crangon septemspinosa</i>																									29.0					
<i>Pagurus longicarpus</i>																				12.8										
<i>Dyspanopeus sayi</i>																		14.5	38.5				12.8							
Urochordata																														
Stolidobranchia																														
<i>Molgula manhattensis</i>											6.4								14.5											
Total Mean Density (no./m²)	6362.3	7739.1	5985.5	6231.9	6826.1	3869.6	11237.2	5869.6	710.1	8869.6	2788.5	2115.9	405.8	7019.2	2275.4	1666.7	7185.9	5594.2	1301.3	2339.7	1811.6	1217.4	10756.4	1974.4	3166.7	2666.7	1405.8	2898.6	11101.4	9724.6
Total Taxa	22	21	20	22	22	19	29	25	11	28	42	14	8	15	23	22	43	42	33	20	16	19	46	23	16	18	15	21	21	22
Shannon Wiener Diversity Index	2.2	2.1	2.4	2.2	2.1	2.1	2.0	2.3	2.1	2.1	2.7	1.9	1.5	1.8	2.6	2.2	2.2	2.7	3.0	1.9	2.2	2.4	2.1	2.3	2.2	1.5	2.1	2.0	1.8	2.4

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 142						
Sample Date: September 28, 2015						
Gear Type: Full-size Ponar Grab (sampling area = 0.052 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Nemertea						
Hoploneurtea A						
<i>Amphiporus bioculatus</i>			1	1	6.4	0.1
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>	16	56	35	107	685.9	6.1
<i>Alitta succinea</i>			3	3	19.2	0.2
<i>Glycera americana</i>			1	1	6.4	0.1
<i>Glycinde solitaria</i>	8			8	51.3	0.5
<i>Leitoscoloplos</i> sp	8	8	3	19	121.8	1.1
Spionidae	16		2	18	115.4	1.0
<i>Polydora cornuta</i>	8		1	9	57.7	0.5
<i>Spio filicornis</i>	8		2	10	64.1	0.6
<i>Streblospio benedicti</i>	56	72	98	226	1448.7	12.9
<i>Scolecopsis</i> sp	8			8	51.3	0.5
<i>Marenzelleria viridis</i>			2	2	12.8	0.1
<i>Tharyx acutus</i>			1	1	6.4	0.1
<i>Capitella capitata</i>			3	3	19.2	0.2
<i>Mediomastus ambiseta</i>	32	24	61	117	750.0	6.7
<i>Pectinaria gouldii</i>		8		8	51.3	0.5
Oligochaeta						
Oligochaeta	40	40	22	102	653.8	5.8
Mollusca						
Gastropoda						
<i>Ilyanassa obsoleta</i>	7			7	44.9	0.4
<i>Boonea bisuturalis</i>			1	1	6.4	0.1
Bivalvia						
<i>Macoma balthica</i>	1		1	2	12.8	0.1
<i>Petricolaria pholadiformis</i>			1	1	6.4	0.1
<i>Mya arenaria</i>			4	4	25.6	0.2
<i>Lyonsia</i> sp			1	1	6.4	0.1
Arthropoda						
Crustacea						
<i>Amphibalanus improvisus</i>			2	2	12.8	0.1
<i>Edotia triloba</i>	16		2	18	115.4	1.0
<i>Ampelisca abdita</i>			1	1	6.4	0.1
<i>Ampithoe valida</i>	8		24	32	205.1	1.8
<i>Microdeutopus gryllotalpa</i>			536	536	3435.9	30.6
<i>Grandidierella japonica</i>	296	208	1	505	3237.2	28.8
Total Number	528	416	809	1753		100
Total Mean Density (no./m²)					11237.2	
Total Taxa					29	
Shannon Wiener Diversity Index					2.0	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 146						
Sample Date: September 21, 2015						
Gear Type: Full-size Ponar Grab (sampling area = 0.052 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Platyhelminthes						
Polycladida						
<i>Stylochus ellipticus</i>			2	2	12.8	0.5
Nemertea						
Tubulanidae						
<i>Tubulanus pellucidus</i>			1	1	6.4	0.2
Hoplonemertea A						
<i>Amphiporus bioculatus</i>			1	1	6.4	0.2
Annelida						
Polychaeta						
<i>Lepidonotus sublevis</i>			2	2	12.8	0.5
<i>Hypereteone heteropoda</i>	3	1	9	13	83.3	3.0
<i>Eumida sanguinea</i>		2	6	8	51.3	1.8
<i>Gyptis vittata</i>		1	2	3	19.2	0.7
<i>Streptosyllis verrilli</i>			1	1	6.4	0.2
<i>Neanthes arenaceodentata</i>			1	1	6.4	0.2
<i>Alitta succinea</i>			4	4	25.6	0.9
<i>Glycera americana</i>	4	3	5	12	76.9	2.8
Goniadidae			2	2	12.8	0.5
<i>Glycinde solitaria</i>	2		2	4	25.6	0.9
<i>Schistomeringos annulata</i>			2	2	12.8	0.5
<i>Leitoscoloplos</i> sp	33	21	54	108	692.3	24.8
<i>Spio filicornis</i>			1	1	6.4	0.2
<i>Pygospio elegans</i>			1	1	6.4	0.2
<i>Streblospio benedicti</i>	17	11	24	52	333.3	12.0
<i>Spiochaetopterus costarum</i>	1	2	1	4	25.6	0.9
Cirratulidae			2	2	12.8	0.5
<i>Heteromastus filiformis</i>		1	3	4	25.6	0.9
<i>Mediomastus ambiseta</i>	2	1	44	47	301.3	10.8
<i>Pectinaria gouldii</i>	10	9	8	27	173.1	6.2
<i>Ampharete</i> sp	1			1	6.4	0.2
<i>Parasabella microphthalma</i>			1	1	6.4	0.2
Oligochaeta						
Oligochaeta	3	3	10	16	102.6	3.7
Mollusca						
Gastropoda						
<i>Crepidula</i> sp			3	3	19.2	0.7
<i>Boonea bisuturalis</i>	1			1	6.4	0.2
<i>Japonactaeon punctostriatus</i>	5	2	2	9	57.7	2.1
<i>Acteocina canaliculata</i>	2		1	3	19.2	0.7
<i>Haminoea solitaria</i>	15	9	29	53	339.7	12.2

Bivalvia						
<i>Mulinia lateralis</i>	8	2	3	13	83.3	3.0
Tellinidae			1	1	6.4	0.2
<i>Tellina agilis</i>		1	1	2	12.8	0.5
<i>Mercenaria mercenaria</i>	3	2		5	32.1	1.1
<i>Petricolaria pholadiformis</i>		1		1	6.4	0.2
<i>Mya arenaria</i>	1		7	8	51.3	1.8
Arthropoda						
Crustacea						
<i>Eusarsiella zostericola</i>			8	8	51.3	1.8
<i>Edotia triloba</i>	1		1	2	12.8	0.5
<i>Ampelisca abdita</i>			1	1	6.4	0.2
<i>Grandidierella japonica</i>			4	4	25.6	0.9
Urochordata						
Stolidobranchia						
<i>Molgula manhattensis</i>			1	1	6.4	0.2
Total Number	112	72	251	435		100
Total Mean Density (no./m²)					2788.5	
Total Taxa					42	
Shannon Wiener Diversity Index					2.7	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 149						
Sample Date: September 22, 2015						
Gear Type: Full-size Ponar Grab (sampling area = 0.052 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>		4		4	25.6	0.4
<i>Alitta virens</i>	1			1	6.4	0.1
<i>Leitoscoloplos</i> sp			28	28	179.5	2.6
<i>Polydora cornuta</i>		4		4	25.6	0.4
<i>Streblospio benedicti</i>	56	16	84	156	1000.0	14.2
Cirratulidae	28	4		32	205.1	2.9
<i>Tharyx acutus</i>		8	28	36	230.8	3.3
<i>Mediomastus ambiseta</i>			56	56	359.0	5.1
<i>Pectinaria gouldii</i>			1	1	6.4	0.1
Oligochaeta						
Oligochaeta	56	24	196	276	1769.2	25.2
Mollusca						
Gastropoda						
<i>Ilyanassa obsoleta</i>	4	4	3	11	70.5	1.0
Bivalvia						
<i>Macoma balthica</i>	10	12	4	26	166.7	2.4
Arthropoda						
Crustacea						
<i>Edotia triloba</i>		4		4	25.6	0.4
<i>Microdeutopus gryllotalpa</i>			28	28	179.5	2.6
<i>Grandidierella japonica</i>	252	12	168	432	2769.2	39.5
Total Number	407	92	596	1095		100
Total Mean Density (no./m²)					7019.2	
Total Taxa					15	
Shannon Wiener Diversity Index					1.8	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 152						
Sample Date: September 29, 2015						
Gear Type: Full-size Ponar Grab (sampling area = 0.052 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>	7	24	29	60	384.6	5.4
<i>Eumida sanguinea</i>	3			3	19.2	0.3
<i>Streptosyllis websteri</i>		24	3	27	173.1	2.4
<i>Alitta succinea</i>	1			1	6.4	0.1
<i>Glycera americana</i>	1	8		9	57.7	0.8
Goniadidae	1			1	6.4	0.1
<i>Glycinde solitaria</i>	1		5	6	38.5	0.5
<i>Diopatra cuprea</i>		8		8	51.3	0.7
<i>Leitoscoloplos fragilis</i>	3		4	7	44.9	0.6
<i>Leitoscoloplos</i> sp	36	48	41	125	801.3	11.2
Spionidae	1		2	3	19.2	0.3
<i>Polydora cornuta</i>			1	1	6.4	0.1
<i>Spio filicornis</i>	3		11	14	89.7	1.2
<i>Spiophanes bombyx</i>			1	1	6.4	0.1
<i>Pygospio elegans</i>	3		1	4	25.6	0.4
<i>Streblospio benedicti</i>	94	232	112	438	2807.7	39.1
Chaetopteridae			1	1	6.4	0.1
<i>Spiochaetopterus costarum</i>	1		3	4	25.6	0.4
Cirratulidae	1			1	6.4	0.1
<i>Tharyx acutus</i>	2			2	12.8	0.2
<i>Heteromastus filiformis</i>	3		1	4	25.6	0.4
<i>Mediomastus ambiseta</i>	25	64	16	105	673.1	9.4
<i>Parasabella microphthalma</i>	2			2	12.8	0.2
Oligochaeta						
Oligochaeta	15	136	25	176	1128.2	15.7
Mollusca						
Gastropoda						
<i>Crepidula fornicata</i>	1			1	6.4	0.1
<i>Crepidula convexa</i>		1		1	6.4	0.1
<i>Ilyanassa obsoleta</i>		20	13	33	211.5	2.9
<i>Haminoea solitaria</i>		1	1	2	12.8	0.2
Bivalvia						
<i>Mulinia lateralis</i>		2	4	6	38.5	0.5
<i>Macoma balthica</i>	1	1	1	3	19.2	0.3
<i>Tellina agilis</i>	1	1		2	12.8	0.2
<i>Mercenaria mercenaria</i>		2	2	4	25.6	0.4
<i>Mya arenaria</i>	1	1	2	4	25.6	0.4
<i>Lyonsia arenosa</i>			2	2	12.8	0.2
<i>Lyonsia</i> sp	1			1	6.4	0.1

Arthropoda						
Crustacea						
<i>Edotia triloba</i>	1	3	1	5	32.1	0.4
<i>Ampithoe valida</i>	14			14	89.7	1.2
<i>Microdeutopus gryllotalpa</i>	17	2		19	121.8	1.7
<i>Grandidierella japonica</i>	3	3	3	9	57.7	0.8
<i>Gammarus mucronatus</i>	5	1		6	38.5	0.5
<i>Gammarus</i> sp	2			2	12.8	0.2
<i>Melita nitida</i>	3			3	19.2	0.3
<i>Ameroculodes edwardsi</i>		1		1	6.4	0.1
Total Number	253	583	285	1121		100
Total Mean Density (no./m²)					7185.9	
Total Taxa					43	
Shannon Wiener Diversity Index					2.2	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 154						
Sample Date: September 20, 2015						
Gear Type: Full-size Ponar Grab (sampling area = 0.052 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Nemertea						
Lineidae						
Lineidae		1		1	6.4	0.5
Hoplonemertea A						
<i>Amphiporus bioculatus</i>			1	1	6.4	0.5
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>			1	1	6.4	0.5
<i>Eumida sanguinea</i>			1	1	6.4	0.5
<i>Alitta succinea</i>	16	1	1	18	115.4	8.9
<i>Glycera americana</i>	8	1		9	57.7	4.4
<i>Glycera dibranchiata</i>		1		1	6.4	0.5
<i>Leitoscoloplos fragilis</i>		5	3	8	51.3	3.9
<i>Leitoscoloplos</i> sp	6	13	6	25	160.3	12.3
<i>Polydora cornuta</i>	2			2	12.8	1.0
<i>Streblospio benedicti</i>		2	14	16	102.6	7.9
<i>Capitella capitata</i>	8	1		9	57.7	4.4
<i>Mediomastus ambiseta</i>			3	3	19.2	1.5
<i>Sabellaria vulgaris</i>	2			2	12.8	1.0
<i>Pectinaria gouldii</i>		1		1	6.4	0.5
<i>Parasabella microphthalma</i>	6			6	38.5	3.0
Oligochaeta						
Oligochaeta		1	4	5	32.1	2.5
Mollusca						
Gastropoda						
<i>Crepidula fornicata</i>	1			1	6.4	0.5
<i>Ilyanassa obsoleta</i>	4	4	3	11	70.5	5.4
<i>Haminoea solitaria</i>		1		1	6.4	0.5
Bivalvia						
<i>Mulinia lateralis</i>	1			1	6.4	0.5
<i>Mya arenaria</i>	1		1	2	12.8	1.0
<i>Lyonsia arenosa</i>		2	4	6	38.5	3.0
Arthropoda						
Crustacea						
<i>Eusarsiella zostericola</i>		4		4	25.6	2.0
<i>Doropygus laticornis</i>	2		2	4	25.6	2.0
<i>Edotia triloba</i>	2			2	12.8	1.0
<i>Ampithoe valida</i>	10			10	64.1	4.9
<i>Microdeutopus gryllotalpa</i>	8			8	51.3	3.9
<i>Grandidierella japonica</i>	18	9	2	29	185.9	14.3
<i>Monocorophium acherusicum</i>		1		1	6.4	0.5

<i>Gammarus mucronatus</i>	6			6	38.5	3.0
<i>Pagurus longicarpus</i>		2		2	12.8	1.0
<i>Dyspanopeus sayi</i>	6			6	38.5	3.0
Total Number	107	50	46	203		100
Total Mean Density (no./m²)					1301.3	
Total Taxa					33	
Shannon Wiener Diversity Index					3.0	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 155						
Sample Date: September 20, 2015						
Gear Type: Full-size Ponar Grab (sampling area = 0.052 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>	4	4	7	15	96.2	4.1
<i>Streptosyllis verrilli</i>			2	2	12.8	0.5
<i>Laeonereis culveri</i>		3	1	4	25.6	1.1
<i>Leitoscoloplos fragilis</i>		1		1	6.4	0.3
<i>Polydora cornuta</i>		1	1	2	12.8	0.5
<i>Spio filicornis</i>	2		1	3	19.2	0.8
<i>Streblospio benedicti</i>	37	37	69	143	916.7	39.2
<i>Marenzelleria viridis</i>	1	3		4	25.6	1.1
Cirratulidae	7	7	14	28	179.5	7.7
<i>Tharyx acutus</i>	22	38	22	82	525.6	22.5
<i>Mediomastus ambiseta</i>	3	2	3	8	51.3	2.2
Oligochaeta						
Oligochaeta			4	4	25.6	1.1
Mollusca						
Gastropoda						
<i>Ilyanassa obsoleta</i>	1		7	8	51.3	2.2
<i>Haminoea solitaria</i>			3	3	19.2	0.8
Bivalvia						
<i>Mulinia lateralis</i>		1		1	6.4	0.3
<i>Macoma balthica</i>	5	9	4	18	115.4	4.9
<i>Mercenaria mercenaria</i>		1		1	6.4	0.3
Arthropoda						
Chelicerata						
<i>Limulus polyphemus</i>			1	1	6.4	0.3
Crustacea						
<i>Edotia triloba</i>		2		2	12.8	0.5
<i>Grandidierella japonica</i>	6	17	12	35	224.4	9.6
Total Number	88	126	151	365		100
Total Mean Density (no./m²)					2339.7	
Total Taxa					20	
Shannon Wiener Diversity Index					1.9	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 158						
Sample Date: September 24, 2015						
Gear Type: Full-size Ponar Grab (sampling area = 0.052 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Cnidaria						
Actinaria						
Actiniaria		2		2	12.8	0.1
<i>Diadumene leucolena</i>		1		1	6.4	0.1
Nemertea						
Tubulanidae						
<i>Tubulanus pellucidus</i>		1		1	6.4	0.1
Hoplonemertea A						
<i>Amphiporus bioculatus</i>	4	2		6	38.5	0.4
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>			4	4	25.6	0.2
<i>Paranaitis speciosa</i>		1		1	6.4	0.1
<i>Eumida sanguinea</i>		1	4	5	32.1	0.3
<i>Gyptis vittata</i>		1	4	5	32.1	0.3
<i>Alitta succinea</i>	4	2		6	38.5	0.4
<i>Glycera americana</i>		9	8	17	109.0	1.0
<i>Glycera dibranchiata</i>		1		1	6.4	0.1
Goniadidae	4		8	12	76.9	0.7
<i>Glycinde solitaria</i>	4	8	8	20	128.2	1.2
<i>Diopatra cuprea</i>			1	1	6.4	0.1
<i>Leitoscoloplos</i> sp	36	12	24	72	461.5	4.3
Spionidae		1		1	6.4	0.1
<i>Polydora cornuta</i>		1	4	5	32.1	0.3
<i>Spiophanes bombyx</i>		1		1	6.4	0.1
<i>Pygospio elegans</i>		2	4	6	38.5	0.4
<i>Streblospio benedicti</i>	92	76	288	456	2923.1	27.2
<i>Spiochaetopterus costarum</i>			4	4	25.6	0.2
Cirratulidae		2		2	12.8	0.1
<i>Tharyx acutus</i>	4		4	8	51.3	0.5
<i>Heteromastus filiformis</i>	4	4	4	12	76.9	0.7
<i>Mediomastus ambiseta</i>	156	92	156	404	2589.7	24.1
<i>Sabellaria vulgaris</i>	6	4	4	14	89.7	0.8
<i>Pectinaria gouldii</i>	10	3	7	20	128.2	1.2
<i>Ampharete oculata</i>			4	4	25.6	0.2
<i>Parasabella microphthalma</i>			4	4	25.6	0.2
Oligochaeta						
Oligochaeta	80	11	56	147	942.3	8.8
Mollusca						
Gastropoda						
<i>Crepidula</i> sp		2		2	12.8	0.1

<i>Japonactaeon punctostriatus</i>		2		2	12.8	0.1
<i>Haminoea solitaria</i>	5	2	1	8	51.3	0.5
Bivalvia						
<i>Mulinia lateralis</i>	1	1	1	3	19.2	0.2
<i>Mercenaria mercenaria</i>			4	4	25.6	0.2
<i>Petricolaria pholadiformis</i>		1		1	6.4	0.1
<i>Mya arenaria</i>	99	130	133	362	2320.5	21.6
<i>Lyonsia arenosa</i>	2	5	3	10	64.1	0.6
Arthropoda						
Crustacea						
<i>Eusarsiella zostericola</i>		3		3	19.2	0.2
<i>Edotia triloba</i>			1	1	6.4	0.1
<i>Ampelisca abdita</i>	4	6	3	13	83.3	0.8
<i>Unciola serrata</i>			1	1	6.4	0.1
<i>Grandidierella japonica</i>	3	3	13	19	121.8	1.1
<i>Gammarus mucronatus</i>	4			4	25.6	0.2
<i>Melita nitida</i>			1	1	6.4	0.1
<i>Dyspanopeus sayi</i>	1		1	2	12.8	0.1
Total Number	523	393	762	1678		100
Total Mean Density (no./m²)					10756.4	
Total Taxa					46	
Shannon Wiener Diversity Index					2.1	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 159						
Sample Date: September 24, 2015						
Gear Type: Full-size Ponar Grab (sampling area = 0.052 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Annelida						
Polychaeta						
<i>Gyptis vittata</i>		2		2	12.8	0.6
<i>Glycera americana</i>		2	2	4	25.6	1.3
<i>Glycera</i> sp		1		1	6.4	0.3
Goniadidae			3	3	19.2	1.0
<i>Glycinde solitaria</i>	4	5	1	10	64.1	3.2
<i>Leitoscoloplos fragilis</i>		2		2	12.8	0.6
<i>Leitoscoloplos</i> sp	44	26	22	92	589.7	29.9
<i>Streblospio benedicti</i>	16	5		21	134.6	6.8
<i>Spiochaetopterus costarum</i>		13	3	16	102.6	5.2
<i>Heteromastus filiformis</i>		1	2	3	19.2	1.0
<i>Mediomastus ambiseta</i>	52	8	8	68	435.9	22.1
<i>Pectinaria gouldii</i>	9	4	5	18	115.4	5.8
Ampharetidae		1		1	6.4	0.3
<i>Ampharete oculata</i>		4	3	7	44.9	2.3
Oligochaeta						
Oligochaeta	16	3		19	121.8	6.2
Mollusca						
Gastropoda						
<i>Odostomia eburnea</i>		1		1	6.4	0.3
<i>Japonactaeon punctostriatus</i>		1	1	2	12.8	0.6
<i>Acteocina canaliculata</i>		2		2	12.8	0.6
Bivalvia						
<i>Mulinia lateralis</i>	2	7	1	10	64.1	3.2
<i>Tellina agilis</i>	1		1	2	12.8	0.6
<i>Mya arenaria</i>		3	1	4	25.6	1.3
<i>Lyonsia arenosa</i>	1			1	6.4	0.3
Arthropoda						
Crustacea						
<i>Ampelisca abdita</i>	3	15	1	19	121.8	6.2
Total Number	148	106	54	308		100
Total Mean Density (no./m²)					1974.4	
Total Taxa					23	
Shannon Wiener Diversity Index					2.3	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 160						
Sample Date: September 28, 2015						
Gear Type: Full-size Ponar Grab (sampling area = 0.052 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>		8	8	16	102.6	3.2
<i>Laonereis culveri</i>	14	8	32	54	346.2	10.9
<i>Alitta succinea</i>		2		2	12.8	0.4
<i>Polydora cornuta</i>	7	4		11	70.5	2.2
<i>Streblospio benedicti</i>	14	14	24	52	333.3	10.5
<i>Tharyx acutus</i>		1		1	6.4	0.2
<i>Mediomastus ambiseta</i>	7		8	15	96.2	3.0
Oligochaeta						
Oligochaeta		1	16	17	109.0	3.4
Mollusca						
Gastropoda						
<i>Ilyanassa obsoleta</i>	7	3	8	18	115.4	3.6
<i>Boonea bisuturalis</i>	7	1		8	51.3	1.6
Bivalvia						
Tellinidae	14			14	89.7	2.8
<i>Macoma balthica</i>	28	74	32	134	859.0	27.1
<i>Mya arenaria</i>	21	3		24	153.8	4.9
Arthropoda						
Crustacea						
<i>Cyathura burbancki</i>	49	31	24	104	666.7	21.1
<i>Edotia triloba</i>	14	1		15	96.2	3.0
<i>Grandidierella japonica</i>		1	8	9	57.7	1.8
Total Number	182	152	160	494		100
Total Mean Density (no./m²)					3166.7	
Total Taxa					16	
Shannon Wiener Diversity Index					2.2	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 136 Sample Date: September 14, 2015 Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Nemertea						
Hoplonemertea A						
<i>Amphiporus bioculatus</i>			1	1	14.5	0.2
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>	1	5	1	7	101.4	1.6
<i>Gyptis vittata</i>		1		1	14.5	0.2
<i>Neanthes arenaceodentata</i>		1		1	14.5	0.2
<i>Laeonereis culveri</i>			1	1	14.5	0.2
<i>Glycera americana</i>	1			1	14.5	0.2
<i>Leitoscoloplos fragilis</i>	4	7	8	19	275.4	4.3
<i>Leitoscoloplos</i> sp	3	4	3	10	144.9	2.3
<i>Polydora cornuta</i>		1	3	4	58.0	0.9
<i>Streblospio benedicti</i>	3	69	58	130	1884.1	29.6
<i>Tharyx acutus</i>			1	1	14.5	0.2
<i>Heteromastus filiformis</i>	5	5	5	15	217.4	3.4
<i>Mediomastus ambiseta</i>		16	16	32	463.8	7.3
Oligochaeta						
Oligochaeta	2	18	14	34	492.8	7.7
Mollusca						
Bivalvia						
<i>Macoma balthica</i>	7	8	14	29	420.3	6.6
Arthropoda						
Crustacea						
<i>Doropygus laticornis</i>		3	15	18	260.9	4.1
<i>Leucon americanus</i>		6		6	87.0	1.4
<i>Edotia triloba</i>		1		1	14.5	0.2
<i>Ampelisca abdita</i>		21	3	24	347.8	5.5
<i>Grandidierella japonica</i>	5	47	45	97	1405.8	22.1
<i>Gammarus mucronatus</i>		1	5	6	87.0	1.4
<i>Haustorius canadensis</i>		1		1	14.5	0.2
Total Number	31	215	193	439		100
Total Mean Density (no./m²)					6362.3	
Total Taxa					22	
Shannon Wiener Diversity Index					2.2	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 137						
Sample Date: September 14, 2015						
Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Nemertea						
Hoplonemertea A						
<i>Amphiporus bioculatus</i>	2			2	29.0	0.4
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>	2			2	29.0	0.4
<i>Glycera americana</i>	4	4		8	115.9	1.5
<i>Leitoscoloplos fragilis</i>	10	12	4	26	376.8	4.9
<i>Leitoscoloplos</i> sp	32	40	60	132	1913.0	24.7
<i>Streblospio benedicti</i>	64	24	36	124	1797.1	23.2
Cirratulidae	6		4	10	144.9	1.9
<i>Tharyx acutus</i>	2		4	6	87.0	1.1
<i>Mediomastus ambiseta</i>	8	12	4	24	347.8	4.5
<i>Pectinaria gouldii</i>	2	3	6	11	159.4	2.1
Oligochaeta						
Oligochaeta	42	24	32	98	1420.3	18.4
Mollusca						
Gastropoda						
<i>Ilyanassa obsoleta</i>		2	1	3	43.5	0.6
<i>Japonactaeon punctostriatus</i>		1		1	14.5	0.2
<i>Haminoea solitaria</i>	1	1	1	3	43.5	0.6
Bivalvia						
<i>Mulinia lateralis</i>	2	1	2	5	72.5	0.9
<i>Macoma balthica</i>	1	1	1	3	43.5	0.6
<i>Lyonsia arenosa</i>			1	1	14.5	0.2
Arthropoda						
Crustacea						
<i>Eusarsiella zostericola</i>			1	1	14.5	0.2
<i>Leucon americanus</i>		1		1	14.5	0.2
<i>Ampelisca abdita</i>	34	12	20	66	956.5	12.4
<i>Grandidierella japonica</i>	2	2	3	7	101.4	1.3
Total Number	214	140	180	534		100
Total Mean Density (no./m²)					7739.1	
Total Taxa					21	
Shannon Wiener Diversity Index					2.1	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 138						
Sample Date: September 14, 2015						
Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>			4	4	58.0	1.0
<i>Glycinde solitaria</i>	4		4	8	115.9	1.9
<i>Leitoscoloplos fragilis</i>	16	12	12	40	579.7	9.7
<i>Leitoscoloplos sp</i>	12	32	44	88	1275.4	21.3
<i>Streblospio benedicti</i>	36	24	20	80	1159.4	19.4
<i>Tharyx acutus</i>	4			4	58.0	1.0
<i>Heteromastus filiformis</i>		4	4	8	115.9	1.9
<i>Mediomastus ambiseta</i>	12	4	32	48	695.7	11.6
<i>Pectinaria gouldii</i>	3	3	1	7	101.4	1.7
<i>Ampharete oculata</i>	4	4		8	115.9	1.9
Oligochaeta						
Oligochaeta	24	8	24	56	811.6	13.6
Mollusca						
Gastropoda						
<i>Japonactaeon punctostriatus</i>	4	8	4	16	231.9	3.9
<i>Haminoea solitaria</i>	1	5	1	7	101.4	1.7
Bivalvia						
<i>Mulinia lateralis</i>	1	2	2	5	72.5	1.2
<i>Macoma balthica</i>	1			1	14.5	0.2
<i>Mya arenaria</i>	1	3	4	8	115.9	1.9
Arthropoda						
Crustacea						
<i>Leucon americanus</i>	2	1		3	43.5	0.7
<i>Edotia triloba</i>	1			1	14.5	0.2
<i>Ampelisca abdita</i>	6	5	3	14	202.9	3.4
<i>Grandidierella japonica</i>	1	1	5	7	101.4	1.7
Total Number	133	116	164	413		100
Total Mean Density (no./m²)					5985.5	
Total Taxa					20	
Shannon Wiener Diversity Index					2.4	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 139						
Sample Date: September 15, 2015						
Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>	1			1	14.5	0.2
<i>Gyptis vittata</i>		1		1	14.5	0.2
<i>Glycera americana</i>	3	3	5	11	159.4	2.6
<i>Glycinde solitaria</i>	1	4	5	10	144.9	2.3
<i>Leitoscoloplos fragilis</i>	11	9	7	27	391.3	6.3
<i>Leitoscoloplos</i> sp	17	64	37	118	1710.1	27.4
<i>Polydora cornuta</i>	1		1	2	29.0	0.5
<i>Streblospio benedicti</i>	14	27	17	58	840.6	13.5
<i>Tharyx acutus</i>	2	2	1	5	72.5	1.2
<i>Capitella capitata</i>			1	1	14.5	0.2
<i>Mediomastus ambiseta</i>	26	29	55	110	1594.2	25.6
<i>Pectinaria gouldii</i>	3	1	6	10	144.9	2.3
Oligochaeta						
Oligochaeta	5	11	10	26	376.8	6.0
Mollusca						
Gastropoda						
<i>Japonactaeon punctostriatus</i>	3	1	1	5	72.5	1.2
<i>Haminoea solitaria</i>	3	2	1	6	87.0	1.4
Bivalvia						
<i>Mulinia lateralis</i>	2	2		4	58.0	0.9
<i>Mya arenaria</i>	8	4	9	21	304.3	4.9
<i>Lyonsia</i> sp			1	1	14.5	0.2
Arthropoda						
Crustacea						
<i>Eusarsiella zostericola</i>	1			1	14.5	0.2
<i>Ampelisca abdita</i>	3	4	3	10	144.9	2.3
<i>Ampithoe valida</i>	1			1	14.5	0.2
<i>Grandidierella japonica</i>			1	1	14.5	0.2
Total Number	105	164	161	430		100
Total Mean Density (no./m²)					6231.9	
Total Taxa					22	
Shannon Wiener Diversity Index					2.2	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 140						
Sample Date: September 29, 2015						
Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Nemertea						
Hoploneurtea A						
<i>Amphiporus bioculatus</i>			2	2	29.0	0.4
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>	2	1		3	43.5	0.6
Nereididae			4	4	58.0	0.8
<i>Laonereis culveri</i>	36	19	10	65	942.0	13.8
<i>Alitta succinea</i>	2	1		3	43.5	0.6
<i>Leitoscoloplos fragilis</i>	4	2	6	12	173.9	2.5
<i>Leitoscoloplos</i> sp	18	12	30	60	869.6	12.7
<i>Polydora cornuta</i>		1		1	14.5	0.2
<i>Pygospio elegans</i>		1		1	14.5	0.2
<i>Streblospio benedicti</i>	56	39	40	135	1956.5	28.7
<i>Marenzelleria viridis</i>	2		2	4	58.0	0.8
<i>Tharyx acutus</i>		1		1	14.5	0.2
Ampharetidae	2			2	29.0	0.4
Oligochaeta						
Oligochaeta			6	6	87.0	1.3
Mollusca						
Gastropoda						
<i>Ilyanassa obsoleta</i>	2	2	3	7	101.4	1.5
Bivalvia						
<i>Macoma balthica</i>	14	7	20	41	594.2	8.7
<i>Mya arenaria</i>			1	1	14.5	0.2
Arthropoda						
Crustacea						
<i>Cyathura burbancki</i>	44	22	34	100	1449.3	21.2
<i>Edotia triloba</i>	4	1		5	72.5	1.1
<i>Ampithoe valida</i>		1		1	14.5	0.2
<i>Grandidierella japonica</i>	4	9	2	15	217.4	3.2
<i>Gammarus mucronatus</i>		2		2	29.0	0.4
Total Number	190	121	160	471		100
Total Mean Density (no./m²)					6826.1	
Total Taxa					22	
Shannon Wiener Diversity Index					2.1	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 141						
Sample Date: September 16, 2015						
Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Annelida						
Polychaeta						
<i>Glycera americana</i>	1	2	1	4	58.0	1.5
<i>Glycera</i> sp	1			1	14.5	0.4
<i>Glycinde solitaria</i>		1	1	2	29.0	0.7
<i>Leitoscoloplos fragilis</i>	7	11	16	34	492.8	12.7
<i>Leitoscoloplos</i> sp	19	11	20	50	724.6	18.7
Spionidae			1	1	14.5	0.4
<i>Streblospio benedicti</i>	21	22	46	89	1289.9	33.3
<i>Spiochaetopterus costarum</i>		1		1	14.5	0.4
<i>Tharyx acutus</i>	2	1	5	8	115.9	3.0
<i>Mediomastus ambiseta</i>	9	1	5	15	217.4	5.6
<i>Pectinaria gouldii</i>		1	4	5	72.5	1.9
Oligochaeta						
Oligochaeta	5	1	2	8	115.9	3.0
Mollusca						
Gastropoda						
<i>Japonactaeon punctostriatus</i>	1	1		2	29.0	0.7
Bivalvia						
<i>Mulinia lateralis</i>	2	2		4	58.0	1.5
<i>Mya arenaria</i>	2	3	10	15	217.4	5.6
Arthropoda						
Crustacea						
<i>Leucon americanus</i>			1	1	14.5	0.4
<i>Ampelisca abdita</i>	4	9	2	15	217.4	5.6
<i>Grandidierella japonica</i>	2	3	6	11	159.4	4.1
<i>Apocorophium acutum</i>			1	1	14.5	0.4
Total Number	76	70	121	267		100
Total Mean Density (no./m²)					3869.6	
Total Taxa					19	
Shannon Wiener Diversity Index					2.1	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 143						
Sample Date: September 29, 2015						
Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Nemertea						
Hoploneurtea A						
<i>Amphiporus bioculatus</i>	2			2	29.0	0.5
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>		2	6	8	115.9	2.0
<i>Alitta succinea</i>			3	3	43.5	0.7
<i>Glycinde solitaria</i>		2		2	29.0	0.5
<i>Leitoscoloplos fragilis</i>	1			1	14.5	0.2
<i>Leitoscoloplos</i> sp	7	34	12	53	768.1	13.1
<i>Streblospio benedicti</i>	11	58	38	107	1550.7	26.4
Cirratulidae		2	6	8	115.9	2.0
<i>Tharyx acutus</i>	2	6		8	115.9	2.0
<i>Capitella capitata</i>	1			1	14.5	0.2
<i>Heteromastus filiformis</i>		2		2	29.0	0.5
<i>Mediomastus ambiseta</i>	3	24	28	55	797.1	13.6
<i>Pectinaria gouldii</i>		2	5	7	101.4	1.7
Oligochaeta						
Oligochaeta	21	10	20	51	739.1	12.6
Mollusca						
Gastropoda						
<i>Ilyanassa obsoleta</i>	2		2	4	58.0	1.0
<i>Boonea bisuturalis</i>		1		1	14.5	0.2
<i>Haminoea solitaria</i>		7	5	12	173.9	3.0
Bivalvia						
<i>Mulinia lateralis</i>		1		1	14.5	0.2
<i>Macoma balthica</i>		1	1	2	29.0	0.5
<i>Petricolaria pholadiformis</i>			1	1	14.5	0.2
Arthropoda						
Crustacea						
<i>Leucon americanus</i>			1	1	14.5	0.2
<i>Edotia triloba</i>			2	2	29.0	0.5
<i>Ampelisca abdita</i>		4	2	6	87.0	1.5
<i>Microdeutopus gryllotalpa</i>	1		7	8	115.9	2.0
<i>Grandidierella japonica</i>	5	13	41	59	855.1	14.6
Total Number	56	169	180	405		100
Total Mean Density (no./m²)					5869.6	
Total Taxa					25	
Shannon Wiener Diversity Index					2.3	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 144						
Sample Date: September 17, 2015						
Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Annelida						
Polychaeta						
<i>Glycera americana</i>			1	1	14.5	2.0
<i>Glycinde solitaria</i>			3	3	43.5	6.1
<i>Leitoscoloplos fragilis</i>			8	8	115.9	16.3
<i>Leitoscoloplos</i> sp		1		1	14.5	2.0
<i>Streblospio benedicti</i>		3	8	11	159.4	22.4
<i>Spiochaetopterus costarum</i>		1	2	3	43.5	6.1
<i>Pectinaria gouldii</i>		2	8	10	144.9	20.4
Mollusca						
Gastropoda						
<i>Acteocina canaliculata</i>			1	1	14.5	2.0
<i>Haminoea solitaria</i>		2	5	7	101.4	14.3
Bivalvia						
<i>Lyonsia arenosa</i>	1		1	2	29.0	4.1
Arthropoda						
Crustacea						
<i>Grandidierella japonica</i>			2	2	29.0	4.1
Total Number	1	9	39	49		100
Total Mean Density (no./m²)					710.1	
Total Taxa					11	
Shannon Wiener Diversity Index					2.1	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 145						
Sample Date: September 29, 2015						
Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>	1	4	12	17	246.4	2.8
<i>Gyptis vittata</i>		1		1	14.5	0.2
<i>Glycera americana</i>	2		6	8	115.9	1.3
<i>Glycera</i> sp	1			1	14.5	0.2
Goniadidae		1		1	14.5	0.2
<i>Glycinde solitaria</i>			2	2	29.0	0.3
<i>Leitoscoloplos fragilis</i>	41	40	52	133	1927.5	21.7
<i>Leitoscoloplos</i> sp	10	9	10	29	420.3	4.7
Spionidae		1		1	14.5	0.2
<i>Streblospio benedicti</i>	59	53	100	212	3072.5	34.6
<i>Spiochaetopterus costarum</i>			2	2	29.0	0.3
<i>Tharyx acutus</i>			6	6	87.0	1.0
<i>Heteromastus filiformis</i>			4	4	58.0	0.7
<i>Mediomastus ambiseta</i>	3	9	70	82	1188.4	13.4
<i>Pectinaria gouldii</i>	1		3	4	58.0	0.7
Oligochaeta						
Oligochaeta	5	7	12	24	347.8	3.9
Mollusca						
Gastropoda						
<i>Ilyanassa obsoleta</i>	4	4	1	9	130.4	1.5
<i>Boonea bisuturalis</i>		1		1	14.5	0.2
<i>Japonactaeon punctostriatus</i>		2	1	3	43.5	0.5
<i>Haminoea solitaria</i>	2	18	14	34	492.8	5.6
Bivalvia						
<i>Mulinia lateralis</i>	4	1	4	9	130.4	1.5
<i>Macoma balthica</i>	1			1	14.5	0.2
<i>Mercenaria mercenaria</i>			1	1	14.5	0.2
Arthropoda						
Crustacea						
<i>Edotia triloba</i>		1		1	14.5	0.2
<i>Ampelisca abdita</i>	3	4	3	10	144.9	1.6
<i>Microdeutopus gryllotalpa</i>		2		2	29.0	0.3
<i>Grandidierella japonica</i>	4	7	1	12	173.9	2.0
<i>Melita nitida</i>		2		2	29.0	0.3
Total Number	141	167	304	612		100
Total Mean Density (no./m²)					8869.6	
Total Taxa					28	
Shannon Wiener Diversity Index					2.1	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 147 Sample Date: September 21, 2015 Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Nemertea						
Tubulanidae						
<i>Tubulanus pellucidus</i>			1	1	14.5	0.7
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>			1	1	14.5	0.7
<i>Glycera americana</i>		3		3	43.5	2.1
<i>Leitoscoloplos fragilis</i>	8	1		9	130.4	6.2
<i>Leitoscoloplos</i> sp	48	3	2	53	768.1	36.3
<i>Streblospio benedicti</i>	8		4	12	173.9	8.2
Cirratulidae	8	1	1	10	144.9	6.8
<i>Cossura longocirrata</i>		1		1	14.5	0.7
<i>Heteromastus filiformis</i>	8	1		9	130.4	6.2
<i>Mediomastus ambiseta</i>	8		2	10	144.9	6.8
<i>Pectinaria gouldii</i>		1	1	2	29.0	1.4
<i>Parasabella microphthalma</i>		1		1	14.5	0.7
Oligochaeta						
Oligochaeta	24	2	7	33	478.3	22.6
Mollusca						
Gastropoda						
<i>Japonactaeon punctostriatus</i>		1		1	14.5	0.7
Total Number	112	15	19	146		100
Total Mean Density (no./m²)					2115.9	
Total Taxa					14	
Shannon Wiener Diversity Index					1.9	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 148 Sample Date: September 21, 2015 Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Annelida						
Polychaeta						
<i>Nephtys</i> sp		1		1	14.5	3.6
<i>Glycera americana</i>	1	2		3	43.5	10.7
<i>Leitoscoloplos fragilis</i>			1	1	14.5	3.6
<i>Leitoscoloplos</i> sp	8	5		13	188.4	46.4
<i>Spiochaetopterus costarum</i>	1			1	14.5	3.6
<i>Pectinaria gouldii</i>	4	2	1	7	101.4	25.0
Mollusca						
Gastropoda						
<i>Japonactaeon punctostriatus</i>			1	1	14.5	3.6
<i>Haminoea solitaria</i>			1	1	14.5	3.6
Total Number	14	10	4	28		100
Total Mean Density (no./m²)					405.8	
Total Taxa					8	
Shannon Wiener Diversity Index					1.5	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 150						
Sample Date: September 22, 2015						
Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Nemertea						
Hoplonemertea A						
<i>Amphiporus bioculatus</i>	1		1	2	29.0	1.3
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>	1			1	14.5	0.6
<i>Gyptis vittata</i>		2	1	3	43.5	1.9
<i>Glycera americana</i>	2			2	29.0	1.3
<i>Glycinde solitaria</i>	2		1	3	43.5	1.9
<i>Diopatra cuprea</i>	2	1		3	43.5	1.9
<i>Leitoscoloplos fragilis</i>	8	4	11	23	333.3	14.6
<i>Leitoscoloplos</i> sp	16		5	21	304.3	13.4
<i>Streblospio benedicti</i>	20	2	2	24	347.8	15.3
<i>Spiochaetopterus costarum</i>	1			1	14.5	0.6
Cirratulidae	2			2	29.0	1.3
<i>Mediomastus ambiseta</i>	6		1	7	101.4	4.5
<i>Pectinaria gouldii</i>	6	1	5	12	173.9	7.6
Oligochaeta						
Oligochaeta	16	1	1	18	260.9	11.5
Mollusca						
Gastropoda						
<i>Ilyanassa obsoleta</i>		1		1	14.5	0.6
<i>Japonactaeon punctostriatus</i>	1		2	3	43.5	1.9
<i>Acteocina canaliculata</i>		2	1	3	43.5	1.9
<i>Haminoea solitaria</i>	12	1	2	15	217.4	9.6
Bivalvia						
<i>Mulinia lateralis</i>	4		2	6	87.0	3.8
<i>Mya arenaria</i>			1	1	14.5	0.6
<i>Lyonsia arenosa</i>	2	1		3	43.5	1.9
Arthropoda						
Crustacea						
<i>Ampithoe valida</i>	1			1	14.5	0.6
<i>Grandidierella japonica</i>	2			2	29.0	1.3
Total Number	105	16	36	157		100
Total Mean Density (no./m²)					2275.4	
Total Taxa					23	
Shannon Wiener Diversity Index					2.6	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 151 Sample Date: September 20, 2015 Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>	1	5	1	7	101.4	6.1
<i>Eumida sanguinea</i>	1			1	14.5	0.9
<i>Leitoscoloplos fragilis</i>	1		2	3	43.5	2.6
<i>Streblospio benedicti</i>	3	8	38	49	710.1	42.6
<i>Spiochaetopterus costarum</i>			1	1	14.5	0.9
Cirratulidae		1		1	14.5	0.9
<i>Tharyx acutus</i>	1			1	14.5	0.9
<i>Capitella capitata</i>	1			1	14.5	0.9
<i>Mediomastus ambiseta</i>		1		1	14.5	0.9
<i>Pectinaria gouldii</i>	2	1		3	43.5	2.6
Oligochaeta						
Oligochaeta		1	4	5	72.5	4.3
Mollusca						
Gastropoda						
<i>Ilyanassa obsoleta</i>	2		1	3	43.5	2.6
<i>Japonactaeon punctostriatus</i>	1			1	14.5	0.9
<i>Acteocina canaliculata</i>	1			1	14.5	0.9
<i>Haminoea solitaria</i>	5	1	4	10	144.9	8.7
Bivalvia						
<i>Mulinia lateralis</i>		1	2	3	43.5	2.6
<i>Mercenaria mercenaria</i>	1			1	14.5	0.9
<i>Mya arenaria</i>	6	7	3	16	231.9	13.9
<i>Lyonsia arenosa</i>	1			1	14.5	0.9
Arthropoda						
Crustacea						
<i>Leucon americanus</i>			2	2	29.0	1.7
<i>Edotia triloba</i>		1		1	14.5	0.9
<i>Grandidierella japonica</i>	1	1	1	3	43.5	2.6
Total Number	28	28	59	115		100
Total Mean Density (no./m²)					1666.7	
Total Taxa					22	
Shannon Wiener Diversity Index					2.2	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 153						
Sample Date: September 23, 2015						
Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Nemertea						
Tubulanidae						
<i>Tubulanus pellucidus</i>		1		1	14.5	0.3
Hoplonemertea A						
<i>Amphiporus bioculatus</i>	1		2	3	43.5	0.8
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>			1	1	14.5	0.3
<i>Eumida sanguinea</i>	1		1	2	29.0	0.5
<i>Gyptis vittata</i>	1	1		2	29.0	0.5
<i>Odontosyllis fulgurans</i>			3	3	43.5	0.8
<i>Salvatoria clavata</i>	1			1	14.5	0.3
<i>Alitta succinea</i>	1			1	14.5	0.3
<i>Glycera americana</i>	3	5	6	14	202.9	3.6
<i>Glycinde solitaria</i>	2	2	3	7	101.4	1.8
<i>Diopatra cuprea</i>	1		2	3	43.5	0.8
<i>Leitoscoloplos fragilis</i>	2	4	8	14	202.9	3.6
<i>Leitoscoloplos</i> sp	8	9	8	25	362.3	6.5
<i>Pygospio elegans</i>		1		1	14.5	0.3
<i>Streblospio benedicti</i>	7	11	96	114	1652.2	29.5
<i>Spiochaetopterus costarum</i>	1	6	7	14	202.9	3.6
Cirratulidae			2	2	29.0	0.5
<i>Cossura longocirrata</i>			1	1	14.5	0.3
<i>Mediomastus ambiseta</i>	8	2	47	57	826.1	14.8
<i>Sabaco elongatus</i>			1	1	14.5	0.3
<i>Pectinaria gouldii</i>	11	7	9	27	391.3	7.0
<i>Ampharete oculata</i>			1	1	14.5	0.3
<i>Parasabella microphthalma</i>		1	2	3	43.5	0.8
Oligochaeta						
Oligochaeta	2		4	6	87.0	1.6
Mollusca						
Gastropoda						
<i>Urosalpinx cinerea</i>		1		1	14.5	0.3
<i>Japonactaeon punctostriatus</i>		2		2	29.0	0.5
<i>Acteocina canaliculata</i>		2	1	3	43.5	0.8
<i>Haminoea solitaria</i>	2	19	6	27	391.3	7.0
Bivalvia						
<i>Mulinia lateralis</i>	2	1	4	7	101.4	1.8
<i>Tellina agilis</i>			1	1	14.5	0.3
<i>Mercenaria mercenaria</i>			2	2	29.0	0.5
<i>Lyonsia arenosa</i>	1	1	2	4	58.0	1.0

Arthropoda							
Crustacea							
	<i>Eusarsiella zostericola</i>	3		3	43.5	0.8	
	Idoteidae		1	1	14.5	0.3	
	<i>Ampelisca abdita</i>	1	2	1	4	58.0	1.0
	<i>Microdeutopus gryllotalpa</i>			3	3	43.5	0.8
	<i>Grandidierella japonica</i>	5	3	8	16	231.9	4.1
	<i>Elasmopus levis</i>			2	2	29.0	0.5
	<i>Gammarus mucronatus</i>			1	1	14.5	0.3
	<i>Paracaprella tenuis</i>			3	3	43.5	0.8
	<i>Dyspanopeus sayi</i>			1	1	14.5	0.3
Urochordata							
Stolidobranchia							
	<i>Molgula manhattensis</i>			1	1	14.5	0.3
Total Number		61	84	241	386		100
Total Mean Density (no./m²)						5594.2	
Total Taxa						42	
Shannon Wiener Diversity Index						2.7	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 156						
Sample Date: September 17, 2015						
Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Platyhelminthes						
Polycladida						
<i>Stylochus ellipticus</i>		1		1	14.5	0.8
Annelida						
Polychaeta						
<i>Nephtys incisa</i>	1			1	14.5	0.8
Goniadidae	1	1		2	29.0	1.6
<i>Glycinde solitaria</i>	1	1	1	3	43.5	2.4
<i>Leitoscoloplos</i> sp	20	4	6	30	434.8	24.0
<i>Streblospio benedicti</i>	1			1	14.5	0.8
<i>Mediomastus ambiseta</i>	7	12		19	275.4	15.2
<i>Pectinaria gouldii</i>	8	7	3	18	260.9	14.4
Oligochaeta						
Oligochaeta	4	9		13	188.4	10.4
Mollusca						
Gastropoda						
<i>Ilyanassa obsoleta</i>		1		1	14.5	0.8
Bivalvia						
<i>Mulinia lateralis</i>	5	3	11	19	275.4	15.2
<i>Tellina agilis</i>			1	1	14.5	0.8
Arthropoda						
Crustacea						
<i>Neomysis americana</i>	1		1	2	29.0	1.6
<i>Leucon americanus</i>	8	1	1	10	144.9	8.0
<i>Oxyurostylis smithi</i>	3			3	43.5	2.4
<i>Cerapus</i> sp		1		1	14.5	0.8
Total Number	60	41	24	125		100
Total Mean Density (no./m²)					1811.6	
Total Taxa					16	
Shannon Wiener Diversity Index					2.2	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 157 Sample Date: September 16, 2015 Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Annelida						
Polychaeta						
<i>Gyptis vittata</i>	1		1	2	29.0	2.4
<i>Nephtys incisa</i>			1	1	14.5	1.2
<i>Glycera americana</i>	1	1	2	4	58.0	4.8
<i>Leitoscoloplos fragilis</i>	2	2	8	12	173.9	14.3
<i>Leitoscoloplos</i> sp	5	8	14	27	391.3	32.1
<i>Polydora cornuta</i>	1			1	14.5	1.2
<i>Prionospio</i> sp	1		1	2	29.0	2.4
<i>Streblospio benedicti</i>	1		1	2	29.0	2.4
<i>Spiochaetopterus costarum</i>			1	1	14.5	1.2
<i>Heteromastus filiformis</i>	1			1	14.5	1.2
<i>Mediomastus ambiseta</i>			1	1	14.5	1.2
<i>Pectinaria gouldii</i>	1		5	6	87.0	7.1
Oligochaeta						
Oligochaeta	2		2	4	58.0	4.8
Mollusca						
Gastropoda						
<i>Japonactaeon punctostriatus</i>		1	1	2	29.0	2.4
<i>Acteocina canaliculata</i>			2	2	29.0	2.4
<i>Haminoea solitaria</i>	1	1	2	4	58.0	4.8
Bivalvia						
<i>Macoma balthica</i>	2	2		4	58.0	4.8
<i>Mya arenaria</i>	1		1	2	29.0	2.4
Arthropoda						
Crustacea						
<i>Grandidierella japonica</i>	4	2		6	87.0	7.1
Total Number	24	17	43	84		100
Total Mean Density (no./m²)					1217.4	
Total Taxa					19	
Shannon Wiener Diversity Index					2.4	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 161 Sample Date: September 15, 2015 Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Nemertea						
Hoplonemertea A						
<i>Amphiporus bioculatus</i>			2	2	29.0	1.1
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>		1		1	14.5	0.5
<i>Leitoscoloplos fragilis</i>		4	3	7	101.4	3.8
<i>Leitoscoloplos</i> sp	2	1	3	6	87.0	3.3
<i>Polydora cornuta</i>			1	1	14.5	0.5
<i>Streblospio benedicti</i>		6		6	87.0	3.3
Cirratulidae		1	5	6	87.0	3.3
<i>Tharyx acutus</i>	1	6	2	9	130.4	4.9
Oligochaeta						
Oligochaeta		59	66	125	1811.6	67.9
Mollusca						
Gastropoda						
<i>Spurwinkia salsa</i>			2	2	29.0	1.1
<i>Ilyanassa obsoleta</i>			1	1	14.5	0.5
<i>Boonea bisuturalis</i>			2	2	29.0	1.1
Bivalvia						
<i>Macoma balthica</i>	2	1	3	6	87.0	3.3
Arthropoda						
Crustacea						
<i>Leucon americanus</i>		2		2	29.0	1.1
<i>Synidotea laevidorsalis</i>			1	1	14.5	0.5
<i>Edotia triloba</i>			1	1	14.5	0.5
<i>Grandidierella japonica</i>			4	4	58.0	2.2
<i>Crangon septemspinosa</i>			2	2	29.0	1.1
Total Number	5	81	98	184		100
Total Mean Density (no./m²)					2666.7	
Total Taxa					18	
Shannon Wiener Diversity Index					1.5	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 162 Sample Date: September 21, 2015 Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Nemertea						
Tubulanidae						
<i>Tubulanus pellucidus</i>		1		1	14.5	1.0
Annelida						
Polychaeta						
<i>Glycera americana</i>	1	4		5	72.5	5.2
<i>Glycinde solitaria</i>	1		8	9	130.4	9.3
<i>Leitoscoloplos fragilis</i>	5	2		7	101.4	7.2
<i>Leitoscoloplos</i> sp	8	3	16	27	391.3	27.8
<i>Streblospio benedicti</i>		2		2	29.0	2.1
<i>Cossura longocirrata</i>		1		1	14.5	1.0
<i>Mediomastus ambiseta</i>		4		4	58.0	4.1
<i>Pectinaria gouldii</i>	1	4	2	7	101.4	7.2
<i>Ampharete oculata</i>	1			1	14.5	1.0
Oligochaeta						
Oligochaeta	1	2	24	27	391.3	27.8
Mollusca						
Gastropoda						
<i>Japonactaeon punctostriatus</i>		1		1	14.5	1.0
<i>Acteocina canaliculata</i>	1			1	14.5	1.0
Bivalvia						
<i>Mulinia lateralis</i>		3		3	43.5	3.1
Arthropoda						
Crustacea						
<i>Leucon americanus</i>		1		1	14.5	1.0
Total Number	19	28	50	97		100
Total Mean Density (no./m²)					1405.8	
Total Taxa					15	
Shannon Wiener Diversity Index					2.1	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 163						
Sample Date: September 22, 2015						
Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Annelida						
Polychaeta						
<i>Glycera americana</i>		4	4	8	115.9	4.0
<i>Glycera dibranchiata</i>			1	1	14.5	0.5
<i>Glycinde solitaria</i>			9	9	130.4	4.5
<i>Leitoscoloplos fragilis</i>		2		2	29.0	1.0
<i>Leitoscoloplos</i> sp	44	5	18	67	971.0	33.5
<i>Polydora cornuta</i>	4	1		5	72.5	2.5
<i>Spiochaetopterus costarum</i>			2	2	29.0	1.0
<i>Heteromastus filiformis</i>	4	1		5	72.5	2.5
<i>Mediomastus ambiseta</i>	48	6	11	65	942.0	32.5
<i>Pectinaria gouldii</i>	1	7	4	12	173.9	6.0
<i>Ampharete oculata</i>			2	2	29.0	1.0
Oligochaeta						
Oligochaeta		1		1	14.5	0.5
Mollusca						
Gastropoda						
<i>Acteocina canaliculata</i>			1	1	14.5	0.5
Bivalvia						
<i>Mulinia lateralis</i>	1	2	1	4	58.0	2.0
<i>Mya arenaria</i>	4		1	5	72.5	2.5
<i>Lyonsia arenosa</i>			2	2	29.0	1.0
Arthropoda						
Crustacea						
<i>Leucon americanus</i>	1			1	14.5	0.5
<i>Oxyurostylis smithi</i>	1			1	14.5	0.5
<i>Ampelisca abdita</i>	1		2	3	43.5	1.5
<i>Unciola serrata</i>	1			1	14.5	0.5
<i>Grandidierella japonica</i>		1	2	3	43.5	1.5
Total Number	110	30	60	200		100
Total Mean Density (no./m²)					2898.6	
Total Taxa					21	
Shannon Wiener Diversity Index					2.0	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 164						
Sample Date: September 13, 2015						
Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Nemertea						
Hoplonemertea A						
<i>Amphiporus bioculatus</i>	8			8	115.9	1.0
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>	16		4	20	289.9	2.6
<i>Glycera</i> sp			4	4	58.0	0.5
<i>Leitoscoloplos</i> sp	16		8	24	347.8	3.1
<i>Polydora cornuta</i>			4	4	58.0	0.5
<i>Streblospio benedicti</i>	120	80	172	372	5391.3	48.6
Cirratulidae			4	4	58.0	0.5
<i>Mediomastus ambiseta</i>		8	4	12	173.9	1.6
<i>Pectinaria gouldii</i>			1	1	14.5	0.1
Oligochaeta						
Oligochaeta	24		12	36	521.7	4.7
Mollusca						
Gastropoda						
<i>Ilyanassa obsoleta</i>			1	1	14.5	0.1
<i>Boonea bisuturalis</i>			1	1	14.5	0.1
Bivalvia						
<i>Macoma balthica</i>	11	17	10	38	550.7	5.0
<i>Mya arenaria</i>	55	29	90	174	2521.7	22.7
Arthropoda						
Crustacea						
<i>Cyathura burbancki</i>	2	1	5	8	115.9	1.0
<i>Edotia triloba</i>			4	4	58.0	0.5
<i>Ampelisca abdita</i>	2	1	9	12	173.9	1.6
<i>Ampithoe valida</i>		7		7	101.4	0.9
<i>Grandidierella japonica</i>	4	5	20	29	420.3	3.8
<i>Monocorophium acherusicum</i>		4		4	58.0	0.5
<i>Gammarus mucronatus</i>		3		3	43.5	0.4
Total Number	258	155	353	766		100
Total Mean Density (no./m²)					11101.4	
Total Taxa					21	
Shannon Wiener Diversity Index					1.8	

Benthic Macroinvertebrates collected in Newark Bay in 2015

Station: 165						
Sample Date: September 13, 2015						
Gear Type: Petite Ponar Grab (sampling area = 0.023 square meters)						
Taxon	No. in Replicate			Total Number	Mean Density	Percent Abundance
	A	B	C			
Annelida						
Polychaeta						
<i>Hypereteone heteropoda</i>	3	2	6	11	159.4	1.6
<i>Gyptis vittata</i>		2		2	29.0	0.3
<i>Glycera americana</i>		3	1	4	58.0	0.6
<i>Leitoscoloplos fragilis</i>	5	2	13	20	289.9	3.0
<i>Leitoscoloplos</i> sp	7	20	20	47	681.2	7.0
<i>Streblospio benedicti</i>	22	66	66	154	2231.9	23.0
Cirratulidae	6	6	6	18	260.9	2.7
<i>Tharyx acutus</i>	11	34	17	62	898.6	9.2
<i>Heteromastus filiformis</i>	3		1	4	58.0	0.6
<i>Mediomastus ambiseta</i>	5	16	9	30	434.8	4.5
<i>Pectinaria gouldii</i>	4	5	7	16	231.9	2.4
Oligochaeta						
Oligochaeta	2	4	16	22	318.8	3.3
Mollusca						
Gastropoda						
<i>Ilyanassa obsoleta</i>	2	2		4	58.0	0.6
<i>Boonea bisuturalis</i>	2			2	29.0	0.3
<i>Haminoea solitaria</i>		2	1	3	43.5	0.4
Bivalvia						
<i>Mulinia lateralis</i>	1			1	14.5	0.1
<i>Macoma balthica</i>	1	5	3	9	130.4	1.3
Arthropoda						
Crustacea						
<i>Leucon americanus</i>	6	18	28	52	753.6	7.7
<i>Oxyurostylis smithi</i>	2	1		3	43.5	0.4
<i>Edotia triloba</i>		2	1	3	43.5	0.4
<i>Ampelisca abdita</i>	33	25	50	108	1565.2	16.1
<i>Grandidierella japonica</i>	30	39	27	96	1391.3	14.3
Total Number	145	254	272	671		100
Total Mean Density (no./m²)					9724.6	
Total Taxa					22	
Shannon Wiener Diversity Index					2.4	

Appendix D

10 April 2017

Mr. William Ettinger
Normandeau Associates, Inc.
23723 Woods Drive
Lewes, Delaware 19958

CASE NARRATIVE

SUBJECT: Tierra Solutions, Inc.: Newark Bay Benthic Macroinvertebrate Sample Biomass
Normandeau Associates, Inc. Project Number 23489.008/688
Revision 2 – 10 April 2017

During the period 8 June 2016 through 20 June 2016 Normandeau Associates, Inc. measured Dry-Weight Biomass from a set of 30 benthic macroinvertebrate sample stations with replicates, for a total of 90 samples, collected September 2015 from the Newark Bay Study Area near Newark, New Jersey. The analysis was conducted to support Tierra Solutions, Inc. implementation of a Remedial Investigation and Feasibility Study.

Collection

Samples had been collected by Arcadis U.S., Inc. from bay sediments with Standard (sample area = 0.052 m²) and Petite (area = 0.023 m²) Ponar Grabs. The samples were taken during the period 13 through 29 September 2015. Geomorphic areas sampled included Intertidal Areas, Subtidal Flats and Transitional Slopes. Three replicate samples were collected from each of 30 sample locations and labelled: NB03SED-COM - 136 through 165. The samples were preserved in the field with alcohol, shipped to Normandeau's laboratory for taxonomic analysis and subsequent Dry-Weight Biomass determination.

Analysis and Quality Control

Biomass was determined for each sample as dry weight (shell free), following the procedures in Standard Methods for the Examination of Water and Wastewater: Method 209 A – Total Residue Dried at 103-105 C (APHA, AWWA, and WPCF 1980). All specimens from applicable phyla were included in each sample weight. Shelled organisms (ie. mollusks) had the tissue removed; shells were not included in the dry weight. All mollusk tissue was weighed, no subsampling occurred. Samples were weighed to 0.0001 grams using a Sartorius analytical balance (serviced and calibrated on 3 May 2016).

- A. Tare Weight was determined for each tray and recorded to 0.0001 grams. Samples were prepared by removing as much 70% ETOH as is reasonable, placing all phyla organisms from the sample into a tared aluminum tray. The aluminum tray identifier was recorded along with sample control number on the biomass form. Samples were dried in the oven at 103-105 C for 1.0 hour, transferred in batches to the desiccator and allowed to cool for 5 minutes. Dry weight was calculated as the weight of the dried material and tray minus the tare weight of the tray.

The following procedure was used to determine that samples were completely dried. Weights were obtained for one of every four samples on the Sartorius analytical balance to 0.0001g from each batch and recorded in the dry weight column (Wt1) of the biomass form. Samples with the larger amount of material were selected to ensure checking the sample least likely to have thoroughly dried. Samples were returned to the drying oven and dried for another 1.0 hour. Samples were then transferred to the desiccator and those previously pre-selected trays were re-weighed. Weights were recorded in the dry weight column (Wt2) of the biomass form.

The difference between the first and second weighings was calculated using the following formula. An acceptable difference of less than 5% or less than 0.001 grams between weighings, an in-house criterion more stringent than the required criterion (less than 5% or less than 0.004 grams) contained in the Standard Methods procedure, indicated complete drying. If acceptable, all samples in the batch were weighed and recorded. If not, the steps were repeated until the difference was acceptable for all selected re-weights in the batch. All samples (26 samples) checked at the Wt2 check point confirmed adequate dryness.

$$\frac{(1^{\text{st}} \text{ Dry Weight}) - (2^{\text{nd}} \text{ Dry Weight})}{2^{\text{nd}} \text{ Dry Weight}} \times 100 = \% \text{ Difference}$$

Results (n = 26)	
Range	% Difference
Lowest	0.00
Highest	1.49

B. Blank tray weight analysis is performed to ensure that there is no additional source of contamination to the process. The precision criterion stipulated in *Standard Methods for the Examination of Water and Wastewater* (pg. 92-93) of “a difference of less than 5% or less than 0.004 grams” is the recommended guideline to be followed when conducting checks between initial and final sample weights and blank tray weights. However, a more stringent acceptable difference of 0.0009 grams between initial and final blank weights is used by Normandeau. This criterion represents the mean plus two standard deviations of observed differences in previous projects in Normandeau’s laboratory. A total of 6 blanks were measured and all weight results were acceptable.

Results	
Tray #	Difference in Weight (grams)
27	.0006
44	.0002
132	.0001
190	.0008
409	.0006
432	.0007

C. Quality control pertaining to the efficiency and consistency of the technicians was conducted by randomly selecting, re-wetting and re-weighing ten percent of the samples. Results were calculated using the following formula and were considered acceptable if the difference between the original weight and the QC weight was not more than 5% or 0.001 grams (for very small amounts of material). All Quality Control checks were acceptable.

$$\frac{(2^{\text{nd}} \text{ Dry Weight}) - (2^{\text{nd}} \text{ QC Dry Weight})}{2^{\text{nd}} \text{ QC Dry Weight}} \times 100 = \%$$

Results	
Samples/Rep.	% Difference
138 B	0.90
141 C	0.29
143 C	0.69
146 C	0.31
148 A	1.35
151 C	1.09
155 A	1.85

158 C	2.22
159 B	0.43
162 C	<0.001 grams*
164 B	0.10

*Sample 162 C consisted of such a small amount of material that the acceptance criteria of less than 0.001 grams noted above, applies.

All sample tracking and quality control records are on file at Normandeau and available upon request. Laboratory bench sheets are also on file. Sample material that has been biomassed will be retained at Normandeau until acceptance of the report, at which time we will seek permission to dispose of the material.

Literature Cited

American Public Health Association (APHA), American Water Works Association (AWWA), and Water Pollution Control Federation (WPCF). *Standard Methods for the Examination of Water and Wastewater*. Fifteenth Edition. 1980. American Public Health Association. Washington D. C.

Respectively Submitted,



Hannah Proctor
Manager Biology Laboratory, Bedford, NH

cc William Ettinger

Dry Weight Biomass of Macroinvertebrate Samples Collected in Newark Bay in 2015

Station ¹	Total Weight in Replicate (grams)			Mean Weight Per Replicate (grams)	Mean Weight Per Square Meter (grams) ²
	1	2	3		
136	0.1243	0.0536	0.2871	0.1550	6.7391
137	0.0697	0.2512	0.1195	0.1468	6.3826
138	0.0731	0.1351	0.1612	0.1231	5.3536
139	0.3107	0.1766	0.3767	0.2880	12.5217
140	0.1559	0.1376	0.3015	0.1983	8.6232
141	0.1516	0.2756	0.4151	0.2808	12.2073
142	0.2520	0.0608	0.1271	0.1466	2.8199
143	0.0561	0.0395	0.1927	0.0961	4.1783
144	0.0021	0.0121	0.0757	0.0300	1.3029
145	0.2522	0.3734	0.1951	0.2736	11.8942
146	0.1675	0.1920	0.6212	0.3269	6.2865
147	0.0088	0.0961	0.0016	0.0355	1.5435
148	0.0146	0.0152	0.0043	0.0114	0.4942
149	0.4443	0.1428	0.1957	0.2609	5.0179
150	0.0469	0.0681	0.0560	0.0570	2.4783
151	0.2377	0.3899	0.1855	0.2710	11.7841
152	0.0298	0.5187	0.3418	0.2968	5.7071
153	0.1415	0.1567	0.0545	0.1176	5.1116
154	2.3561	0.4843	0.1562	0.9989	19.2090
155	0.0266	0.1519	0.3397	0.1727	3.3218
156	0.0198	0.0578	0.0188	0.0321	1.3971
157	0.1154	0.0857	0.0408	0.0806	3.5058
158	1.6241	1.7611	1.9050	1.7634	33.9115
159	0.0728	0.1375	0.0431	0.0845	1.6244
160	0.9086	0.5748	0.8384	0.7739	14.8833
161	0.1178	0.1473	0.0844	0.1165	5.0652
162	0.0060	0.0278	0.0038	0.0125	0.5449
163	0.0371	0.1664	0.0744	0.0926	4.0275
164	0.6754	0.6003	0.9456	0.7404	32.1928
165	0.1329	0.1735	0.1221	0.1428	6.2101

¹ All samples collected with a Petite Ponar Grab (0.023 square meter) except Stations 142, 146, 149, 152, 154, 155, 158, 159, and 160 which were collected with a Standard Ponar Grab (0.052 square meter).

² Dry Weight Biomass of Benthic Macroinvertebrates per square meter of Newark Bay bottom.

Appendix E

Data Qualifier Definitions

Data Qualifier	Definition
B	The analyte is present in the associated method blank as well as in the sample. This qualifier has a different meaning when validating inorganic data.
C	This flag applies to Aroclors results when the identification has been confirmed by GC/MS analysis.
D	The positive value is the result of an analysis at a secondary dilution factor.
E	The concentration of this analyte exceeds the calibration range of the instrument.
I	The laboratory indicated the presence of an interference during the sample analysis.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J-	The result is an estimated quantity, but the result may be biased low.
J+	The result is an estimated quantity, but the result may be biased high.
JH	The analyte was positively identified; but the associated numerical value is the approximate concentration, with a potential high bias, of the analyte in the sample.
JL	The analyte was positively identified; but the associated numerical value is the approximate concentration, with a potential low bias, of the analyte in the sample.
JN	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
M	The analytical result reported was obtained from a sediment sample found to contain between 50 and 90 percent moisture and had no other data qualifiers added during the data validating process.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
NJH	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration with a potential high bias, of the analyte concentration.
P	Aroclor target analytes when the % difference between the analyte concentrations obtained from the two dissimilar GC columns is greater than 25%.
Q	Estimated maximum possible concentration.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.
S	Single point calibration.
T	Applied only to calculated totals in which the results of one or more individual analytes that make up the given total are rejected.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
UJL	The analyte was not detected and the reported sample quantitation limit is biased low.
UJH	The analyte was not detected and the reported sample quantitation limit is biased high.
Z	Data validated but no qualifiers applicable.

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED136 0 - 0.5 09/15/15 North NB03SED-CHM136	NB03SED137 0 - 0.5 09/15/15 North NB03SED-CHM137	NB03SED138 0 - 0.5 09/15/15 North NB03SED-CHM138	NB03SED139 0 - 0.5 09/16/15 North NB03SED-CHM139	NB03SED140 0 - 0.5 09/30/15 North NB03SED-CHM140
Dioxins/Furans						
1,2,3,4,6,7,8-HpCDD	ng/kg	291 JB	258 JB	320 JB	153 B	100 JB
1,2,3,4,6,7,8-HpCDF	ng/kg	504 JB	856 JB	866 JB	192 B	1,880 JB
1,2,3,4,7,8,9-HpCDF	ng/kg	18.4 J	34.5 J	31.5 J	7.14	37.1 JB
1,2,3,4,7,8-HxCDD	ng/kg	4.66 J	5.33 J	4.36 J	2.41 J	3.91 JB
1,2,3,4,7,8-HxCDF	ng/kg	133 BCJ	286 BCJ	267 BCJ	52.2 BC	433 BC
1,2,3,6,7,8-HxCDD	ng/kg	16.3 J	19.8 J	22.1 J	9.68	9.65 JB
1,2,3,6,7,8-HxCDF	ng/kg	27.8 BCJ	46.1 BCJ	45.7 BCJ	12.4 BC	95.2 BC
1,2,3,7,8,9-HxCDD	ng/kg	10.8 JB	11.9 JB	12 JB	5.92 B	5.42 J
1,2,3,7,8,9-HxCDF	ng/kg	0.31 UC	0.345 UC	0.401 UC	0.134 U	0.0893 UJ
1,2,3,7,8-PeCDD	ng/kg	4.51 J	5.48 J	6.19 J	2.71 J	5.02 JB
1,2,3,7,8-PeCDF	ng/kg	10.4 BCJ	11.3 BCJ	13.3 BCJ	6.69 BC	34.5 JBC
2,3,4,6,7,8-HxCDF	ng/kg	13 BC	18.1 BC	18.1 BC	5.59 BC	29.4 C
2,3,4,7,8-PeCDF	ng/kg	22.9 BC	38.8 BC	38.5 BC	11 BC	45.8 BC
2,3,7,8-TCDD	ng/kg	110 J	77.4 J	413 EJ	103	100 JB
2,3,7,8-TCDF	ng/kg	17.3 JC	15.6 JC	18.7 C	10.3 C	11.1 JC
OCDD	ng/kg	2,970 JB	2,730 JB	3,000 JB	1,540 B	920 JB
OCDF	ng/kg	886 JB	1,510 JB	1,540 JB	297 JB	2,660 JB
Herbicides						
2,4,5-T	ug/kg	2.1 UJ	2 UJ	1.7 UJ	1.5 U	1.2 U
2,4,5-TP (Silvex)	ug/kg	1.8 UJ	1.8 UJ	1.5 UJ	1.3 U	1.1 U
2,4-D	ug/kg	30 UJ	29 UJ	25 UJ	22 U	18 U
2,4-DB	ug/kg	15 UJ	15 UJ	13 UJ	11 U	9.4 U
Metals						
Aluminum	mg/kg	18,700 J	12,400 J	11,400 J	10,500	6,670
Antimony	mg/kg	0.596 J	0.377 JB	0.624 J	0.387	0.311
Arsenic	mg/kg	11.6 J	8.24 J	12.9 J	9.77	7.1
Barium	mg/kg	108 J	80.5 J	94.6 J	72.2	58.6
Beryllium	mg/kg	0.952 J	0.718 J	0.639 J	0.586	0.365
Cadmium	mg/kg	1.04 J	0.582 J	1.83 J	0.944	0.74
Calcium	mg/kg	4,890 J	11,700 J	7,070 J	4,070	2,790
Chromium	mg/kg	121 J	83 J	159 J	93.6	60.3
Cobalt	mg/kg	12.3 J	8.69 J	8.44 J	7.91	5.47
Copper	mg/kg	131 J	78.1 J	130 J	90.5	56.4
Hexavalent Chromium	mg/kg	1.2 U	1.2 U	1.2 B	0.9 U	2 B
Iron	mg/kg	32,500 J	22,900 J	21,600 J	18,500	13,400
Lead	mg/kg	137 J	83.8 J	102 J	79.4	49.4
Magnesium	mg/kg	9,450 J	7,170 J	5,880 J	5,290	3,590
Manganese	mg/kg	362 J	289 J	271 J	220	142
Mercury	ng/g	1,830 J	1,660 J	3,020 J	1,220 J	689 J
Methyl Mercury	ng/g	2.1 J	1.21 J	1.58 J	1.04 J	1.51 J
Nickel	mg/kg	44.5 J	28.9 J	31.7 J	28.4	17.4
Potassium	mg/kg	4,420 J	3,330 J	2,750 J	2,450	1,460

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED136 0 - 0.5 09/15/15 North	NB03SED137 0 - 0.5 09/15/15 North	NB03SED138 0 - 0.5 09/15/15 North	NB03SED139 0 - 0.5 09/16/15 North	NB03SED140 0 - 0.5 09/30/15 North
	Units	NB03SED-CHM136	NB03SED-CHM137	NB03SED-CHM138	NB03SED-CHM139	NB03SED-CHM140
Selenium	mg/kg	0.88 JB	0.607 JB	0.833 J	0.577 B	0.38 B
Silver	mg/kg	2.11 J	1.15 J	1.81 J	1.42	1.02
Sodium	mg/kg	11,500 J	14,100 J	8,280 J	6,040	5,030
Thallium	mg/kg	0.264 J	0.2 JB	0.177 JB	0.191	0.104 B
Titanium	mg/kg	645 J	415 J	458 J	395	264
Vanadium	mg/kg	44.1 J	30.9 J	32 J	25.4	17.8
Zinc	mg/kg	259 J	171 J	224 J	169	125
AVS/SEM						
Acid Volatile Sulfide (AVS)	umol/g	13.6	14.1	1.2 B	0.82 BJ	1.1 B
Cadmium	umol/g	0.00319	0.00246	0.0023	0.00307	0.00343
Copper	umol/g	0.346	0.292	0.332	0.402	0.285
Lead	umol/g	0.19	0.166	0.152	0.147	0.136
Mercury	umol/g	0.0000072 U	0.0000072 U	0.0000074 U	0.0000074 B	0.0000074 U
Nickel	umol/g	0.239	0.0657	0.215	0.0954	0.0948
Zinc	umol/g	0.96	0.878	0.807	0.828	1.01
TEPH Alkanes						
2,6,10,14-Tetramethyl Pentadecane	mg/kg	0.0419 UJ	0.041 UJ	0.0691 UJ	0.161 J	0.0257 UJ
2,6,10,14-Tetramethylhexadecane	mg/kg	0.0271 UJ	0.0338 J	0.0447 UJ	0.128 J	0.0167 UJ
Dotriacontane	mg/kg	0.0916 J	0.341 J	0.286 J	0.267 J	0.0197 UJ
Heneicosane	mg/kg	0.0348 J	0.105 J	0.0491 J	0.0982 U	0.0167 UJ
Heptacosane	mg/kg	0.079 UJ	0.15 J	0.13 UJ	0.286 U	0.0484 UJ
Heptadecane	mg/kg	0.0444 UJ	0.153 J	0.0762 J	0.161 U	0.0272 UJ
Heptatriacontane, -n	mg/kg	0.0271 UJ	0.0361 J	0.0447 UJ	0.0982 UJ	0.0167 UJ
Hexatriacontane	mg/kg	0.0271 UJ	0.04 J	0.0447 UJ	0.451 J	0.0167 UJ
Hhentriacontane	mg/kg	0.149 J	0.507 J	0.353 J	0.835	0.108 J
n-Decane	mg/kg	0.0365 UJ	0.0357 UJ	0.0601 UJ	0.132 U	0.0224 UJ
n-Docosane	mg/kg	0.0271 UJ	0.0265 UJ	0.0447 UJ	0.815	0.0438 J
n-Dodecane	mg/kg	0.0271 UJ	0.0265 UJ	0.0447 UJ	0.0982 U	0.0167 UJ
n-Eicosane	mg/kg	0.0296 UJ	0.0289 UJ	0.0487 UJ	0.107 U	0.0182 UJ
n-Hexacosane	mg/kg	0.0469 UJ	0.0458 UJ	0.0772 UJ	0.17 U	0.0288 UJ
n-Hexadecane	mg/kg	0.0279 J	0.0265 UJ	0.0447 UJ	0.0982 U	0.0167 UJ
n-Nonane	mg/kg	0.0271 UJ	0.0265 UJ	0.0447 UJ	0.0982 UJ	0.0167 UJ
n-Octacosane	mg/kg	0.0271 UJ	0.807 J	0.703 J	1.74	0.0987 J
n-Octadecane	mg/kg	0.0374 J	0.0514 J	0.0609 UJ	0.134 U	0.0227 UJ
Nonacosane	mg/kg	0.183 J	0.374 J	0.277 J	0.0982 U	0.0684 J
Nonadecane	mg/kg	0.0395 UJ	0.0386 UJ	0.065 UJ	0.143 U	0.0242 UJ
Nonatriacontane	mg/kg	0.0493 UJ	0.0491 J	0.0812 UJ	0.179 UJ	0.0303 UJ
n-Tetracosane	mg/kg	0.102 J	0.0946 J	0.0974 J	0.356	0.0167 UJ
n-Tetradecane	mg/kg	0.0345 UJ	0.0338 UJ	0.0569 UJ	0.125 U	0.0212 UJ
n-Triacontane	mg/kg	0.149 J	0.0487 UJ	0.0821 UJ	0.18 U	0.0488 J
n-Tridecane	mg/kg	0.0271 UJ	0.0265 UJ	0.0447 UJ	0.0982 U	0.0167 UJ
n-Undecane	mg/kg	0.0498 UJ	0.0487 UJ	0.0821 UJ	0.18 U	0.0306 UJ
Octatriacontane	mg/kg	0.037 UJ	0.0595 J	0.0609 UJ	0.134 UJ	0.0227 UJ

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED136 0 - 0.5 09/15/15 North NB03SED-CHM136	NB03SED137 0 - 0.5 09/15/15 North NB03SED-CHM137	NB03SED138 0 - 0.5 09/15/15 North NB03SED-CHM138	NB03SED139 0 - 0.5 09/16/15 North NB03SED-CHM139	NB03SED140 0 - 0.5 09/30/15 North NB03SED-CHM140
Pentacosane	mg/kg	0.0271 UJ	0.0265 UJ	0.104 J	0.0982 U	0.0405 J
Pentadecane	mg/kg	0.0271 UJ	0.0265 UJ	0.0447 UJ	0.0982 U	0.0167 UJ
Pentatriacontane	mg/kg	0.0271 UJ	0.0819 J	0.0447 UJ	0.0982 UJ	0.0167 UJ
Tetracontane	mg/kg	0.0321 J	0.0265 UJ	0.0447 UJ	0.0982 UJ	0.0167 UJ
Tetratriacontane	mg/kg	0.0321 UJ	0.0313 UJ	0.0528 UJ	0.116 UJ	0.0197 UJ
Tricosane	mg/kg	0.0415 J	0.174 J	0.154 J	0.474	0.0303 J
Tritriacontane	mg/kg	0.0543 UJ	0.053 UJ	0.0894 UJ	0.196 U	0.0333 UJ
Butyltins						
Dibutyltin	ug/kg	3.1 UJ	3.3 UJ	2.7 UJ	2.2 U	1.9 U
Monobutyltin	ug/kg	49 UJCN	52 UJCN	43 UJCN	35 UCN	31 UCN
Tetrabutyltin	ug/kg	4.1 UJ	4.3 UJ	3.5 UJ	2.9 U	2.5 U
Tributyltin	ug/kg	3.6 UJ	3.8 UJ	3.1 UJ	2.5 U	2.2 U
PCB Congeners						
PCB-1	ng/kg	274 J	487 EJ	261 J	261	128 J
PCB-2	ng/kg	38.7 J	42.1 J	112 J	53.8	39.7 J
PCB-3	ng/kg	86.5 J	114 J	172 J	103	R
PCB-4	ng/kg	420 EJ	597 EJ	1,440 EJ	597 E	414 BEJ
PCB-5	ng/kg	0.792 UJ	0.804 UJ	20.8 J	5.95	9.94 J
PCB-6	ng/kg	95.2 J	139 J	250 J	156	168 J
PCB-7	ng/kg	11.2 J	13.2 J	52 J	19	24.7 J
PCB-8	ng/kg	346 EJ	487 EJ	1,760 EJ	640 E	961 BEJ
PCB-9	ng/kg	17 J	23.8 J	80.7 J	26.3	47.5 J
PCB-10	ng/kg	34.2 J	59.1 J	55.7 J	40	32.5 J
PCB-11	ng/kg	173 J	262 J	1,040 EJ	467 E	418 BEJ
PCB-12/13	ng/kg	94.3 J	153 J	271 J	173	212 J
PCB-14	ng/kg	0.792 UJ	0.804 UJ	0.787 UJ	0.785 U	2.55 J
PCB-15	ng/kg	478 EJ	656 EJ	1,420 EJ	899 E	909 BEJ
PCB-16	ng/kg	128 BJ	198 BJ	1,070 BEJ	330 BE	763 EJ
PCB-17	ng/kg	162 J	262 J	1,010 EJ	412 E	835 EJ
PCB-18/30	ng/kg	265 J	434 J	2,060 EJ	726 E	1,460 BEJ
PCB-19	ng/kg	84.4 J	118 J	386 EJ	165	201 J
PCB-20/28	ng/kg	676 BEJ	1,060 BEJ	3,200 BEJ	1,890 BE	3,990 EJ
PCB-21/33	ng/kg	146 J	266 J	1,330 EJ	444	1,550 EJ
PCB-22	ng/kg	162 J	262 J	1,070 EJ	485 E	1,220 EJ
PCB-23	ng/kg	0.693 UJ	0.703 UJ	2.35 J	1.29 J	3.43 J
PCB-24	ng/kg	3.75 J	6.81 J	24 J	7.55	0.994 UJ
PCB-25	ng/kg	77.3 J	114 J	253 J	178	330 EJ
PCB-26/29	ng/kg	123 J	202 J	519 J	327	597 EJ
PCB-27	ng/kg	40.5 J	60.2 J	167 J	88	156 J
PCB-31	ng/kg	457 EJ	786 EJ	2,810 EJ	1,470 E	2,360 EJ
PCB-32	ng/kg	147 J	221 J	813 EJ	404 E	617 EJ
PCB-34	ng/kg	3.59 J	6.39 J	14.3 J	7.51	17 J
PCB-35	ng/kg	17.2 J	29.7 J	81 J	54.5	83.3 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED136 0 - 0.5 09/15/15 North NB03SED-CHM136	NB03SED137 0 - 0.5 09/15/15 North NB03SED-CHM137	NB03SED138 0 - 0.5 09/15/15 North NB03SED-CHM138	NB03SED139 0 - 0.5 09/16/15 North NB03SED-CHM139	NB03SED140 0 - 0.5 09/30/15 North NB03SED-CHM140
PCB-36	ng/kg	1.06 J	2.61 J	1.55 J	2.29	0.795 UJ
PCB-37	ng/kg	183 J	267 J	824 EJ	469 E	999 EJ
PCB-38	ng/kg	0.693 UJ	0.863 J	1.21 J	0.687 U	0.696 UJ
PCB-39	ng/kg	3.49 J	7.11 J	13.1 J	8.68	15.4 J
PCB-40/71	ng/kg	243 J	379 J	1,240 EJ	587	998 J
PCB-41	ng/kg	21.9 J	35.7 J	236 J	76.4	132 J
PCB-42	ng/kg	170 J	266 J	862 EJ	422	697 EJ
PCB-43	ng/kg	16.2 J	31.7 J	108 J	55.8	96.3 J
PCB-44/47/65	ng/kg	525 J	828 J	2,650 EJ	1,290	2,230 EJ
PCB-45	ng/kg	60.3 J	81.9 J	341 J	137	318 J
PCB-46	ng/kg	27.1 J	37.9 J	138 J	51	131 J
PCB-48	ng/kg	74.1 J	130 J	545 J	217	442 J
PCB-49/69	ng/kg	361 J	622 J	1,800 EJ	954	1,470 EJ
PCB-50/53	ng/kg	71.5 J	102 J	341 J	153	332 J
PCB-51	ng/kg	41.6 J	68.6 J	118 J	62.9	201 J
PCB-52	ng/kg	468 BJ	791 BEJ	2,700 BEJ	1,390 BE	2,220 BEJ
PCB-54	ng/kg	6.63 J	8.71 J	1.38 UJ	10.7	19.9 J
PCB-55	ng/kg	5.37 J	9.83 J	34.9 J	16.2	28.6 J
PCB-56	ng/kg	232 J	419 J	1,440 EJ	703 E	1,050 EJ
PCB-57	ng/kg	3.07 J	6.3 J	12.8 J	7.6	9.86 J
PCB-58	ng/kg	2.51 J	4.7 J	9.32 J	4.88 J	6.57 J
PCB-60	ng/kg	77.3 J	127 J	563 J	275	420 J
PCB-61/70/74/76	ng/kg	756 J	1,380 J	4,770 EJ	2,290	3,010 EJ
PCB-62/75	ng/kg	47.6 J	73.6 J	244 J	119	206 J
PCB-63	ng/kg	20.7 J	36 J	110 J	55.9	77 J
PCB-64	ng/kg	228 J	373 J	1,340 EJ	623 E	903 EJ
PCB-66	ng/kg	525 BJ	866 BEJ	2,720 BEJ	1,400 BE	1,880 EJ
PCB-67	ng/kg	16.2 J	27.7 J	83.9 J	40.6	62.2 J
PCB-68	ng/kg	7.58 J	9.13 J	13 J	10.8	15.1 J
PCB-72	ng/kg	7.25 J	12.7 J	24 J	14.3	19.9 J
PCB-73	ng/kg	1.89 J	2.62 J	1.38 UJ	2.74 J	1.39 UJ
PCB-77	ng/kg	R	R	R	147	282 J
PCB-78	ng/kg	1.58 UJ	1.61 UJ	1.57 UJ	1.57 U	1.59 UJ
PCB-79	ng/kg	3.62 J	6.78 J	16.2 J	11.3	15.2 J
PCB-80	ng/kg	1.09 UJ	1.11 UJ	1.08 UJ	1.08 U	1.09 UJ
PCB-81	ng/kg	2.06 J	2.87 J	9.08 J	4.85 J	9.11 J
PCB-82	ng/kg	55.3 J	75.8 J	252 J	143	236 J
PCB-83	ng/kg	21.9 J	31.5 J	89.8 J	64.2	94.9 J
PCB-84	ng/kg	112 J	177 J	511 J	279	324 J
PCB-85/116/117	ng/kg	79.1 J	120 J	355 J	224	352 J
PCB-86/87/97/109/119/125	ng/kg	260 J	401 J	1,180 J	796	1,210 J
PCB-88	ng/kg	2.18 UJ	2.21 UJ	2.16 UJ	2.16 U	2.19 UJ
PCB-89	ng/kg	6.13 J	11.1 J	34.1 J	15.1	20.5 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED136 0 - 0.5 09/15/15 North NB03SED-CHM136	NB03SED137 0 - 0.5 09/15/15 North NB03SED-CHM137	NB03SED138 0 - 0.5 09/15/15 North NB03SED-CHM138	NB03SED139 0 - 0.5 09/16/15 North NB03SED-CHM139	NB03SED140 0 - 0.5 09/30/15 North NB03SED-CHM140
PCB-90/101/113	ng/kg	376 BJ	640 BJ	1,580 BJ	1,160 B	1,700 BJ
PCB-91	ng/kg	86.4 J	171 J	336 J	194	222 J
PCB-92	ng/kg	75.5 J	112 J	275 J	217	295 J
PCB-93/100	ng/kg	16.9 J	37 J	36.1 J	24	47.6 J
PCB-94	ng/kg	6.12 J	9.8 J	15.3 J	9.11	14.4 J
PCB-95	ng/kg	R	R	R	R	1,350 EJ
PCB-96	ng/kg	5.12 J	7.86 J	19.5 J	10.1	15.5 J
PCB-98/102	ng/kg	26.2 J	37.8 J	85.5 J	48.1	65 J
PCB-99	ng/kg	235 J	429 J	866 EJ	636 E	975 EJ
PCB-103	ng/kg	9.23 J	24.9 J	21.3 J	16.5	24.6 J
PCB-104	ng/kg	1.39 UJ	4.12 J	2.55 J	2.41 J	6.48 J
PCB-105	ng/kg	154 J	221 J	698 EJ	455	1.69 UJ
PCB-106	ng/kg	1.68 UJ	1.71 UJ	1.67 UJ	1.67 U	1.69 UJ
PCB-107	ng/kg	30.1 J	41.6 J	113 J	79.3	131 J
PCB-108/124	ng/kg	13.8 J	21.4 J	60.1 J	44.2	70.4 J
PCB-110/115	ng/kg	482 BJ	734 BJ	2,030 BEJ	1,390 BE	2,150 EJ
PCB-111	ng/kg	1.39 UJ	1.41 UJ	1.38 UJ	1.37 U	1.49 J
PCB-112	ng/kg	1.57 J	6.37 J	3.77 J	2.26 J	1.39 UJ
PCB-114	ng/kg	7.93 J	15.4 J	44.2 J	28.1	47.7 J
PCB-118	ng/kg	372 BJ	535 BJ	1,600 BEJ	1,110 BE	1,630 EJ
PCB-120	ng/kg	2.82 J	3.74 J	4.57 J	3.58 J	7 J
PCB-121	ng/kg	1.19 UJ	1.21 UJ	1.18 UJ	1.18 U	1.19 UJ
PCB-122	ng/kg	6.08 J	8.92 J	24.3 J	15.3	1.19 UJ
PCB-123	ng/kg	7.29 J	11.6 J	34.7 J	20.7	44.5 J
PCB-126	ng/kg	1.77 J	1.61 UJ	6.7 J	4.18 J	7.51 J
PCB-127	ng/kg	3.45 J	1.41 UJ	6.88 J	5.53	1.39 UJ
PCB-128/166	ng/kg	50.2 J	68.1 J	185 J	125	282 J
PCB-129/138/163	ng/kg	394 J	520 J	1,320 J	983	2,220 EJ
PCB-130	ng/kg	24.3 J	32.1 J	80.3 J	56.5	126 J
PCB-131	ng/kg	3.92 J	7.18 J	16.6 J	12.1	27.2 J
PCB-132	ng/kg	107 J	149 J	395 J	281	661 BEJ
PCB-133	ng/kg	7.68 J	8.99 J	20.7 J	15.3	30 J
PCB-134	ng/kg	19.1 J	28.4 J	67.6 J	48.6	118 J
PCB-135/151	ng/kg	120 J	165 J	375 J	316	668 J
PCB-136	ng/kg	39.2 J	60.8 J	122 J	114	221 J
PCB-137	ng/kg	15 J	21 J	56.2 J	42	89.8 J
PCB-139/140	ng/kg	6.6 J	8.85 J	21.9 J	14.8	37.3 J
PCB-141	ng/kg	56.1 J	77.6 J	208 J	R	342 BJ
PCB-142	ng/kg	1.68 UJ	1.71 UJ	1.67 UJ	1.67 U	1.69 UJ
PCB-143	ng/kg	3.27 UJ	3.32 UJ	3.25 UJ	3.24 U	3.28 UJ
PCB-144	ng/kg	14.6 J	22.7 J	54.5 J	40.6	74.3 J
PCB-145	ng/kg	1.58 UJ	1.61 UJ	1.57 UJ	1.57 U	1.59 UJ
PCB-146	ng/kg	R	R	R	R	316 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED136 0 - 0.5 09/15/15 North NB03SED-CHM136	NB03SED137 0 - 0.5 09/15/15 North NB03SED-CHM137	NB03SED138 0 - 0.5 09/15/15 North NB03SED-CHM138	NB03SED139 0 - 0.5 09/16/15 North NB03SED-CHM139	NB03SED140 0 - 0.5 09/30/15 North NB03SED-CHM140
PCB-147/149	ng/kg	285 J	406 J	899 J	681	1,660 BEJ
PCB-148	ng/kg	1.75 J	1.41 UJ	1.38 UJ	1.37 U	6.08 J
PCB-150	ng/kg	1.67 J	4.67 J	3.97 J	3.84 J	9.61 J
PCB-152	ng/kg	1.39 UJ	1.41 UJ	1.74 J	1.37 U	2.91 J
PCB-153/168	ng/kg	355 BJ	465 BJ	1,080 BJ	815 B	1,910 BEJ
PCB-154	ng/kg	10.6 J	15.5 J	21.3 J	17.6	48.9 J
PCB-155	ng/kg	4.19 J	5.89 J	6.55 J	10.9	13.5 J
PCB-156/157	ng/kg	43.1 J	58.3 J	156 J	114	237 J
PCB-158	ng/kg	35.4 J	46 J	128 J	93.6	202 J
PCB-159	ng/kg	1.39 UJ	1.41 UJ	1.38 UJ	1.37 U	1.39 UJ
PCB-160	ng/kg	6.24 UJ	6.33 UJ	6.2 UJ	6.18 U	6.26 UJ
PCB-161	ng/kg	1.29 UJ	1.31 UJ	1.28 UJ	1.28 U	1.29 UJ
PCB-162	ng/kg	2.47 J	3.82 J	7.97 J	6.75	11.9 J
PCB-164	ng/kg	24.1 J	32.7 J	82.3 J	59.8	138 J
PCB-165	ng/kg	R	R	R	R	1.29 UJ
PCB-167	ng/kg	13.8 J	18.5 J	49.4 J	34.8	74.9 J
PCB-169	ng/kg	1.49 UJ	1.51 UJ	1.48 UJ	1.47 U	1.49 UJ
PCB-170	ng/kg	88.6 J	110 J	258 J	191	727 EJ
PCB-171/173	ng/kg	R	R	R	R	181 J
PCB-172	ng/kg	16.5 J	23.1 J	48.8 J	32.7	113 J
PCB-174	ng/kg	R	R	R	R	595 J
PCB-175	ng/kg	R	R	R	R	27 J
PCB-176	ng/kg	12.2 J	14.3 J	34.4 J	25.2	75.4 J
PCB-177	ng/kg	R	R	R	R	382 J
PCB-178	ng/kg	R	R	R	52	139 J
PCB-179	ng/kg	43.7 J	53.7 J	117 J	90.5	277 J
PCB-180/193	ng/kg	219 J	268 J	616 J	458	1,490 EJ
PCB-181	ng/kg	R	R	R	R	5.98 J
PCB-182	ng/kg	R	R	R	R	3.97 UJ
PCB-183/185	ng/kg	R	R	R	146	477 J
PCB-184	ng/kg	1.39 UJ	1.41 UJ	1.38 UJ	1.37 U	2.29 J
PCB-186	ng/kg	1.49 UJ	1.51 UJ	1.48 UJ	1.47 U	1.49 UJ
PCB-187	ng/kg	R	R	R	366	918 EJ
PCB-188	ng/kg	1.49 UJ	1.51 UJ	1.48 UJ	1.47 U	4.42 J
PCB-189	ng/kg	4.46 J	6.14 J	11.5 J	8.24	30.1 J
PCB-190	ng/kg	20.9 J	26.8 J	58.8 J	44	139 J
PCB-191	ng/kg	4.47 J	5.11 J	11.8 J	8.69	27.3 J
PCB-192	ng/kg	1.29 UJ	1.31 UJ	1.28 UJ	1.28 U	1.29 UJ
PCB-194	ng/kg	59.8 J	67.2 J	156 J	109	366 J
PCB-195	ng/kg	20.1 J	21.2 J	49 J	37.4	134 J
PCB-196	ng/kg	31.4 J	34.9 J	81.7 J	63.3	184 J
PCB-197/200	ng/kg	9.25 J	10.8 J	25.1 J	R	55.8 J
PCB-198/199	ng/kg	81.2 J	93 J	201 J	165	452 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED136 0 - 0.5 09/15/15 North NB03SED-CHM136	NB03SED137 0 - 0.5 09/15/15 North NB03SED-CHM137	NB03SED138 0 - 0.5 09/15/15 North NB03SED-CHM138	NB03SED139 0 - 0.5 09/16/15 North NB03SED-CHM139	NB03SED140 0 - 0.5 09/30/15 North NB03SED-CHM140
PCB-201	ng/kg	10.3 J	10.9 J	23.4 J	19	48.1 J
PCB-202	ng/kg	24.6 J	25.4 J	58.8 J	49	104 J
PCB-203	ng/kg	54.7 J	58 J	129 J	111	274 J
PCB-204	ng/kg	2.08 UJ	2.11 UJ	2.07 UJ	2.06 U	2.09 UJ
PCB-205	ng/kg	3.49 J	4.24 J	8.55 J	5.81	22.8 J
PCB-206	ng/kg	69.1 J	72.2 J	142 J	105	275 J
PCB-207	ng/kg	6.41 J	10.7 J	12.9 J	8.72	26.6 J
PCB-208	ng/kg	24.3 J	28.2 J	53.8 J	40.9	83.8 J
PCB-209	ng/kg	50.4 J	72.1 J	112 J	85.2	225 J
Total PCB Congeners (209)	ng/kg	13,700 J	21,200 J	62,900 J	35,100 J	64,300 J
Aroclor PCBs						
Aroclor-1016	ug/kg	8.9 U	8.7 U	7.3 U	6.5 U	5.4 U
Aroclor-1221	ug/kg	11 U	11 U	9.3 U	8.3 U	6.9 U
Aroclor-1232	ug/kg	20 U	19 U	16 U	14 U	12 U
Aroclor-1242	ug/kg	8.2 U	7.9 U	6.7 U	5.9 U	5 U
Aroclor-1248	ug/kg	85	71	170	66	74
Aroclor-1254	ug/kg	94	71 PJN	130	71 PJ	82 PJ
Aroclor-1260	ug/kg	34 J	29 J	40	19 J	32
Aroclor-1262	ug/kg	8.2 U	7.9 U	6.7 U	5.9 U	5 U
Aroclor-1268	ug/kg	8.2 U	7.9 U	6.7 U	5.9 U	5 U
Total Aroclor PCBs (Sum of 7 Aroclors)	ug/kg	210 J	170 PJ	340	160 PJ	190 PJ
Total Aroclor PCBs (Sum of 9 Aroclors)	ug/kg	210 J	170 PJ	340	160 PJ	190 PJ
Pesticides						
2,4'-DDD	pg/g	4,610 J	4,740 J	7,630 J	23,300 JD	3,080
2,4'-DDE	pg/g	3,500 J	3,140 J	6,950 J	6,480 J	3,170 J
2,4'-DDT	pg/g	295 J	222 J	217 J	85.9 J	125
4,4'-DDD	pg/g	12,700 JB	12,800 JB	17,300 JB	53,700 JBD	8,700
4,4'-DDE	pg/g	23,300 JBD	17,200 JB	39,700 JBD	24,200 JBD	13,900
4,4'-DDT	pg/g	1,360 JB	1,190 JB	744 JB	482 JB	970 B
Aldrin	pg/g	R	5.37 UJD	5.37 UJD	R	5.37 UD
Alpha-BHC	pg/g	44.9 J	38.1 J	61 J	47.9 J	56.2
Alpha-Chlordane	pg/g	6,460 J	4,910 J	3,590 J	2,060 J	3,610
Beta-BHC	pg/g	56.8 J	150 J	123 J	217 J	65.1
cis-Nonachlor	pg/g	2,050 J	1,210 J	1,330 J	649 J	767
Delta-BHC	pg/g	7.34 UJ	7.34 UJ	7.34 UJ	23.6 J	7.34 U
Dieldrin	pg/g	1,760 J	1,260 J	3,600 J	1,050 J	753
Endosulfan I	pg/g	20.5 UJ	20.5 UJ	20.5 UJ	20.5 UJ	20.5 U
Endosulfan II	pg/g	42.6 UJ	42.6 UJ	42.6 UJ	42.6 UJ	42.6 U
Endosulfan Sulfate	pg/g	44.7 UJ	44.7 UJ	44.7 UJ	44.7 UJ	44.7 U
Endrin	pg/g	10.4 UJ	10.4 UJ	10.4 UJ	10.4 UJ	10.4 U
Endrin Aldehyde	pg/g	40.6 UJ	40.6 UJ	40.6 UJ	40.6 UJ	40.6 UJ
Endrin Ketone	pg/g	25.8 UJ	25.8 UJ	25.8 UJ	25.8 UJ	25.8 U
Gamma-BHC (Lindane)	pg/g	22.7 J	15.5 J	18.2 J	9.75 J	7.3 U

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED136 0 - 0.5 09/15/15 North NB03SED-CHM136	NB03SED137 0 - 0.5 09/15/15 North NB03SED-CHM137	NB03SED138 0 - 0.5 09/15/15 North NB03SED-CHM138	NB03SED139 0 - 0.5 09/16/15 North NB03SED-CHM139	NB03SED140 0 - 0.5 09/30/15 North NB03SED-CHM140
Heptachlor	pg/g	10.4 UJ	10.4 UJ	10.4 UJ	14.2 J	10.4 U
Heptachlor Epoxide	pg/g	552 J	158 J	101 J	55.9 J	115
Hexachlorobenzene	pg/g	1,270 JB	1,570 JB	3,830 JB	5,170 JB	1,960 B
Methoxychlor	pg/g	R	R	11.8 UJ	R	11.8 UJ
Mirex	pg/g	4.91 UJ	R	4.91 UJ	4.91 UJ	4.91 U
Nonachlor, trans-	pg/g	3,990 J	2,740 J	1,880 J	1,080 J	1,840
Oxychlordane	pg/g	11.4 UJ	11.4 UJ	11.4 UJ	11.4 UJ	11.4 U
trans-Chlordane	pg/g	6,180 J	4,100 J	4,800 J	2,180 J	3,490
trans-Heptachlor Epoxide	pg/g	219 J	304 J	626 J	213 J	123
Total Alpha + Gamma Chlordane	ppb	13 J	9 J	8.4 J	4.2 J	7.1
Total DDT (2,4)	ppb	8.4 J	8.1 J	15 J	30 DJ	6.4 J
Total DDT (4,4)	ppb	37 BDJ	31 BJ	58 BDJ	78 BDJ	24 B
Total DDT (2,4 & 4,4)	ppb	46 BDJ	39 BJ	73 BDJ	110 BDJ	30 BJ
Semivolatiles						
1,2,4,5-Tetrachlorobenzene	ug/kg	41 U	R	34 U	30 U	25 U
1,2-Diphenylhydrazine	ug/kg	41 U	R	34 U	30 U	25 U
1-Methylnaphthalene	ug/kg	1.6 UJ-	32	3.8 J-	29	1 U
2,2'-oxybis(1-Chloropropane)	ug/kg	41 U	R	34 U	30 U	25 U
2,3,4,6-Tetrachlorophenol	ug/kg	160 U	R	140 U	120 U	100 U
2,4,5-Trichlorophenol	ug/kg	41 U	R	34 U	30 U	25 U
2,4,6-Trichlorophenol	ug/kg	41 U	R	34 U	30 U	25 U
2,4-Dichlorophenol	ug/kg	41 U	R	34 U	30 U	25 U
2,4-Dimethylphenol	ug/kg	41 U	R	34 U	30 U	25 U
2,4-Dinitrophenol	ug/kg	740 U	R	610 U	540 U	450 U
2,4-Dinitrotoluene	ug/kg	160 U	R	140 U	120 U	100 U
2,6-Dinitrotoluene	ug/kg	41 U	R	34 U	30 U	25 U
2-Chloronaphthalene	ug/kg	16 U	R	14 U	12 U	10 U
2-Chlorophenol	ug/kg	41 U	R	34 U	30 U	25 U
2-Methylnaphthalene	ug/kg	2.7 J	59	6.5 J-	53	1.3 J
2-Methylphenol	ug/kg	41 U	R	34 U	30 U	25 U
2-Nitroaniline	ug/kg	41 U	R	34 U	30 U	25 U
2-Nitrophenol	ug/kg	41 U	R	34 U	30 U	25 U
3,3'-Dichlorobenzidine	ug/kg	250 U	R	200 U	180 U	150 U
3-Nitroaniline	ug/kg	160 U	R	140 U	120 U	100 U
4,6-Dinitro-2-methylphenol	ug/kg	410 U	R	340 U	300 U	250 U
4-Bromophenyl phenyl ether	ug/kg	41 U	R	34 U	30 U	25 U
4-Chloro-3-Methylphenol	ug/kg	41 U	R	34 U	30 U	25 U
4-Chloroaniline	ug/kg	82 U	R	68 U	60 U	50 U
4-Chlorophenyl phenyl ether	ug/kg	41 U	R	34 U	30 U	25 U
4-Methylphenol	ug/kg	41 U	R	49 J	39 J	25 U
4-Nitroaniline	ug/kg	160 U	R	140 U	120 U	100 U
4-Nitrophenol	ug/kg	410 U	R	340 U	300 U	250 U
Acenaphthene	ug/kg	1.7 J	61	12 J-	35	1.3 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED136 0 - 0.5 09/15/15 North NB03SED-CHM136	NB03SED137 0 - 0.5 09/15/15 North NB03SED-CHM137	NB03SED138 0 - 0.5 09/15/15 North NB03SED-CHM138	NB03SED139 0 - 0.5 09/16/15 North NB03SED-CHM139	NB03SED140 0 - 0.5 09/30/15 North NB03SED-CHM140
	Units					
Acenaphthylene	ug/kg	6.2 J-	200	43 J-	330	5.6
Acetophenone	ug/kg	41 U	130 J	86	62	27 J
Anthracene	ug/kg	5.9 J-	240	47 J-	190	8
Atrazine	ug/kg	82 U	R	68 U	60 U	50 U
Benzaldehyde	ug/kg	160 U	R	140 U	120 U	100 U
Benzidine	ug/kg	1,700 U	R	1,400 U	1,300 U	1,100 U
Benzo(a)anthracene	ug/kg	24 J-	830	190 J-	820	33
Benzo(a)pyrene	ug/kg	40 J-	1,000 J-	230 J-	1,400 J-	37
Benzo(b)fluoranthene	ug/kg	36 J-	710 J-	190 J-	940 J-	31
Benzo(e)pyrene	ug/kg	29	630	140	840	26
Benzo(g,h,i)perylene	ug/kg	28 J-	540 J-	120 J-	730 J-	24
Benzo(j,k)fluoranthene	ug/kg	28 J-	790 J-	160 J-	800 J-	36
Benzoic Acid	ug/kg	410 U	R	340 U	300 U	250 U
Biphenyl	ug/kg	41 U	R	34 U	30 U	25 U
bis(2-Chloroethoxy)methane	ug/kg	41 U	R	34 U	30 U	25 U
bis(2-Chloroethyl)ether	ug/kg	41 U	R	34 U	30 U	25 U
bis(2-Ethylhexyl)phthalate	ug/kg	260 J	290 J	1,100	650	510
Butyl benzyl phthalate	ug/kg	160 U	R	140 U	120 U	100 U
C1-Chrysenes	ug/kg	23	620	130	1,400	23
C1-Fluoranthenes/Pyrenes	ug/kg	29	1,100	210	1,500	35
C1-Fluorenes	ug/kg	2.6 J	81	15	130	1.9 J
C1-Naphthalenes	ug/kg	3.6 J	87	11	110	1.6 J
C1-Phenanthrenes/Anthracenes	ug/kg	11	340	63	380	11
C2-Chrysenes	ug/kg	14	380	80	1,000	15
C2-Fluoranthenes/Pyrenes	ug/kg	19	490	97	1,100	20
C2-Fluorenes	ug/kg	1.6 U	90	17	180	1 U
C2-Naphthalenes	ug/kg	6.4	150	16	150	2.3 J
C2-Phenanthrene/anthracenes	ug/kg	13	360	73	710	14
C3-Chrysenes	ug/kg	8.3	180	35	410	6.7
C3-Fluoranthenes/Pyrenes	ug/kg	7.6	220	42	610	9.2
C3-Fluorenes	ug/kg	1.6 U	68	13	200	1 U
C3-Naphthalene	ug/kg	3.7 J	94	14	150	2.7
C3-Phenanthrene/anthracenes	ug/kg	9.4	210	44	550	9.1
C4-Chrysenes	ug/kg	1.6 U	8 U	1.4 U	6 U	1 U
C4-Naphthalene	ug/kg	3.1 J	69	16	140	3
C4-Phenanthrenes/anthracenes	ug/kg	1.6 U	8 U	1.4 U	6 U	1 U
Caprolactam	ug/kg	82 U	R	68 U	60 U	50 U
Carbazole	ug/kg	41 U	R	56 J	30 U	31 J
Chrysene	ug/kg	30 J-	880	200 J-	880	41
Dibenzo(a,h)anthracene	ug/kg	7.2 J-	150 J-	36 J-	230 J-	6.7
Dibenzofuran	ug/kg	41 U	R	47 J	32 J	25 U
Diethyl phthalate	ug/kg	160 U	R	140 U	120 U	100 U
Dimethylphthalate	ug/kg	160 U	R	140 U	120 U	100 U

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED136 0 - 0.5 09/15/15 North	NB03SED137 0 - 0.5 09/15/15 North	NB03SED138 0 - 0.5 09/15/15 North	NB03SED139 0 - 0.5 09/16/15 North	NB03SED140 0 - 0.5 09/30/15 North
	Units	NB03SED-CHM136	NB03SED-CHM137	NB03SED-CHM138	NB03SED-CHM139	NB03SED-CHM140
Di-n-Butylphthalate	ug/kg	160 U	R	140 U	120 U	100 U
Di-n-Octylphthalate	ug/kg	160 U	R	140 U	120 U	100 U
Fluoranthene	ug/kg	34 J-	1,100	220 J-	670	39
Fluorene	ug/kg	1.6 UJ-	45	7.6 J-	16	1 U
Hexachlorobutadiene	ug/kg	41 U	R	34 U	30 U	25 U
Hexachlorocyclopentadiene	ug/kg	410 U	R	340 U	300 U	250 U
Hexachloroethane	ug/kg	82 U	R	68 U	60 U	50 U
Indeno(1,2,3-cd)pyrene	ug/kg	30 J-	610 J-	140 J-	790 J-	24
Isophorone	ug/kg	41 U	R	34 U	30 U	25 U
Naphthalene	ug/kg	11 J-	290	30 J-	150	4.6
Nitrobenzene	ug/kg	41 U	R	34 U	30 U	25 U
N-Nitroso-di-n-propylamine	ug/kg	41 U	R	34 U	30 U	25 U
N-Nitrosodiphenylamine	ug/kg	41 U	R	34 U	30 U	25 U
Pentachlorophenol	ug/kg	82 U	R	68 U	60 U	50 U
Perylene	ug/kg	9.6	230	54	270	9
Phenanthrene	ug/kg	11 J-	280	61 J-	200	12
Phenol	ug/kg	41 U	R	34 U	30 U	25 U
Pyrene	ug/kg	38 J-	1,100	230 J-	1,000	45
Pyridine	ug/kg	160 U	R	140 U	120 U	100 U
Total HMW PAHs	ug/kg	300 J	7,700 J	1,700 J	8,300 J	320
Total LMW PAHs	ug/kg	39 J	1,200	210 J	970	33 J
TOTAL PAHs	ug/kg	330 J	8,900 J	1,900 J	9,200 J	350 J
Volatiles						
1,2,4-Trichlorobenzene	ug/kg	3 UJ	3 U	3 U	3 U	2 U
1,2-Dichlorobenzene	ug/kg	3 UJ	3 U	3 U	3 U	2 U
1,3-Dichlorobenzene	ug/kg	3 UJ	3 U	3 U	3 U	2 U
1,4-Dichlorobenzene	ug/kg	3 UJ	3 U	3 U	3 U	2 U
TPH						
PHC AS GASOLINE	mg/kg	6.5 U	6 U	5.3 U	5.3 U	3.1 U
Total Petroleum Hydrocarbons (C9-C40)	mg/kg	70 J	129 J	154 J	247	11.4 J
Grain Size						
0.001 mm	% passing	8	8	7	0.5 U	3
0.002 mm	% passing	10.5	9.5	8.5	5	5
0.02 mm	% passing	56	39.5	38	22	17
0.05 mm	% passing	82	63	58	38	23
0.064 mm	% passing	92	74	70	49	26
0.3 mm	% passing	96.8	85	90.6	92.1	84
3.35 mm	% passing	99.7	95.3	98.2	98.2	99.4
75000 um	% passing	100	100	100	100	100
Hydrometer Reading, Percent Finer Than 0.0050 mm	% passing	19	17	13	9	7
Sieve No. 4, Percent Passing	% passing	100	98.9	99.7	99.4	99.8
Sieve No. 8, Percent Passing	% passing	98.6	87.7	94.6	95.4	98.2
Sieve No. 16, Percent Passing	% passing	97.9	87	93.7	94.4	97.3

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED136 0 - 0.5 09/15/15 North NB03SED-CHM136	NB03SED137 0 - 0.5 09/15/15 North NB03SED-CHM137	NB03SED138 0 - 0.5 09/15/15 North NB03SED-CHM138	NB03SED139 0 - 0.5 09/16/15 North NB03SED-CHM139	NB03SED140 0 - 0.5 09/30/15 North NB03SED-CHM140
Sieve No. 30, Percent Passing	% passing	97.4	86.3	92.6	93.6	96
Sieve No. 100, Percent Passing	% passing	96.5	83.4	85.8	89.3	58.5
Sieve No. 200, Percent Passing	% passing	95.9	79.3	75.1	55	28.9
Sieve 19000 Microns, Percent Passing	% passing	100	100	100	100	100
Sieve 37500 Microns, Percent Passing	% passing	100	100	100	100	100
Physical Properties						
Moisture (water) Content	%	59.7	58.8	51.3	44.6	34.4
Oxidation Reduction Potential	mV	77.5	50.5	80.5	97	393
Percent Moisture	%	56.5	54	46.8	43.4	35.8
Total Solids (Percent)	%	43 Z	41.4 Z	49 Z	55.6 Z	63.3 Z
Water Content	%	148	143	106	80.6	52.4
Water Content ASTM D2216	%	130	118	87.9	76.6	55.9
TOC by Lloyd Kahn	mg/kg	32,600 J	56,700 J	53,100 J	29,200 J	18,000
pH	pH Units	7.55	7.64	7.7	7.68	7.3
Miscellaneous Chemicals						
Total Kjeldahl Nitrogen	mg/kg	3,580	8,520	972	1,410 B	785
Total Cyanide	mg/kg	0.44 UJ	0.43 UJ	0.36 UJ	0.3 U	0.27 U
Ammonia Nitrogen	mg/kg	127 U	137 B	105 U	92.1 U	77.7 U
Phosphorus	mg/kg	993	1,240	692	595	484

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED141 0 - 0.5 09/17/15 Central NB03SED-CHM141	NB03SED142 0 - 0.5 09/29/15 Central NB03SED-CHM142	NB03SED143 0 - 0.5 09/30/15 Central NB03SED-CHM143	NB03SED144 0 - 0.5 09/18/15 Central NB03SED-CHM144	NB03SED145 0 - 0.5 09/30/15 Central NB03SED-CHM145
Dioxins/Furans						
1,2,3,4,6,7,8-HpCDD	ng/kg	321 BJ	58.3 JB	329 JB	383 JB	201 JB
1,2,3,4,6,7,8-HpCDF	ng/kg	414 BJ	45.1 JB	345 JB	263 JB	132 JB
1,2,3,4,7,8,9-HpCDF	ng/kg	16.2 J	1.95 JB	12.6 JB	11.6 J	6.19 JB
1,2,3,4,7,8-HxCDD	ng/kg	4.86 J	1.07 JB	4.4 JB	4.8 J	2.66 JB
1,2,3,4,7,8-HxCDF	ng/kg	111 BCJ	11 JBC	71.9 JBC	60 BCJ	28.7 BC
1,2,3,6,7,8-HxCDD	ng/kg	19.4 J	3.53 JB	19.6 JB	23.5 J	11.3 JB
1,2,3,6,7,8-HxCDF	ng/kg	24.4 BCJ	3.38 JB	18.7 BC	18.3 BCJ	9.12 BC
1,2,3,7,8,9-HxCDD	ng/kg	12.2 JB	2.2 J	11.4 J	14.7 JB	6.9 J
1,2,3,7,8,9-HxCDF	ng/kg	5.44 BCJ	0.0438 UJ	1.09 UC	4.41 JB	0.0535 UJ
1,2,3,7,8-PeCDD	ng/kg	4.31 J	0.999 JB	4.66 JB	5.57 QJ	2.62 JB
1,2,3,7,8-PeCDF	ng/kg	10.8 BCJ	2.21 JB	8.59 JBC	11.4 BCJ	5.49 JBC
2,3,4,6,7,8-HxCDF	ng/kg	11 BC	2.97 JB	12.7 C	10.1 BC	4.72 JC
2,3,4,7,8-PeCDF	ng/kg	19.9 BC	3.73 BCJ	18.2 BC	17.4 BC	8.11 BC
2,3,7,8-TCDD	ng/kg	96.8 J	14.3 JB	77.6 JB	78.3 J	53.6 JB
2,3,7,8-TCDF	ng/kg	17.8 C	4.01 C	13.4 JC	22.3 C	9.84 C
OCDD	ng/kg	3,120 BJ	729 JB	3,470 JB	3,450 JB	1,890 JB
OCDF	ng/kg	690 BJ	66.7 JB	472 JB	421 JB	215 JB
Herbicides						
2,4,5-T	ug/kg	2 UJ	1.3 U	1.8 UJ	12 UJ	1.4 U
2,4,5-TP (Silvex)	ug/kg	1.8 UJ	1.2 U	1.6 UJ	2 UJ	1.3 U
2,4-D	ug/kg	29 UJ	19 U	26 UJ	28 UJ	21 U
2,4-DB	ug/kg	15 UJ	11 U	13 UJ	89 JPN	11 U
Metals						
Aluminum	mg/kg	17,200 J	5,840	12,800 J	16,700 J	8,420
Antimony	mg/kg	0.611 J	1.74	0.899 J	0.792 J	0.372
Arsenic	mg/kg	11.7 J	5.59	29.7 J	13.5 J	9.45
Barium	mg/kg	116 J	54	157 J	149 J	80.1
Beryllium	mg/kg	0.958 J	0.385	0.789 J	0.931 J	0.471
Cadmium	mg/kg	0.801 J	0.292	2.28 J	1.58 J	1.11
Calcium	mg/kg	5,320 J	4,050	4,620 J	10,500 J	2,210
Chromium	mg/kg	104 J	67.4	194 J	120 J	67.3
Cobalt	mg/kg	12.5 J	5	10 J	11.9 J	6.64
Copper	mg/kg	117 J	42.6	176 J	143 J	89.3
Hexavalent Chromium	mg/kg	1.2 U	0.78 U	1.1 U	1.2 U	0.87 U
Iron	mg/kg	29,700 J	12,600	27,000 J	29,800 J	17,300
Lead	mg/kg	118 J	66.8	213 J	133 J	97
Magnesium	mg/kg	8,880 J	4,160	7,700 J	9,220 J	4,720
Manganese	mg/kg	352 J	114	297 J	435 J	180
Mercury	ng/g	1,430 J	336 J	2,820 J	1,950 J	1,190 J
Methyl Mercury	ng/g	1.06 J	0.829 J	1.78 J	1.62	1.56 J
Nickel	mg/kg	46.1 J	17.7	37.7 J	45.9 J	24
Potassium	mg/kg	4,110 J	1,310	3,110 J	4,330 J	2,010

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED141 0 - 0.5 09/17/15 Central NB03SED-CHM141	NB03SED142 0 - 0.5 09/29/15 Central NB03SED-CHM142	NB03SED143 0 - 0.5 09/30/15 Central NB03SED-CHM143	NB03SED144 0 - 0.5 09/18/15 Central NB03SED-CHM144	NB03SED145 0 - 0.5 09/30/15 Central NB03SED-CHM145
Selenium	mg/kg	0.843 JB	0.243 B	1.25 J	0.908 J	0.555 B
Silver	mg/kg	2.04 J	0.36	2.65 J	3.38 J	1.37
Sodium	mg/kg	10,600 J	4,600	11,400 J	11,200 J	6,410
Thallium	mg/kg	0.26 J	0.0841 B	0.245 J	0.237 J	0.172
Titanium	mg/kg	642 J	252	411 J	585 J	273
Vanadium	mg/kg	39.3 J	17.5	37.5 J	42.1 J	21.7
Zinc	mg/kg	231 J	139	340 J	242 J	165
AVS/SEM						
Acid Volatile Sulfide (AVS)	umol/g	14	0.63 U	18.3	15.9	1.1 B
Cadmium	umol/g	0.00211	0.00137	0.00981	0.00807	0.00739
Copper	umol/g	0.298	0.233	0.397	0.492	0.322
Lead	umol/g	0.159	0.155	0.592	0.239	0.251
Mercury	umol/g	0.0000074 U	0.0000074 U	0.0000075 U	0.0000071 U	0.0000072 U
Nickel	umol/g	0.147	0.299	0.109	0.095	0.038
Zinc	umol/g	0.788	0.861	2.01	1.09	1.19
TEPH Alkanes						
2,6,10,14-Tetramethyl Pentadecane	mg/kg	0.0411 UJ	0.0261 UJ	0.0364 UJ	0.039 U	0.0293 UJ
2,6,10,14-Tetramethylhexadecane	mg/kg	0.0266 UJ	0.0169 UJ	0.0236 UJ	0.0451 J	0.019 UJ
Dotriacontane	mg/kg	0.133 J	0.326 J	0.0279 UJ	0.109	0.0224 UJ
Heneicosane	mg/kg	0.0828 J	0.0169 UJ	0.0236 UJ	0.0314 J	0.0537 J
Heptacosane	mg/kg	0.0774 UJ	0.0492 UJ	0.0686 UJ	0.0734 U	0.0552 UJ
Heptadecane	mg/kg	0.0735 J	0.0433 J	0.0866 J	0.0413 U	0.0482 J
Heptatriacontane, -n	mg/kg	0.0266 UJ	0.0169 UJ	0.0236 UJ	0.0269 J	0.019 UJ
Hexatriacontane	mg/kg	0.0266 UJ	0.0633 J	0.0236 UJ	0.0252 U	0.0279 J
Hhentriacontane	mg/kg	0.161 J	0.0961 J	0.0347 UJ	0.117	0.0478 J
n-Decane	mg/kg	0.0358 UJ	0.0227 UJ	0.0317 UJ	0.034 U	0.0256 UJ
n-Docosane	mg/kg	0.0266 UJ	0.1 J	0.0236 UJ	0.0755 J	0.0562 J
n-Dodecane	mg/kg	0.0266 UJ	0.0169 UJ	0.0236 UJ	0.0252 U	0.019 UJ
n-Eicosane	mg/kg	0.029 UJ	0.0184 UJ	0.0257 UJ	0.0275 U	0.0207 UJ
n-Hexacosane	mg/kg	0.046 UJ	0.0292 UJ	0.0543 J	0.0436 U	0.0527 J
n-Hexadecane	mg/kg	0.0321 J	0.0169 UJ	0.0236 UJ	0.0252 U	0.0227 J
n-Nonane	mg/kg	0.0266 UJ	0.0169 UJ	0.0236 UJ	0.0252 U	0.019 UJ
n-Octacosane	mg/kg	0.0266 UJ	0.242 J	0.0451 J	0.225	0.128 J
n-Octadecane	mg/kg	0.0363 UJ	0.023 UJ	0.0322 UJ	0.0485 J	0.0259 UJ
Nonacosane	mg/kg	0.167 J	0.096 J	0.042 J	0.263	0.1 J
Nonadecane	mg/kg	0.0387 UJ	0.0246 UJ	0.0343 UJ	0.0367 U	0.0276 UJ
Nonatriacontane	mg/kg	0.0484 UJ	0.0307 UJ	0.0429 UJ	0.0459 U	0.0757 J
n-Tetracosane	mg/kg	0.125 J	0.0169 UJ	0.0236 UJ	0.0252 U	0.019 UJ
n-Tetradecane	mg/kg	0.0339 UJ	0.0215 UJ	0.03 UJ	0.0597 J	0.0242 UJ
n-Triacontane	mg/kg	0.16 J	0.0692 J	0.109 J	0.219	0.234 J
n-Tridecane	mg/kg	0.0266 UJ	0.0169 UJ	0.0236 UJ	0.0252 U	0.019 UJ
n-Undecane	mg/kg	0.0489 UJ	0.031 UJ	0.0433 UJ	0.0464 U	0.0349 UJ
Octatriacontane	mg/kg	0.0363 UJ	0.023 UJ	0.0322 UJ	0.0752 J	0.0266 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED141 0 - 0.5 09/17/15 Central NB03SED-CHM141	NB03SED142 0 - 0.5 09/29/15 Central NB03SED-CHM142	NB03SED143 0 - 0.5 09/30/15 Central NB03SED-CHM143	NB03SED144 0 - 0.5 09/18/15 Central NB03SED-CHM144	NB03SED145 0 - 0.5 09/30/15 Central NB03SED-CHM145
Pentacosane	mg/kg	0.047 J	0.0169 UJ	0.0462 J	0.14	0.019 UJ
Pentadecane	mg/kg	0.0266 UJ	0.0253 J	0.0236 UJ	0.0252 U	0.019 UJ
Pentatriacontane	mg/kg	0.0266 UJ	0.0238 J	0.0236 UJ	0.0415 J	0.0319 J
Tetracontane	mg/kg	0.0398 J	0.0232 J	0.0236 UJ	0.0276 J	0.0617 J
Tetratriacontane	mg/kg	0.0315 UJ	0.02 UJ	0.0291 J	0.0298 U	0.0224 UJ
Tricosane	mg/kg	0.0738 J	0.0471 J	0.0594 J	0.067 J	0.0429 J
Tritriacontane	mg/kg	0.0532 UJ	0.054 J	0.0472 UJ	0.0505 U	0.038 UJ
Butyltins						
Dibutyltin	ug/kg	3.2 UJ	2 U	2.8 UJ	3.1 UJ	2.7
Monobutyltin	ug/kg	50 UJCN	32 UCN	45 UJCN	49 UJCN	33 UCN
Tetrabutyltin	ug/kg	4.1 UJ	2.6 U	3.7 UJ	4 UJ	2.7 U
Tributyltin	ug/kg	3.7 UJ	2.3 U	3.2 UJ	3.6 UJ	3
PCB Congeners						
PCB-1	ng/kg	352 EJ	169 J	R	324 EJ	R
PCB-2	ng/kg	40.3 J	31.3 J	6.42 J	96.1 J	18.1 J
PCB-3	ng/kg	99 J	R	R	175 J	R
PCB-4	ng/kg	422 EJ	330 BEJ	65.3 BJ	943 EJ	231 BJ
PCB-5	ng/kg	2.52 J	0.768 UJ	2.14 J	6.22 J	5.26 J
PCB-6	ng/kg	101 J	109 J	33.1 J	137 J	69.2 J
PCB-7	ng/kg	10.4 J	11.7 J	2.89 J	15.5 J	11.8 J
PCB-8	ng/kg	365 EJ	409 BEJ	123 BJ	707 EJ	340 BEJ
PCB-9	ng/kg	13.1 J	18.6 J	7.55 J	21.2 J	14.3 J
PCB-10	ng/kg	30.9 J	36.7 J	8.29 J	40.1 J	18.5 J
PCB-11	ng/kg	180 J	407 BEJ	186 BJ	347 EJ	295 BJ
PCB-12/13	ng/kg	113 J	179 J	49.5 J	207 J	105 J
PCB-14	ng/kg	0.804 UJ	0.768 UJ	0.799 J	0.81 UJ	0.803 UJ
PCB-15	ng/kg	556 EJ	910 BEJ	211 BJ	1,020 EJ	523 BEJ
PCB-16	ng/kg	78.2 BJ	1.92 UJ	93.7 J	256 BJ	307 EJ
PCB-17	ng/kg	133 J	464 EJ	122 J	361 EJ	379 EJ
PCB-18/30	ng/kg	188 J	647 BEJ	216 BJ	538 J	682 BEJ
PCB-19	ng/kg	54.4 J	115 J	36.1 J	127 J	94.4 J
PCB-20/28	ng/kg	646 BEJ	2,820 EJ	709 EJ	1,430 BEJ	1,800 EJ
PCB-21/33	ng/kg	116 J	497 J	166 J	289 J	506 J
PCB-22	ng/kg	136 J	600 EJ	163 J	339 EJ	478 EJ
PCB-23	ng/kg	0.703 UJ	1.27 J	0.677 UJ	0.709 UJ	1.21 J
PCB-24	ng/kg	3.02 J	0.96 UJ	0.967 UJ	8.59 J	1 UJ
PCB-25	ng/kg	74.8 J	289 EJ	69.9 J	145 J	160 J
PCB-26/29	ng/kg	127 J	446 J	113 J	250 J	290 J
PCB-27	ng/kg	36.4 J	134 J	28.1 J	81.1 J	76.2 J
PCB-31	ng/kg	449 EJ	1,360 EJ	438 EJ	1,080 EJ	1,110 EJ
PCB-32	ng/kg	123 J	342 EJ	108 J	282 J	297 J
PCB-34	ng/kg	3.22 J	12.5 J	3.45 J	8.47 J	8.23 J
PCB-35	ng/kg	17.8 J	61.8 J	29.4 J	36.2 J	38.7 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED141 0 - 0.5 09/17/15 Central NB03SED-CHM141	NB03SED142 0 - 0.5 09/29/15 Central NB03SED-CHM142	NB03SED143 0 - 0.5 09/30/15 Central NB03SED-CHM143	NB03SED144 0 - 0.5 09/18/15 Central NB03SED-CHM144	NB03SED145 0 - 0.5 09/30/15 Central NB03SED-CHM145
PCB-36	ng/kg	0.804 UJ	0.768 UJ	1.33 J	2.01 J	0.803 UJ
PCB-37	ng/kg	189 J	691 EJ	172 J	324 EJ	437 EJ
PCB-38	ng/kg	0.703 UJ	0.672 UJ	0.677 UJ	1.02 J	0.73 J
PCB-39	ng/kg	3.16 J	13.4 J	4.62 J	8.16 J	9.04 J
PCB-40/71	ng/kg	187 J	902 J	252 J	414 J	605 J
PCB-41	ng/kg	15.5 J	96.5 J	35.4 J	39.6 J	77.3 J
PCB-42	ng/kg	130 J	630 EJ	182 J	303 J	421 J
PCB-43	ng/kg	13.2 J	81.7 J	24.4 J	36 J	64 J
PCB-44/47/65	ng/kg	388 J	2,100 EJ	652 J	888 J	1,370 J
PCB-45	ng/kg	39 J	252 J	66 J	105 J	185 J
PCB-46	ng/kg	17.4 J	95.5 J	25.6 J	45.7 J	67.3 J
PCB-48	ng/kg	52.4 J	295 J	99.8 J	148 J	257 J
PCB-49/69	ng/kg	290 J	1,330 EJ	452 J	642 J	967 J
PCB-50/53	ng/kg	49.4 J	289 J	70.5 J	113 J	180 J
PCB-51	ng/kg	29.6 J	148 J	30.1 J	50.3 J	64.5 J
PCB-52	ng/kg	365 BJ	2,250 BEJ	841 BEJ	858 BEJ	1,530 BEJ
PCB-54	ng/kg	4.84 J	13.3 J	2.62 J	5.68 J	5.54 J
PCB-55	ng/kg	4.29 J	12.4 J	10.4 J	9.41 J	14.7 J
PCB-56	ng/kg	191 J	861 EJ	310 J	388 J	689 EJ
PCB-57	ng/kg	2.99 J	62.6 J	1.06 UJ	1.11 UJ	9.15 J
PCB-58	ng/kg	2.34 J	7.94 J	2.99 J	5.33 J	5.47 J
PCB-60	ng/kg	61 J	385 J	119 J	104 J	278 J
PCB-61/70/74/76	ng/kg	612 J	2,620 EJ	1,140 J	1,290 J	2,220 J
PCB-62/75	ng/kg	38.3 J	199 J	52.6 J	89.7 J	127 J
PCB-63	ng/kg	17.7 J	62.1 J	27.3 J	37 J	57.8 J
PCB-64	ng/kg	170 J	790 EJ	263 J	412 J	590 J
PCB-66	ng/kg	427 BJ	1,600 EJ	648 EJ	872 BEJ	1,340 EJ
PCB-67	ng/kg	13.2 J	49.3 J	17.7 J	25.9 J	40.2 J
PCB-68	ng/kg	5.31 J	20.3 J	6.89 J	1.42 UJ	10.6 J
PCB-72	ng/kg	6.76 J	27.2 J	9.22 J	15.5 J	16.2 J
PCB-73	ng/kg	1.41 UJ	1.34 UJ	1.35 UJ	1.42 UJ	1.41 UJ
PCB-77	ng/kg	48.1 J	290 J	93.5 J	86.9 J	159 J
PCB-78	ng/kg	1.61 UJ	1.54 UJ	1.55 UJ	1.62 UJ	1.61 UJ
PCB-79	ng/kg	3.96 J	31 J	1.06 UJ	6.39 J	14 J
PCB-80	ng/kg	1.11 UJ	1.06 UJ	1.06 UJ	1.11 UJ	1.1 UJ
PCB-81	ng/kg	1.81 UJ	7.89 J	2.49 J	2.27 J	5.2 J
PCB-82	ng/kg	42.3 J	389 J	113 J	80 J	191 J
PCB-83	ng/kg	18.3 J	179 J	55.9 J	43.6 J	92.3 J
PCB-84	ng/kg	90.9 J	501 J	196 J	193 J	313 J
PCB-85/116/117	ng/kg	68 J	618 J	175 J	127 J	292 J
PCB-86/87/97/109/119/125	ng/kg	218 J	2,050 J	626 J	419 J	1,010 J
PCB-88	ng/kg	2.21 UJ	349 J	2.13 UJ	2.23 UJ	2.21 UJ
PCB-89	ng/kg	4.99 J	17.4 J	9.35 J	10.2 J	18.1 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED141 0 - 0.5 09/17/15 Central NB03SED-CHM141	NB03SED142 0 - 0.5 09/29/15 Central NB03SED-CHM142	NB03SED143 0 - 0.5 09/30/15 Central NB03SED-CHM143	NB03SED144 0 - 0.5 09/18/15 Central NB03SED-CHM144	NB03SED145 0 - 0.5 09/30/15 Central NB03SED-CHM145
PCB-90/101/113	ng/kg	332 BJ	2,810 BEJ	907 BJ	653 BJ	4.72 UJ
PCB-91	ng/kg	72.3 J	358 J	122 J	138 J	205 J
PCB-92	ng/kg	62.5 J	487 J	163 J	133 J	1.31 UJ
PCB-93/100	ng/kg	12.6 J	49.8 J	13 J	15.1 J	21.9 J
PCB-94	ng/kg	4.57 J	18.8 J	5.09 J	7.23 J	8.71 J
PCB-95	ng/kg	R	2,330 EJ	754 EJ	R	1,130 EJ
PCB-96	ng/kg	3.95 J	18.4 J	5.36 J	9.18 J	10.4 J
PCB-98/102	ng/kg	19.1 J	85 J	27.9 J	34.5 J	49.4 J
PCB-99	ng/kg	200 J	1,650 EJ	484 J	378 J	794 EJ
PCB-103	ng/kg	7.46 J	28.7 J	8.9 J	11.4 J	13.6 J
PCB-104	ng/kg	1.41 UJ	5.22 J	1.35 UJ	1.42 UJ	1.41 UJ
PCB-105	ng/kg	129 J	1,310 EJ	381 J	218 J	605 EJ
PCB-106	ng/kg	1.71 UJ	3,850 EJ	1.64 UJ	1.72 UJ	1.71 UJ
PCB-107	ng/kg	26.3 J	250 J	69.5 J	45.5 J	113 J
PCB-108/124	ng/kg	12.1 J	144 J	36.7 J	20.9 J	60.3 J
PCB-110/115	ng/kg	412 BJ	4,140 EJ	1,170 EJ	790 BJ	1,810 EJ
PCB-111	ng/kg	1.41 UJ	1.34 UJ	1.35 UJ	1.42 UJ	1.41 UJ
PCB-112	ng/kg	1.45 J	1.34 UJ	1.35 UJ	3.43 J	1.41 UJ
PCB-114	ng/kg	7.92 J	71.9 J	20.7 J	1.52 UJ	36.6 J
PCB-118	ng/kg	329 BJ	3,180 EJ	932 EJ	636 BEJ	1,460 EJ
PCB-120	ng/kg	1.96 J	10.9 J	3.57 J	4.8 J	5.02 J
PCB-121	ng/kg	1.21 UJ	1.15 UJ	1.16 UJ	1.21 UJ	1.2 UJ
PCB-122	ng/kg	4.27 J	46.6 J	12.2 J	6.11 J	22.6 J
PCB-123	ng/kg	5.36 J	81.1 J	18.7 J	14 J	36.4 J
PCB-126	ng/kg	1.61 UJ	1.54 UJ	1.55 UJ	1.88 J	3.98 J
PCB-127	ng/kg	1.41 UJ	1.34 UJ	R	1.42 UJ	R
PCB-128/166	ng/kg	46.1 J	684 J	149 J	75.8 J	234 J
PCB-129/138/163	ng/kg	351 J	4,500 EJ	1,050 J	590 J	1,650 J
PCB-130	ng/kg	21.3 J	285 J	60.3 J	37.4 J	101 J
PCB-131	ng/kg	3.76 J	1.63 UJ	1.64 UJ	1.72 UJ	22.1 J
PCB-132	ng/kg	94.2 J	1,380 BEJ	323 BJ	175 J	513 BJ
PCB-133	ng/kg	6.4 J	59.6 J	14.2 J	9.67 J	21.5 J
PCB-134	ng/kg	15.3 J	254 J	57.7 J	25.5 J	97.5 J
PCB-135/151	ng/kg	112 J	1,070 J	267 J	189 J	427 J
PCB-136	ng/kg	35.1 J	363 J	95.7 J	63.7 J	156 J
PCB-137	ng/kg	13.8 J	223 J	50.9 J	27 J	78.2 J
PCB-139/140	ng/kg	5.9 J	2.78 UJ	17.5 J	10.6 J	27.7 J
PCB-141	ng/kg	R	565 BJ	141 BJ	88.8 J	235 BJ
PCB-142	ng/kg	1.71 UJ	1.63 UJ	1.64 UJ	1.72 UJ	1.71 UJ
PCB-143	ng/kg	3.32 UJ	3.17 UJ	3.19 UJ	3.34 UJ	3.31 UJ
PCB-144	ng/kg	13.2 J	129 J	34 J	24 J	50.2 J
PCB-145	ng/kg	1.61 UJ	1.69 J	1.55 UJ	1.62 UJ	1.61 UJ
PCB-146	ng/kg	R	575 J	131 J	R	208 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED141 0 - 0.5 09/17/15 Central NB03SED-CHM141	NB03SED142 0 - 0.5 09/29/15 Central NB03SED-CHM142	NB03SED143 0 - 0.5 09/30/15 Central NB03SED-CHM143	NB03SED144 0 - 0.5 09/18/15 Central NB03SED-CHM144	NB03SED145 0 - 0.5 09/30/15 Central NB03SED-CHM145
PCB-147/149	ng/kg	239 J	2,820 BEJ	695 BJ	407 J	1,100 BJ
PCB-148	ng/kg	1.41 UJ	6.88 J	3.87 UJ	1.42 UJ	4.02 UJ
PCB-150	ng/kg	1.51 UJ	9.46 J	3.27 J	2.19 J	4.28 J
PCB-152	ng/kg	1.41 UJ	3.84 J	1.35 UJ	1.42 UJ	1.53 J
PCB-153/168	ng/kg	301 BJ	3,270 BEJ	802 BJ	525 BJ	1,250 BEJ
PCB-154	ng/kg	7.84 J	59.4 J	15.2 J	10.7 J	24.6 J
PCB-155	ng/kg	2.82 J	16.8 J	3.27 J	7.36 J	8.02 J
PCB-156/157	ng/kg	38.3 J	502 J	113 J	63.5 J	188 J
PCB-158	ng/kg	30.7 J	436 J	99 J	56.3 J	160 J
PCB-159	ng/kg	1.41 UJ	1.34 UJ	1.35 UJ	1.42 UJ	1.41 UJ
PCB-160	ng/kg	6.33 UJ	6.05 UJ	6.09 UJ	6.38 UJ	6.33 UJ
PCB-161	ng/kg	1.31 UJ	1.25 UJ	1.26 UJ	1.32 UJ	1.31 UJ
PCB-162	ng/kg	1.31 UJ	30.4 J	5.56 J	1.32 UJ	10.9 J
PCB-164	ng/kg	20.3 J	276 J	60.2 J	36 J	99.5 J
PCB-165	ng/kg	R	2.22 J	1.26 UJ	R	1.31 UJ
PCB-167	ng/kg	13.1 J	167 J	R	21.8 J	R
PCB-169	ng/kg	1.51 UJ	1.44 UJ	1.45 UJ	1.52 UJ	1.51 UJ
PCB-170	ng/kg	74 J	739 EJ	194 J	128 J	315 J
PCB-171/173	ng/kg	R	245 J	64.2 J	R	103 J
PCB-172	ng/kg	13.7 J	134 J	35.8 J	24.4 J	58 J
PCB-174	ng/kg	R	643 EJ	187 J	R	292 J
PCB-175	ng/kg	R	35 J	9.27 J	R	15.1 J
PCB-176	ng/kg	9.5 J	90.3 J	26 J	18.9 J	41 J
PCB-177	ng/kg	R	485 J	123 J	R	203 J
PCB-178	ng/kg	23 J	178 J	45.1 J	34.1 J	73.4 J
PCB-179	ng/kg	37.4 J	322 J	91.4 J	60.7 J	144 J
PCB-180/193	ng/kg	180 J	1,670 EJ	473 J	298 J	3.01 UJ
PCB-181	ng/kg	R	10.4 J	2.43 J	R	4.07 J
PCB-182	ng/kg	R	4.96 J	3.87 UJ	R	4.02 UJ
PCB-183/185	ng/kg	59.3 J	566 J	165 J	R	256 J
PCB-184	ng/kg	1.41 UJ	2.69 J	1.35 UJ	1.42 UJ	1.41 UJ
PCB-186	ng/kg	1.51 UJ	1.44 UJ	1.45 UJ	1.52 UJ	1.51 UJ
PCB-187	ng/kg	142 J	1,080 EJ	310 J	214 J	491 J
PCB-188	ng/kg	1.51 UJ	3.96 J	1.45 UJ	1.52 UJ	2.87 J
PCB-189	ng/kg	3.71 J	30 J	6.95 J	5.37 J	12 J
PCB-190	ng/kg	17.4 J	160 J	41.1 J	29.2 J	69 J
PCB-191	ng/kg	1.31 UJ	32.5 J	8.76 J	5.17 J	14.1 J
PCB-192	ng/kg	1.31 UJ	1.25 UJ	1.26 UJ	1.32 UJ	1.31 UJ
PCB-194	ng/kg	46.7 J	338 J	121 J	77.6 J	181 J
PCB-195	ng/kg	16.7 J	127 J	41.1 J	29.1 J	60.1 J
PCB-196	ng/kg	25.7 J	188 J	66.2 J	42.9 J	95.1 J
PCB-197/200	ng/kg	R	54.6 J	19.1 J	12.1 J	27.4 J
PCB-198/199	ng/kg	70.7 J	516 J	190 J	111 J	271 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED141 0 - 0.5 09/17/15 Central NB03SED-CHM141	NB03SED142 0 - 0.5 09/29/15 Central NB03SED-CHM142	NB03SED143 0 - 0.5 09/30/15 Central NB03SED-CHM143	NB03SED144 0 - 0.5 09/18/15 Central NB03SED-CHM144	NB03SED145 0 - 0.5 09/30/15 Central NB03SED-CHM145
PCB-201	ng/kg	8.7 J	60.3 J	20.4 J	15.2 J	28.9 J
PCB-202	ng/kg	21.4 J	165 J	62.7 J	32.7 J	87.2 J
PCB-203	ng/kg	46.4 J	299 J	117 J	64.4 J	168 J
PCB-204	ng/kg	2.11 UJ	2.02 UJ	2.03 UJ	2.13 UJ	2.11 UJ
PCB-205	ng/kg	2.64 J	17 J	5.96 J	5.48 J	8.3 J
PCB-206	ng/kg	53.7 J	426 J	168 J	80.3 J	226 J
PCB-207	ng/kg	5.54 J	31.2 J	14 J	8.02 J	16.5 J
PCB-208	ng/kg	19.3 J	144 J	68 J	32.7 J	87.4 J
PCB-209	ng/kg	45.9 J	363 J	162 J	R	138 J
Total PCB Congeners (209)	ng/kg	12,200 J	78,500 J	21,900 J	24,400 J	38,100 J
Aroclor PCBs						
Aroclor-1016	ug/kg	8.7 U	5.5 U	7.7 U	8.4 U	6.2 U
Aroclor-1221	ug/kg	11 U	7.1 U	9.8 U	11 U	7.9 U
Aroclor-1232	ug/kg	19 U	12 U	17 U	19 U	14 U
Aroclor-1242	ug/kg	8 U	5.1 U	7 U	7.7 U	5.7 U
Aroclor-1248	ug/kg	70	30 PJ	140 PJ	80	120 J
Aroclor-1254	ug/kg	59	50 J	200 J	72	120 J
Aroclor-1260	ug/kg	31 J	7.5 U	61	28 J	42 J
Aroclor-1262	ug/kg	8 U	5.1 U	7 U	7.7 U	5.7 U
Aroclor-1268	ug/kg	8 U	5.1 U	7 U	7.7 U	5.7 U
Total Aroclor PCBs (Sum of 7 Aroclors)	ug/kg	160 J	80 PJ	400 PJ	180 J	280 J
Total Aroclor PCBs (Sum of 9 Aroclors)	ug/kg	160 J	80 PJ	400 PJ	180 J	280 J
Pesticides						
2,4'-DDD	pg/g	3,190 J	1,440	18,700 J	1,440 J	3,510
2,4'-DDE	pg/g	3,630 J	845	56,200 D	4,270 J	4,870
2,4'-DDT	pg/g	290 J	105	618	R	6.1 U
4,4'-DDD	pg/g	8,320 JB	4,360	43,500 D	4,760 JB	8,810
4,4'-DDE	pg/g	16,000 JB	4,590	143,000 D	36,600 JBD	17,300
4,4'-DDT	pg/g	1,220 JB	570 B	5,040 B	343 JB	238 B
Aldrin	pg/g	R	5.37 UD	5.37 UD	R	R
Alpha-BHC	pg/g	295 J	8.61 J	116	31.6 J	33 J
Alpha-Chlordane	pg/g	3,570 J	1,440	4,210	706 J	2,290
Beta-BHC	pg/g	94.8 J	12.6 U	127	25.7 J	39.5
cis-Nonachlor	pg/g	1,270 J	398	1,120	516 J	820
Delta-BHC	pg/g	63.6 J	7.34 U	7.34 U	6.07 J	7.34 U
Dieldrin	pg/g	1,250 J	677	1,870	396 J	1,910
Endosulfan I	pg/g	20.5 UJ	20.5 U	20.5 UJ	20.5 UJ	20.5 U
Endosulfan II	pg/g	42.6 UJ	42.6 U	42.6 U	R	42.6 U
Endosulfan Sulfate	pg/g	44.7 UJ	44.7 U	44.7 U	R	44.7 U
Endrin	pg/g	10.4 UJ	10.4 U	10.4 U	10.4 UJ	10.4 U
Endrin Aldehyde	pg/g	40.6 UJ	40.6 UJ	40.6 UJ	40.6 UJ	40.6 UJ
Endrin Ketone	pg/g	25.8 UJ	25.8 U	25.8 U	R	25.8 U
Gamma-BHC (Lindane)	pg/g	75.1 J	7.3 U	7.3 U	9.9 J	7.3 U

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED141 0 - 0.5 09/17/15 Central NB03SED-CHM141	NB03SED142 0 - 0.5 09/29/15 Central NB03SED-CHM142	NB03SED143 0 - 0.5 09/30/15 Central NB03SED-CHM143	NB03SED144 0 - 0.5 09/18/15 Central NB03SED-CHM144	NB03SED145 0 - 0.5 09/30/15 Central NB03SED-CHM145
Heptachlor	pg/g	10.4 UJ	29.8 J	10.4 U	10.4 UJ	10.4 U
Heptachlor Epoxide	pg/g	108 J	161	9.35 U	9.35 UJ	9.35 U
Hexachlorobenzene	pg/g	848 JB	471 B	3,090 B	424 JB	882 B
Methoxychlor	pg/g	R	11.8 UJ	11.8 UJ	R	11.8 UJ
Mirex	pg/g	4.91 UJ	4.91 U	4.91 U	27.8 J	4.91 U
Nonachlor, trans-	pg/g	2,000 J	802	2,960 J	283 J	1,310
Oxychlordane	pg/g	11.4 UJ	41.8	11.4 U	11.4 UJ	11.4 U
trans-Chlordane	pg/g	3,530 J	2,270	5,300	732 J	3,380 J
trans-Heptachlor Epoxide	pg/g	12.9 UJ	12.9 U	580	88.4 J	12.9 U
Total Alpha + Gamma Chlordane	ppb	7.1 J	3.7	9.5	1.4 J	5.7 J
Total DDT (2,4)	ppb	7.1 J	2.4	76 DJ	5.7 T	8.4
Total DDT (4,4)	ppb	26 BJ	9.5 B	190 BD	42 BDJ	26 B
Total DDT (2,4 & 4,4)	ppb	33 BJ	12 B	270 BDJ	47 BDT	35 B
Semivolatiles						
1,2,4,5-Tetrachlorobenzene	ug/kg	R	26 U	36 UJ	38 U	29 U
1,2-Diphenylhydrazine	ug/kg	R	26 U	36 UJ	38 U	29 U
1-Methylnaphthalene	ug/kg	2.5 J-	8.5 J	2.5 J	1.5 UJ	1.4 J
2,2'-oxybis(1-Chloropropane)	ug/kg	R	26 U	36 UJ	38 U	29 U
2,3,4,6-Tetrachlorophenol	ug/kg	R	100 U	140 UJ	150 U	120 U
2,4,5-Trichlorophenol	ug/kg	R	26 U	36 UJ	38 U	29 U
2,4,6-Trichlorophenol	ug/kg	R	26 U	36 UJ	38 U	29 U
2,4-Dichlorophenol	ug/kg	R	26 U	36 UJ	38 U	29 U
2,4-Dimethylphenol	ug/kg	R	26 U	36 UJ	38 U	29 U
2,4-Dinitrophenol	ug/kg	R	470 U	640 UJ	690 U	520 U
2,4-Dinitrotoluene	ug/kg	R	100 U	140 UJ	150 U	120 U
2,6-Dinitrotoluene	ug/kg	R	26 U	36 UJ	38 U	29 U
2-Chloronaphthalene	ug/kg	R	10 U	14 UJ	15 U	12 U
2-Chlorophenol	ug/kg	R	26 U	36 UJ	38 U	29 U
2-Methylnaphthalene	ug/kg	4 J-	9.5 J	4.8	3 J-	2.9 J
2-Methylphenol	ug/kg	R	26 U	36 UJ	38 U	29 U
2-Nitroaniline	ug/kg	R	26 U	36 UJ	38 U	29 U
2-Nitrophenol	ug/kg	R	26 U	36 UJ	38 U	29 U
3,3'-Dichlorobenzidine	ug/kg	R	160 U	210 UJ	230 U	170 U
3-Nitroaniline	ug/kg	R	100 U	140 UJ	150 U	120 U
4,6-Dinitro-2-methylphenol	ug/kg	R	260 U	360 UJ	380 U	290 U
4-Bromophenyl phenyl ether	ug/kg	R	26 U	36 UJ	38 U	29 U
4-Chloro-3-Methylphenol	ug/kg	R	26 U	36 UJ	38 U	29 U
4-Chloroaniline	ug/kg	R	52 U	71 UJ	77 U	58 U
4-Chlorophenyl phenyl ether	ug/kg	R	26 U	36 UJ	38 U	29 U
4-Methylphenol	ug/kg	87 J	26 U	190 J	52 J	84
4-Nitroaniline	ug/kg	R	100 U	140 UJ	150 U	120 U
4-Nitrophenol	ug/kg	R	260 U	360 UJ	380 U	290 U
Acenaphthene	ug/kg	4.5 J-	29	7.1	1.5 UJ	13

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED141 0 - 0.5 09/17/15 Central NB03SED-CHM141	NB03SED142 0 - 0.5 09/29/15 Central NB03SED-CHM142	NB03SED143 0 - 0.5 09/30/15 Central NB03SED-CHM143	NB03SED144 0 - 0.5 09/18/15 Central NB03SED-CHM144	NB03SED145 0 - 0.5 09/30/15 Central NB03SED-CHM145
Acenaphthylene	ug/kg	15 J-	18	12	8.5 J-	5.5
Acetophenone	ug/kg	100 J	27 J	36 UJ	38 U	29 U
Anthracene	ug/kg	19 J-	76	32	8.7 J-	12
Atrazine	ug/kg	R	52 U	71 UJ	77 U	58 U
Benzaldehyde	ug/kg	R	100 U	140 UJ	150 U	120 U
Benzidine	ug/kg	R	1,100 U	1,500 UJ	1,600 U	1,200 U
Benzo(a)anthracene	ug/kg	67 J-	200	85	22 J-	26
Benzo(a)pyrene	ug/kg	84 J-	190	100	32 J-	32
Benzo(b)fluoranthene	ug/kg	63 J-	170	89	23 J-	26
Benzo(e)pyrene	ug/kg	58	130	71	21	24
Benzo(g,h,i)perylene	ug/kg	51 J-	110	53	20 J-	21
Benzo(j,k)fluoranthene	ug/kg	72 J-	150	75	23 J-	30
Benzoic Acid	ug/kg	R	260 U	360 UJ	380 U	290 U
Biphenyl	ug/kg	R	26 U	36 UJ	38 U	29 U
bis(2-Chloroethoxy)methane	ug/kg	R	26 U	36 UJ	38 U	29 U
bis(2-Chloroethyl)ether	ug/kg	R	26 U	36 UJ	38 U	29 U
bis(2-Ethylhexyl)phthalate	ug/kg	310 J	370	740 J	2,200	1,300
Butyl benzyl phthalate	ug/kg	R	100 U	140 UJ	150 U	120 U
C1-Chrysenes	ug/kg	58	130	55	23	27
C1-Fluoranthenes/Pyrenes	ug/kg	83	200	95	32	42
C1-Fluorenes	ug/kg	7.4	22	7.3	3.6 J	4.3
C1-Naphthalenes	ug/kg	6	13	5.3	4	2.9
C1-Phenanthrenes/Anthracenes	ug/kg	34	180	42	12	21
C2-Chrysenes	ug/kg	38	85	55	18	29
C2-Fluoranthenes/Pyrenes	ug/kg	52	120	49	20	22
C2-Fluorenes	ug/kg	9.4	23	1.4 U	5.3	1.2 U
C2-Naphthalenes	ug/kg	9.6	18	6.6	4.4	4.8
C2-Phenanthrene/anthracenes	ug/kg	40	120	47	18	17
C3-Chrysenes	ug/kg	16	40	32	8.3	19
C3-Fluoranthenes/Pyrenes	ug/kg	22	71	52	11	20
C3-Fluorenes	ug/kg	1.6 U	5.1 U	1.4 U	5.7	1.2 U
C3-Naphthalene	ug/kg	9.2	27	14	5.5	7
C3-Phenanthrene/anthracenes	ug/kg	25	59	49	15	15
C4-Chrysenes	ug/kg	1.6 U	26	17	5.5	10
C4-Naphthalene	ug/kg	8.4	19	24	8.4	6.1
C4-Phenanthrenes/anthracenes	ug/kg	1.6 U	5.1 U	1.4 U	1.5 U	1.2 U
Caprolactam	ug/kg	R	52 U	71 UJ	77 U	58 U
Carbazole	ug/kg	R	190	120 J	38 U	42 J
Chrysene	ug/kg	79 J-	210	94	26 J-	28
Dibenzo(a,h)anthracene	ug/kg	14 J-	32	15	5.5 J-	5.2
Dibenzofuran	ug/kg	R	160	77 J	38 U	49 J
Diethyl phthalate	ug/kg	R	100 U	140 UJ	150 U	120 U
Dimethylphthalate	ug/kg	R	100 U	140 UJ	150 U	120 U

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED141 0 - 0.5 09/17/15 Central NB03SED-CHM141	NB03SED142 0 - 0.5 09/29/15 Central NB03SED-CHM142	NB03SED143 0 - 0.5 09/30/15 Central NB03SED-CHM143	NB03SED144 0 - 0.5 09/18/15 Central NB03SED-CHM144	NB03SED145 0 - 0.5 09/30/15 Central NB03SED-CHM145
	Units					
Di-n-Butylphthalate	ug/kg	R	100 U	140 UJ	150 U	120 U
Di-n-Octylphthalate	ug/kg	R	100 U	140 UJ	150 U	120 U
Fluoranthene	ug/kg	91 J-	450	180	27 J-	61
Fluorene	ug/kg	3.4 J-	33	8.9	2.8 J-	6.3
Hexachlorobutadiene	ug/kg	R	26 U	36 UJ	38 U	29 U
Hexachlorocyclopentadiene	ug/kg	R	260 U	360 UJ	380 U	290 U
Hexachloroethane	ug/kg	R	52 U	71 UJ	77 U	58 U
Indeno(1,2,3-cd)pyrene	ug/kg	56 J-	120	59	21 J-	21
Isophorone	ug/kg	R	26 U	36 UJ	38 U	29 U
Naphthalene	ug/kg	13 J-	24	13	7.6 J-	6.1
Nitrobenzene	ug/kg	R	26 U	36 UJ	38 U	29 U
N-Nitroso-di-n-propylamine	ug/kg	R	26 U	36 UJ	38 U	29 U
N-Nitrosodiphenylamine	ug/kg	R	26 U	36 UJ	38 U	29 U
Pentachlorophenol	ug/kg	R	52 U	71 UJ	77 U	58 U
Perylene	ug/kg	21	46	27	7.5	8.3
Phenanthrene	ug/kg	28 J-	310	98	9.3 J-	38
Phenol	ug/kg	R	26 U	36 UJ	38 U	29 U
Pyrene	ug/kg	100 J-	380	180	32 J-	75
Pyridine	ug/kg	R	100 U	140 UJ	150 U	120 U
Total HMW PAHs	ug/kg	680 J	2,000	930	230 J	330
Total LMW PAHs	ug/kg	87 J	500 J	180	40 J	84 J
TOTAL PAHs	ug/kg	760 J	2,500 J	1,100	270 J	410 J
Volatiles						
1,2,4-Trichlorobenzene	ug/kg	4 U	1 U	2 U	3 U	2 U
1,2-Dichlorobenzene	ug/kg	4 U	1 U	2 U	3 U	2 U
1,3-Dichlorobenzene	ug/kg	4 U	1 U	2 U	3 U	2 U
1,4-Dichlorobenzene	ug/kg	4 U	1 U	2 U	3 U	2 U
TPH						
PHC AS GASOLINE	mg/kg	8.1 U	3 U	4.7 U	5.6 U	3.5 U
Total Petroleum Hydrocarbons (C9-C40)	mg/kg	82.8 J	52.3 J	53.9 J	155	116 J
Grain Size						
0.001 mm	% passing	10	0.5 U	1	9	0.5 U
0.002 mm	% passing	16	2	7	14	0.5 U
0.02 mm	% passing	53	7	40	50.5	18
0.05 mm	% passing	80	9.5	60.5	68	30
0.064 mm	% passing	90	11	67	76	38
0.3 mm	% passing	97.3	89.3	91.1	88.8	89.3
3.35 mm	% passing	99.7	97.1	99	99.7	97.5
75000 um	% passing	100	100	100	100	100
Hydrometer Reading, Percent Finer Than 0.0050 mm	% passing	23	5	13	21	4
Sieve No. 4, Percent Passing	% passing	99.9	98.3	99.6	100	98.6
Sieve No. 8, Percent Passing	% passing	99	95.8	97.2	98.7	95.9
Sieve No. 16, Percent Passing	% passing	98.5	95.2	96.4	96.7	95.4

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED141 0 - 0.5 09/17/15 Central NB03SED-CHM141	NB03SED142 0 - 0.5 09/29/15 Central NB03SED-CHM142	NB03SED143 0 - 0.5 09/30/15 Central NB03SED-CHM143	NB03SED144 0 - 0.5 09/18/15 Central NB03SED-CHM144	NB03SED145 0 - 0.5 09/30/15 Central NB03SED-CHM145
Sieve No. 30, Percent Passing	% passing	97.7	94.3	95.2	93.2	94.7
Sieve No. 100, Percent Passing	% passing	96.6	60.7	81.8	85.5	61.5
Sieve No. 200, Percent Passing	% passing	94.7	13.7	70.6	79.5	41.6
Sieve 19000 Microns, Percent Passing	% passing	100	100	100	100	100
Sieve 37500 Microns, Percent Passing	% passing	100	100	100	100	100
Physical Properties						
Moisture (water) Content	%	58.9	35.8	53.7	57	42.5
Oxidation Reduction Potential	mV	79	155	110	51.5	221
Percent Moisture	%	60.1	27.1	44	52.2	37
Total Solids (Percent)	%	42.6 Z	71.9 Z	47.7 Z	43.4 Z	60.2 Z
Water Content	%	144	55.8	116	133	74
Water Content ASTM D2216	%	150	37.2	78.6	109	58.6
TOC by Lloyd Kahn	mg/kg	32,200 J	21,900	48,200	19,000 J	21,400
pH	pH Units	7.66	7.77	7.85	7.85	8.08
Miscellaneous Chemicals						
Total Kjeldahl Nitrogen	mg/kg	2,100	1,040	1,420	1,690	795
Total Cyanide	mg/kg	0.43 UJ	0.27 U	0.37 UJ	0.42 UJ	0.3 U
Ammonia Nitrogen	mg/kg	144 B	132 U	110 U	119 U	88.7 U
Phosphorus	mg/kg	1,120	522	823	1,080	501

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED146 0 - 0.5 09/22/15 South NB03SED-CHM146	NB03SED147 0 - 0.5 09/22/15 South NB03SED-CHM147	NB03SED148 0 - 0.5 09/22/15 South NB03SED-CHM148	NB03SED149 0 - 0.5 09/23/15 South NB03SED-CHM149	NB03SED150 0 - 0.5 09/23/15 South NB03SED-CHM150
Dioxins/Furans						
1,2,3,4,6,7,8-HpCDD	ng/kg	136 BJ	329 BJ [314 BJ]	420 BJ	382 BJ	479 BJ
1,2,3,4,6,7,8-HpCDF	ng/kg	52.3 BJ	181 BJ [166 BJ]	200 BJ	212 BJ	216 BJ
1,2,3,4,7,8,9-HpCDF	ng/kg	2.61 JB	8.5 BJ [9.3 BJ]	11 BJ	12.8 BJ	12.4 BJ
1,2,3,4,7,8-HxCDD	ng/kg	1.45 J	3.7 J [3.55 J]	4.87 J	6.61 J	5.89 J
1,2,3,4,7,8-HxCDF	ng/kg	10.2 BCJ	34.8 BCJ [34.1 BCJ]	40.8 BCJ	46 BCJ	41.9 BCJ
1,2,3,6,7,8-HxCDD	ng/kg	4.81 BJ	18.9 BJ [17.9 BJ]	22.7 BJ	21.8 BJ	24.9 BJ
1,2,3,6,7,8-HxCDF	ng/kg	4.02 JB	11.8 BCJ [12 BCJ]	15.2 BCJ	27.3 BCJ	16 BCJ
1,2,3,7,8,9-HxCDD	ng/kg	3.12 JB	10.4 BJ [10.3 BJ]	13 BJ	13.2 BJ	14.6 BJ
1,2,3,7,8,9-HxCDF	ng/kg	1.03 JB	0.121 UJ [3.22 JB]	0.143 UJ	1.36 JBCQ	4.25 JBQ
1,2,3,7,8-PeCDD	ng/kg	1.1 JB	3.78 JB [3.74 JB]	5.2 BJ	7.03 BJ	5.57 BJ
1,2,3,7,8-PeCDF	ng/kg	2.39 JB	7.36 BCJ [8.09 BCJ]	9.78 BCJ	18 BCJ	10.4 BCJ
2,3,4,6,7,8-HxCDF	ng/kg	3.28 JB	6.98 BCJ [6.81 BCJ]	9.51 BCJ	24.8 BCJ	10.2 BCJ
2,3,4,7,8-PeCDF	ng/kg	4.57 JB	12.3 BCJ [12.3 BCJ]	15.4 BCJ	29.4 BCJ	16.5 BCJ
2,3,7,8-TCDD	ng/kg	11.4 J	84.3 J [68.2 J]	94.6 J	58.3 J	42.3 J
2,3,7,8-TCDF	ng/kg	5.18 CJ	15.9 CJ [16.5 CJ]	18 CJ	25.5 CJ	22 CJ
OCDD	ng/kg	1,120 BJ	2,940 BJ [2,860 BJ]	3,820 BJ	3,600 BJ	NA
OCDF	ng/kg	91.8 BJ	349 BJ [303 BJ]	343 BJ	315 BJ	379 BJ
Herbicides						
2,4,5-T	ug/kg	1.2 U	21 UJ [12 J]	R	6.9 J	2.2 UJ
2,4,5-TP (Silvex)	ug/kg	1.1 U	16 UJ [1.6 UJ]	2 UJ	1.9 UJ	2 UJ
2,4-D	ug/kg	18 U	260 UJ [26 UJ]	31 UJ	29 UJ	32 UJ
2,4-DB	ug/kg	9.1 U	130 UJ [29 UJ]	16 UJ	15 UJ	17 UJ
Metals						
Aluminum	mg/kg	9,400	15,800 J [18,600 J]	20,700 J	16,100 J	21,900 J
Antimony	mg/kg	0.304	2.82 J [2.86 J]	1.11 J	2.72 J	0.939 J
Arsenic	mg/kg	9.32	18.3 J [22.9 J]	18.7 J	26.8 J	17.3 J
Barium	mg/kg	119	139 J [166 J]	265 J	291 J	203 J
Beryllium	mg/kg	0.555	1.18 J [1.84 J]	1.25 J	1.18 J	1.22 J
Cadmium	mg/kg	0.699	2.01 J [2.51 J]	2.05 J	3.25 J	1.82 J
Calcium	mg/kg	5,550	11,800 J [10,600 J]	10,200 J	5,130 J	9,480 J
Chromium	mg/kg	49	152 J [155 J]	124 J	127 J	118 J
Cobalt	mg/kg	7.85	15 J [20.9 J]	14.9 J	12.9 J	14.8 J
Copper	mg/kg	57.4	183 J [308 J]	180 J	348 J	185 J
Hexavalent Chromium	mg/kg	0.74 U	R [1.1 U]	1.3 U	1.2 U	1.3 U
Iron	mg/kg	18,300	38,400 J [46,200 J]	40,100 J	40,900 J	39,500 J
Lead	mg/kg	59.7	343 J [228 J]	875 J	353 J	175 J
Magnesium	mg/kg	6,340	9,120 J [10,400 J]	10,600 J	8,600 J	12,100 J
Manganese	mg/kg	233	453 J [503 J]	532 J	336 J	541 J
Mercury	ng/g	608 J	1,690 J [1,830 J]	2,090 J	2,510 J	2,430 J
Methyl Mercury	ng/g	0.561 J	2.79 J [1.9 J]	4.61 J	4.97 J	3.67 J
Nickel	mg/kg	37.9	73.5 J+ [103 J]	61.4 J	52.3 J	63.7 J
Potassium	mg/kg	2,640	4,400 J [5,000 J]	5,620 J	4,440 J	5,980 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED146 0 - 0.5 09/22/15 South	NB03SED147 0 - 0.5 09/22/15 South	NB03SED148 0 - 0.5 09/22/15 South	NB03SED149 0 - 0.5 09/23/15 South	NB03SED150 0 - 0.5 09/23/15 South
	Units	NB03SED-CHM146	NB03SED-CHM147	NB03SED-CHM148	NB03SED-CHM149	NB03SED-CHM150
Selenium	mg/kg	0.371 B	0.829 B [0.925 J]	1.11 J	1.45 J	1.05 B
Silver	mg/kg	0.968	2.04 J [2.3 J]	2.99 J	2.26 J	2.75 J
Sodium	mg/kg	5,660	9,650 J [10,800 J]	14,000 J	15,600 J	15,500 J
Thallium	mg/kg	0.172	0.274 J [0.319 J]	0.33 J	0.396 J	0.315 J
Titanium	mg/kg	388	671 J [630 J]	664 J	491 J	660 J
Vanadium	mg/kg	27.3	48.6 J+ [53 J]	55.6 J	48.1 J	56.1 J
Zinc	mg/kg	123	439 J [644 J]	427 J	588 J	366 J
AVS/SEM						
Acid Volatile Sulfide (AVS)	umol/g	3.8	33.4 J [40.3]	25	20.8	7
Cadmium	umol/g	0.00233	0.00474 [0.00508]	0.00731	0.00601	0.00387
Copper	umol/g	0.248	0.477 [0.5]	0.755	0.555	0.53
Lead	umol/g	0.123	0.518 [0.261]	0.339	0.426	0.205
Mercury	umol/g	0.0000072 U	0.0000072 U [0.0000075]	0.0000072 U	0.0000071 U	0.0000075 B
Nickel	umol/g	0.111	0.155 [0.258]	0.167	0.305	0.121
Zinc	umol/g	0.682	1.69 [1.87]	2.01	2.06	1.07
TEPH Alkanes						
2,6,10,14-Tetramethyl Pentadecane	mg/kg	0.0497 UJ	0.343 J [0.236 J]	0.0669 J	0.0812 UJ	0.0451 UJ
2,6,10,14-Tetramethylhexadecane	mg/kg	0.0321 UJ	0.156 J [0.175 J]	0.0548 J	0.0585 J	0.0292 UJ
Dotriacontane	mg/kg	0.107 J	0.139 J [0.439 J]	0.0597 J	0.219 J	0.0665 J
Heneicosane	mg/kg	0.0332 J	0.0498 J [0.122 UJ]	0.041 J	0.0525 UJ	0.0489 J
Heptacosane	mg/kg	0.0935 UJ	0.0679 UJ [0.356 UJ]	0.0832 UJ	0.153 UJ	0.085 UJ
Heptadecane	mg/kg	0.0635 J	0.0603 J [0.277 J]	0.0485 J	0.363 J	0.135 J
Heptatriacontane, -n	mg/kg	0.0321 UJ	0.441 J [0.122 UJ]	0.0747 J	0.127 J	0.0292 UJ
Hexatriacontane	mg/kg	0.0321 U	0.0233 UJ [0.325 J]	0.0286 UJ	0.156 J	0.0292 UJ
Hhentriacontane	mg/kg	0.0473 UJ	0.0344 UJ [0.18 UJ]	0.101 J	0.0774 UJ	0.0934 J
n-Decane	mg/kg	0.0432 UJ	0.0314 UJ [0.165 UJ]	0.0385 UJ	0.0707 UJ	0.0393 UJ
n-Docosane	mg/kg	0.147 J	0.107 J [0.898 J]	0.185 J	0.346 J	0.0912 J
n-Dodecane	mg/kg	0.0321 UJ	0.0437 J [0.122 UJ]	0.0286 UJ	0.0525 UJ	0.0292 UJ
n-Eicosane	mg/kg	0.0351 UJ	0.0375 J [0.133 UJ]	0.0631 J	0.103 J	0.0478 J
n-Hexacosane	mg/kg	0.142 J	0.0651 J [0.211 UJ]	0.0494 UJ	0.145 J	0.0504 UJ
n-Hexadecane	mg/kg	0.0321 UJ	0.045 J [0.122 UJ]	0.069 J	0.118 J	0.0356 J
n-Nonane	mg/kg	0.0321 UJ	0.0371 J [0.122 UJ]	0.0286 UJ	0.0525 UJ	0.0292 UJ
n-Octacosane	mg/kg	0.366 J	0.124 J [1.75 J]	0.369 J	1.05 J	0.266 J
n-Octadecane	mg/kg	0.0471 J	0.0563 J [0.167 UJ]	0.0647 J	0.0814 J	0.0398 UJ
Nonacosane	mg/kg	0.0394 J	0.137 J [0.164 J]	0.213 J	0.263 J	0.222 J
Nonadecane	mg/kg	0.0467 UJ	0.0807 J [0.178 UJ]	0.0416 UJ	0.0764 UJ	0.0425 UJ
Nonatriacontane	mg/kg	0.0584 UJ	0.0424 UJ [0.222 UJ]	0.052 UJ	0.0955 UJ	0.0531 UJ
n-Tetracosane	mg/kg	0.0464 J	0.166 J [0.122 UJ]	0.0286 UJ	0.105 J	0.0292 UJ
n-Tetradecane	mg/kg	0.0409 UJ	0.0297 UJ [0.156 UJ]	0.0364 UJ	0.0669 UJ	0.0372 UJ
n-Triacontane	mg/kg	0.059 UJ	0.0608 J [0.499 J]	0.335 J	0.292 J	0.282 J
n-Tridecane	mg/kg	0.0321 UJ	0.0233 UJ [0.122 UJ]	0.0286 UJ	0.0525 UJ	0.0292 UJ
n-Undecane	mg/kg	0.059 UJ	0.0494 J [0.225 UJ]	0.0525 UJ	0.0965 UJ	0.0536 UJ
Octatriacontane	mg/kg	0.0438 UJ	0.0318 UJ [0.167 UJ]	0.039 UJ	0.0717 UJ	0.0398 UJ

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED146 0 - 0.5 09/22/15 South	NB03SED147 0 - 0.5 09/22/15 South	NB03SED148 0 - 0.5 09/22/15 South	NB03SED149 0 - 0.5 09/23/15 South	NB03SED150 0 - 0.5 09/23/15 South
	Units	NB03SED-CHM146	NB03SED-CHM147	NB03SED-CHM148	NB03SED-CHM149	NB03SED-CHM150
Pentacosane	mg/kg	0.0321 UJ	0.0233 UJ [0.122 UJ]	0.14 J	0.162 J	0.108 J
Pentadecane	mg/kg	0.0321 UJ	0.0376 J [0.137 J]	0.0286 UJ	0.0525 UJ	0.0292 UJ
Pentatriacontane	mg/kg	0.0368 J	0.0269 J [0.122 UJ]	0.0591 J	0.16 J	0.07 J
Tetracontane	mg/kg	0.0321 UJ	0.0233 UJ [0.122 UJ]	0.0286 UJ	0.127 J	0.0292 UJ
Tetratriacontane	mg/kg	0.038 UJ	0.0276 UJ [0.145 UJ]	0.0338 UJ	0.0621 UJ	0.0345 UJ
Tricosane	mg/kg	0.0875 J	0.105 J [0.318 J]	0.113 J	0.345 J	0.0727 J
Tritriacontane	mg/kg	0.0643 UJ	0.0476 J [0.245 UJ]	0.0572 UJ	0.114 J	0.0584 UJ
Butyltins						
Dibutyltin	ug/kg	2 U	2.9 UJ [2.8 UJ]	3.6 UJ	3.1 UJ	4.2 J
Monobutyltin	ug/kg	32 UCN	47 UCNJ [44 UCNJ]	57 UCNJ	49 UCNJ	57 UCNJ
Tetrabutyltin	ug/kg	2.6 U	3.8 UJ [3.6 UJ]	4.7 UJ	4.1 UJ	4.6 UJ
Tributyltin	ug/kg	2.3 U	3.4 UJ [7.2 PJ]	4.1 UJ	3.6 UJ	4.1 UJ
PCB Congeners						
PCB-1	ng/kg	114 J	220 J [200 J]	310 EJ	150 BJ	225 BJ
PCB-2	ng/kg	15.5 BJ	35.1 BJ [30.2 BJ]	44 BJ	41.4 BJ	24.2 BJ
PCB-3	ng/kg	50.8 J	82 J [73.7 J]	98 J	74.6 BJ	63.6 BJ
PCB-4	ng/kg	221 J	516 EJ [455 EJ]	589 EJ	508 BEJ	321 BEJ
PCB-5	ng/kg	1.96 J	8.5 J [6.63 J]	6.1 J	7.03 J	3.12 J
PCB-6	ng/kg	78.3 J	141 J [135 J]	144 J	148 BJ	87 BJ
PCB-7	ng/kg	0.764 UJ	0.778 UJ [0.817 UJ]	0.798 UJ	0.805 UJ	0.789 UJ
PCB-8	ng/kg	243 BJ	593 BEJ [509 BEJ]	539 BEJ	525 BEJ	251 BJ
PCB-9	ng/kg	0.669 UJ	0.681 UJ [0.715 UJ]	0.698 UJ	0.704 UJ	0.69 UJ
PCB-10	ng/kg	32.4 J	50.2 J [54.3 J]	64.1 J	48.8 J	34.5 J
PCB-11	ng/kg	166 BJ	393 BEJ [369 BEJ]	406 BEJ	554 BEJ	195 BJ
PCB-12/13	ng/kg	95.8 J	145 J [139 J]	168 J	213 J	103 J
PCB-14	ng/kg	0.764 UJ	0.778 UJ [0.817 UJ]	0.798 UJ	0.805 UJ	0.789 UJ
PCB-15	ng/kg	550 BEJ	652 BEJ [657 BEJ]	780 BEJ	899 BEJ	502 BEJ
PCB-16	ng/kg	156 J	679 EJ [658 EJ]	578 EJ	R	R
PCB-17	ng/kg	232 J	776 EJ [794 EJ]	719 EJ	805 BEJ	209 BJ
PCB-18/30	ng/kg	334 J	1,320 EJ [1,360 EJ]	1,150 EJ	1,400 BEJ	311 BJ
PCB-19	ng/kg	52.1 J	186 J [171 J]	176 J	240 J	69 J
PCB-20/28	ng/kg	858 EJ	2,030 EJ [2,300 EJ]	1,930 EJ	4,130 BEJ	906 BEJ
PCB-21/33	ng/kg	155 J	682 EJ [717 EJ]	567 J	992 EJ	189 J
PCB-22	ng/kg	169 J	580 EJ [612 EJ]	504 EJ	1,060 EJ	215 J
PCB-23	ng/kg	0.669 UJ	0.681 UJ [0.715 UJ]	1.38 J	2.42 J	0.695 J
PCB-24	ng/kg	0.955 UJ	0.973 UJ [1.02 UJ]	0.997 UJ	18.8 J	3.84 J
PCB-25	ng/kg	98.5 J	192 J [215 J]	196 J	360 EJ	101 J
PCB-26/29	ng/kg	162 J	339 J [375 J]	346 J	642 EJ	179 J
PCB-27	ng/kg	59 J	140 J [150 J]	143 J	186 J	55.2 J
PCB-31	ng/kg	553 EJ	1,560 EJ [1,770 EJ]	1,490 EJ	2,160 EJ	598 EJ
PCB-32	ng/kg	151 J	489 EJ [491 EJ]	436 EJ	640 EJ	167 J
PCB-34	ng/kg	5 J	11.3 J [12.5 J]	11.5 J	20.3 J	6.02 J
PCB-35	ng/kg	20.6 J	42.1 J [48.3 J]	39.6 J	83.3 J	20.1 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED146 0 - 0.5 09/22/15 South NB03SED-CHM146	NB03SED147 0 - 0.5 09/22/15 South NB03SED-CHM147	NB03SED148 0 - 0.5 09/22/15 South NB03SED-CHM148	NB03SED149 0 - 0.5 09/23/15 South NB03SED-CHM149	NB03SED150 0 - 0.5 09/23/15 South NB03SED-CHM150
PCB-36	ng/kg	0.802 J	1.62 J [0.817 UJ]	0.798 UJ	4.41 J	0.789 UJ
PCB-37	ng/kg	265 J	494 EJ [558 EJ]	462 EJ	832 EJ	233 J
PCB-38	ng/kg	0.669 UJ	0.681 UJ [0.715 UJ]	0.698 UJ	1.92 J	0.69 UJ
PCB-39	ng/kg	3.61 J	8.4 J [10.2 J]	8.92 J	19.4 J	4.43 J
PCB-40/71	ng/kg	274 J	904 J [991 J]	770 J	1,520 EJ	276 J
PCB-41	ng/kg	21.4 J	103 J [123 J]	89.2 J	171 J	22.8 J
PCB-42	ng/kg	187 J	610 EJ [723 EJ]	533 J	1,080 EJ	190 J
PCB-43	ng/kg	22.1 J	84.5 J [96.1 J]	75.7 J	152 J	29.1 J
PCB-44/47/65	ng/kg	584 J	1,890 EJ [2,190 EJ]	1,630 J	3,360 EJ	597 J
PCB-45	ng/kg	63.5 J	270 J [296 J]	233 J	494 J	76.8 J
PCB-46	ng/kg	25.9 J	111 J [117 J]	91.7 J	189 J	29.8 J
PCB-48	ng/kg	87.8 J	386 J [468 J]	333 J	590 J	108 J
PCB-49/69	ng/kg	444 J	1,350 EJ [1,610 EJ]	1,200 EJ	2,280 EJ	446 J
PCB-50/53	ng/kg	75.5 J	285 J [313 J]	238 J	499 J	82.7 J
PCB-51	ng/kg	28.7 J	102 J [118 J]	77.6 J	195 J	33.5 J
PCB-52	ng/kg	622 BEJ	2,050 BEJ [2,420 BEJ]	1,760 BEJ	3,690 EJ	606 EJ
PCB-54	ng/kg	2.17 J	10.2 J [9.13 J]	1.4 UJ	14.7 J	1.38 UJ
PCB-55	ng/kg	4.48 J	12.3 J [16.3 J]	9.88 J	20.8 J	4.5 J
PCB-56	ng/kg	237 J	768 EJ [883 EJ]	632 EJ	1,460 EJ	285 J
PCB-57	ng/kg	3.47 J	7.45 J [9.52 J]	9.73 J	13.5 J	4.36 J
PCB-58	ng/kg	2.46 J	5.32 J [5.85 J]	5.49 J	11.9 J	1.38 UJ
PCB-60	ng/kg	87.4 J	289 J [310 J]	210 J	438 J	66.7 J
PCB-61/70/74/76	ng/kg	776 J	2,430 EJ [2,920 EJ]	2,050 J	4,000 EJ	906 J
PCB-62/75	ng/kg	56.2 J	174 J [206 J]	160 J	350 J	57.9 J
PCB-63	ng/kg	21.7 J	60.7 J [72 J]	54.7 J	108 J	28.4 J
PCB-64	ng/kg	261 J	895 EJ [1,050 EJ]	774 EJ	1,440 EJ	249 J
PCB-66	ng/kg	517 J	1,450 EJ [1,690 EJ]	1,250 EJ	2,680 BEJ	603 BEJ
PCB-67	ng/kg	15.5 J	43.6 J [50.5 J]	38.8 J	77.4 J	17.6 J
PCB-68	ng/kg	5.96 J	9.92 J [13.5 J]	11 J	25.2 J	7.16 J
PCB-72	ng/kg	8.47 J	16.8 J [21.5 J]	17.6 J	39.8 J	10.1 J
PCB-73	ng/kg	1.34 UJ	1.36 UJ [1.43 UJ]	1.4 UJ	1.41 UJ	1.38 UJ
PCB-77	ng/kg	R	R [R]	R	337 J	63 J
PCB-78	ng/kg	1.53 UJ	1.56 UJ [1.63 UJ]	1.6 UJ	1.61 UJ	1.58 UJ
PCB-79	ng/kg	4.65 J	11.6 J [15.4 J]	9.7 J	32.7 J	4.18 J
PCB-80	ng/kg	1.05 UJ	1.07 UJ [1.12 UJ]	1.1 UJ	1.11 UJ	1.08 UJ
PCB-81	ng/kg	1.88 J	5.54 J [6.34 J]	4.49 J	10.8 J	1.77 UJ
PCB-82	ng/kg	73.7 J	207 J [272 J]	169 J	430 J	57 J
PCB-83	ng/kg	31.2 J	85.4 J [137 J]	75.9 J	226 J	27.7 J
PCB-84	ng/kg	140 J	398 J [505 J]	334 J	600 J	111 J
PCB-85/116/117	ng/kg	120 J	299 J [424 J]	255 J	669 J	91.8 J
PCB-86/87/97/109/119/125	ng/kg	403 J	1,060 J [1,540 J]	884 J	2,110 J	301 J
PCB-88	ng/kg	2.1 UJ	2.14 UJ [2.25 UJ]	2.19 UJ	2.21 UJ	2.17 UJ
PCB-89	ng/kg	6.97 J	25 J [26.3 J]	20.1 J	36.5 J	7.26 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED146 0 - 0.5 09/22/15 South NB03SED-CHM146	NB03SED147 0 - 0.5 09/22/15 South NB03SED-CHM147	NB03SED148 0 - 0.5 09/22/15 South NB03SED-CHM148	NB03SED149 0 - 0.5 09/23/15 South NB03SED-CHM149	NB03SED150 0 - 0.5 09/23/15 South NB03SED-CHM150
PCB-90/101/113	ng/kg	624 BJ	1,530 BJ [2,330 BEJ]	1,300 BJ	2,820 BEJ	507 BJ
PCB-91	ng/kg	104 J	260 J [354 J]	226 J	396 J	83.9 J
PCB-92	ng/kg	114 J	274 J [398 J]	238 J	545 J	99.9 J
PCB-93/100	ng/kg	12.2 J	26 J [32.4 J]	24.3 J	42.2 J	13.3 J
PCB-94	ng/kg	5.16 J	10 J [14.3 J]	10.5 J	19.7 J	4.05 J
PCB-95	ng/kg	R	R [R]	R	2,570 EJ	378 J
PCB-96	ng/kg	4.93 J	15.8 J [19.4 J]	14 J	25.5 J	4.36 J
PCB-98/102	ng/kg	24.8 J	67.7 J [80.1 J]	57 J	100 J	21.4 J
PCB-99	ng/kg	368 J	843 EJ [1,410 EJ]	744 EJ	1,650 EJ	271 J
PCB-103	ng/kg	8.78 J	17.1 J [23.1 J]	17 J	30.4 J	7.77 J
PCB-104	ng/kg	1.34 UJ	1.36 UJ [1.43 UJ]	1.4 UJ	2.51 J	1.38 UJ
PCB-105	ng/kg	200 J	437 J [647 EJ]	349 J	1,160 EJ	164 J
PCB-106	ng/kg	1.62 UJ	1.65 UJ [1.74 UJ]	1.69 UJ	1.71 UJ	1.68 UJ
PCB-107	ng/kg	38.8 J	82.1 J [136 J]	71.9 J	239 J	39.7 J
PCB-108/124	ng/kg	18.3 J	42.6 J [66.8 J]	35.6 J	119 J	18.2 J
PCB-110/115	ng/kg	787 BJ	1,910 BEJ [2,830 BEJ]	1,610 BEJ	4,080 BEJ	579 BJ
PCB-111	ng/kg	1.34 UJ	1.36 UJ [1.81 J]	1.4 UJ	1.41 UJ	1.38 UJ
PCB-112	ng/kg	1.34 UJ	1.36 UJ [1.43 UJ]	1.4 UJ	6.14 J	1.38 UJ
PCB-114	ng/kg	11.2 J	29 J [40 J]	23.8 J	69.4 J	9.45 J
PCB-118	ng/kg	536 J	1,150 EJ [2,010 EJ]	990 EJ	2,840 BEJ	474 BJ
PCB-120	ng/kg	1.24 UJ	5.47 J [14 J]	5.07 J	11.3 J	3.61 J
PCB-121	ng/kg	1.15 UJ	1.17 UJ [1.23 UJ]	1.2 UJ	1.21 UJ	1.18 UJ
PCB-122	ng/kg	5.84 J	15.5 J [20.9 J]	12 J	46 J	5.64 J
PCB-123	ng/kg	R	24.4 J [R]	21.5 J	61.1 J	7.64 J
PCB-126	ng/kg	1.53 UJ	4.08 J [1.63 UJ]	3.22 J	13.7 J	1.87 J
PCB-127	ng/kg	6.56 J	5.59 J [1.43 UJ]	5.32 J	R	1.38 UJ
PCB-128/166	ng/kg	82.7 J	177 J [282 J]	158 J	494 J	80.2 J
PCB-129/138/163	ng/kg	613 J	1,330 J [1,990 EJ]	1,170 J	3,500 EJ	768 J
PCB-130	ng/kg	36.7 J	R [118 J]	R	211 J	44.9 J
PCB-131	ng/kg	6.94 J	R [26.9 J]	R	44.7 J	7.19 J
PCB-132	ng/kg	176 J	416 J [599 J]	360 J	1,070 BEJ	216 BJ
PCB-133	ng/kg	9.29 J	17.5 J [27.3 J]	18.6 J	46.3 J	13.8 J
PCB-134	ng/kg	32.5 J	R [116 J]	R	184 J	40.5 J
PCB-135/151	ng/kg	197 J	459 J [643 J]	385 J	854 J	255 J
PCB-136	ng/kg	68.3 J	172 J [242 J]	145 J	301 J	84.2 J
PCB-137	ng/kg	26.6 J	R [105 J]	R	158 J	22.8 J
PCB-139/140	ng/kg	9.93 J	21.5 J [36 J]	18.7 J	55.1 J	10.3 J
PCB-141	ng/kg	77.7 J	187 J [259 J]	164 J	455 J	116 J
PCB-142	ng/kg	1.62 UJ	R [1.74 UJ]	R	1.71 UJ	1.68 UJ
PCB-143	ng/kg	R	R [R]	R	8.17 J	3.25 UJ
PCB-144	ng/kg	28.4 J	62 J [81.3 J]	53.2 J	115 J	29.9 J
PCB-145	ng/kg	1.53 UJ	1.56 UJ [1.63 UJ]	1.6 UJ	1.61 UJ	1.58 UJ
PCB-146	ng/kg	R	R [R]	R	436 J	125 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED146 0 - 0.5 09/22/15 South NB03SED-CHM146	NB03SED147 0 - 0.5 09/22/15 South NB03SED-CHM147	NB03SED148 0 - 0.5 09/22/15 South NB03SED-CHM148	NB03SED149 0 - 0.5 09/23/15 South NB03SED-CHM149	NB03SED150 0 - 0.5 09/23/15 South NB03SED-CHM150
PCB-147/149	ng/kg	418 BJ	958 BJ [1,460 BEJ]	869 BJ	2,330 BEJ	596 BJ
PCB-148	ng/kg	1.34 UJ	1.36 UJ [4.74 J]	1.4 UJ	5.38 J	3.94 UJ
PCB-150	ng/kg	2.53 J	6.3 J [8.13 J]	8.71 J	9.62 J	3.56 J
PCB-152	ng/kg	1.34 UJ	1.36 UJ [2.4 J]	1.4 UJ	2.9 J	1.38 UJ
PCB-153/168	ng/kg	508 BJ	1,080 BJ [1,720 BEJ]	950 BJ	2,610 BEJ	714 BJ
PCB-154	ng/kg	14.3 J	32.5 J [41.9 J]	48 J	58.7 J	19.3 J
PCB-155	ng/kg	1.34 UJ	1.36 UJ [5.55 J]	6.2 J	15.3 J	4.81 J
PCB-156/157	ng/kg	63.2 J	125 J [210 J]	115 J	339 J	65.1 J
PCB-158	ng/kg	R	128 J [199 J]	111 J	320 J	62.9 J
PCB-159	ng/kg	1.34 UJ	1.36 UJ [1.43 UJ]	1.4 UJ	1.41 UJ	1.38 UJ
PCB-160	ng/kg	6.02 UJ	6.13 UJ [6.43 UJ]	6.28 UJ	6.34 UJ	6.21 UJ
PCB-161	ng/kg	R	R [R]	R	1.31 UJ	1.28 UJ
PCB-162	ng/kg	R	R [R]	R	26.7 J	9.09 J
PCB-164	ng/kg	R	86 J [R]	73.5 J	209 J	50.3 J
PCB-165	ng/kg	R	R [R]	R	1.46 J	1.28 UJ
PCB-167	ng/kg	19.8 J	40.8 J [64.4 J]	36.6 J	R	24.9 J
PCB-169	ng/kg	1.43 UJ	1.46 UJ [1.53 UJ]	1.5 UJ	1.51 UJ	1.48 UJ
PCB-170	ng/kg	115 J	255 J [318 J]	224 J	591 J	219 J
PCB-171/173	ng/kg	R	R [R]	R	191 J	71.2 J
PCB-172	ng/kg	21.3 J	45.9 J [55.4 J]	43.3 J	111 J	43.3 J
PCB-174	ng/kg	R	R [R]	R	563 J	208 J
PCB-175	ng/kg	R	R [R]	R	26.8 J	11.5 J
PCB-176	ng/kg	17.6 J	36.3 J [46.6 J]	36.6 J	73.5 J	30.1 J
PCB-177	ng/kg	R	R [R]	R	386 J	159 J
PCB-178	ng/kg	R	R [R]	R	138 J	57.3 J
PCB-179	ng/kg	64.6 J	125 J [157 J]	119 J	267 J	109 J
PCB-180/193	ng/kg	285 J	596 J [721 J]	525 J	1,370 EJ	530 J
PCB-181	ng/kg	R	R [R]	R	6.95 J	1.28 UJ
PCB-182	ng/kg	R	R [R]	R	4.02 UJ	3.94 UJ
PCB-183/185	ng/kg	R	R [R]	R	478 J	171 J
PCB-184	ng/kg	1.34 UJ	1.36 UJ [1.43 UJ]	1.4 UJ	1.75 J	1.38 UJ
PCB-186	ng/kg	1.43 UJ	1.46 UJ [1.53 UJ]	1.5 UJ	1.51 UJ	1.48 UJ
PCB-187	ng/kg	R	R [R]	R	908 EJ	362 J
PCB-188	ng/kg	1.43 UJ	1.46 UJ [1.53 UJ]	8.64 J	6.65 J	2.17 J
PCB-189	ng/kg	4.51 J	9.14 J [11.9 J]	8.9 J	22.8 J	8.88 J
PCB-190	ng/kg	25.4 J	56 J [70 J]	51.1 J	126 J	39 J
PCB-191	ng/kg	5.16 J	11 J [14 J]	9.68 J	25.3 J	10.3 J
PCB-192	ng/kg	1.24 UJ	1.27 UJ [1.33 UJ]	1.3 UJ	1.31 UJ	1.28 UJ
PCB-194	ng/kg	70.6 J	126 J [143 J]	112 J	311 J	136 J
PCB-195	ng/kg	21.9 J	43.3 J [52.1 J]	37.6 J	109 J	40.8 J
PCB-196	ng/kg	47.5 J	78 J [97.2 J]	75.5 J	162 J	65.4 J
PCB-197/200	ng/kg	R	22 J [R]	36.7 J	R	19 J
PCB-198/199	ng/kg	154 J	200 J [238 J]	192 J	428 J	183 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED146 0 - 0.5 09/22/15 South NB03SED-CHM146	NB03SED147 0 - 0.5 09/22/15 South NB03SED-CHM147	NB03SED148 0 - 0.5 09/22/15 South NB03SED-CHM148	NB03SED149 0 - 0.5 09/23/15 South NB03SED-CHM149	NB03SED150 0 - 0.5 09/23/15 South NB03SED-CHM150
PCB-201	ng/kg	16.7 J	22.2 J [26.8 J]	46.8 J	50.3 J	20.9 J
PCB-202	ng/kg	55.9 J	54.6 J [58.6 J]	74 J	131 J	53.3 J
PCB-203	ng/kg	94.4 J	119 J [144 J]	115 J	254 J	113 J
PCB-204	ng/kg	2.01 UJ	2.04 UJ [2.14 UJ]	2.09 UJ	2.11 UJ	2.07 UJ
PCB-205	ng/kg	3.79 J	6.47 J [8.51 J]	5.43 J	14.3 J	6 J
PCB-206	ng/kg	173 J	137 J [146 J]	169 J	325 J	136 J
PCB-207	ng/kg	13.3 J	14.9 J [14.2 J]	66.2 J	26.8 J	12.4 J
PCB-208	ng/kg	71.6 J	56 J [51.1 J]	101 J	123 J	47.7 J
PCB-209	ng/kg	163 J	292 J [135 J]	867 J	306 J	69.8 J
Total PCB Congeners (209)	ng/kg	16,700 J	43,100 J [53,700 J]	39,300 J	84,400 J	19,500 J
Aroclor PCBs						
Aroclor-1016	ug/kg	26 U	7.7 U [8 U]	9.4 U	8.6 U	9.7 U
Aroclor-1221	ug/kg	33 U	9.8 U [10 U]	12 U	11 U	12 U
Aroclor-1232	ug/kg	58 U	17 U [18 U]	21 U	19 U	21 U
Aroclor-1242	ug/kg	24 U	7 U [7.3 U]	8.6 U	7.9 U	8.9 U
Aroclor-1248	ug/kg	370 J	120 [160]	90	110	75
Aroclor-1254	ug/kg	220	100 [130]	77	120	96
Aroclor-1260	ug/kg	36 U	34 J [11 U]	13 U	12 U	13 U
Aroclor-1262	ug/kg	24 U	7 U [26 J]	18 J	21 J	18 J
Aroclor-1268	ug/kg	24 U	7 U [7.3 U]	8.6 U	7.9 U	8.9 U
Total Aroclor PCBs (Sum of 7 Aroclors)	ug/kg	590 J	250 J [290]	170	230	170
Total Aroclor PCBs (Sum of 9 Aroclors)	ug/kg	590 J	250 J [320 J]	190 J	250 J	190 J
Pesticides						
2,4'-DDD	pg/g	2,760	6,960 J [6,500]	4,870	22,500	8,200
2,4'-DDE	pg/g	6,230	11,700 [11,400]	9,290	15,200	13,400
2,4'-DDT	pg/g	77.1	238 J [134 J]	158	1,200	236
4,4'-DDD	pg/g	7,300 B	23,900 BJ [19,500 B]	15,900 B	63,900 BD	25,900 B
4,4'-DDE	pg/g	11,600 B	43,900 BD [40,500 B]	33,500 B	51,200 BD	39,600 B
4,4'-DDT	pg/g	232 BJ	42,000 BDJ [667 BJ]	650 BJ	7,400 B	643 B
Aldrin	pg/g	R	5.37 UD [5.37 UD]	R	R	R
Alpha-BHC	pg/g	72.1	94.1 [87.3]	110	97.5	130
Alpha-Chlordane	pg/g	621	2,550 J [2,150]	2,490	3,630	2,830
Beta-BHC	pg/g	28 J	70.5 [81.9]	87.8	139	88.7
cis-Nonachlor	pg/g	239	1,030 [848]	1,040	1,190	1,080
Delta-BHC	pg/g	7.34 U	7.34 U [7.34 U]	7.34 U	7.34 U	7.34 U
Dieldrin	pg/g	600 B	2,490 B [1,890 B]	1,540 B	3,460 B	1,300 B
Endosulfan I	pg/g	20.5 U	20.5 U [247]	20.5 U	20.5 U	20.5 U
Endosulfan II	pg/g	42.6 U	42.6 U [42.6 U]	42.6 U	42.6 U	42.6 U
Endosulfan Sulfate	pg/g	44.7 U	44.7 U [44.7 U]	44.7 U	44.7 U	44.7 U
Endrin	pg/g	10.4 U	10.4 U [10.4 U]	10.4 U	10.4 U	10.4 U
Endrin Aldehyde	pg/g	40.6 U	R [40.6 U]	R	40.6 U	40.6 U
Endrin Ketone	pg/g	25.8 U	R [25.8 U]	R	25.8 U	25.8 U
Gamma-BHC (Lindane)	pg/g	7.3 U	7.3 U [7.3 U]	7.3 U	7.3 U	35.1 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED146 0 - 0.5 09/22/15 South NB03SED-CHM146	NB03SED147 0 - 0.5 09/22/15 South NB03SED-CHM147	NB03SED148 0 - 0.5 09/22/15 South NB03SED-CHM148	NB03SED149 0 - 0.5 09/23/15 South NB03SED-CHM149	NB03SED150 0 - 0.5 09/23/15 South NB03SED-CHM150
Heptachlor	pg/g	10.4 U	23.7 J [10.4 UJ]	10.4 U	10.4 UJ	10.4 UJ
Heptachlor Epoxide	pg/g	9.35 U	9.35 U [9.35 U]	9.35 U	209	9.35 U
Hexachlorobenzene	pg/g	414 B	2,370 B [1,800 B]	1,290 B	1,890 B	1,210 B
Methoxychlor	pg/g	11.8 UJ	R [11.8 U]	R	11.8 U	11.8 UJ
Mirex	pg/g	4.91 U	R [4.91 U]	R	4.91 U	4.91 U
Nonachlor, trans-	pg/g	306	1,400 J [1,140]	1,110	1,970	1,650
Oxychlordane	pg/g	11.4 U	11.4 U [11.4 U]	11.4 U	11.4 U	11.4 U
trans-Chlordane	pg/g	756	3,370 J [2,800]	2,710	4,770	3,060
trans-Heptachlor Epoxide	pg/g	12.9 U	12.9 U [12.9 U]	12.9 U	539	12.9 U
Total Alpha + Gamma Chlordane	ppb	1.4	5.9 J [5]	5.2	8.4	5.9
Total DDT (2,4)	ppb	9.1	19 J [18 J]	14	39	22
Total DDT (4,4)	ppb	19 BJ	110 BDJ [61 BJ]	50 BJ	120 BD	66 B
Total DDT (2,4 & 4,4)	ppb	28 BJ	130 BDJ [79 BJ]	64 BJ	160 BD	88 B
Semivolatiles						
1,2,4,5-Tetrachlorobenzene	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
1,2-Diphenylhydrazine	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
1-Methylnaphthalene	ug/kg	3.9	2.2 J- [15 J]	4.1 J	16 U	3 J-
2,2'-oxybis(1-Chloropropane)	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
2,3,4,6-Tetrachlorophenol	ug/kg	97 U	140 UJ [150 UJ]	170 UJ	160 UJ	180 UJ
2,4,5-Trichlorophenol	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
2,4,6-Trichlorophenol	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
2,4-Dichlorophenol	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
2,4-Dimethylphenol	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
2,4-Dinitrophenol	ug/kg	440 U	640 UJ [660 UJ]	780 UJ	710 UJ	800 UJ
2,4-Dinitrotoluene	ug/kg	97 U	140 UJ [150 UJ]	170 UJ	160 UJ	180 UJ
2,6-Dinitrotoluene	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
2-Chloronaphthalene	ug/kg	10 U	14 UJ [15 UJ]	17 UJ	16 UJ	18 UJ
2-Chlorophenol	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
2-Methylnaphthalene	ug/kg	7.6	4.1 J- [23 J]	6.1	18 J	5.2 J-
2-Methylphenol	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
2-Nitroaniline	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
2-Nitrophenol	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
3,3'-Dichlorobenzidine	ug/kg	150 U	210 UJ [220 UJ]	260 UJ	240 UJ	270 UJ
3-Nitroaniline	ug/kg	97 U	140 UJ [150 UJ]	170 UJ	160 UJ	180 UJ
4,6-Dinitro-2-methylphenol	ug/kg	240 U	350 UJ [370 UJ]	430 UJ	400 UJ	440 UJ
4-Bromophenyl phenyl ether	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
4-Chloro-3-Methylphenol	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
4-Chloroaniline	ug/kg	48 U	71 UJ [73 UJ]	86 UJ	79 UJ	89 UJ
4-Chlorophenyl phenyl ether	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
4-Methylphenol	ug/kg	39 J	43 J [55 J]	67 J	120 J	44 UJ
4-Nitroaniline	ug/kg	97 U	140 UJ [150 UJ]	170 UJ	160 UJ	180 UJ
4-Nitrophenol	ug/kg	240 U	350 UJ [370 UJ]	430 UJ	400 UJ	440 UJ
Acenaphthene	ug/kg	5.2	6.3 J- [49 J]	9.7	18 J	5.5 J-

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED146 0 - 0.5 09/22/15 South NB03SED-CHM146	NB03SED147 0 - 0.5 09/22/15 South NB03SED-CHM147	NB03SED148 0 - 0.5 09/22/15 South NB03SED-CHM148	NB03SED149 0 - 0.5 09/23/15 South NB03SED-CHM149	NB03SED150 0 - 0.5 09/23/15 South NB03SED-CHM150
Acenaphthylene	ug/kg	14	4.3 J- [30 J]	9.4	53	40 J-
Acetophenone	ug/kg	33 J	38 J [63 J]	43 UJ	42 J	44 UJ
Anthracene	ug/kg	23	14 J- [100 J]	30	79	26 J-
Atrazine	ug/kg	48 U	71 UJ [73 UJ]	86 UJ	79 UJ	89 UJ
Benzaldehyde	ug/kg	97 U	140 UJ [150 UJ]	170 UJ	160 UJ	180 UJ
Benzidine	ug/kg	1,000 U	1,500 UJ [1,500 UJ]	1,800 UJ	1,700 UJ	1,900 UJ
Benzo(a)anthracene	ug/kg	59	66 J- [190 J-]	63 J-	310 J-	55 J-
Benzo(a)pyrene	ug/kg	76 J-	64 J- [170 J-]	61 J-	390 J-	78 J-
Benzo(b)fluoranthene	ug/kg	51 J-	60 J- [150 J-]	56 J-	310 J-	55 J-
Benzo(e)pyrene	ug/kg	52	54 J- [110 J-]	43	270	54
Benzo(g,h,i)perylene	ug/kg	44 J-	42 J- [99 J-]	36 J-	240 J-	56 J-
Benzo(j,k)fluoranthene	ug/kg	65 J-	56 J- [130 J-]	47 J-	310 J-	65 J-
Benzoic Acid	ug/kg	240 U	350 UJ [370 UJ]	430 UJ	400 UJ	440 UJ
Biphenyl	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
bis(2-Chloroethoxy)methane	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
bis(2-Chloroethyl)ether	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
bis(2-Ethylhexyl)phthalate	ug/kg	330	1,300 [4,500]	1,100	680	780
Butyl benzyl phthalate	ug/kg	97 U	140 UJ [150 UJ]	170 UJ	160 UJ	180 UJ
C1-Chrysenes	ug/kg	63	81 [120]	42	270	48
C1-Fluoranthenes/Pyrenes	ug/kg	100	110 J [230 J]	83	440	75
C1-Fluorenes	ug/kg	10	23 [38]	9.7	26 J	8.1
C1-Naphthalenes	ug/kg	8.2	4.4 J [26 J]	7.4	23 J	5.9
C1-Phenanthrenes/Anthracenes	ug/kg	49	49 J [170 J]	57	150	36
C2-Chrysenes	ug/kg	61	110 [88]	30	260	37
C2-Fluoranthenes/Pyrenes	ug/kg	72	120 [120]	46	310	42
C2-Fluorenes	ug/kg	8.4	42 [32]	11	25 J	8.2
C2-Naphthalenes	ug/kg	22	35 [56]	11	60	8.2
C2-Phenanthrene/anthracenes	ug/kg	57	180 [160]	49	160	42
C3-Chrysenes	ug/kg	35	69 [48]	14	170	20
C3-Fluoranthenes/Pyrenes	ug/kg	55	100 [78]	24	250	25
C3-Fluorenes	ug/kg	11	64 [47]	19	16 U	13
C3-Naphthalene	ug/kg	22	100 [92]	21	43	15
C3-Phenanthrene/anthracenes	ug/kg	41	190 J [110 J]	32	120	34
C4-Chrysenes	ug/kg	19	42 [26]	8	130	13
C4-Naphthalene	ug/kg	20	130 [94]	25	47	22
C4-Phenanthrenes/anthracenes	ug/kg	1 U	110 [1.5 U]	1.7 U	16 U	1.8 U
Caprolactam	ug/kg	48 U	71 UJ [73 UJ]	86 UJ	79 UJ	89 UJ
Carbazole	ug/kg	24 U	35 UJ [37 UJ]	46 J	66 J	44 UJ
Chrysene	ug/kg	66	89 J- [190 J-]	80 J-	350 J-	64 J-
Dibenzo(a,h)anthracene	ug/kg	14 J-	11 J- [29 J-]	10 J-	68 J-	15 J-
Dibenzofuran	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	51 J	44 UJ
Diethyl phthalate	ug/kg	97 U	140 UJ [150 UJ]	170 UJ	160 UJ	180 UJ
Dimethylphthalate	ug/kg	97 U	140 UJ [150 UJ]	170 UJ	160 UJ	180 UJ

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED146 0 - 0.5 09/22/15 South	NB03SED147 0 - 0.5 09/22/15 South	NB03SED148 0 - 0.5 09/22/15 South	NB03SED149 0 - 0.5 09/23/15 South	NB03SED150 0 - 0.5 09/23/15 South
	Units	NB03SED-CHM146	NB03SED-CHM147	NB03SED-CHM148	NB03SED-CHM149	NB03SED-CHM150
Di-n-Butylphthalate	ug/kg	97 U	140 UJ [150 UJ]	170 UJ	170 J	180 UJ
Di-n-Octylphthalate	ug/kg	97 U	140 UJ [150 UJ]	170 UJ	160 UJ	180 UJ
Fluoranthene	ug/kg	82	150 J- [420 J-]	150 J-	500 J-	74 J-
Fluorene	ug/kg	7.2	6.1 J- [68 J]	13	21 J	4.3 J-
Hexachlorobutadiene	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
Hexachlorocyclopentadiene	ug/kg	240 U	350 UJ [370 UJ]	430 UJ	400 UJ	440 UJ
Hexachloroethane	ug/kg	48 U	71 UJ [73 UJ]	86 UJ	79 UJ	89 UJ
Indeno(1,2,3-cd)pyrene	ug/kg	48 J-	43 J- [110 J-]	39 J-	260 J-	58 J-
Isophorone	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
Naphthalene	ug/kg	19	7.5 J- [38 J]	9.6	39 J	13 J-
Nitrobenzene	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
N-Nitroso-di-n-propylamine	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
N-Nitrosodiphenylamine	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 UJ	44 UJ
Pentachlorophenol	ug/kg	48 U	71 UJ [73 UJ]	86 UJ	79 UJ	89 UJ
Perylene	ug/kg	17	17 J [43 J]	15	96	20
Phenanthrene	ug/kg	38	43 J- [370 J]	87	160	29 J-
Phenol	ug/kg	24 U	35 UJ [37 UJ]	43 UJ	40 J	44 UJ
Pyrene	ug/kg	95	150 J- [340 J-]	130 J-	520 J-	79 J-
Pyridine	ug/kg	97 U	140 UJ [150 UJ]	170 UJ	160 UJ	180 UJ
Total HMW PAHs	ug/kg	600 J	730 J [1,800 J]	670 J	3,300 J	600 J
Total LMW PAHs	ug/kg	110	85 J [680 J]	160	390 J	120 J
TOTAL PAHs	ug/kg	710 J	820 J [2,500 J]	840 J	3,600 J	720 J
Volatiles						
1,2,4-Trichlorobenzene	ug/kg	2 U	4 UJ [3 UJ]	3 UJ	3 U	4 UJ
1,2-Dichlorobenzene	ug/kg	2 U	4 UJ [3 UJ]	3 UJ	3 U	4 UJ
1,3-Dichlorobenzene	ug/kg	2 U	4 UJ [3 UJ]	3 UJ	3 U	4 UJ
1,4-Dichlorobenzene	ug/kg	2 U	4 UJ [3 UJ]	3 UJ	3 U	4 UJ
TPH						
PHC AS GASOLINE	mg/kg	3.4 U	7.1 U [6.2 U]	7.7 U	6.1 U	7.7 U
Total Petroleum Hydrocarbons (C9-C40)	mg/kg	173 J	205 J [427 J]	245 J	329 J	166 J
Grain Size						
0.001 mm	% passing	2	3 [4]	8	4	7
0.002 mm	% passing	4	7 [7]	9.5	7	10
0.02 mm	% passing	15	23 [26]	35	32	40
0.05 mm	% passing	21	36 [39]	50	54	58
0.064 mm	% passing	25	39 [43]	62	63	64
0.3 mm	% passing	70.2	59.5 [63.6]	78.8	87.4	75.7
3.35 mm	% passing	91.9	92.7 [92.1]	97.1	98.5	97.8
75000 um	% passing	100	100 [100]	100	100	100
Hydrometer Reading, Percent Finer Than 0.0050 mm	% passing	7	10 [10]	15	11	18
Sieve No. 4, Percent Passing	% passing	94.5	95.3 [94.6]	98.9	99.3	99.5
Sieve No. 8, Percent Passing	% passing	88.6	89.5 [88.6]	92.3	97.2	94.4
Sieve No. 16, Percent Passing	% passing	87.5	84.4 [83.6]	90.6	95.9	91.2

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED146 0 - 0.5 09/22/15 South NB03SED-CHM146	NB03SED147 0 - 0.5 09/22/15 South NB03SED-CHM147	NB03SED148 0 - 0.5 09/22/15 South NB03SED-CHM148	NB03SED149 0 - 0.5 09/23/15 South NB03SED-CHM149	NB03SED150 0 - 0.5 09/23/15 South NB03SED-CHM150
Sieve No. 30, Percent Passing	% passing	85	77.8 [78]	86	94.4	80.3
Sieve No. 100, Percent Passing	% passing	45	47.5 [52.8]	72.3	79	72.4
Sieve No. 200, Percent Passing	% passing	26.9	40.5 [45.8]	66.9	67	67.1
Sieve 19000 Microns, Percent Passing	% passing	100	100 [100]	100	100	100
Sieve 37500 Microns, Percent Passing	% passing	100	100 [100]	100	100	100
Physical Properties						
Moisture (water) Content	%	32.2	53.5 [55.2]	61.6	58.6	62.9
Oxidation Reduction Potential	mV	85	30 [21]	31	101	52
Percent Moisture	%	28.6	55.1 [55.8]	57.7	50	60.7
Total Solids (Percent)	%	79 Z	47.1 Z [46.2 Z]	38.2 Z	42.4 Z	37.1 Z
Water Content	%	47.4	115 [123]	160	142	170
Water Content ASTM D2216	%	40	123 [126]	136	99.8	154
TOC by Lloyd Kahn	mg/kg	20,000	55,400 J [26,100 J]	26,000	60,700 J	50,100 J
pH	pH Units	8.07	7.91 [7.89]	7.7	7.64	7.49
Miscellaneous Chemicals						
Total Kjeldahl Nitrogen	mg/kg	1,190	1,430 [1,660]	2,190	2,260	2,230
Total Cyanide	mg/kg	0.25 U	0.51 BJ [0.45 BJ]	0.43 UJ	0.42 UJ	0.46 UJ
Ammonia Nitrogen	mg/kg	75.2 U	133 B [114 U]	133 U	211 B	137 U
Phosphorus	mg/kg	414	1,190 J [1,320]	1,210	698	1,700

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED151 0 - 0.5 09/21/15 South NB03SED-CHM151	NB03SED152 0 - 0.5 09/30/15 South NB03SED-CHM152	NB03SED153 0 - 0.5 09/24/15 South NB03SED-CHM153	NB03SED154 0 - 0.5 09/21/15 South NB03SED-CHM154	NB03SED155 0 - 0.5 09/21/15 South NB03SED-CHM155
Dioxins/Furans						
1,2,3,4,6,7,8-HpCDD	ng/kg	1,780 BJ	238 JB [266 JB]	120 BJ	1,240 BJ	27.7 BJ
1,2,3,4,6,7,8-HpCDF	ng/kg	595 BJ	111 JB [111 JB]	56.2 BJ	450 BJ	16.8 BJ
1,2,3,4,7,8,9-HpCDF	ng/kg	49.4 BJ	9.17 JB [8.57 JB]	3.15 JB	26.7 BJ	1.04 JB
1,2,3,4,7,8-HxCDD	ng/kg	9.96 J	3.76 JB [6.81 JB]	1.57 J	5.78 J	0.405 J
1,2,3,4,7,8-HxCDF	ng/kg	120 BCJ	22.6 JBC [22.6 JBC]	11.1 BCJ	78.8 BCJ	3.23 JB
1,2,3,6,7,8-HxCDD	ng/kg	69.1 BJ	14.8 JB [16.7 JB]	6.21 BJ	46.4 BJ	1.68 JB
1,2,3,6,7,8-HxCDF	ng/kg	49.2 BCJ	10.6 JBC [10.2 JBC]	4.02 JB	26.6 BCJ	1.22 JB
1,2,3,7,8,9-HxCDD	ng/kg	32.2 BJ	8.13 J [10.2 J]	4.06 JB	19.5 BJ	1.05 JB
1,2,3,7,8,9-HxCDF	ng/kg	5.45 CJ	0.109 UJ [0.0748 UJ]	0.726 JBQ	0.286 UCJ	0.452 JB
1,2,3,7,8-PeCDD	ng/kg	12 BJ	3.92 JB [4.86 JB]	1.88 JBQ	7.18 BJ	0.404 JB
1,2,3,7,8-PeCDF	ng/kg	40.7 BCJ	8.92 JBC [8.07 JBC]	3.09 JB	13.5 BCJ	0.901 JB
2,3,4,6,7,8-HxCDF	ng/kg	32 CJ	8.59 C [7.51 C]	3.57 JB	15.1 BCJ	1.18 JB
2,3,4,7,8-PeCDF	ng/kg	44.8 CJ	13 BC [12.5 BC]	4.4 BCJ	23.8 BCJ	1.57 JB
2,3,7,8-TCDD	ng/kg	347 J	27.2 JB [27.6 JB]	20.4 J	256 J	5.62 J
2,3,7,8-TCDF	ng/kg	57.3 CJ	16.1 JC [15.4 C]	6.82 CJ	18.8 CJ	1.68 CJ
OCDD	ng/kg	NA	2,960 JB [2,800 JB]	1,200 BJ	NA	303 BJ
OCDF	ng/kg	2,820 BJ	187 JB [196 JB]	99.4 BJ	1,080 BJ	26.6 BJ
Herbicides						
2,4,5-T	ug/kg	11 J	1.7 JPN [1.3 U]	1.4 U	6.5 J	1.1 U
2,4,5-TP (Silvex)	ug/kg	3 UJ	1.3 U [1.2 U]	1.3 U	1.5 UJ	1 U
2,4-D	ug/kg	30 UJ	21 U [19 U]	21 U	24 UJ	16 U
2,4-DB	ug/kg	45 UJ	11 U [9.8 U]	11 U	26 UJ	8.4 U
Metals						
Aluminum	mg/kg	20,500 J	9,790 [7,670]	12,300	16,800 J	8,810
Antimony	mg/kg	3.47 J	2.7 J- [2.04]	1.37	2.77 J	0.36
Arsenic	mg/kg	61.5 J	16.8 [14.1]	9.48	30.9 J	5.92
Barium	mg/kg	1,260 J	217 [149]	122	297 J	368
Beryllium	mg/kg	1.18 J	0.689 [0.548]	0.767	0.915 J	0.602
Cadmium	mg/kg	17.8 J	0.905 [0.753]	0.483	11.8 J	0.512
Calcium	mg/kg	9,340 J	3,570 [2,750]	7,640	3,970 J	7,790
Chromium	mg/kg	317 J	73.4 [65.7]	52.7	397 J	34.2
Cobalt	mg/kg	15.6 J	9.01 [8]	11.8	10.3 J	7.34
Copper	mg/kg	567 J	218 [192]	65.2	545 J	33.1
Hexavalent Chromium	mg/kg	1.3 U	R [0.8 U]	0.88 U	1 U	0.68 U
Iron	mg/kg	36,100 J	23,600 [19,700]	23,800	27,900 J	18,500
Lead	mg/kg	291 J	214 [167]	59.9	433 J	38.8
Magnesium	mg/kg	9,630 J	4,930 [4,260]	12,000	6,900 J	5,080
Manganese	mg/kg	455 J	199 [166]	331	293 J	263
Mercury	ng/g	8,380 J	2,210 J [1,870 J]	567 J	5,100 J	521 J
Methyl Mercury	ng/g	4.99 J	2.98 J [3.05 J]	0.748 J	2.09 J	1.21 J
Nickel	mg/kg	83.3 J	36.1 J [25.6]	96	42.2 J	19.7
Potassium	mg/kg	5,530 J	2,190 [1,760]	3,340	4,470 J	2,910

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED151 0 - 0.5 09/21/15 South	NB03SED152 0 - 0.5 09/30/15 South	NB03SED153 0 - 0.5 09/24/15 South	NB03SED154 0 - 0.5 09/21/15 South	NB03SED155 0 - 0.5 09/21/15 South
	Units	NB03SED-CHM151	NB03SED-CHM152	NB03SED-CHM153	NB03SED-CHM154	NB03SED-CHM155
Selenium	mg/kg	3.1 J	0.81 [0.927]	0.503 B	1.9 J	0.192 B
Silver	mg/kg	5.61 J	1.25 [1.14]	0.979	5.47 J	0.31
Sodium	mg/kg	12,700 J	6,480 [6,730]	7,460	10,100 J	3,810
Thallium	mg/kg	0.444 J	0.173 [0.133 B]	0.374	0.348 J	0.181
Titanium	mg/kg	718 J	344 J [275]	467	536 J	396
Vanadium	mg/kg	78.5 J	28.2 [23.6]	32.6	51.3 J	24.2
Zinc	mg/kg	681 J	315 J [243]	139	570 J	88.1
AVS/SEM						
Acid Volatile Sulfide (AVS)	umol/g	85.9	4.2 J [7.5]	8.9	53.7	0.63 U
Cadmium	umol/g	0.0591	0.00248 [0.00276]	0.00202	0.0528	0.00172
Copper	umol/g	0.322	0.616 [0.46]	0.264	0.479	0.133
Lead	umol/g	0.489	0.327 [0.34]	0.114	0.586	0.0812
Mercury	umol/g	0.0000072 U	0.0000074 U [0.0000073]	0.0000073 U	0.0000073 U	0.0000074 U
Nickel	umol/g	0.167	0.0761 [0.124]	0.192	0.306	0.0231
Zinc	umol/g	2.68	1.19 [1.27]	0.716	4.13	0.392
TEPH Alkanes						
2,6,10,14-Tetramethyl Pentadecane	mg/kg	0.211 J	0.0297 UJ [0.027 UJ]	0.0316 J	0.339 UJ	0.0231 UJ
2,6,10,14-Tetramethylhexadecane	mg/kg	0.123 J	0.0383 J [0.034 J]	0.022 J	0.491 J	0.0149 UJ
Dotriacontane	mg/kg	0.0324 UJ	0.227 J [0.179 J]	0.0867 J	0.259 UJ	0.064 J
Heneicosane	mg/kg	0.0292 J	0.0684 J [0.0662 J]	0.0661 J	0.22 UJ	0.0149 UJ
Heptacosane	mg/kg	0.0796 UJ	0.0558 UJ [0.0508 UJ]	0.0554 UJ	0.639 UJ	0.0434 UJ
Heptadecane	mg/kg	0.0767 J	0.0314 UJ [0.121 J]	0.0559 J	0.359 UJ	0.0925 J
Heptatriacontane, -n	mg/kg	0.0274 UJ	0.0192 UJ [0.0175 UJ]	0.0285 J	0.22 UJ	0.0323 J
Hexatriacontane	mg/kg	0.0274 U	0.0279 J [0.147 J]	0.019 U	0.22 UJ	0.0149 J
Hhentriacontane	mg/kg	0.0403 UJ	0.559 J [0.0257 UJ]	0.147 J	0.323 UJ	0.0505 J
n-Decane	mg/kg	0.0368 UJ	0.0258 UJ [0.0235 UJ]	0.0256 UJ	0.295 UJ	0.0201 UJ
n-Docosane	mg/kg	0.0375 J	0.391 J [0.208 J]	0.157 J	0.238 J	0.0317 J
n-Dodecane	mg/kg	0.0452 J	0.0192 UJ [0.0175 UJ]	0.019 UJ	0.278 J	0.0149 UJ
n-Eicosane	mg/kg	0.0299 UJ	0.0209 UJ [0.0235 J]	0.0208 UJ	0.239 UJ	0.0163 UJ
n-Hexacosane	mg/kg	0.0473 UJ	0.0331 UJ [0.0302 UJ]	0.0329 UJ	0.379 UJ	0.0258 UJ
n-Hexadecane	mg/kg	0.0274 UJ	0.0521 J [0.0175 UJ]	0.0601 J	0.666 J	0.0149 UJ
n-Nonane	mg/kg	0.0308 J	0.0192 UJ [0.0175 UJ]	0.019 UJ	0.22 UJ	0.0149 UJ
n-Octacosane	mg/kg	0.0448 J	0.885 J [0.693 J]	0.374 J	0.356 J	0.105 J
n-Octadecane	mg/kg	0.0943 J	0.0606 J [0.0487 J]	0.0356 J	0.299 UJ	0.0204 UJ
Nonacosane	mg/kg	0.115 J	0.0195 J [0.0175 UJ]	0.0918 J	0.22 UJ	0.0524 J
Nonadecane	mg/kg	0.0398 UJ	0.235 J [0.0254 UJ]	0.0277 UJ	0.319 UJ	0.0217 UJ
Nonatriacontane	mg/kg	0.0498 UJ	0.0577 J [0.0525 J]	0.0346 UJ	0.399 UJ	0.0271 UJ
n-Tetracosane	mg/kg	0.0274 UJ	0.0446 J [0.0607 J]	0.0602 J	0.22 UJ	0.0149 UJ
n-Tetradecane	mg/kg	0.0348 UJ	0.0244 UJ [0.0222 UJ]	0.0242 UJ	0.279 UJ	0.019 UJ
n-Triacontane	mg/kg	0.25 J	0.0352 UJ [0.135 J]	0.144 J	1.16 J	0.0642 J
n-Tridecane	mg/kg	0.0317 J	0.0192 UJ [0.0175 UJ]	0.019 UJ	0.22 UJ	0.0149 UJ
n-Undecane	mg/kg	0.0503 UJ	0.0352 UJ [0.0321 UJ]	0.035 UJ	0.403 UJ	0.0274 UJ
Octatriacontane	mg/kg	0.0373 UJ	0.0262 UJ [0.0238 UJ]	0.026 UJ	0.299 UJ	0.0204 UJ

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED151 0 - 0.5 09/21/15 South NB03SED-CHM151	NB03SED152 0 - 0.5 09/30/15 South NB03SED-CHM152	NB03SED153 0 - 0.5 09/24/15 South NB03SED-CHM153	NB03SED154 0 - 0.5 09/21/15 South NB03SED-CHM154	NB03SED155 0 - 0.5 09/21/15 South NB03SED-CHM155
Pentacosane	mg/kg	0.0274 UJ	0.0192 UJ [0.0175 UJ]	0.0574 J	0.369 J	0.0149 UJ
Pentadecane	mg/kg	0.0274 UJ	0.118 J [0.0519 J]	0.019 UJ	0.22 UJ	0.0149 UJ
Pentatriacontane	mg/kg	0.0274 UJ	0.0192 UJ [0.0175 UJ]	0.0492 J	0.222 J	0.0156 J
Tetracontane	mg/kg	0.0274 UJ	0.0537 J [0.0561 J]	0.0232 J	0.22 UJ	0.0149 UJ
Tetraatriacontane	mg/kg	0.0324 UJ	0.0227 UJ [0.0206 UJ]	0.0255 J	0.259 UJ	0.0176 UJ
Tricosane	mg/kg	0.052 J	0.232 J [0.11 J]	0.0879 J	0.295 J	0.0249 J
Tritriacontane	mg/kg	0.0547 UJ	0.0384 UJ [0.0349 UJ]	0.0381 UJ	0.439 UJ	0.0299 UJ
Butyltins						
Dibutyltin	ug/kg	3.2 UJ	4.4 [5.1]	2.3 U	2.5 U	1.8 U
Monobutyltin	ug/kg	51 UCNJ	32 UCN [33 UCN]	37 UCN	40 UCN	29 UCN
Tetrabutyltin	ug/kg	4.2 UJ	2.6 U [2.7 U]	3 U	3.3 U	2.4 U
Tributyltin	ug/kg	3.7 UJ	2.3 U [2.8]	2.7 U	2.9 U	2.1 U
PCB Congeners						
PCB-1	ng/kg	136 J	171 J [434 JE]	169 BJ	R	77.4 J
PCB-2	ng/kg	35.3 BJ	44.7 J [97.9 J]	15.2 BJ	14.1 BJ	19 BJ
PCB-3	ng/kg	104 J	R [214 J]	48.7 BJ	R	34.2 J
PCB-4	ng/kg	1,450 EJ	583 BEJ [1,210 EJ]	239 BJ	291 BJ	176 J
PCB-5	ng/kg	32.5 J	11.8 J [19.8 J]	1.69 J	7.43 J	2.03 J
PCB-6	ng/kg	336 EJ	327 EJ [654 EJ]	76.5 BJ	73.3 BJ	64.7 J
PCB-7	ng/kg	0.785 UJ	43.2 J [71.4 J]	0.778 UJ	0.794 UJ	0.807 UJ
PCB-8	ng/kg	2,110 BEJ	1,190 BEJ [2,230 BEJ]	205 BJ	418 BEJ	237 BJ
PCB-9	ng/kg	119 BJ	55.4 J [89.2 J]	0.681 UJ	21.1 BJ	0.707 UJ
PCB-10	ng/kg	70.4 J	38.3 J [67.7 J]	27.6 J	15 J	22.2 J
PCB-11	ng/kg	1,310 BEJ	640 BEJ [967 BEJ]	113 BJ	636 BEJ	221 BJ
PCB-12/13	ng/kg	237 J	319 J [543 J]	76.1 J	95.5 J	78.1 J
PCB-14	ng/kg	0.785 UJ	0.767 UJ [0.795 UJ]	0.778 UJ	1.21 J	0.807 UJ
PCB-15	ng/kg	1,400 BEJ	2,020 BEJ [3,630 BEJ]	441 BEJ	448 BEJ	465 BEJ
PCB-16	ng/kg	3,370 EJ	881 EJ [1,650 BEJ]	R	R	192 J
PCB-17	ng/kg	3,060 EJ	1,220 EJ [1,900 EJ]	127 BJ	582 BEJ	263 J
PCB-18/30	ng/kg	6,110 EJ	2,020 BEJ [3,330 BEJ]	168 BJ	1,260 BEJ	424 J
PCB-19	ng/kg	693 EJ	307 EJ [611 EJ]	44.9 J	161 J	52.8 J
PCB-20/28	ng/kg	7,420 EJ	9,150 EJ [14,800 EJ]	672 BEJ	2,390 BEJ	1,160 EJ
PCB-21/33	ng/kg	3,330 EJ	1,860 EJ [2,850 EJ]	105 J	874 EJ	301 J
PCB-22	ng/kg	2,470 EJ	2,200 EJ [3,400 EJ]	127 J	736 EJ	288 J
PCB-23	ng/kg	8.3 J	3.32 J [5.02 J]	0.681 UJ	3.12 J	0.707 UJ
PCB-24	ng/kg	0.981 UJ	0.959 UJ [0.993 UJ]	2.11 J	14.2 J	1.01 UJ
PCB-25	ng/kg	504 EJ	797 EJ [1,190 EJ]	80.9 J	135 J	113 J
PCB-26/29	ng/kg	1,020 EJ	1,150 EJ [1,870 EJ]	143 J	288 J	181 J
PCB-27	ng/kg	427 EJ	316 EJ [466 EJ]	37.9 J	93.5 J	62.6 J
PCB-31	ng/kg	5,990 EJ	4,340 EJ [7,790 EJ]	402 EJ	1,640 EJ	805 EJ
PCB-32	ng/kg	1,770 EJ	1,020 EJ [1,870 EJ]	108 J	488 EJ	183 J
PCB-34	ng/kg	31.8 J	30.5 J [44.1 J]	4.29 J	9.2 J	5.06 J
PCB-35	ng/kg	134 J	154 J [257 J]	16.3 J	96.3 J	29.8 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED151 0 - 0.5 09/21/15 South NB03SED-CHM151	NB03SED152 0 - 0.5 09/30/15 South NB03SED-CHM152	NB03SED153 0 - 0.5 09/24/15 South NB03SED-CHM153	NB03SED154 0 - 0.5 09/21/15 South NB03SED-CHM154	NB03SED155 0 - 0.5 09/21/15 South NB03SED-CHM155
PCB-36	ng/kg	0.785 UJ	3.78 J [8.21 J]	0.982 J	0.794 UJ	1.6 J
PCB-37	ng/kg	1,770 EJ	2,170 EJ [3,770 EJ]	193 J	545 EJ	401 EJ
PCB-38	ng/kg	1.99 J	2.49 J [4.68 J]	0.681 UJ	0.695 UJ	0.707 UJ
PCB-39	ng/kg	27.9 J	34.2 J [49.2 J]	3.23 J	11.9 J	5.61 J
PCB-40/71	ng/kg	3,470 EJ	2,940 EJ [5,050 EJ]	163 J	1,060 J	535 J
PCB-41	ng/kg	759 EJ	436 J [569 J]	15.3 J	165 J	86 J
PCB-42	ng/kg	2,360 EJ	2,030 EJ [3,320 EJ]	103 J	691 EJ	395 J
PCB-43	ng/kg	368 J	238 J [443 J]	12.6 J	99.3 J	50.9 J
PCB-44/47/65	ng/kg	7,490 EJ	6,880 EJ [11,100 EJ]	329 J	2,400 EJ	1,190 J
PCB-45	ng/kg	1,330 EJ	1,000 EJ [1,410 EJ]	36.2 J	357 J	132 J
PCB-46	ng/kg	525 J	346 J [553 J]	15.6 J	133 J	54.3 J
PCB-48	ng/kg	1,830 EJ	1,120 EJ [1,730 EJ]	48.7 J	491 J	218 J
PCB-49/69	ng/kg	4,770 EJ	4,220 EJ [7,190 EJ]	252 J	1,540 EJ	881 J
PCB-50/53	ng/kg	1,190 EJ	912 J [1,510 EJ]	44.5 J	316 J	157 J
PCB-51	ng/kg	291 J	292 J [564 J]	21.9 J	86.7 J	59.9 J
PCB-52	ng/kg	8,010 BEJ	7,590 BEJ [12,000 BEJ]	316 J	3,030 EJ	1,320 BEJ
PCB-54	ng/kg	20.2 J	26.9 J [48 J]	1.36 UJ	6.28 J	3.76 J
PCB-55	ng/kg	59.6 J	3,620 EJ [79.7 J]	3.56 J	21.2 J	1.21 UJ
PCB-56	ng/kg	3,320 EJ	3,310 EJ [5,840 EJ]	168 J	1,230 EJ	628 EJ
PCB-57	ng/kg	28 J	23.3 J [49.2 J]	2.62 J	9.61 J	6.38 J
PCB-58	ng/kg	13 J	1.34 UJ [37 J]	2 J	5.92 J	3.56 J
PCB-60	ng/kg	1,390 EJ	1,680 EJ [2,780 EJ]	49.2 J	452 J	278 J
PCB-61/70/74/76	ng/kg	10,100 EJ	10,600 EJ [19,700 EJ]	532 J	4,450 EJ	1,790 J
PCB-62/75	ng/kg	686 J	607 J [1,000 J]	31.6 J	185 J	110 J
PCB-63	ng/kg	234 J	123 J [421 J]	16.9 J	96.7 J	43.9 J
PCB-64	ng/kg	3,690 EJ	2,940 EJ [5,110 EJ]	127 J	1,080 EJ	575 J
PCB-66	ng/kg	5,640 EJ	1.63 UJ [12,300 EJ]	365 BJ	2,350 BEJ	1,170 EJ
PCB-67	ng/kg	162 J	153 J [311 J]	11.6 J	56.1 J	32.3 J
PCB-68	ng/kg	17.9 J	47.2 J [76.9 J]	4.69 J	9.95 J	1.41 UJ
PCB-72	ng/kg	37.1 J	66.6 J [103 J]	6.89 J	16.8 J	1.31 UJ
PCB-73	ng/kg	1.37 UJ	15.3 J [29 J]	1.36 UJ	1.39 UJ	1.41 UJ
PCB-77	ng/kg	R	1,060 EJ [1,760 EJ]	61.1 J	295 J	R
PCB-78	ng/kg	1.57 UJ	1.53 UJ [1.59 UJ]	1.56 UJ	1.59 UJ	1.61 UJ
PCB-79	ng/kg	35 J	82.9 J [121 J]	2.38 J	21.9 J	10.3 J
PCB-80	ng/kg	1.08 UJ	1.05 UJ [1.09 UJ]	1.07 UJ	1.09 UJ	1.11 UJ
PCB-81	ng/kg	26.4 J	39.4 J [61.7 J]	1.75 UJ	8.84 J	5.92 J
PCB-82	ng/kg	898 EJ	1,200 EJ [1,870 EJ]	29.6 J	350 J	220 J
PCB-83	ng/kg	342 J	338 J [599 EJ]	13.7 J	138 J	88.7 J
PCB-84	ng/kg	1,390 EJ	1,270 EJ [2,230 EJ]	60.2 J	663 EJ	292 J
PCB-85/116/117	ng/kg	1,230 J	1,730 EJ [2,890 EJ]	49.9 J	529 J	323 J
PCB-86/87/97/109/119/125	ng/kg	4,000 EJ	4,920 EJ [8,760 EJ]	153 J	1,880 J	1,040 J
PCB-88	ng/kg	2.16 UJ	2.11 UJ [2.19 UJ]	2.14 UJ	2.18 UJ	2.22 UJ
PCB-89	ng/kg	114 J	39.3 J [138 J]	3.6 J	36.6 J	19.8 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED151 0 - 0.5 09/21/15 South NB03SED-CHM151	NB03SED152 0 - 0.5 09/30/15 South NB03SED-CHM152	NB03SED153 0 - 0.5 09/24/15 South NB03SED-CHM153	NB03SED154 0 - 0.5 09/21/15 South NB03SED-CHM154	NB03SED155 0 - 0.5 09/21/15 South NB03SED-CHM155
PCB-90/101/113	ng/kg	4,960 BEJ	8,850 BEJ [10,800 BEJ]	230 BJ	2,610 BEJ	1,380 BJ
PCB-91	ng/kg	819 EJ	914 EJ [1,580 EJ]	45.6 J	369 J	195 J
PCB-92	ng/kg	867 EJ	27.4 J [1,720 EJ]	47.7 J	466 J	242 J
PCB-93/100	ng/kg	57.2 J	98.6 J [172 J]	7.49 UJ	24 J	16.5 J
PCB-94	ng/kg	35.4 J	45.6 J [76.3 J]	2.72 J	14.2 J	1.31 UJ
PCB-95	ng/kg	R	5,720 EJ [9,570 EJ]	184 J	2,090 EJ	870 EJ
PCB-96	ng/kg	69.1 J	59.5 J [96.1 J]	2.21 J	19.4 J	R
PCB-98/102	ng/kg	220 J	232 J [400 J]	12.6 J	84.1 J	49.7 J
PCB-99	ng/kg	2,710 EJ	3,290 EJ [6,810 EJ]	139 J	1,270 EJ	864 EJ
PCB-103	ng/kg	35 J	67.1 J [104 J]	4.09 J	16.3 J	11.8 J
PCB-104	ng/kg	1.37 UJ	7.16 J [11.9 J]	1.36 UJ	1.39 UJ	1.41 UJ
PCB-105	ng/kg	1,710 EJ	3,820 EJ [6,130 EJ]	93.2 J	1,120 EJ	516 J
PCB-106	ng/kg	1.67 UJ	1.63 UJ [1.69 UJ]	1.65 UJ	1.69 UJ	1.72 UJ
PCB-107	ng/kg	289 J	713 EJ [1,030 EJ]	20.1 J	182 J	85.5 J
PCB-108/124	ng/kg	160 J	374 J [584 J]	8.33 J	113 J	45.4 J
PCB-110/115	ng/kg	6,460 BEJ	9,620 EJ [16,600 EJ]	298 BJ	3,200 BEJ	1,850 BEJ
PCB-111	ng/kg	1.75 J	5.09 J [7.76 J]	1.36 UJ	1.39 UJ	1.41 UJ
PCB-112	ng/kg	1.37 UJ	16.3 J [26.4 J]	1.36 UJ	3.24 J	1.41 UJ
PCB-114	ng/kg	124 J	250 J [387 J]	5.49 J	66.1 J	31.4 J
PCB-118	ng/kg	3,960 EJ	9,100 EJ [15,600 EJ]	243 BJ	2,680 BEJ	1,190 EJ
PCB-120	ng/kg	9.96 J	29.5 J [41.1 J]	1.26 UJ	5.14 J	4.15 J
PCB-121	ng/kg	1.18 UJ	1.8 J [3.89 J]	1.17 UJ	1.19 UJ	1.21 UJ
PCB-122	ng/kg	61.1 J	154 J [214 J]	3.19 J	35.1 J	16.6 J
PCB-123	ng/kg	93.8 J	194 J [303 J]	4.95 J	48.5 J	27.7 J
PCB-126	ng/kg	13.9 J	34.3 J [R]	1.56 UJ	R	5.39 J
PCB-127	ng/kg	3.91 J	1.34 UJ [R]	R	4.71 J	1.41 UJ
PCB-128/166	ng/kg	525 J	1,410 EJ [2,320 EJ]	38 J	421 J	204 J
PCB-129/138/163	ng/kg	3,890 EJ	9,390 EJ [14,900 EJ]	280 J	3,210 EJ	1,350 J
PCB-130	ng/kg	R	554 J [874 EJ]	18.2 J	175 J	R
PCB-131	ng/kg	R	122 J [197 J]	3.57 J	43 J	R
PCB-132	ng/kg	1,260 EJ	2,840 BEJ [4,540 EJ]	81.5 BJ	968 BEJ	394 J
PCB-133	ng/kg	51.8 J	146 J [229 J]	5.28 J	36 J	16.7 J
PCB-134	ng/kg	R	469 J [769 EJ]	15.4 J	160 J	R
PCB-135/151	ng/kg	1,260 EJ	2,030 EJ [3,750 EJ]	79.5 J	869 J	382 J
PCB-136	ng/kg	440 J	592 EJ [1,210 EJ]	26.7 J	300 J	140 J
PCB-137	ng/kg	R	480 J [799 EJ]	11 J	149 J	R
PCB-139/140	ng/kg	62.1 J	161 J [270 J]	4.52 J	50 J	20.9 J
PCB-141	ng/kg	622 EJ	1,350 BEJ [2,300 EJ]	35.2 J	510 J	171 J
PCB-142	ng/kg	R	3.02 J [1.69 UJ]	1.65 UJ	1.69 UJ	R
PCB-143	ng/kg	R	20.6 J [46.8 J]	3.21 UJ	6.31 J	R
PCB-144	ng/kg	185 J	424 J [407 J]	9.97 J	124 J	53.9 J
PCB-145	ng/kg	1.99 J	3.48 J [7.19 J]	1.56 UJ	1.59 UJ	1.61 UJ
PCB-146	ng/kg	469 J	1,250 EJ [1,910 EJ]	43.5 J	366 J	R

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED151 0 - 0.5 09/21/15 South NB03SED-CHM151	NB03SED152 0 - 0.5 09/30/15 South NB03SED-CHM152	NB03SED153 0 - 0.5 09/24/15 South NB03SED-CHM153	NB03SED154 0 - 0.5 09/21/15 South NB03SED-CHM154	NB03SED155 0 - 0.5 09/21/15 South NB03SED-CHM155
PCB-147/149	ng/kg	2,580 BEJ	5,720 BEJ [9,150 BEJ]	203 BJ	2,170 BEJ	830 BJ
PCB-148	ng/kg	6.02 J	21.1 J [39.3 J]	3.89 UJ	4.27 J	2.85 J
PCB-150	ng/kg	10.5 J	21.5 J [35.7 J]	1.46 UJ	6.94 J	3.82 J
PCB-152	ng/kg	3.14 J	8.29 J [13 J]	1.36 UJ	1.8 J	1.41 UJ
PCB-153/168	ng/kg	2,980 BEJ	5,950 BEJ [10,500 BEJ]	241 BJ	2,610 BEJ	1,010 BJ
PCB-154	ng/kg	38.5 J	127 J [237 J]	5.67 J	23.9 J	4.64 UJ
PCB-155	ng/kg	1.37 UJ	17.8 J [60.9 J]	1.36 UJ	2.26 J	5.4 J
PCB-156/157	ng/kg	403 J	1,220 EJ [2,030 EJ]	27.2 J	370 J	143 J
PCB-158	ng/kg	393 J	894 EJ [1,410 EJ]	23.5 J	303 J	126 J
PCB-159	ng/kg	1.37 UJ	61.4 J [1.39 UJ]	1.36 UJ	1.39 UJ	1.41 UJ
PCB-160	ng/kg	6.18 UJ	6.04 UJ [6.26 UJ]	6.13 UJ	6.25 UJ	6.36 UJ
PCB-161	ng/kg	R	1.25 UJ [1.29 UJ]	1.26 UJ	1.29 UJ	R
PCB-162	ng/kg	R	73.7 J [129 J]	2.22 J	25.5 J	R
PCB-164	ng/kg	246 J	557 J [891 EJ]	15.8 J	182 J	80.4 J
PCB-165	ng/kg	R	5.14 J [7.85 J]	1.26 UJ	1.29 UJ	R
PCB-167	ng/kg	116 J	369 J [584 J]	R	R	43.6 J
PCB-169	ng/kg	1.47 UJ	1.44 UJ [1.49 UJ]	1.46 UJ	1.49 UJ	1.51 UJ
PCB-170	ng/kg	808 EJ	2,410 EJ [3,350 EJ]	57.1 J	788 EJ	253 J
PCB-171/173	ng/kg	R	735 J [951 J]	19.3 J	245 J	R
PCB-172	ng/kg	147 J	422 J [536 J]	11.1 J	145 J	44.7 J
PCB-174	ng/kg	R	2,270 EJ [2,980 EJ]	53.4 J	888 EJ	R
PCB-175	ng/kg	R	101 J [132 J]	2.98 J	36.3 J	R
PCB-176	ng/kg	115 J	283 J [384 J]	7.78 J	107 J	33.9 J
PCB-177	ng/kg	R	1,460 EJ [2,010 EJ]	42.2 J	507 J	R
PCB-178	ng/kg	R	512 J [703 EJ]	16.6 J	178 J	R
PCB-179	ng/kg	376 J	1,010 EJ [1,330 EJ]	29.1 J	380 J	114 J
PCB-180/193	ng/kg	1,950 EJ	5,730 EJ [7,620 EJ]	145 J	2,130 EJ	584 J
PCB-181	ng/kg	R	28 J [39.2 J]	1.26 UJ	1.29 UJ	R
PCB-182	ng/kg	R	14.9 J [21.9 J]	3.89 UJ	3.97 UJ	R
PCB-183/185	ng/kg	R	1,810 EJ [2,540 EJ]	50.2 J	708 J	R
PCB-184	ng/kg	1.37 UJ	3.14 J [5.49 J]	1.36 UJ	1.39 UJ	1.41 UJ
PCB-186	ng/kg	1.47 UJ	2.08 J [1.49 UJ]	1.46 UJ	1.49 UJ	1.51 UJ
PCB-187	ng/kg	R	3,150 EJ [4,900 EJ]	103 J	1,230 EJ	R
PCB-188	ng/kg	1.47 UJ	11.5 J [14.3 J]	1.46 UJ	1.49 UJ	1.51 UJ
PCB-189	ng/kg	28.2 J	90.7 J [143 J]	2.37 J	27 J	10.1 J
PCB-190	ng/kg	183 J	539 J [731 EJ]	13.5 J	179 J	58.1 J
PCB-191	ng/kg	35.2 J	102 J [134 J]	2.52 J	33.6 J	10.9 J
PCB-192	ng/kg	1.28 UJ	1.25 UJ [1.29 UJ]	1.26 UJ	1.29 UJ	1.31 UJ
PCB-194	ng/kg	402 J	1,640 EJ [2,210 EJ]	39.3 J	608 J	130 J
PCB-195	ng/kg	146 J	582 J [768 J]	13.7 J	220 J	45.2 J
PCB-196	ng/kg	242 J	828 J [1,130 EJ]	21.7 J	297 J	76.6 J
PCB-197/200	ng/kg	74.1 J	235 J [338 J]	R	88.2 J	21.1 J
PCB-198/199	ng/kg	585 J	1,980 EJ [2,840 EJ]	61 J	717 J	191 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED151 0 - 0.5 09/21/15 South NB03SED-CHM151	NB03SED152 0 - 0.5 09/30/15 South NB03SED-CHM152	NB03SED153 0 - 0.5 09/24/15 South NB03SED-CHM153	NB03SED154 0 - 0.5 09/21/15 South NB03SED-CHM154	NB03SED155 0 - 0.5 09/21/15 South NB03SED-CHM155
PCB-201	ng/kg	66.1 J	194 J [295 J]	7.15 J	78.8 J	21.4 J
PCB-202	ng/kg	127 J	412 J [612 J]	22.4 J	153 J	50.8 J
PCB-203	ng/kg	366 J	1,170 EJ [1,820 EJ]	37.5 J	429 J	124 J
PCB-204	ng/kg	2.06 UJ	2.01 UJ [2.09 UJ]	2.04 UJ	2.08 UJ	2.12 UJ
PCB-205	ng/kg	21 J	75 J [109 J]	2.37 J	28.4 J	6.76 J
PCB-206	ng/kg	316 J	1,330 EJ [1,880 EJ]	56.8 J	564 J	134 J
PCB-207	ng/kg	28.9 J	111 J [170 J]	4.84 J	33.7 J	11.9 J
PCB-208	ng/kg	95.9 J	379 J [526 J]	23.3 J	144 J	45.6 J
PCB-209	ng/kg	323 J	965 EJ [1,560 EJ]	44.9 J	667 J	133 J
Total PCB Congeners (209)	ng/kg	156,000 J	204,000 J [343,000 J]	10,100 J	74,700 J	32,100 J
Aroclor PCBs						
Aroclor-1016	ug/kg	44 U	6.2 U [5.6 U]	6.3 U	72 U	4.9 U
Aroclor-1221	ug/kg	57 U	8 U [7.2 U]	8 U	92 U	6.2 U
Aroclor-1232	ug/kg	99 U	14 U [13 U]	14 U	160 U	11 U
Aroclor-1242	ug/kg	41 U	5.7 U [5.2 U]	5.7 U	66 U	4.5 U
Aroclor-1248	ug/kg	1,500	160 PJ [160 PJ]	5.7 U	490	22 J
Aroclor-1254	ug/kg	850	160 PJ [260 PJ]	41	500	21 J
Aroclor-1260	ug/kg	60 U	60 J [66]	8.5 U	97 U	6.6 U
Aroclor-1262	ug/kg	160 J	5.7 U [5.2 U]	5.7 U	130 J	4.5 U
Aroclor-1268	ug/kg	41 U	5.7 U [5.2 U]	5.7 U	66 U	4.5 U
Total Aroclor PCBs (Sum of 7 Aroclors)	ug/kg	2,400	380 PJ [490 PJ]	41	990	43 J
Total Aroclor PCBs (Sum of 9 Aroclors)	ug/kg	2,500 J	380 PJ [490 PJ]	41	1,100 J	43 J
Pesticides						
2,4'-DDD	pg/g	20,500	31,400 JD [31,800 D]	1,850	8,630	7,280
2,4'-DDE	pg/g	94,900 D	12,400 J [12,100]	3,090	175,000 D	2,910
2,4'-DDT	pg/g	583 J	1,900 J [2,980]	49.5 J	798	181 J
4,4'-DDD	pg/g	125,000 BD	87,700 JD [92,300 D]	6,130 B	35,900 B	11,900 B
4,4'-DDE	pg/g	252,000 BD	46,700 JD [64,000 D]	9,880 B	336,000 BD	6,920 B
4,4'-DDT	pg/g	108,000 BD	0,600 JBD [29,900 BD]	229 BJ	1,810 BJ	759 BJ
Aldrin	pg/g	5.37 UD	R [R]	R	5.37 UD	5.37 UD
Alpha-BHC	pg/g	1,260	1,250 J [829]	354	204	18.6 J
Alpha-Chlordane	pg/g	5,030	2,050 [1,900]	1,080	1,580	203
Beta-BHC	pg/g	12.6 U	2,240 J [612 J]	12.6 U	244	13.4 J
cis-Nonachlor	pg/g	2,470	650 [588]	310	980	79.9
Delta-BHC	pg/g	7.34 U	407 J [237 J]	14.7 J	7.34 U	7.34 U
Dieldrin	pg/g	7,830 B	962 [791]	312 B	2,020 B	106 B
Endosulfan I	pg/g	20.5 U	20.5 U [20.5 U]	20.5 U	20.5 U	20.5 U
Endosulfan II	pg/g	42.6 U	42.6 U [42.6 U]	42.6 U	42.6 U	42.6 U
Endosulfan Sulfate	pg/g	44.7 U	44.7 U [44.7 U]	44.7 U	44.7 U	44.7 U
Endrin	pg/g	10.4 U	10.4 U [10.4 U]	10.4 U	10.4 U	10.4 U
Endrin Aldehyde	pg/g	R	40.6 UJ [40.6 UJ]	40.6 U	R	40.6 U
Endrin Ketone	pg/g	R	25.8 U [25.8 U]	25.8 U	R	25.8 U
Gamma-BHC (Lindane)	pg/g	7.3 U	302 J [134 J]	19.4 J	7.3 U	7.3 U

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED151 0 - 0.5 09/21/15 South NB03SED-CHM151	NB03SED152 0 - 0.5 09/30/15 South NB03SED-CHM152	NB03SED153 0 - 0.5 09/24/15 South NB03SED-CHM153	NB03SED154 0 - 0.5 09/21/15 South NB03SED-CHM154	NB03SED155 0 - 0.5 09/21/15 South NB03SED-CHM155
Heptachlor	pg/g	10.4 U	10.4 U [5.1]	10.4 U	10.4 U	10.4 U
Heptachlor Epoxide	pg/g	9.35 U	9.35 U [9.35 U]	9.35 U	9.35 U	9.35 U
Hexachlorobenzene	pg/g	31,200 B	1,110 B [1,210 B]	269 B	13,500 B	237 B
Methoxychlor	pg/g	R	11.8 UJ [11.8 UJ]	11.8 UJ	R	11.8 U
Mirex	pg/g	R	959 J [4.91 U]	4.91 U	R	4.91 U
Nonachlor, trans-	pg/g	3,010	1,150 [1,250]	527	770	139
Oxychlorane	pg/g	11.4 U	11.4 U [11.4 U]	11.4 U	11.4 U	11.4 U
trans-Chlordane	pg/g	10,900	2,350 J [2,580]	1,090	3,630	261
trans-Heptachlor Epoxide	pg/g	12.9 U	12.9 U [12.9 U]	12.9 U	502	12.9 U
Total Alpha + Gamma Chlordane	ppb	16	4.4 J [4.5]	2.2	5.2	0.46
Total DDT (2,4)	ppb	120 DJ	46 DJ [47 D]	5 J	180 D	10 J
Total DDT (4,4)	ppb	490 BD	170 BDJ [190 BD]	16 BJ	370 BDJ	20 BJ
Total DDT (2,4 & 4,4)	ppb	600 BDJ	210 BDJ [230 BD]	21 BJ	560 BDJ	30 BJ
Semivolatiles						
1,2,4,5-Tetrachlorobenzene	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
1,2-Diphenylhydrazine	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
1-Methylnaphthalene	ug/kg	3 J	14 J [25 J]	1.5 J	5.9 J-	4.1
2,2'-oxybis(1-Chloropropane)	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
2,3,4,6-Tetrachlorophenol	ug/kg	170 UJ	120 U [110 U]	120 U	130 UJ	90 U
2,4,5-Trichlorophenol	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
2,4,6-Trichlorophenol	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
2,4-Dichlorophenol	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
2,4-Dimethylphenol	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
2,4-Dinitrophenol	ug/kg	740 UJ	520 U [470 U]	520 U	600 UJ	410 U
2,4-Dinitrotoluene	ug/kg	170 UJ	120 U [110 U]	120 U	130 UJ	90 U
2,6-Dinitrotoluene	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
2-Chloronaphthalene	ug/kg	17 UJ	12 U [11 U]	12 U	13 UJ	9 U
2-Chlorophenol	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
2-Methylnaphthalene	ug/kg	4.2	21 J [34]	2.3 J	8.4 J-	7.1
2-Methylphenol	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
2-Nitroaniline	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
2-Nitrophenol	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
3,3'-Dichlorobenzidine	ug/kg	250 UJ	170 U [160 U]	170 U	200 UJ	140 U
3-Nitroaniline	ug/kg	170 UJ	120 U [110 U]	120 U	130 UJ	90 U
4,6-Dinitro-2-methylphenol	ug/kg	410 UJ	290 U [260 U]	290 U	330 UJ	230 U
4-Bromophenyl phenyl ether	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
4-Chloro-3-Methylphenol	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
4-Chloroaniline	ug/kg	83 UJ	58 U [53 U]	58 U	67 UJ	45 U
4-Chlorophenyl phenyl ether	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
4-Methylphenol	ug/kg	140	110 [83]	29 U	33 UJ	23 U
4-Nitroaniline	ug/kg	170 UJ	120 U [110 U]	120 U	130 UJ	90 U
4-Nitrophenol	ug/kg	410 UJ	290 U [260 U]	290 U	330 UJ	230 U
Acenaphthene	ug/kg	7.3	25 [34]	2.1 J	8.4 J-	4.9

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED151 0 - 0.5 09/21/15 South NB03SED-CHM151	NB03SED152 0 - 0.5 09/30/15 South NB03SED-CHM152	NB03SED153 0 - 0.5 09/24/15 South NB03SED-CHM153	NB03SED154 0 - 0.5 09/21/15 South NB03SED-CHM154	NB03SED155 0 - 0.5 09/21/15 South NB03SED-CHM155
	Units					
Acenaphthylene	ug/kg	11	39 J [41]	9.1	18 J-	15
Acetophenone	ug/kg	41 UJ	37 J [36 J]	29 U	33 UJ	23 U
Anthracene	ug/kg	28	72 J [110]	11	33 J-	36
Atrazine	ug/kg	83 UJ	58 U [53 U]	58 U	67 UJ	45 U
Benzaldehyde	ug/kg	170 UJ	120 U [110 U]	120 U	130 UJ	90 U
Benzidine	ug/kg	1,700 UJ	1,200 U [1,100 U]	1,200 U	1,400 UJ	950 U
Benzo(a)anthracene	ug/kg	61 J-	240 J [330]	38 J-	87 J-	110
Benzo(a)pyrene	ug/kg	62 J-	290 J [370]	52 J-	99 J-	120 J-
Benzo(b)fluoranthene	ug/kg	49 J-	200 J [270]	31 J-	86 J-	74 J-
Benzo(e)pyrene	ug/kg	43	180 J [250]	31	66	73
Benzo(g,h,i)perylene	ug/kg	38 J-	200 J [200]	34 J-	58 J-	66 J-
Benzo(j,k)fluoranthene	ug/kg	49 J-	200 J [310]	35 J-	55 J-	95 J-
Benzoic Acid	ug/kg	410 UJ	290 U [260 U]	290 U	330 UJ	230 U
Biphenyl	ug/kg	41 UJ	73 J [37 J]	29 U	33 UJ	23 U
bis(2-Chloroethoxy)methane	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
bis(2-Chloroethyl)ether	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
bis(2-Ethylhexyl)phthalate	ug/kg	4,000	410 [410]	140 J	130 UJ	90 U
Butyl benzyl phthalate	ug/kg	170 UJ	120 U [110 U]	120 U	130 UJ	90 U
C1-Chrysenes	ug/kg	46	250 J [240]	31	87	60
C1-Fluoranthenes/Pyrenes	ug/kg	93	340 J [370]	51	150	110
C1-Fluorenes	ug/kg	7.2	29 J [32]	4	11	10
C1-Naphthalenes	ug/kg	5.1	24 J [41 J]	2.7 J	11	7.8
C1-Phenanthrenes/Anthracenes	ug/kg	49	180 J [230]	21	110	65
C2-Chrysenes	ug/kg	42	170 J [140]	24	100	36
C2-Fluoranthenes/Pyrenes	ug/kg	55	190 J [150]	27	130	53
C2-Fluorenes	ug/kg	32	36 J [34]	4.2	45	8.6
C2-Naphthalenes	ug/kg	20	35 J [52]	7.2	51	12
C2-Phenanthrene/anthracenes	ug/kg	96	180 J [180]	21	350	48
C3-Chrysenes	ug/kg	23	67 J [52]	8.3	60	17
C3-Fluoranthenes/Pyrenes	ug/kg	38	96 J [93]	15	100	26
C3-Fluorenes	ug/kg	59	1.2 U [5.3 U]	1.2 U	120	6.7
C3-Naphthalene	ug/kg	97	36 J [43]	5.4	170	16
C3-Phenanthrene/anthracenes	ug/kg	80	99 J [87]	12	300	25
C4-Chrysenes	ug/kg	14	23 J [5.3 U]	5.7	30	9
C4-Naphthalene	ug/kg	150	26 J [29]	5.7	350	12
C4-Phenanthrenes/anthracenes	ug/kg	1.7 U	1.2 U [5.3 U]	1.2 U	190	0.9 U
Caprolactam	ug/kg	83 UJ	58 U [53 U]	58 U	67 UJ	45 U
Carbazole	ug/kg	41 UJ	200 [120]	29 U	39 J	23 U
Chrysene	ug/kg	70 J-	270 J [380]	41 J-	94 J-	110
Dibenzo(a,h)anthracene	ug/kg	9.6 J-	78 J [57]	7.6 J-	15 J-	18 J-
Dibenzofuran	ug/kg	41 UJ	150 J [84 J]	29 U	33 UJ	23 U
Diethyl phthalate	ug/kg	170 UJ	120 U [110 U]	120 U	130 UJ	90 U
Dimethylphthalate	ug/kg	170 UJ	120 U [110 U]	120 U	130 UJ	90 U

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED151 0 - 0.5 09/21/15 South	NB03SED152 0 - 0.5 09/30/15 South	NB03SED153 0 - 0.5 09/24/15 South	NB03SED154 0 - 0.5 09/21/15 South	NB03SED155 0 - 0.5 09/21/15 South
	Units	NB03SED-CHM151	NB03SED-CHM152	NB03SED-CHM153	NB03SED-CHM154	NB03SED-CHM155
Di-n-Butylphthalate	ug/kg	170 UJ	120 U [110 U]	120 U	130 UJ	90 U
Di-n-Octylphthalate	ug/kg	170 UJ	120 U [110 U]	120 U	130 UJ	90 U
Fluoranthene	ug/kg	130 J-	290 J [560 J]	60 J-	140 J-	160
Fluorene	ug/kg	6.9	17 J [31 J]	1.7 J	9.7 J-	8.4
Hexachlorobutadiene	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
Hexachlorocyclopentadiene	ug/kg	410 UJ	290 U [260 U]	290 U	330 UJ	230 U
Hexachloroethane	ug/kg	83 UJ	58 U [53 U]	58 U	67 UJ	45 U
Indeno(1,2,3-cd)pyrene	ug/kg	40 J-	220 J [220]	33 J-	59 J-	72 J-
Isophorone	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
Naphthalene	ug/kg	7	42 J [67]	5.6	16 J-	17
Nitrobenzene	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
N-Nitroso-di-n-propylamine	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
N-Nitrosodiphenylamine	ug/kg	41 UJ	29 U [26 U]	29 U	33 UJ	23 U
Pentachlorophenol	ug/kg	83 UJ	58 U [53 U]	58 U	67 UJ	45 U
Perylene	ug/kg	15	57 J [80]	11	23	28
Phenanthrene	ug/kg	58	220 J [340]	22	83 J-	76
Phenol	ug/kg	41 UJ	46 J [26 U]	29 U	33 UJ	23 U
Pyrene	ug/kg	140 J-	470 J [630]	71 J-	170 J-	180
Pyridine	ug/kg	170 UJ	120 U [110 U]	120 U	130 UJ	90 U
Total HMW PAHs	ug/kg	650 J	2,500 J [3,300 J]	400 J	860 J	1,000 J
Total LMW PAHs	ug/kg	120	440 J [660 J]	54 J	180 J	160
TOTAL PAHs	ug/kg	770 J	2,900 J [4,000 J]	460 J	1,000 J	1,200 J
Volatiles						
1,2,4-Trichlorobenzene	ug/kg	250 UJ	2 UJ [2 U]	2 U	200 UJ	1 U
1,2-Dichlorobenzene	ug/kg	250 UJ	2 U [2 U]	2 U	200 UJ	1 U
1,3-Dichlorobenzene	ug/kg	250 UJ	2 U [2 U]	2 U	200 UJ	1 U
1,4-Dichlorobenzene	ug/kg	250 UJ	2 U [2 U]	2 U	200 UJ	1 U
TPH						
PHC AS GASOLINE	mg/kg	60	3.2 U [3.5 U]	3.3 U	100 D	2.8 U
Total Petroleum Hydrocarbons (C9-C40)	mg/kg	141 J	90.9 J [115 J]	90.3 J	780 J	38.9 J
Grain Size						
0.001 mm	% passing	5	0.5 [0.5 U]	4	6	2
0.002 mm	% passing	9	5 [2]	7	10	2
0.02 mm	% passing	36	16 [10]	24	45	6
0.05 mm	% passing	57	23 [17]	40	57	10
0.064 mm	% passing	65	27 [23]	46	61	14
0.3 mm	% passing	87.2	92.9 [91.2]	89.2	94.1	76
3.35 mm	% passing	99.1	99.5 [99.2]	97.9	99.7	95.1
75000 um	% passing	100	100 [100]	100	100	100
Hydrometer Reading, Percent Finer Than 0.0050 mm	% passing	15	8 [7]	13	17	3
Sieve No. 4, Percent Passing	% passing	99.7	99.8 [99.6]	99.3	99.9	97.6
Sieve No. 8, Percent Passing	% passing	97.5	98.9 [98.5]	94.7	99.1	91.4
Sieve No. 16, Percent Passing	% passing	94.6	98.7 [98.2]	92.8	98.2	88.8

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED151 0 - 0.5 09/21/15 South NB03SED-CHM151	NB03SED152 0 - 0.5 09/30/15 South NB03SED-CHM152	NB03SED153 0 - 0.5 09/24/15 South NB03SED-CHM153	NB03SED154 0 - 0.5 09/21/15 South NB03SED-CHM154	NB03SED155 0 - 0.5 09/21/15 South NB03SED-CHM155
Sieve No. 30, Percent Passing	% passing	90.2	98.2 [97.6]	91.8	96.9	84.5
Sieve No. 100, Percent Passing	% passing	81.9	62.8 [60.7]	81.9	82.9	52.4
Sieve No. 200, Percent Passing	% passing	69.7	29.8 [27.4]	50.8	64.9	17.4
Sieve 19000 Microns, Percent Passing	% passing	100	100 [100]	100	100	100
Sieve 37500 Microns, Percent Passing	% passing	100	100 [100]	100	100	100
Physical Properties						
Moisture (water) Content	%	60	42.9 [37.2]	43.1	50.5	26.5
Oxidation Reduction Potential	mV	50.5 J	76 [80.5]	65.5	82.5 J	68.5 J
Percent Moisture	%	63.8	29.2 [35.5]	32.7	62.9	29.1
Total Solids (Percent)	%	43.2 Z	63.2 Z [63.1 Z]	57 Z	49.6 Z	68.8 Z
Water Content	%	150	75.2 [59.2]	75.8	102	36
Water Content ASTM D2216	%	176	41.2 [55]	48.6	170	41
TOC by Lloyd Kahn	mg/kg	41,100 J	28,000 J [105,000 J]	27,100 J	151,000 J	3,170 J
pH	pH Units	7.56	7.69 [7.99]	7.5	7.44	7.94
Miscellaneous Chemicals						
Total Kjeldahl Nitrogen	mg/kg	604	1,360 J [1,000]	626	1,540 B	434
Total Cyanide	mg/kg	0.72 BJ	0.3 U [0.27 U]	0.3 U	0.44 BJ	0.24 U
Ammonia Nitrogen	mg/kg	128 U	149 U [135 U]	94.4 B	108 B	116 U
Phosphorus	mg/kg	2,090	966 J [925]	646	1,020	433

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED156 0 - 0.5 09/18/15 Central NB03SED-CHM156	NB03SED157 0 - 0.5 09/17/15 Central NB03SED-CHM157	NB03SED158 0 - 0.5 09/25/15 North NB03SED-CHM158	NB03SED159 0 - 0.5 09/25/15 North NB03SED-CHM159	NB03SED160 0 - 0.5 09/29/15 North NB03SED-CHM160
Dioxins/Furans						
1,2,3,4,6,7,8-HpCDD	ng/kg	237 JB	257 JB	46 JB	193 JB	257 JB
1,2,3,4,6,7,8-HpCDF	ng/kg	147 JB	282 JB	53.6 JB	366 JB	221 JB
1,2,3,4,7,8,9-HpCDF	ng/kg	7.32 J	11.6 J	2.12 JB	13.8 JB	7.94 JB
1,2,3,4,7,8-HxCDD	ng/kg	3.47 J	3.97 J	0.808 JB	3.22 JB	3.37 JB
1,2,3,4,7,8-HxCDF	ng/kg	31.5 BCJ	75.8 BCJ	15.1 BCJ	103 JBC	48.5 JBC
1,2,3,6,7,8-HxCDD	ng/kg	13.6 J	15 J	2.97 JB	12 JB	21.4 JB
1,2,3,6,7,8-HxCDF	ng/kg	9.57 BCJ	16.9 BCJ	3.69 JB	18.6 BC	14.4 JBC
1,2,3,7,8,9-HxCDD	ng/kg	9.07 BJ	10.1 BJ	1.83 J	7.42 J	11.9 J
1,2,3,7,8,9-HxCDF	ng/kg	2.32 JB	4.04 JB	0.89 JB	0.087 UJ	0.188 UJ
1,2,3,7,8-PeCDD	ng/kg	3.24 JQ	3.85 J	0.881 JB	2.89 JBQ	6.63 JQB
1,2,3,7,8-PeCDF	ng/kg	6.59 BCJ	8.12 BCJ	2.21 JB	6.79 JBC	6.95 JBC
2,3,4,6,7,8-HxCDF	ng/kg	5.47 BC	8.41 BC	2.51 JB	7.86 C	7.94 C
2,3,4,7,8-PeCDF	ng/kg	10.3 BC	15.1 BC	4.8 JB	16.4 BC	15.4 BC
2,3,7,8-TCDD	ng/kg	33.6 J	71.6 J	22.5 JB	61.5 JB	83.9 JB
2,3,7,8-TCDF	ng/kg	13.8 C	13.6 C	4.09 C	9.48 JC	14.4 JC
OCDD	ng/kg	2,390 JB	2,570 JB	524 JB	2,080 JB	2,210 JB
OCDF	ng/kg	247 JB	466 JB	76.6 JB	653 JB	305 JB
Herbicides						
2,4,5-T	ug/kg	7.5 J	5.7 JPN	1.3 U	R	2.2 JPN
2,4,5-TP (Silvex)	ug/kg	2 UJ	1.7 UJ	1.2 U	1.5 U	1.4 U
2,4-D	ug/kg	32 UJ	26 UJ	20 U	23 U	22 U
2,4-DB	ug/kg	16 UJ	78 J	15 U	12 U	11 U
Metals						
Aluminum	mg/kg	17,100 J	14,500 J	6,500	10,500	8,220
Antimony	mg/kg	0.264 JB	0.514 J	0.449 J	0.517	0.673
Arsenic	mg/kg	11.2 J	10.6 J	8.48 J	8.11	7.87
Barium	mg/kg	108 J	104 J	58.1 J	100	128
Beryllium	mg/kg	0.874 J	0.791 J	0.368 J	0.599	0.82
Cadmium	mg/kg	0.486 J	0.966 J	0.458	0.766	2.52
Calcium	mg/kg	7,780 J	6,210 J	21,900 J	11,100	4,010
Chromium	mg/kg	69.2 J	86.2 J	46.5 J	65.8	121
Cobalt	mg/kg	11.2 J	10.8 J	5.36	8.06	11.3
Copper	mg/kg	75.7 J	95.8 J	46.1 J	65	155
Hexavalent Chromium	mg/kg	1.3 U	1.1 U	0.83 U	0.97 U	0.92 U
Iron	mg/kg	30,800 J	25,900 J	13,600	22,000	16,900
Lead	mg/kg	78.6 J	104 J	52.1	77.9	204
Magnesium	mg/kg	9,550 J	8,370 J	3,670	6,440	4,720
Manganese	mg/kg	541 J	356 J	196	300	199
Mercury	ng/g	1,050 J	1,580 J	613 J	903 J	2,970 J
Methyl Mercury	ng/g	1.93	1.48 J	1.7 J	1.05 J	2.19 J
Nickel	mg/kg	39.7 J	45.9 J	19	32.2	52.7
Potassium	mg/kg	4,490 J	3,550 J	1,540	2,470	2,120

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	Units	NB03SED-CHM156	NB03SED-CHM157	NB03SED-CHM158	NB03SED-CHM159	NB03SED-CHM160
Selenium	mg/kg	0.666 JB	0.682 JB	0.31 B	0.365 B	0.628 B
Silver	mg/kg	1.18 J	1.48 J	0.55	1.14	2.12
Sodium	mg/kg	12,600 J	10,200 J	4,660	7,540	8,000
Thallium	mg/kg	0.246 JB	0.202 JB	0.166	0.143 B	0.197
Titanium	mg/kg	593 J	524 J	282 J	385	342
Vanadium	mg/kg	39.5 J	35.2 J	16.5	27.4	22.3
Zinc	mg/kg	185 J	210 J	98.1 J	158	346
AVS/SEM						
Acid Volatile Sulfide (AVS)	umol/g	4.2	16.2	3.5	30.1	5.8
Cadmium	umol/g	0.00189	0.0029	0.00169	0.00319	0.00837
Copper	umol/g	0.265	0.283	0.219	0.306	0.473
Lead	umol/g	0.122	0.168	0.096	0.164	0.301
Mercury	umol/g	0.0000074 U	0.0000072 U	0.0000073 U	0.0000073 U	0.0000072 U
Nickel	umol/g	0.11	0.087	0.0537	0.0908	0.174
Zinc	umol/g	0.685	0.932	0.598	0.964	1.84
TEPH Alkanes						
2,6,10,14-Tetramethyl Pentadecane	mg/kg	0.0446 UJ	0.0685 J	0.0281 UJ	0.0329 UJ	0.031 UJ
2,6,10,14-Tetramethylhexadecane	mg/kg	0.0289 UJ	0.0244 UJ	0.0654 J	0.0213 UJ	0.02 UJ
Dotriacontane	mg/kg	0.0341 UJ	0.184 J	0.403 J	0.0785 J	0.0237 UJ
Heneicosane	mg/kg	0.0294 J	0.0638 J	0.0182 UJ	0.0213 UJ	0.02 UJ
Heptacosane	mg/kg	0.084 UJ	0.0736 J	0.066 J	0.0619 UJ	0.0583 UJ
Heptadecane	mg/kg	0.0473 UJ	0.0399 UJ	0.0788 J	0.0348 UJ	0.164 J
Heptatriacontane, -n	mg/kg	0.0289 UJ	0.0244 UJ	0.0205 J	0.0241 J	0.028 J
Hexatriacontane	mg/kg	0.0289 UJ	0.205 J	0.0648 J	0.0475 J	0.02 UJ
Hhentriacontane	mg/kg	0.146 J	0.259 J	0.0268 UJ	0.085 J	0.0478 J
n-Decane	mg/kg	0.0389 UJ	0.0328 UJ	0.0245 UJ	0.0286 UJ	0.0269 UJ
n-Docosane	mg/kg	0.0289 UJ	0.0244 UJ	0.618 J	0.0213 UJ	0.0227 J
n-Dodecane	mg/kg	0.0289 UJ	0.0244 UJ	0.0182 UJ	0.0213 UJ	0.02 UJ
n-Eicosane	mg/kg	0.0315 UJ	0.0275 J	0.0198 UJ	0.0232 UJ	0.0219 UJ
n-Hexacosane	mg/kg	0.0499 UJ	0.0422 UJ	0.0314 UJ	0.0367 UJ	0.0346 UJ
n-Hexadecane	mg/kg	0.0289 UJ	0.0244 UJ	0.0429 J	0.0213 UJ	0.02 UJ
n-Nonane	mg/kg	0.0289 UJ	0.0291 J	0.0182 UJ	0.0213 UJ	0.02 UJ
n-Octacosane	mg/kg	0.0289 UJ	0.425 J	1.19 J	0.179 J	0.0657 J
n-Octadecane	mg/kg	0.0394 UJ	0.0428 J	0.0492 J	0.029 UJ	0.0322 J
Nonacosane	mg/kg	0.212 J	0.234 J	0.223 J	0.0213 UJ	0.0532 J
Nonadecane	mg/kg	0.042 UJ	0.0355 UJ	0.0265 UJ	0.0309 UJ	0.0291 UJ
Nonatriacontane	mg/kg	0.0525 UJ	0.0444 UJ	0.0331 UJ	0.0387 UJ	0.0364 UJ
n-Tetracosane	mg/kg	0.114 J	0.0489 J	0.27 J	0.024 J	NA
n-Tetradecane	mg/kg	0.0534 J	0.0389 J	0.0776 J	0.0847 J	0.0812 J
n-Triacontane	mg/kg	0.138 J	0.212 J	0.0334 UJ	0.0391 UJ	0.0922 J
n-Tridecane	mg/kg	0.0289 UJ	0.0244 UJ	0.0182 UJ	0.0213 UJ	0.02 UJ
n-Undecane	mg/kg	0.053 UJ	0.0448 UJ	0.0334 UJ	0.0391 UJ	0.0368 UJ
Octatriacontane	mg/kg	0.0394 UJ	0.0333 UJ	0.0248 UJ	0.0358 J	0.0273 UJ

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Pentacosane	mg/kg	0.047 J	0.086 J	0.0182 UJ	0.0449 J	0.02 UJ
Pentadecane	mg/kg	0.0289 UJ	0.0244 UJ	0.0182 UJ	0.0213 UJ	0.02 UJ
Pentatriacontane	mg/kg	0.0289 UJ	0.0447 J	0.0744 J	0.0213 UJ	0.02 UJ
Tetracontane	mg/kg	0.0311 J	0.0513 J	0.0775 J	0.0439 J	0.02 UJ
Tetatriacontane	mg/kg	0.0341 UJ	0.0289 UJ	0.0215 UJ	0.0251 UJ	0.0237 UJ
Tricosane	mg/kg	0.0574 J	0.101 J	0.316 J	0.03 J	0.0255 UJ
Tritriacontane	mg/kg	0.0578 UJ	0.0488 UJ	0.0364 UJ	0.0425 UJ	0.0401 UJ
Butyltins						
Dibutyltin	ug/kg	3.4 UJ	3.2 UJ	1.9 U	2.6 UJ	8.5
Monobutyltin	ug/kg	54 UJCN	51 UJCN	30 UCN	42 UJCN	38 UCN
Tetrabutyltin	ug/kg	4.4 UJ	4.1 UJ	2.5 U	3.5 UJ	3.1 U
Tributyltin	ug/kg	3.9 UJ	3.7 UJ	2.2 U	3.1 UJ	6
PCB Congeners						
PCB-1	ng/kg	803 EJ	486 EJ	213 J	103 J	172 J
PCB-2	ng/kg	45.6 J	55.6 J	30 J	20 J	113 J
PCB-3	ng/kg	162 J	148 J	R	R	167 J
PCB-4	ng/kg	884 EJ	835 EJ	415 BEJ	210 BJ	1,280 EJ
PCB-5	ng/kg	1.64 J	2.37 J	3.47 J	2.98 J	24.3 J
PCB-6	ng/kg	127 J	109 J	120 J	70.9 J	278 J
PCB-7	ng/kg	8.89 J	10.6 J	14 J	8.26 J	63.6 J
PCB-8	ng/kg	557 EJ	710 EJ	448 BEJ	262 BJ	1,630 BEJ
PCB-9	ng/kg	13.9 J	15.5 J	21.6 J	12.5 J	87.2 J
PCB-10	ng/kg	67.1 J	36.8 J	55.2 J	20.9 J	61.4 J
PCB-11	ng/kg	161 J	158 J	417 BEJ	151 BJ	1,600 BEJ
PCB-12/13	ng/kg	121 J	94.7 J	185 J	91.7 J	292 J
PCB-14	ng/kg	0.81 UJ	0.782 UJ	0.774 UJ	0.82 UJ	1.71 J
PCB-15	ng/kg	746 EJ	773 EJ	951 BEJ	456 BEJ	1,340 BEJ
PCB-16	ng/kg	72.3 BJ	133 BJ	281 J	158 J	1,730 BEJ
PCB-17	ng/kg	162 J	206 J	461 EJ	241 J	1,770 EJ
PCB-18/30	ng/kg	207 J	318 J	684 BEJ	365 BJ	3,240 BEJ
PCB-19	ng/kg	90.2 J	147 J	128 J	62.5 J	455 EJ
PCB-20/28	ng/kg	685 BEJ	860 BEJ	2,510 EJ	1,170 EJ	5,190 EJ
PCB-21/33	ng/kg	101 J	220 J	453 J	267 J	1,960 EJ
PCB-22	ng/kg	122 J	213 J	557 EJ	287 J	1,520 EJ
PCB-23	ng/kg	0.708 UJ	0.684 UJ	1.27 J	0.879 J	5.29 J
PCB-24	ng/kg	2.92 J	3.37 J	0.968 UJ	1.02 UJ	48.4 J
PCB-25	ng/kg	92.1 J	103 J	260 J	134 J	462 EJ
PCB-26/29	ng/kg	153 J	176 J	408 J	207 J	844 EJ
PCB-27	ng/kg	50.2 J	47.8 J	133 J	56 J	312 EJ
PCB-31	ng/kg	523 EJ	833 EJ	1,400 EJ	671 EJ	3,810 EJ
PCB-32	ng/kg	152 J	261 J	354 EJ	178 J	1,260 EJ
PCB-34	ng/kg	4.61 J	4.78 J	12.9 J	6.96 J	22 J
PCB-35	ng/kg	19.6 J	22.5 J	76.5 J	23.6 J	118 J

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PCB-36	ng/kg	1.65 J	1.22 J	2.97 J	0.82 UJ	3.72 J
PCB-37	ng/kg	170 J	262 J	635 EJ	268 J	1,210 EJ
PCB-38	ng/kg	0.708 UJ	0.684 UJ	1.17 J	0.717 UJ	1.45 J
PCB-39	ng/kg	3.54 J	4.26 J	12 J	5.72 J	17 J
PCB-40/71	ng/kg	133 J	254 J	740 J	331 J	1,950 EJ
PCB-41	ng/kg	9.21 J	22.9 J	62 J	30.2 J	293 J
PCB-42	ng/kg	81.8 J	173 J	479 J	230 J	1,350 EJ
PCB-43	ng/kg	8.44 J	21.5 J	63 J	32.5 J	204 J
PCB-44/47/65	ng/kg	258 J	529 J	1,710 J	809 J	4,040 EJ
PCB-45	ng/kg	21.3 J	53.4 J	190 J	95.7 J	620 EJ
PCB-46	ng/kg	10.5 J	22.8 J	81.5 J	40.2 J	230 J
PCB-48	ng/kg	34.2 J	84.7 J	238 J	128 J	863 EJ
PCB-49/69	ng/kg	202 J	396 J	1,090 J	543 J	2,730 EJ
PCB-50/53	ng/kg	34.8 J	66.3 J	238 J	122 J	576 J
PCB-51	ng/kg	18 J	40.9 J	158 J	87.5 J	212 J
PCB-52	ng/kg	234 BJ	496 BJ	1,710 BEJ	801 BEJ	4,180 BEJ
PCB-54	ng/kg	1.42 UJ	13 J	16.5 J	9.84 J	21.9 J
PCB-55	ng/kg	2.84 J	4.64 J	1.16 UJ	3.92 J	44.2 J
PCB-56	ng/kg	131 J	285 J	711 EJ	261 J	1,580 EJ
PCB-57	ng/kg	2.29 J	4.33 J	9.43 J	3.16 J	17.3 J
PCB-58	ng/kg	1.83 J	2.74 J	7.75 J	2.83 J	10.4 J
PCB-60	ng/kg	39.5 J	86.4 J	261 J	114 J	719 EJ
PCB-61/70/74/76	ng/kg	419 J	890 J	2,190 J	771 J	5,330 EJ
PCB-62/75	ng/kg	24.7 J	48.4 J	155 J	68.7 J	404 J
PCB-63	ng/kg	12.8 J	25 J	55.4 J	21.2 J	144 J
PCB-64	ng/kg	111 J	237 J	640 EJ	284 J	1,990 EJ
PCB-66	ng/kg	286 BJ	593 BEJ	1,450 EJ	490 J	3,060 EJ
PCB-67	ng/kg	9.05 J	19.3 J	41.9 J	16.3 J	108 J
PCB-68	ng/kg	4.59 J	7.28 J	17.8 J	6.81 J	19.5 J
PCB-72	ng/kg	5.98 J	8.97 J	21.4 J	9.09 J	28.2 J
PCB-73	ng/kg	1.42 UJ	1.37 UJ	1.35 UJ	1.43 UJ	11.5 J
PCB-77	ng/kg	R	R	223 J	87.7 J	413 J
PCB-78	ng/kg	1.62 UJ	1.56 UJ	1.55 UJ	1.64 UJ	1.6 UJ
PCB-79	ng/kg	2.51 J	3.78 J	14.9 J	6.54 J	27.1 J
PCB-80	ng/kg	1.11 UJ	1.08 UJ	1.06 UJ	2.78 J	1.1 UJ
PCB-81	ng/kg	1.82 UJ	1.76 UJ	6.32 J	2.57 J	13 J
PCB-82	ng/kg	23.1 J	55.4 J	170 J	72.8 J	449 J
PCB-83	ng/kg	9.81 J	29.6 J	75.2 J	38.7 J	152 J
PCB-84	ng/kg	50.1 J	113 J	1.06 UJ	1.13 UJ	682 EJ
PCB-85/116/117	ng/kg	37.6 J	88.8 J	278 J	119 J	708 J
PCB-86/87/97/109/119/125	ng/kg	117 J	292 J	916 J	386 J	2,220 J
PCB-88	ng/kg	2.23 UJ	2.15 UJ	2.13 UJ	2.25 UJ	2.2 UJ
PCB-89	ng/kg	2.96 J	1.27 UJ	14.6 J	4.79 J	44.2 J

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PCB-90/101/113	ng/kg	183 BJ	485 BJ	1,380 BJ	547 BJ	2,840 BEJ
PCB-91	ng/kg	42.1 J	90.9 J	226 J	64.3 J	467 J
PCB-92	ng/kg	37.7 J	96.8 J	259 J	85 J	475 J
PCB-93/100	ng/kg	7.79 UJ	20.4 J	65.5 J	17.2 J	59 J
PCB-94	ng/kg	2.63 J	6.14 J	14.5 J	5.41 J	26.1 J
PCB-95	ng/kg	R	R	1,050 EJ	446 J	2,370 EJ
PCB-96	ng/kg	1.91 J	5.55 J	12.5 J	5.39 J	32.2 J
PCB-98/102	ng/kg	10.7 J	29.1 J	57.4 J	20.3 J	127 J
PCB-99	ng/kg	114 J	275 J	865 EJ	339 J	1,700 EJ
PCB-103	ng/kg	4.22 J	11.1 J	34.9 J	9.22 J	30.1 J
PCB-104	ng/kg	1.42 UJ	2.51 J	5.84 J	2.79 J	5.05 J
PCB-105	ng/kg	67.2 J	160 J	559 J	1.74 UJ	1,260 EJ
PCB-106	ng/kg	1.72 UJ	1.66 UJ	1.65 UJ	1.74 UJ	1.7 UJ
PCB-107	ng/kg	14.7 J	33.5 J	109 J	45.6 J	199 J
PCB-108/124	ng/kg	6.39 J	15.4 J	53.3 J	22.1 J	113 J
PCB-110/115	ng/kg	224 BJ	561 BJ	1,680 EJ	720 J	3,960 EJ
PCB-111	ng/kg	1.42 UJ	1.37 UJ	1.35 UJ	1.43 UJ	2.08 J
PCB-112	ng/kg	1.42 UJ	1.37 UJ	1.35 UJ	1.43 UJ	8.15 J
PCB-114	ng/kg	4.04 J	9.94 J	30.8 J	13.6 J	78.7 J
PCB-118	ng/kg	179 BJ	456 BJ	1,340 EJ	527 J	2,860 EJ
PCB-120	ng/kg	1.6 J	2.49 J	7.68 J	3.49 J	10.3 J
PCB-121	ng/kg	1.21 UJ	1.17 UJ	1.16 UJ	1.23 UJ	1.57 J
PCB-122	ng/kg	2.3 J	5.93 J	20.2 J	9.42 J	39.9 J
PCB-123	ng/kg	3.8 J	8.47 J	29.9 J	10.2 J	54.9 J
PCB-126	ng/kg	1.62 UJ	1.56 UJ	6.69 J	3.08 J	R
PCB-127	ng/kg	1.42 UJ	1.44 J	7.56 J	3.85 J	1.4 UJ
PCB-128/166	ng/kg	25.9 J	58.6 J	214 J	83.1 J	624 J
PCB-129/138/163	ng/kg	184 J	460 J	1,690 J	643 J	4,450 EJ
PCB-130	ng/kg	11.2 J	28.5 J	99.6 J	38.5 J	242 J
PCB-131	ng/kg	2.11 J	1.66 UJ	18.4 J	7.5 J	48.1 J
PCB-132	ng/kg	52.7 J	123 J	483 BJ	186 BJ	1,160 EJ
PCB-133	ng/kg	3.85 J	8.47 J	26.3 J	10.9 J	53.6 J
PCB-134	ng/kg	9.31 J	21.5 J	89.5 J	35 J	186 J
PCB-135/151	ng/kg	59.6 J	127 J	494 J	193 J	1,260 EJ
PCB-136	ng/kg	20 J	44.2 J	167 J	65.5 J	366 J
PCB-137	ng/kg	7.31 J	19.6 J	68.3 J	26.8 J	208 J
PCB-139/140	ng/kg	2.94 UJ	7.47 J	26.5 J	11.4 J	64.5 J
PCB-141	ng/kg	25 J	67.7 J	224 BJ	90.9 BJ	685 EJ
PCB-142	ng/kg	1.72 UJ	1.66 UJ	1.65 UJ	1.74 UJ	1.7 UJ
PCB-143	ng/kg	3.34 UJ	3.23 UJ	3.19 UJ	3.38 UJ	10.4 J
PCB-144	ng/kg	7.27 J	14.8 J	56.6 J	21.7 J	167 J
PCB-145	ng/kg	1.62 UJ	1.56 UJ	1.55 UJ	1.64 UJ	1.6 UJ
PCB-146	ng/kg	R	R	252 J	96.2 J	515 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED156 0 - 0.5 09/18/15 Central NB03SED-CHM156	NB03SED157 0 - 0.5 09/17/15 Central NB03SED-CHM157	NB03SED158 0 - 0.5 09/25/15 North NB03SED-CHM158	NB03SED159 0 - 0.5 09/25/15 North NB03SED-CHM159	NB03SED160 0 - 0.5 09/29/15 North NB03SED-CHM160
PCB-147/149	ng/kg	131 J	308 J	1,330 BEJ	489 BJ	2,610 BEJ
PCB-148	ng/kg	1.42 UJ	1.37 UJ	6.92 J	4.1 UJ	6.1 J
PCB-150	ng/kg	1.52 UJ	1.99 J	15.4 J	3.38 J	7.66 J
PCB-152	ng/kg	1.42 UJ	1.37 UJ	2.28 J	1.43 UJ	2.96 J
PCB-153/168	ng/kg	159 BJ	401 BJ	1,570 BEJ	558 BJ	3,300 BEJ
PCB-154	ng/kg	5.29 J	11.1 J	76.5 J	18.7 J	48.6 J
PCB-155	ng/kg	1.42 UJ	5.12 J	11.8 J	5.82 J	101 J
PCB-156/157	ng/kg	20.4 J	50.3 J	171 J	64.7 J	539 J
PCB-158	ng/kg	15.3 J	41.6 J	147 J	55.1 J	437 J
PCB-159	ng/kg	1.42 UJ	1.37 UJ	1.35 UJ	1.43 UJ	1.4 UJ
PCB-160	ng/kg	6.38 UJ	6.16 UJ	1,550 EJ	6.46 UJ	6.3 UJ
PCB-161	ng/kg	1.32 UJ	1.27 UJ	1.26 UJ	1.33 UJ	1.3 UJ
PCB-162	ng/kg	1.52 J	1.27 UJ	11.4 J	3.83 J	42.5 J
PCB-164	ng/kg	11.1 J	28.2 J	99.8 J	38.6 J	265 J
PCB-165	ng/kg	R	R	1.44 J	1.33 UJ	1.46 J
PCB-167	ng/kg	7.1 J	16.6 J	59.9 J	22 J	152 J
PCB-169	ng/kg	1.52 UJ	1.47 UJ	1.45 UJ	1.54 UJ	1.5 UJ
PCB-170	ng/kg	41.2 J	107 J	361 J	142 J	1,390 EJ
PCB-171/173	ng/kg	R	31.6 J	121 J	45.2 J	366 J
PCB-172	ng/kg	8.05 J	20.2 J	67.4 J	28.2 J	242 J
PCB-174	ng/kg	R	95.1 J	339 J	137 J	1,170 EJ
PCB-175	ng/kg	R	R	18.2 J	7.29 J	57.4 J
PCB-176	ng/kg	5.59 J	14.2 J	49 J	18.5 J	145 J
PCB-177	ng/kg	R	67.6 J	253 J	94 J	753 EJ
PCB-178	ng/kg	12.1 J	30.2 J	98.8 J	36.3 J	286 J
PCB-179	ng/kg	20.3 J	47.7 J	187 J	67.7 J	488 J
PCB-180/193	ng/kg	93.6 J	262 J	883 J	344 J	3,400 EJ
PCB-181	ng/kg	R	1.27 UJ	1.26 UJ	2.1 J	12.1 J
PCB-182	ng/kg	R	1.27 UJ	3.87 UJ	4.1 UJ	5.23 J
PCB-183/185	ng/kg	R	82.7 J	301 J	117 J	998 J
PCB-184	ng/kg	1.42 UJ	1.37 UJ	1.35 UJ	1.43 UJ	6.17 J
PCB-186	ng/kg	1.52 UJ	1.47 UJ	1.45 UJ	1.54 UJ	1.5 UJ
PCB-187	ng/kg	77.7 J	198 J	609 EJ	237 J	2,030 EJ
PCB-188	ng/kg	1.52 UJ	1.47 UJ	4.05 J	1.54 UJ	3.93 J
PCB-189	ng/kg	2.01 J	4.63 J	14.2 J	6.57 J	51.4 J
PCB-190	ng/kg	9.52 J	24.8 J	76.4 J	32.6 J	327 J
PCB-191	ng/kg	1.97 J	4.72 J	16.9 J	6.58 J	59.2 J
PCB-192	ng/kg	1.32 UJ	1.27 UJ	1.26 UJ	1.4 J	1.3 UJ
PCB-194	ng/kg	27.2 J	70.5 J	201 J	92.3 J	1,190 EJ
PCB-195	ng/kg	8.84 J	22.4 J	73.3 J	30.7 J	403 J
PCB-196	ng/kg	14.2 J	36.8 J	114 J	46.2 J	579 J
PCB-197/200	ng/kg	4.57 J	11.2 J	33.5 J	14.9 J	167 J
PCB-198/199	ng/kg	41.6 J	97.1 J	301 J	126 J	1,460 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED156 0 - 0.5 09/18/15 Central NB03SED-CHM156	NB03SED157 0 - 0.5 09/17/15 Central NB03SED-CHM157	NB03SED158 0 - 0.5 09/25/15 North NB03SED-CHM158	NB03SED159 0 - 0.5 09/25/15 North NB03SED-CHM159	NB03SED160 0 - 0.5 09/29/15 North NB03SED-CHM160
PCB-201	ng/kg	5.26 J	10.6 J	36.7 J	14.7 J	139 J
PCB-202	ng/kg	15.1 J	29.8 J	94.1 J	33.7 J	283 J
PCB-203	ng/kg	25.5 J	60 J	173 J	81.2 J	900 J
PCB-204	ng/kg	2.13 UJ	2.05 UJ	2.03 UJ	2.15 UJ	2.1 UJ
PCB-205	ng/kg	2.08 J	3.64 J	1.45 UJ	5.43 J	63.2 J
PCB-206	ng/kg	36.9 J	72.8 J	211 J	136 J	627 J
PCB-207	ng/kg	3.89 J	6.5 J	19.7 J	13.6 J	64.9 J
PCB-208	ng/kg	15.2 J	26.8 J	77.4 J	40.8 J	162 J
PCB-209	ng/kg	R	59.1 J	182 J	88.9 J	207 J
Total PCB Congeners (209)	ng/kg	10,800 J	17,800 J	47,000 J	19,300 J	119,000 J
Aroclor PCBs						
Aroclor-1016	ug/kg	9.5 U	8 U	6 U	6.9 U	6.6 U
Aroclor-1221	ug/kg	12 U	10 U	7.6 U	8.8 U	8.4 U
Aroclor-1232	ug/kg	21 U	18 U	13 U	15 U	15 U
Aroclor-1242	ug/kg	8.7 U	7.3 U	5.5 U	6.3 U	99
Aroclor-1248	ug/kg	8.7 U	88	45 PJ	77 J	6 U
Aroclor-1254	ug/kg	28 J	78	54 J	69	170 J
Aroclor-1260	ug/kg	13 U	31 J	8.1 U	34 J	240 J
Aroclor-1262	ug/kg	8.7 U	7.3 U	5.5 U	6.3 U	6 U
Aroclor-1268	ug/kg	8.7 U	7.3 U	5.5 U	6.3 U	6 U
Total Aroclor PCBs (Sum of 7 Aroclors)	ug/kg	28 J	200 J	99 PJ	180 J	510 J
Total Aroclor PCBs (Sum of 9 Aroclors)	ug/kg	28 J	200 J	99 PJ	180 J	510 J
Pesticides						
2,4'-DDD	pg/g	2,230 J	3,540 J	4,320	2,990	4,390
2,4'-DDE	pg/g	3,110 J	4,040 J	1,870	2,400	6,090
2,4'-DDT	pg/g	129 J	214 J	55.6 J	160	97.4
4,4'-DDD	pg/g	6,460 JB	9,560 JB	13,100	8,930	11,200
4,4'-DDE	pg/g	12,400 JB	17,000 JB	6,940	11,800	35,200 D
4,4'-DDT	pg/g	1,020 JB	903 JB	249 BJ	873 B	764 B
Aldrin	pg/g	R	5.37 UJD	R	R	R
Alpha-BHC	pg/g	24.8 J	33.6 J	55.8	37.9 J	80.8
Alpha-Chlordane	pg/g	2,220 J	4,310 J	988	4,010	3,010
Beta-BHC	pg/g	33.7 J	50.1 J	317 J	95.7	105
cis-Nonachlor	pg/g	633 J	1,200 J	289	1,190	1,520
Delta-BHC	pg/g	7.34 UJ	7.34 UJ	7.34 U	7.34 U	7.34 U
Dieldrin	pg/g	754 J	1,080 J	381	1,030	1,500
Endosulfan I	pg/g	20.5 UJ	20.5 UJ	20.5 U	20.5 U	20.5 U
Endosulfan II	pg/g	42.6 UJ	42.6 UJ	42.6 U	42.6 U	42.6 U
Endosulfan Sulfate	pg/g	44.7 UJ	44.7 UJ	44.7 U	44.7 UD	44.7 U
Endrin	pg/g	10.4 UJ	10.4 UJ	10.4 U	10.4 U	10.4 U
Endrin Aldehyde	pg/g	40.6 UJ	40.6 UJ	40.6 UJ	40.6 UJ	40.6 UJ
Endrin Ketone	pg/g	25.8 UJ	25.8 UJ	25.8 U	25.8 U	25.8 U
Gamma-BHC (Lindane)	pg/g	9.49 J	13.8 J	9.69 J	16.7 J	7.3 U

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED156 0 - 0.5 09/18/15 Central NB03SED-CHM156	NB03SED157 0 - 0.5 09/17/15 Central NB03SED-CHM157	NB03SED158 0 - 0.5 09/25/15 North NB03SED-CHM158	NB03SED159 0 - 0.5 09/25/15 North NB03SED-CHM159	NB03SED160 0 - 0.5 09/29/15 North NB03SED-CHM160
Heptachlor	pg/g	10.4 UJ	10.4 UJ	10.4 U	10.4 U	10.4 U
Heptachlor Epoxide	pg/g	90.5 J	105 J	40	83.2	9.35 U
Hexachlorobenzene	pg/g	607 JB	853 JB	1,590 B	820 B	2,250 B
Methoxychlor	pg/g	11.8 UJ	11.8 UJ	R	R	11.8 UJ
Mirex	pg/g	4.91 UJ	4.91 UJ	4.91 U	4.91 U	4.91 U
Nonachlor, trans-	pg/g	1,240 J	2,350 J	576	2,290	2,000
Oxychlorane	pg/g	11.4 UJ	11.4 UJ	11.4 U	11.4 U	11.4 U
trans-Chlordane	pg/g	2,000 J	3,970 J	954	3,730	4,690
trans-Heptachlor Epoxide	pg/g	230 J	201 J	12.9 U	12.9 U	364
Total Alpha + Gamma Chlordane	ppb	4.2 J	8.3 J	1.9	7.7	7.7
Total DDT (2,4)	ppb	5.5 J	7.8 J	6.2 J	5.6	11
Total DDT (4,4)	ppb	20 BJ	27 BJ	20 BJ	22 B	47 BD
Total DDT (2,4 & 4,4)	ppb	25 BJ	35 BJ	27 BJ	27 B	58 BD
Semivolatiles						
1,2,4,5-Tetrachlorobenzene	ug/kg	44 U	R	28 U	32 U	30 U
1,2-Diphenylhydrazine	ug/kg	44 U	R	28 U	32 U	30 U
1-Methylnaphthalene	ug/kg	1.7 UJ	4.8	11 J	1.3 U	1.2 U
2,2'-oxybis(1-Chloropropane)	ug/kg	44 U	R	28 U	32 U	30 U
2,3,4,6-Tetrachlorophenol	ug/kg	170 U	R	110 U	130 U	120 U
2,4,5-Trichlorophenol	ug/kg	44 U	R	28 U	32 U	30 U
2,4,6-Trichlorophenol	ug/kg	44 U	R	28 U	32 U	30 U
2,4-Dichlorophenol	ug/kg	44 U	R	28 U	32 U	30 U
2,4-Dimethylphenol	ug/kg	44 U	R	28 U	32 U	30 U
2,4-Dinitrophenol	ug/kg	790 U	R	500 U	580 U	540 U
2,4-Dinitrotoluene	ug/kg	170 U	R	110 U	130 U	120 U
2,6-Dinitrotoluene	ug/kg	44 U	R	28 U	32 U	30 U
2-Chloronaphthalene	ug/kg	17 U	R	11 U	13 U	12 U
2-Chlorophenol	ug/kg	44 U	R	28 U	32 U	30 U
2-Methylnaphthalene	ug/kg	2 J-	9.5	19	1.4 J	1.8 J
2-Methylphenol	ug/kg	44 U	R	28 U	32 U	30 U
2-Nitroaniline	ug/kg	44 U	R	28 U	32 U	30 U
2-Nitrophenol	ug/kg	44 U	R	28 U	32 U	30 U
3,3'-Dichlorobenzidine	ug/kg	260 U	R	170 U	190 U	180 U
3-Nitroaniline	ug/kg	170 U	R	110 U	130 U	120 U
4,6-Dinitro-2-methylphenol	ug/kg	440 U	R	280 U	320 U	300 U
4-Bromophenyl phenyl ether	ug/kg	44 U	R	28 U	32 U	30 U
4-Chloro-3-Methylphenol	ug/kg	44 U	R	28 U	32 U	30 U
4-Chloroaniline	ug/kg	87 U	R	55 U	64 U	60 U
4-Chlorophenyl phenyl ether	ug/kg	44 U	R	28 U	32 U	30 U
4-Methylphenol	ug/kg	44 U	R	2,500	32 U	30 U
4-Nitroaniline	ug/kg	170 U	R	110 U	130 U	120 U
4-Nitrophenol	ug/kg	440 U	R	280 U	320 U	300 U
Acenaphthene	ug/kg	1.7 UJ	5.6	21	4.1	1.9 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED156 0 - 0.5 09/18/15 Central	NB03SED157 0 - 0.5 09/17/15 Central	NB03SED158 0 - 0.5 09/25/15 North	NB03SED159 0 - 0.5 09/25/15 North	NB03SED160 0 - 0.5 09/29/15 North
	Units	NB03SED-CHM156	NB03SED-CHM157	NB03SED-CHM158	NB03SED-CHM159	NB03SED-CHM160
Acenaphthylene	ug/kg	5.2 J-	25	360	18	4.3
Acetophenone	ug/kg	44 U	R	45 J	32 U	30 U
Anthracene	ug/kg	5.7 J-	25	180	25	5.1
Atrazine	ug/kg	87 U	R	55 U	64 U	60 U
Benzaldehyde	ug/kg	170 U	R	110 U	130 U	120 U
Benzidine	ug/kg	1,800 U	R	1,200 U	1,400 U	1,300 U
Benzo(a)anthracene	ug/kg	18 J-	82 J-	800	81	18
Benzo(a)pyrene	ug/kg	24 J-	120 J-	1,400	91	21
Benzo(b)fluoranthene	ug/kg	17 J-	98 J-	780	71	21
Benzo(e)pyrene	ug/kg	16	78	770	54	15
Benzo(g,h,i)perylene	ug/kg	14 J-	72 J-	590	50	13
Benzo(j,k)fluoranthene	ug/kg	18 J-	78 J-	790	67	17
Benzoic Acid	ug/kg	440 U	R	280 U	320 U	300 U
Biphenyl	ug/kg	44 U	R	35 J	32 U	30 U
bis(2-Chloroethoxy)methane	ug/kg	44 U	R	28 U	32 U	30 U
bis(2-Chloroethyl)ether	ug/kg	44 U	R	28 U	32 U	30 U
bis(2-Ethylhexyl)phthalate	ug/kg	220 J	R	170 U	350	3,100
Butyl benzyl phthalate	ug/kg	170 U	R	110 U	130 U	120 U
C1-Chrysenes	ug/kg	18	85	1,600	61	17
C1-Fluoranthenes/Pyrenes	ug/kg	26	110	2,800	110	29
C1-Fluorenes	ug/kg	2.8 J	9.6	69	10	3 J
C1-Naphthalenes	ug/kg	2.8 J	13	30	1.8 J	2 J
C1-Phenanthrenes/Anthracenes	ug/kg	13	38	550	42	13
C2-Chrysenes	ug/kg	12	57	1,100	44	14
C2-Fluoranthenes/Pyrenes	ug/kg	15	67	1,500	52	19
C2-Fluorenes	ug/kg	3.2 J	11	260	10	1.2 U
C2-Naphthalenes	ug/kg	3.2 J	16	130	4.5	3 J
C2-Phenanthrene/anthracenes	ug/kg	13	46	1,400	46	15
C3-Chrysenes	ug/kg	6.1	31	420	18	7.3
C3-Fluoranthenes/Pyrenes	ug/kg	6.9	30	610	20	11
C3-Fluorenes	ug/kg	1.7 U	11	320	1.3 U	1.2 U
C3-Naphthalene	ug/kg	3.4 J	10	140	9	5.4
C3-Phenanthrene/anthracenes	ug/kg	9.1	32	1,000	26	14
C4-Chrysenes	ug/kg	1.7 U	11	120	1.3 U	4.7
C4-Naphthalene	ug/kg	3.3 J	11	210	9	5.8
C4-Phenanthrenes/anthracenes	ug/kg	1.7 U	1.5 U	370	1.3 U	1.2 U
Caprolactam	ug/kg	87 U	R	55 U	64 U	60 U
Carbazole	ug/kg	44 U	R	28 U	32 U	30 U
Chrysene	ug/kg	21 J-	100 J-	760	82	20
Dibenzo(a,h)anthracene	ug/kg	4 J-	21 J-	230	17	3.8
Dibenzofuran	ug/kg	44 U	R	29 J	32 U	30 U
Diethyl phthalate	ug/kg	170 U	R	110 U	130 U	120 U
Dimethylphthalate	ug/kg	170 U	R	110 U	130 U	120 U

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED156 0 - 0.5 09/18/15 Central	NB03SED157 0 - 0.5 09/17/15 Central	NB03SED158 0 - 0.5 09/25/15 North	NB03SED159 0 - 0.5 09/25/15 North	NB03SED160 0 - 0.5 09/29/15 North
	Units	NB03SED-CHM156	NB03SED-CHM157	NB03SED-CHM158	NB03SED-CHM159	NB03SED-CHM160
Di-n-Butylphthalate	ug/kg	170 U	R	110 U	130 U	120 U
Di-n-Octylphthalate	ug/kg	170 U	R	110 U	130 U	250 J
Fluoranthene	ug/kg	26 J-	100 J-	810	110	36
Fluorene	ug/kg	1.7 UJ	5.6	41	2.9 J	2.7 J
Hexachlorobutadiene	ug/kg	44 U	R	28 U	32 U	30 U
Hexachlorocyclopentadiene	ug/kg	440 U	R	280 U	320 U	300 U
Hexachloroethane	ug/kg	87 U	R	55 U	64 U	60 U
Indeno(1,2,3-cd)pyrene	ug/kg	15 J-	78 J-	630	58	14
Isophorone	ug/kg	44 U	R	28 U	32 U	30 U
Naphthalene	ug/kg	4.2 J-	40	55	3.2 J	3.7
Nitrobenzene	ug/kg	44 U	R	28 U	32 U	30 U
N-Nitroso-di-n-propylamine	ug/kg	44 U	R	28 U	32 U	30 U
N-Nitrosodiphenylamine	ug/kg	44 U	R	28 U	32 U	30 U
Pentachlorophenol	ug/kg	87 U	R	55 U	64 U	60 U
Perylene	ug/kg	5.6	27	230	21	5
Phenanthrene	ug/kg	9.8 J-	39	81	26	16
Phenol	ug/kg	44 U	R	28 U	32 U	30 U
Pyrene	ug/kg	28 J-	120 J-	1,700	120	35
Pyridine	ug/kg	170 U	R	110 U	130 U	120 U
Total HMW PAHs	ug/kg	190 J	870 J	8,500	750	200
Total LMW PAHs	ug/kg	27 J	150	760	81 J	36 J
TOTAL PAHs	ug/kg	210 J	1,000 J	9,200	830 J	230 J
Volatiles						
1,2,4-Trichlorobenzene	ug/kg	3 U	3 U	2 U	3 UJ	2 U
1,2-Dichlorobenzene	ug/kg	3 U	3 U	2 U	3 UJ	2 U
1,3-Dichlorobenzene	ug/kg	3 U	3 U	2 U	3 UJ	2 U
1,4-Dichlorobenzene	ug/kg	3 U	3 U	2 U	4 J	2 U
TPH						
PHC AS GASOLINE	mg/kg	7.4 U	7.5 U	3.6 U	6.4 UJ	3.6 U
Total Petroleum Hydrocarbons (C9-C40)	mg/kg	74.2 J	122 J	131 J	9.35 J	51.3 J
Grain Size						
0.001 mm	% passing	7	6	0.5 U	3	0.5 U
0.002 mm	% passing	15	13	2	6	4
0.02 mm	% passing	56	51	10	26	21
0.05 mm	% passing	75	76	14	41	39
0.064 mm	% passing	85	85	18	49	50
0.3 mm	% passing	96.1	96	81.5	83.9	94.5
3.35 mm	% passing	99.8	99.7	93.2	99.1	99.2
75000 um	% passing	100	100	100	100	100
Hydrometer Reading, Percent Finer Than 0.0050 mm	% passing	24	23	6	10	8
Sieve No. 4, Percent Passing	% passing	100	100	95.8	99.9	99.6
Sieve No. 8, Percent Passing	% passing	99.1	99	90.4	96.6	98
Sieve No. 16, Percent Passing	% passing	98.1	98.2	88.7	95.4	97.2

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED156 0 - 0.5 09/18/15 Central NB03SED-CHM156	NB03SED157 0 - 0.5 09/17/15 Central NB03SED-CHM157	NB03SED158 0 - 0.5 09/25/15 North NB03SED-CHM158	NB03SED159 0 - 0.5 09/25/15 North NB03SED-CHM159	NB03SED160 0 - 0.5 09/29/15 North NB03SED-CHM160
Sieve No. 30, Percent Passing	% passing	97.2	97.2	86.9	91.6	96.4
Sieve No. 100, Percent Passing	% passing	94.4	94.5	55	76.3	84.2
Sieve No. 200, Percent Passing	% passing	89.9	90.3	20.7	52.9	56.8
Sieve 19000 Microns, Percent Passing	% passing	100	100	100	100	100
Sieve 37500 Microns, Percent Passing	% passing	100	100	100	100	100
Physical Properties						
Moisture (water) Content	%	62.1	55.3	40.1	48.7	45.5
Oxidation Reduction Potential	mV	26.5	65.5	122	102	124
Percent Moisture	%	57.7	59.1	31.3	55.3	34.4
Total Solids (Percent)	%	38.6 Z	43.3 Z	61 Z	50.9 Z	57 Z
Water Content	%	164	124	66.9	94.8	83.5
Water Content ASTM D2216	%	136	145	45.5	124	52.5
TOC by Lloyd Kahn	mg/kg	31,900 J	25,700 J	27,000 J	38,700 J	27,200
pH	pH Units	7.66	7.6	8.6	8.48	7.5
Miscellaneous Chemicals						
Total Kjeldahl Nitrogen	mg/kg	2,070 B	2,370	807	1,240	969
Total Cyanide	mg/kg	0.46 UJ	0.39 UJ	0.28 U	0.34 U	0.32 U
Ammonia Nitrogen	mg/kg	215 B	132 B	85.1 U	99.4 U	93.6 U
Phosphorus	mg/kg	1,460	765	657	1,040	786

Table E-1
Surface Sediment Analytical Results

Location ID:		NB03SED161	NB03SED162	NB03SED163	NB03SED164	NB03SED165
Sample Depth(ft):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Date Processed:		09/16/15	09/22/15	09/23/15	09/14/15	09/14/15
Zone:		North	North	North	North	North
Sample Name:	Units	NB03SED-CHM161	NB03SED-CHM162	NB03SED-CHM163	NB03SED-CHM164	NB03SED-CHM165
Dioxins/Furans						
1,2,3,4,6,7,8-HpCDD	ng/kg	486 JB	257 BJ	184 BJ	83.1 B	322 JB
1,2,3,4,6,7,8-HpCDF	ng/kg	405 JB	545 BJ	830 BJ	176 JB	846 JB
1,2,3,4,7,8,9-HpCDF	ng/kg	16.1 J	19.9 BJ	26.2 BJ	5.48 J	29.2 J
1,2,3,4,7,8-HxCDD	ng/kg	6.82 J	4.08 J	3.41 J	1.44 J	5.22 J
1,2,3,4,7,8-HxCDF	ng/kg	101 BCJ	157 BCJ	242 BCJ	50.7 BC	225 BCJ
1,2,3,6,7,8-HxCDD	ng/kg	24.2 J	16.1 BJ	12 BJ	5.42	19.2 J
1,2,3,6,7,8-HxCDF	ng/kg	24.3 BCJ	30.1 BCJ	45.6 BCJ	11.6 BC	45 BCJ
1,2,3,7,8,9-HxCDD	ng/kg	21.9 JB	9.55 BJ	6.73 BJ	3.39 JB	11.8 JB
1,2,3,7,8,9-HxCDF	ng/kg	4.86 JB	0.329 UCJ	2.76 BCJ	2.03 JB	0.261 UC
1,2,3,7,8-PeCDD	ng/kg	7.68 J	3.95 JB	3.58 JB	1.39 JQ	5.66 J
1,2,3,7,8-PeCDF	ng/kg	9.92 BCJ	11.7 BCJ	13.2 BCJ	4.99 BC	12.3 BCJ
2,3,4,6,7,8-HxCDF	ng/kg	12.4 BC	11.9 BCJ	13.7 BCJ	5.06 BC	18.3 BC
2,3,4,7,8-PeCDF	ng/kg	20.5 BC	24.7 BCJ	29.1 BCJ	10 BC	33.5 BC
2,3,7,8-TCDD	ng/kg	137 J	59.2 J	58.6 J	48.2	101 J
2,3,7,8-TCDF	ng/kg	19.7 JC	15.9 CJ	12 CJ	6.72 C	18.8 CJ
OCDD	ng/kg	NA	2,790 BJ	1,890 BJ	922 B	3,190 JB
OCDF	ng/kg	650 JB	869 BJ	1,300 BJ	266 JB	1,500 JB
Herbicides						
2,4,5-T	ug/kg	2.2 UJ	1.9 UJ	1.6 U	1.3 U	1.9 UJ
2,4,5-TP (Silvex)	ug/kg	2.1 UJ	1.7 UJ	1.5 U	1.2 U	1.8 UJ
2,4-D	ug/kg	33 UJ	28 UJ	23 U	19 U	28 UJ
2,4-DB	ug/kg	17 UJ	14 UJ	12 U	9.9 U	15 UJ
Metals						
Aluminum	mg/kg	18,000 J	20,700 J	19,300	7,220	13,000 J
Antimony	mg/kg	4.43 J	0.727 J	0.77	0.385 J	0.496 J
Arsenic	mg/kg	12.2 J	14.1 J	9.64	6.76	12.9 J
Barium	mg/kg	124 J	146 J	196	48.9 J	88.1 J
Beryllium	mg/kg	0.968 J	1.1 J	1.09	0.393	0.712 J
Cadmium	mg/kg	1.5 J	0.856 J	1.31	0.834 J	1.29 J
Calcium	mg/kg	5,570 J	7,520 J	10,000	R	4,450 J
Chromium	mg/kg	109 J	117 J	127	50.9	116 J
Cobalt	mg/kg	12.7 J	14.1 J	15.7	5.61	9.2 J
Copper	mg/kg	139 J	109 J	114	55.8	103 J
Hexavalent Chromium	mg/kg	1.4 U	1.2 U	0.98 U	0.81 U	1.2 U
Iron	mg/kg	32,800 J	38,700 J	38,100	13,700	26,500 J
Lead	mg/kg	156 J	122 J	125	56	109 J
Magnesium	mg/kg	9,550 J	10,400 J	10,100	3,900	7,810 J
Manganese	mg/kg	419 J	676 J	539	153	289 J
Mercury	ng/g	1,990 J	1,420 J	1,000 J	1,730 J	2,070 J
Methyl Mercury	ng/g	4.43 J	2.9 J	1.66 J	1.48 J	2.53 J
Nickel	mg/kg	43.3 J	48.2 J	50.4	17.2	31.1 J
Potassium	mg/kg	4,410 J	5,300 J	4,950	1,540	3,030 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED161 0 - 0.5 09/16/15 North	NB03SED162 0 - 0.5 09/22/15 North	NB03SED163 0 - 0.5 09/23/15 North	NB03SED164 0 - 0.5 09/14/15 North	NB03SED165 0 - 0.5 09/14/15 North
	Units	NB03SED-CHM161	NB03SED-CHM162	NB03SED-CHM163	NB03SED-CHM164	NB03SED-CHM165
Selenium	mg/kg	1.14 J	0.773 B	0.699 B	0.266 B	0.672 JB
Silver	mg/kg	2.12 J	1.74 J	1.51	0.743 J	2.15 J
Sodium	mg/kg	14,300 J	12,300 J	11,300	5,610	13,100 J
Thallium	mg/kg	0.717 J	0.307 J	0.272	0.114 B	0.19 JB
Titanium	mg/kg	594 J	613 J	530	296	447 J
Vanadium	mg/kg	43.7 J	51.1 J	51	17.7	31.8 J
Zinc	mg/kg	304 J	250 J	274	125 J	228 J
AVS/SEM						
Acid Volatile Sulfide (AVS)	umol/g	14.1	2.8	15.6	2.1	13.2
Cadmium	umol/g	0.00396	0.00217	0.00299	0.00242	0.00284
Copper	umol/g	0.379	0.315	0.287	0.251	0.317
Lead	umol/g	0.221	0.148	0.159	0.121	0.161
Mercury	umol/g	0.0000072 U	0.0000074 U	0.0000072 U	0.0000072 U	0.0000072 U
Nickel	umol/g	0.107	0.123	0.217	0.0384	0.063
Zinc	umol/g	1.11	0.825	0.91	0.681	0.871
TEPH Alkanes						
2,6,10,14-Tetramethyl Pentadecane	mg/kg	0.0461 UJ	0.197 UJ	0.214 J	0.136 UJ	0.0803 UJ
2,6,10,14-Tetramethylhexadecane	mg/kg	0.0298 UJ	0.128 UJ	0.218 J	0.0879 UJ	0.0519 UJ
Dotriacontane	mg/kg	0.0352 UJ	0.606 J	0.802 J	0.336 J	0.206 J
Heneicosane	mg/kg	0.0416 J	0.128 UJ	0.0425 UJ	0.0879 UJ	0.0727 J
Heptacosane	mg/kg	0.0867 UJ	0.371 UJ	0.134 J	0.256 UJ	0.151 UJ
Heptadecane	mg/kg	0.0997 J	0.209 UJ	0.471 J	0.144 UJ	0.101 J
Heptatriacontane, -n	mg/kg	0.033 J	0.128 UJ	0.0521 J	0.0879 UJ	0.0519 UJ
Hexatriacontane	mg/kg	0.0298 UJ	0.36 J	0.964 J	0.173 J	0.0519 UJ
Hhentriacontane	mg/kg	0.196 J	0.188 UJ	0.36 J	0.549 J	0.292 J
n-Decane	mg/kg	0.0401 UJ	0.172 UJ	0.0572 UJ	0.118 UJ	0.0699 UJ
n-Docosane	mg/kg	0.0298 UJ	0.952 J	3.23 J	0.423 J	0.341 J
n-Dodecane	mg/kg	0.0298 UJ	0.128 UJ	0.0425 UJ	0.0879 UJ	0.0519 UJ
n-Eicosane	mg/kg	0.0325 UJ	0.139 UJ	0.058 J	0.0958 UJ	0.0566 UJ
n-Hexacosane	mg/kg	0.0515 UJ	0.22 UJ	0.207 J	0.152 UJ	0.0897 UJ
n-Hexadecane	mg/kg	0.0298 UJ	0.128 UJ	0.102 J	0.0879 UJ	0.0519 UJ
n-Nonane	mg/kg	0.0298 UJ	0.128 UJ	0.0425 UJ	0.0879 UJ	0.0519 UJ
n-Octacosane	mg/kg	0.0298 UJ	2.07 J	NA	0.775 J	0.534 J
n-Octadecane	mg/kg	0.0406 UJ	0.174 UJ	0.0948 J	0.12 UJ	0.0708 UJ
Nonacosane	mg/kg	0.19 J	0.272 J	0.261 J	0.692 J	0.359 J
Nonadecane	mg/kg	0.0433 UJ	0.186 UJ	0.0618 UJ	0.128 UJ	0.0755 UJ
Nonatriacontane	mg/kg	0.0542 UJ	0.232 UJ	0.0955 J	0.16 UJ	0.0944 UJ
n-Tetracosane	mg/kg	0.144 J	0.296 J	0.751 J	0.116 J	0.0657 J
n-Tetradecane	mg/kg	0.0379 UJ	0.162 UJ	0.0541 UJ	0.112 UJ	0.0661 UJ
n-Triacontane	mg/kg	0.155 J	0.234 UJ	0.0781 UJ	0.161 UJ	0.234 J
n-Tridecane	mg/kg	0.0298 UJ	0.128 UJ	0.0425 UJ	0.0879 UJ	0.0519 UJ
n-Undecane	mg/kg	0.0547 UJ	0.234 UJ	0.0781 UJ	0.161 UJ	0.0954 UJ
Octatriacontane	mg/kg	0.0406 UJ	0.174 UJ	0.058 UJ	0.12 UJ	0.0708 UJ

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED161 0 - 0.5 09/16/15 North NB03SED-CHM161	NB03SED162 0 - 0.5 09/22/15 North NB03SED-CHM162	NB03SED163 0 - 0.5 09/23/15 North NB03SED-CHM163	NB03SED164 0 - 0.5 09/14/15 North NB03SED-CHM164	NB03SED165 0 - 0.5 09/14/15 North NB03SED-CHM165
Pentacosane	mg/kg	0.0298 UJ	0.304 J	0.461 J	0.192 J	0.101 J
Pentadecane	mg/kg	0.0298 UJ	0.128 UJ	0.108 J	0.0879 UJ	0.0519 UJ
Pentatriacontane	mg/kg	0.0298 UJ	0.151 J	0.0425 UJ	0.0879 UJ	0.0571 J
Tetracontane	mg/kg	0.0409 J	0.128 UJ	0.348 J	0.0879 UJ	0.0519 UJ
Tetratriacontane	mg/kg	0.0352 UJ	0.151 UJ	0.0502 UJ	0.104 UJ	0.0614 UJ
Tricosane	mg/kg	0.0523 J	0.422 J	0.95 J	0.225 J	0.145 J
Tritriacontane	mg/kg	0.0596 UJ	0.255 UJ	0.242 J	0.176 UJ	0.104 UJ
Butyltins						
Dibutyltin	ug/kg	3.5 UJ	3 UJ	2.4 U	3.6 UJ	1.8 U
Monobutyltin	ug/kg	56 UJCN	47 UCNJ	39 UCN	58 UJCN	28 UCN
Tetrabutyltin	ug/kg	4.6 UJ	3.9 UJ	3.2 U	4.8 UJ	2.3 U
Tributyltin	ug/kg	4.1 UJ	3.4 UJ	2.8 U	16 PJ	2 U
PCB Congeners						
PCB-1	ng/kg	534 EJ	302 EJ	176 J	380 E	344 EJ
PCB-2	ng/kg	55.4 J	24.3 BJ	19.7 BJ	60.4	61.5 J
PCB-3	ng/kg	153 J	82.9 J	R	158	122 J
PCB-4	ng/kg	787 EJ	415 EJ	375 EJ	875 E	524 EJ
PCB-5	ng/kg	4.22 J	3.62 J	5.87 J	0.785 U	4.64 J
PCB-6	ng/kg	177 J	108 J	116 J	291	138 J
PCB-7	ng/kg	16.2 J	0.796 UJ	0.768 UJ	33	14.9 J
PCB-8	ng/kg	618 EJ	347 BEJ	426 BEJ	1,180 E	501 EJ
PCB-9	ng/kg	24.3 J	0.696 UJ	0.672 UJ	49.4	20.7 J
PCB-10	ng/kg	76 J	58.4 J	30.3 J	72.9	45 J
PCB-11	ng/kg	337 EJ	190 BJ	293 BEJ	633 E	284 J
PCB-12/13	ng/kg	185 J	113 J	142 J	295	149 J
PCB-14	ng/kg	0.81 UJ	2.78 J	1.01 J	0.785 U	0.782 UJ
PCB-15	ng/kg	838 EJ	571 BEJ	616 BEJ	1,320 E	744 EJ
PCB-16	ng/kg	156 BJ	223 J	R	382 BE	175 JB
PCB-17	ng/kg	254 J	311 EJ	555 EJ	560 E	258 J
PCB-18/30	ng/kg	362 J	467 J	987 EJ	841 E	403 J
PCB-19	ng/kg	124 J	80 J	137 J	227	108 J
PCB-20/28	ng/kg	1,080 BEJ	997 EJ	2,520 EJ	2,770 BE	1,200 BEJ
PCB-21/33	ng/kg	228 J	239 J	622 EJ	669 E	257 J
PCB-22	ng/kg	238 J	234 J	669 EJ	665 E	268 J
PCB-23	ng/kg	0.708 UJ	0.696 UJ	1.42 J	1.77 J	0.685 UJ
PCB-24	ng/kg	3.84 J	0.995 UJ	0.96 UJ	8.72	5.59 J
PCB-25	ng/kg	133 J	115 J	235 J	320 E	132 J
PCB-26/29	ng/kg	213 J	196 J	309 J	483	215 J
PCB-27	ng/kg	66 J	76.4 J	120 J	129	61.9 J
PCB-31	ng/kg	819 EJ	725 EJ	1,370 EJ	2,040 E	813 EJ
PCB-32	ng/kg	248 J	196 J	367 EJ	568 E	255 J
PCB-34	ng/kg	6.33 J	6.21 J	12 J	13.9	6.2 J
PCB-35	ng/kg	27.4 J	22.4 J	45.4 J	66.4	29.8 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED161 0 - 0.5 09/16/15 North NB03SED-CHM161	NB03SED162 0 - 0.5 09/22/15 North NB03SED-CHM162	NB03SED163 0 - 0.5 09/23/15 North NB03SED-CHM163	NB03SED164 0 - 0.5 09/14/15 North NB03SED-CHM164	NB03SED165 0 - 0.5 09/14/15 North NB03SED-CHM165
PCB-36	ng/kg	1.77 J	0.796 UJ	0.768 UJ	3.88	1.52 J
PCB-37	ng/kg	281 J	262 J	506 EJ	721 E	295 EJ
PCB-38	ng/kg	0.708 UJ	0.696 UJ	0.672 UJ	0.687 U	0.685 UJ
PCB-39	ng/kg	5.56 J	5.3 J	10.3 J	13.9	6.53 J
PCB-40/71	ng/kg	358 J	381 J	791 J	907	404 J
PCB-41	ng/kg	31.3 J	37.7 J	87.7 J	77.5	39.1 J
PCB-42	ng/kg	250 J	263 J	446 J	629 E	291 J
PCB-43	ng/kg	25.6 J	28.7 J	1.34 UJ	65.2	33.4 J
PCB-44/47/65	ng/kg	789 J	840 J	2,170 EJ	2,010 E	881 J
PCB-45	ng/kg	71 J	94.4 J	2.11 UJ	187	92 J
PCB-46	ng/kg	34.2 J	39.9 J	107 J	84.9	39.5 J
PCB-48	ng/kg	111 J	136 J	271 J	295	133 J
PCB-49/69	ng/kg	585 J	583 J	1,010 J	1,500 E	663 J
PCB-50/53	ng/kg	106 J	119 J	2.4 UJ	285	115 J
PCB-51	ng/kg	83 J	63.1 J	943 EJ	252	65.6 J
PCB-52	ng/kg	743 BEJ	877 BEJ	1,860 BEJ	1,760 BE	854 BEJ
PCB-54	ng/kg	16.7 J	6.8 J	1.34 UJ	53.7	10.6 J
PCB-55	ng/kg	7.39 J	765 EJ	697 EJ	21.2	8.42 J
PCB-56	ng/kg	378 J	330 J	475 J	923 E	463 J
PCB-57	ng/kg	4.89 J	1.09 UJ	32.6 J	9.99	5.82 J
PCB-58	ng/kg	3.89 J	3.07 J	1.34 UJ	9.94	4.49 J
PCB-60	ng/kg	113 J	116 J	233 J	307	145 J
PCB-61/70/74/76	ng/kg	1,150 J	1,070 J	2,070 J	3,110 E	1,410 J
PCB-62/75	ng/kg	70.1 J	73.8 J	142 J	175	81.7 J
PCB-63	ng/kg	31.6 J	26.5 J	1.15 UJ	79.9	36.1 J
PCB-64	ng/kg	343 J	365 J	642 EJ	865 E	396 J
PCB-66	ng/kg	747 BEJ	1.69 UJ	1.63 UJ	2,000 BE	923 BEJ
PCB-67	ng/kg	24.6 J	19.4 J	42 J	66.6	27.9 J
PCB-68	ng/kg	9.97 J	6.14 J	15.5 J	21.5	9.5 J
PCB-72	ng/kg	12.8 J	9.35 J	17.9 J	26.9	12.6 J
PCB-73	ng/kg	3.09 J	3.52 J	34.9 J	9.8	3.79 J
PCB-77	ng/kg	83.8 J	R	148 J	R	R
PCB-78	ng/kg	1.62 UJ	1.59 UJ	1.54 UJ	1.57 U	1.56 UJ
PCB-79	ng/kg	6.57 J	5.3 J	13.7 J	14.8	7.27 J
PCB-80	ng/kg	1.11 UJ	2.72 J	7.68 J	1.08 U	1.08 UJ
PCB-81	ng/kg	2.51 J	2.23 J	4.44 J	7.41	2.82 J
PCB-82	ng/kg	79.9 J	87.9 J	132 J	197	98.5 J
PCB-83	ng/kg	33.1 J	40.5 J	2.78 UJ	91.9	39.2 J
PCB-84	ng/kg	171 J	176 J	1.06 UJ	410	209 J
PCB-85/116/117	ng/kg	124 J	133 J	236 J	321	158 J
PCB-86/87/97/109/119/125	ng/kg	443 J	461 J	998 J	1,040	514 J
PCB-88	ng/kg	2.23 UJ	2.19 UJ	2.11 UJ	2.16 U	2.15 UJ
PCB-89	ng/kg	10.6 J	7.33 J	7.85 J	28.1	13.5 J

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Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED161 0 - 0.5 09/16/15 North NB03SED-CHM161	NB03SED162 0 - 0.5 09/22/15 North NB03SED-CHM162	NB03SED163 0 - 0.5 09/23/15 North NB03SED-CHM163	NB03SED164 0 - 0.5 09/14/15 North NB03SED-CHM164	NB03SED165 0 - 0.5 09/14/15 North NB03SED-CHM165
PCB-90/101/113	ng/kg	817 BJ	678 BJ	1,830 BEJ	1,540 B	767 JB
PCB-91	ng/kg	132 J	134 J	648 EJ	354	166 J
PCB-92	ng/kg	169 J	123 J	245 J	294	150 J
PCB-93/100	ng/kg	31.6 J	22.9 J	385 J	97.5	27.8 J
PCB-94	ng/kg	9.86 J	7.7 J	39.2 J	26.7	9.34 J
PCB-95	ng/kg	R	R	997 EJ	R	R
PCB-96	ng/kg	7.45 J	7.85 J	48 J	21.2	8.69 J
PCB-98/102	ng/kg	39.8 J	37.8 J	258 J	111	44.9 J
PCB-99	ng/kg	408 J	408 J	1,850 EJ	988 E	466 J
PCB-103	ng/kg	18.5 J	13.2 J	133 J	41.9	16 J
PCB-104	ng/kg	4.31 J	2.23 J	47.5 J	12.2	3.12 J
PCB-105	ng/kg	244 J	1.69 UJ	412 J	611 E	302 J
PCB-106	ng/kg	1.72 UJ	1.69 UJ	1.63 UJ	1.67 U	1.66 UJ
PCB-107	ng/kg	52.2 J	37.6 J	77.5 J	115	56.7 J
PCB-108/124	ng/kg	25.7 J	18.5 J	38.6 J	56	27.4 J
PCB-110/115	ng/kg	882 BJ	843 BJ	1,430 BEJ	1,930 BE	946 JB
PCB-111	ng/kg	1.42 UJ	1.39 UJ	1.34 UJ	1.37 U	1.37 UJ
PCB-112	ng/kg	3.37 J	1.39 UJ	1.34 UJ	5.67	3.2 J
PCB-114	ng/kg	14.8 J	11.6 J	21.8 J	36.4	16.4 J
PCB-118	ng/kg	653 BEJ	516 J	1,010 EJ	1,590 BE	729 BEJ
PCB-120	ng/kg	4.67 J	3.52 J	14.5 J	7.55	3.71 J
PCB-121	ng/kg	1.21 UJ	1.19 UJ	1.9 J	1.37 J	1.17 UJ
PCB-122	ng/kg	9.01 J	7.51 J	17.6 J	21.3	9.63 J
PCB-123	ng/kg	10.2 J	10.4 J	24.3 J	27.7	14.1 J
PCB-126	ng/kg	2.22 J	2.18 J	7.71 J	6.89	1.56 UJ
PCB-127	ng/kg	1.55 J	1.39 UJ	1.34 UJ	10.1	3.19 J
PCB-128/166	ng/kg	118 J	79 J	137 J	193	109 J
PCB-129/138/163	ng/kg	1,160 J	588 J	1,440 J	1,560	801 J
PCB-130	ng/kg	62.7 J	R	59.9 J	88.6	47.2 J
PCB-131	ng/kg	9.02 J	R	18.7 J	16.4	9.04 J
PCB-132	ng/kg	333 J	173 J	323 J	434	221 J
PCB-133	ng/kg	19.4 J	8.81 J	23.1 J	30.7	12.6 J
PCB-134	ng/kg	52.6 J	R	111 J	77.3	36.5 J
PCB-135/151	ng/kg	415 J	202 J	921 J	501	240 J
PCB-136	ng/kg	128 J	72.8 J	572 J	161	84.5 J
PCB-137	ng/kg	31.6 J	R	43.4 J	61.1	33.7 J
PCB-139/140	ng/kg	15 J	9.14 J	29.7 J	23.7	12.6 J
PCB-141	ng/kg	R	74.3 J	146 J	267	125 J
PCB-142	ng/kg	1.72 UJ	R	1.63 UJ	1.67 U	1.66 UJ
PCB-143	ng/kg	3.34 UJ	R	3.17 UJ	3.24 U	3.23 UJ
PCB-144	ng/kg	51.4 J	25.8 J	36.3 J	58.3	29.3 J
PCB-145	ng/kg	1.62 UJ	1.59 UJ	1.54 UJ	1.57 U	1.56 UJ
PCB-146	ng/kg	R	R	1.34 UJ	R	R

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED161 0 - 0.5 09/16/15 North NB03SED-CHM161	NB03SED162 0 - 0.5 09/22/15 North NB03SED-CHM162	NB03SED163 0 - 0.5 09/23/15 North NB03SED-CHM163	NB03SED164 0 - 0.5 09/14/15 North NB03SED-CHM164	NB03SED165 0 - 0.5 09/14/15 North NB03SED-CHM165
PCB-147/149	ng/kg	891 J	429 BJ	3,230 BEJ	1,110	548 J
PCB-148	ng/kg	1.42 UJ	2.02 J	34.3 J	3.8 J	2.29 J
PCB-150	ng/kg	3.48 J	3.38 J	137 J	8.17	3.42 J
PCB-152	ng/kg	1.42 UJ	1.39 UJ	6.92 J	3.23 J	1.37 UJ
PCB-153/168	ng/kg	1,110 BJ	500 BJ	2,460 BEJ	1,270 BE	704 JB
PCB-154	ng/kg	22.7 J	18.1 J	424 J	31.9	20.5 J
PCB-155	ng/kg	8.93 J	4.4 J	17.2 J	25.5 J	8.99 J
PCB-156/157	ng/kg	107 J	53.4 J	102 J	173	92.8 J
PCB-158	ng/kg	97.2 J	52.2 J	99.7 J	138	75.1 J
PCB-159	ng/kg	1.42 UJ	1.39 UJ	1.34 UJ	1.37 U	1.37 UJ
PCB-160	ng/kg	6.37 UJ	6.27 UJ	6.05 UJ	6.18 U	6.16 UJ
PCB-161	ng/kg	1.32 UJ	R	1.25 UJ	1.28 U	1.27 UJ
PCB-162	ng/kg	9.14 J	R	5.22 J	1.28 U	1.27 UJ
PCB-164	ng/kg	76.5 J	36.3 J	92.8 J	95.3	51.1 J
PCB-165	ng/kg	R	R	1.25 UJ	R	R
PCB-167	ng/kg	36.9 J	17.8 J	42 J	57.9	30.9 J
PCB-169	ng/kg	1.52 UJ	1.49 UJ	1.44 UJ	1.47 U	1.47 UJ
PCB-170	ng/kg	391 J	116 J	207 J	452	178 J
PCB-171/173	ng/kg	R	R	65.2 J	R	R
PCB-172	ng/kg	66 J	20.4 J	38.4 J	75.3	31 J
PCB-174	ng/kg	R	103 J	196 J	R	R
PCB-175	ng/kg	R	R	10.2 J	R	R
PCB-176	ng/kg	47.7 J	16.5 J	27 J	58.1	22.8 J
PCB-177	ng/kg	R	R	134 J	R	R
PCB-178	ng/kg	90.4 J	R	79.8 J	R	R
PCB-179	ng/kg	154 J	58.7 J	150 J	207	80.1 J
PCB-180/193	ng/kg	910 J	268 J	497 J	1,020	417 J
PCB-181	ng/kg	R	R	2.33 J	R	R
PCB-182	ng/kg	R	R	3.84 UJ	R	R
PCB-183/185	ng/kg	275 J	87.4 J	165 J	R	R
PCB-184	ng/kg	1.42 UJ	1.39 UJ	1.34 UJ	1.37 U	1.37 UJ
PCB-186	ng/kg	1.52 UJ	1.49 UJ	1.44 UJ	1.47 U	1.47 UJ
PCB-187	ng/kg	566 J	R	440 J	R	R
PCB-188	ng/kg	2.18 J	1.49 UJ	9.38 J	1.47 U	1.66 J
PCB-189	ng/kg	17.5 J	4.55 J	7.77 J	18.8	8.45 J
PCB-190	ng/kg	89.4 J	26 J	44.7 J	103	37.9 J
PCB-191	ng/kg	17.2 J	5.31 J	9.16 J	19.1	7.81 J
PCB-192	ng/kg	1.32 UJ	1.29 UJ	1.25 UJ	1.28 U	1.27 UJ
PCB-194	ng/kg	231 J	61.7 J	107 J	266	113 J
PCB-195	ng/kg	82.8 J	21.6 J	36.8 J	98.9	35.8 J
PCB-196	ng/kg	122 J	36.6 J	56.2 J	133	61.2 J
PCB-197/200	ng/kg	R	10.1 J	15.8 J	38.1	17.1 J
PCB-198/199	ng/kg	266 J	96.8 J	152 J	338	153 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED161 0 - 0.5 09/16/15 North NB03SED-CHM161	NB03SED162 0 - 0.5 09/22/15 North NB03SED-CHM162	NB03SED163 0 - 0.5 09/23/15 North NB03SED-CHM163	NB03SED164 0 - 0.5 09/14/15 North NB03SED-CHM164	NB03SED165 0 - 0.5 09/14/15 North NB03SED-CHM165
PCB-201	ng/kg	30 J	10.8 J	16.8 J	30.8	17.8 J
PCB-202	ng/kg	57.5 J	29.2 J	44.9 J	88.9	44.6 J
PCB-203	ng/kg	165 J	61.5 J	74.5 J	211	97.6 J
PCB-204	ng/kg	2.12 UJ	2.09 UJ	2.02 UJ	2.06 U	2.05 UJ
PCB-205	ng/kg	12.5 J	3.48 J	5.26 J	11.5	6.36 J
PCB-206	ng/kg	192 J	72.1 J	101 J	202	108 J
PCB-207	ng/kg	14.4 J	6.25 J	9.72 J	15.6	11.9 J
PCB-208	ng/kg	57 J	27.4 J	37.7 J	74	38.8 J
PCB-209	ng/kg	928 EJ	57.6 J	65.5 J	160	104 J
Total PCB Congeners (209)	ng/kg	28,200 J	20,000 J	47,200 J	51,600 J	24,300 J
Aroclor PCBs						
Aroclor-1016	ug/kg	9.8 U	8.3 U	7 U	5.8 U	8.5 U
Aroclor-1221	ug/kg	13 U	11 U	8.9 U	7.4 U	11 U
Aroclor-1232	ug/kg	22 U	18 U	16 U	13 U	19 U
Aroclor-1242	ug/kg	9 U	7.6 U	6.4 U	5.3 U	7.8 U
Aroclor-1248	ug/kg	54	66	84	62	52
Aroclor-1254	ug/kg	45 J	65	66	63	48 J
Aroclor-1260	ug/kg	47	11 U	9.5 U	31 J	22 J
Aroclor-1262	ug/kg	9 U	16 J	14 J	5.3 U	7.8 U
Aroclor-1268	ug/kg	9 U	7.6 U	6.4 U	5.3 U	7.8 U
Total Aroclor PCBs (Sum of 7 Aroclors)	ug/kg	150 J	130	150	160 J	120 J
Total Aroclor PCBs (Sum of 9 Aroclors)	ug/kg	150 J	150 J	160 J	160 J	120 J
Pesticides						
2,4'-DDD	pg/g	5,330 J	3,590	4,690	2,690 J	4,790 J
2,4'-DDE	pg/g	4,370 J	3,710	3,110	1,640 J	4,290 J
2,4'-DDT	pg/g	458 J	171	115	307 J	328 J
4,4'-DDD	pg/g	16,100 JB	11,400 B	11,200 B	8,060 JB	13,100 JB
4,4'-DDE	pg/g	30,600 JBD	16,700 B	14,200 B	10,200 JBD	25,400 JBD
4,4'-DDT	pg/g	2,130 JB	691 BJ	7,370 B	9,920 JB	2,070 JB
Aldrin	pg/g	R	R	R	5.37 UJD	R
Alpha-BHC	pg/g	69.8 J	40.9 J	57.6	33.9 J	44.8 J
Alpha-Chlordane	pg/g	7,480 J	3,040	2,450	2,600 J	5,380 J
Beta-BHC	pg/g	158 J	57 J	296	56.8 J	74.8 J
cis-Nonachlor	pg/g	2,010 J	901	695	749 J	1,730 J
Delta-BHC	pg/g	22.3 J	7.34 U	29.2 J	7.34 UJ	7.34 UJ
Dieldrin	pg/g	1,850 J	1,010 B	1,340 B	718 J	1,740 J
Endosulfan I	pg/g	20.5 UJ	20.5 U	20.5 U	68.3 J	20.5 UJ
Endosulfan II	pg/g	42.6 UJ	42.6 U	42.6 U	42.6 UJ	42.6 UJ
Endosulfan Sulfate	pg/g	44.7 UJ	44.7 U	44.7 U	44.7 U	44.7 UJ
Endrin	pg/g	10.4 UJ	10.4 U	10.4 U	10.4 UJ	10.4 UJ
Endrin Aldehyde	pg/g	40.6 UJ	R	40.6 U	40.6 UJ	40.6 UJ
Endrin Ketone	pg/g	R	R	25.8 U	25.8 UJ	25.8 UJ
Gamma-BHC (Lindane)	pg/g	7.3 UJ	7.3 U	23.4 J	7.3 UJ	15.8 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED161 0 - 0.5 09/16/15 North	NB03SED162 0 - 0.5 09/22/15 North	NB03SED163 0 - 0.5 09/23/15 North	NB03SED164 0 - 0.5 09/14/15 North	NB03SED165 0 - 0.5 09/14/15 North
	Units	NB03SED-CHM161	NB03SED-CHM162	NB03SED-CHM163	NB03SED-CHM164	NB03SED-CHM165
Heptachlor	pg/g	10.4 UJ	10.4 U	10.4 U	10.4 UJ	10.4 UJ
Heptachlor Epoxide	pg/g	261 J	127	121	131 J	172 J
Hexachlorobenzene	pg/g	1,550 JB	1,670 B	1,500 B	1,530 JB	1,940 JB
Methoxychlor	pg/g	1,420 J	R	11.8 UJ	R	R
Mirex	pg/g	R	R	4.91 U	4.91 UJ	4.91 UJ
Nonachlor, trans-	pg/g	3,980 J	1,800	1,440	1,570 J	3,130 J
Oxychlorane	pg/g	11.4 UJ	11.4 U	11.4 U	29.5 J	11.4 UJ
trans-Chlordane	pg/g	6,480 J	2,950	2,500	2,450 J	5,120 J
trans-Heptachlor Epoxide	pg/g	354 J	139	447	127 J	230 J
Total Alpha + Gamma Chlordane	ppb	14 J	6	5	5.1 J	11 J
Total DDT (2,4)	ppb	10 J	7.5	7.9	4.6 J	9.4 J
Total DDT (4,4)	ppb	49 BDJ	29 BJ	33 B	28 BDJ	41 BDJ
Total DDT (2,4 & 4,4)	ppb	59 BDJ	36 BJ	41 B	33 BDJ	50 BDJ
Semivolatiles						
1,2,4,5-Tetrachlorobenzene	ug/kg	R	39 UJ	33 U	27 U	39 U
1,2-Diphenylhydrazine	ug/kg	R	39 UJ	33 U	27 U	39 U
1-Methylnaphthalene	ug/kg	1.8 UJ	3.4 J	18 J-	22	1.6 UJ
2,2'-oxybis(1-Chloropropane)	ug/kg	R	39 UJ	33 U	27 U	39 U
2,3,4,6-Tetrachlorophenol	ug/kg	R	160 UJ	130 U	110 U	160 U
2,4,5-Trichlorophenol	ug/kg	R	39 UJ	33 U	27 U	39 U
2,4,6-Trichlorophenol	ug/kg	R	39 UJ	33 U	27 U	39 U
2,4-Dichlorophenol	ug/kg	R	39 UJ	33 U	27 U	39 U
2,4-Dimethylphenol	ug/kg	R	39 UJ	33 U	27 U	39 U
2,4-Dinitrophenol	ug/kg	R	700 UJ	590 U	480 U	710 U
2,4-Dinitrotoluene	ug/kg	R	160 UJ	130 U	110 U	160 U
2,6-Dinitrotoluene	ug/kg	R	39 UJ	33 U	27 U	39 U
2-Chloronaphthalene	ug/kg	R	16 UJ	13 U	11 U	16 U
2-Chlorophenol	ug/kg	R	39 UJ	33 U	27 U	39 U
2-Methylnaphthalene	ug/kg	3 J-	4	22 J-	37	2.6 J
2-Methylphenol	ug/kg	R	39 UJ	33 U	27 U	39 U
2-Nitroaniline	ug/kg	R	39 UJ	33 U	27 U	39 U
2-Nitrophenol	ug/kg	R	39 UJ	33 U	27 U	39 U
3,3'-Dichlorobenzidine	ug/kg	R	230 UJ	200 U	160 U	240 U
3-Nitroaniline	ug/kg	R	160 UJ	130 U	110 U	160 U
4,6-Dinitro-2-methylphenol	ug/kg	R	390 UJ	330 U	270 U	390 U
4-Bromophenyl phenyl ether	ug/kg	R	39 UJ	33 U	27 U	39 U
4-Chloro-3-Methylphenol	ug/kg	R	39 UJ	33 U	27 U	39 U
4-Chloroaniline	ug/kg	R	78 UJ	65 U	53 U	78 U
4-Chlorophenyl phenyl ether	ug/kg	R	39 UJ	33 U	27 U	39 U
4-Methylphenol	ug/kg	R	64 J	56 J	38 J	47 J
4-Nitroaniline	ug/kg	R	160 UJ	130 U	110 U	160 U
4-Nitrophenol	ug/kg	R	390 UJ	330 U	270 U	390 U
Acenaphthene	ug/kg	2.6 J-	15	100 J-	50	3.2 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED161 0 - 0.5 09/16/15 North	NB03SED162 0 - 0.5 09/22/15 North	NB03SED163 0 - 0.5 09/23/15 North	NB03SED164 0 - 0.5 09/14/15 North	NB03SED165 0 - 0.5 09/14/15 North
	Units	NB03SED-CHM161	NB03SED-CHM162	NB03SED-CHM163	NB03SED-CHM164	NB03SED-CHM165
Acenaphthylene	ug/kg	7.5 J-	30	260 J-	81	16 J-
Acetophenone	ug/kg	70 J	55 J	46 J	57	91
Anthracene	ug/kg	9.8 J-	59	530 J-	91	16 J-
Atrazine	ug/kg	R	78 UJ	65 U	53 U	78 U
Benzaldehyde	ug/kg	R	160 UJ	130 U	110 U	160 U
Benzidine	ug/kg	R	1,600 UJ	1,400 U	1,100 U	1,600 U
Benzo(a)anthracene	ug/kg	35 J-	160	1,600	320 J-	62 J-
Benzo(a)pyrene	ug/kg	42 J-	180	1,500 J-	390 J-	86 J-
Benzo(b)fluoranthene	ug/kg	35 J-	130	1,000 J-	280 J-	73 J-
Benzo(e)pyrene	ug/kg	30	110	900	250	59
Benzo(g,h,i)perylene	ug/kg	27 J-	96	760 J-	220 J-	52 J-
Benzo(j,k)fluoranthene	ug/kg	36 J-	150	1,300 J-	290 J-	64 J-
Benzoic Acid	ug/kg	R	390 UJ	330 U	270 U	390 U
Biphenyl	ug/kg	R	39 UJ	65 J	27 U	39 U
bis(2-Chloroethoxy)methane	ug/kg	R	39 UJ	33 U	27 U	39 U
bis(2-Chloroethyl)ether	ug/kg	R	39 UJ	33 U	27 U	39 U
bis(2-Ethylhexyl)phthalate	ug/kg	350 J	740	760	690	730
Butyl benzyl phthalate	ug/kg	R	160 UJ	130 U	110 U	160 U
C1-Chrysenes	ug/kg	25	94	740	290	53
C1-Fluoranthenes/Pyrenes	ug/kg	37	200	1,800	440	71
C1-Fluorenes	ug/kg	3.6 J	15	150	42	5.9
C1-Naphthalenes	ug/kg	4 J	5.3	28 J	51	4.5
C1-Phenanthrenes/Anthracenes	ug/kg	23	76	770	190	24
C2-Chrysenes	ug/kg	16	51	320	190	32
C2-Fluoranthenes/Pyrenes	ug/kg	17	78	630	240	41
C2-Fluorenes	ug/kg	1.8 U	13	120	44	5.4
C2-Naphthalenes	ug/kg	6.5	9.8	88	41	5
C2-Phenanthrene/anthracenes	ug/kg	18	66	570	200	27
C3-Chrysenes	ug/kg	7.3	21	110	89	15
C3-Fluoranthenes/Pyrenes	ug/kg	10	31	220	110	17
C3-Fluorenes	ug/kg	1.8 U	9.4	86	5.3 U	1.6 U
C3-Naphthalene	ug/kg	5.3	16	110	44	6
C3-Phenanthrene/anthracenes	ug/kg	11	32	240	120	17
C4-Chrysenes	ug/kg	1.8 U	1.5 U	13 U	5.3 U	1.6 U
C4-Naphthalene	ug/kg	5.1	12	89	40	5.2
C4-Phenanthrenes/anthracenes	ug/kg	1.8 U	1.5 U	13 U	5.3 U	1.6 U
Caprolactam	ug/kg	R	78 UJ	65 U	53 U	78 U
Carbazole	ug/kg	R	58 J	130	27 U	39 U
Chrysene	ug/kg	40 J-	170	1,400	340 J-	69 J-
Dibenzo(a,h)anthracene	ug/kg	7.4 J-	30	220 J-	61 J-	15 J-
Dibenzofuran	ug/kg	R	110	220	27 U	39 U
Diethyl phthalate	ug/kg	R	160 UJ	130 U	110 U	160 U
Dimethylphthalate	ug/kg	R	160 UJ	130 U	110 U	160 U

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED161 0 - 0.5 09/16/15 North NB03SED-CHM161	NB03SED162 0 - 0.5 09/22/15 North NB03SED-CHM162	NB03SED163 0 - 0.5 09/23/15 North NB03SED-CHM163	NB03SED164 0 - 0.5 09/14/15 North NB03SED-CHM164	NB03SED165 0 - 0.5 09/14/15 North NB03SED-CHM165
	Units					
Di-n-Butylphthalate	ug/kg	R	160 UJ	130 U	110 U	160 U
Di-n-Octylphthalate	ug/kg	R	160 UJ	130 U	110 U	160 U
Fluoranthene	ug/kg	58 J-	270	2,600	490 J-	79 J-
Fluorene	ug/kg	3 J-	6.7	62 J-	42	2.8 J
Hexachlorobutadiene	ug/kg	R	39 UJ	33 U	27 U	39 U
Hexachlorocyclopentadiene	ug/kg	R	390 UJ	330 U	270 U	390 U
Hexachloroethane	ug/kg	R	78 UJ	65 U	53 U	78 U
Indeno(1,2,3-cd)pyrene	ug/kg	29 J-	110	900 J-	240 J-	58 J-
Isophorone	ug/kg	R	39 UJ	33 U	27 U	39 U
Naphthalene	ug/kg	9.7 J-	15	140 J-	140	11 J-
Nitrobenzene	ug/kg	R	39 UJ	33 U	27 U	39 U
N-Nitroso-di-n-propylamine	ug/kg	R	39 UJ	33 U	27 U	39 U
N-Nitrosodiphenylamine	ug/kg	R	39 UJ	33 U	27 U	39 U
Pentachlorophenol	ug/kg	R	78 UJ	65 U	53 U	78 U
Perylene	ug/kg	10	43	360	86	21
Phenanthrene	ug/kg	22 J-	73	810 J-	230	24 J-
Phenol	ug/kg	R	39 UJ	35 J	140	39 U
Pyrene	ug/kg	59 J-	200	2,300	520 J-	82 J-
Pyridine	ug/kg	R	160 UJ	130 U	110 U	160 U
Total HMW PAHs	ug/kg	370 J	1,500	14,000 J	3,200 J	640 J
Total LMW PAHs	ug/kg	58 J	200	1,900 J	670	76 J
TOTAL PAHs	ug/kg	430 J	1,700	16,000 J	3,800 J	720 J
Volatiles						
1,2,4-Trichlorobenzene	ug/kg	4 U	3 UJ	3 U	2 U	4 U
1,2-Dichlorobenzene	ug/kg	4 U	3 UJ	3 U	2 U	4 U
1,3-Dichlorobenzene	ug/kg	4 U	3 UJ	3 U	2 U	4 U
1,4-Dichlorobenzene	ug/kg	4 U	3 UJ	3 U	2 U	4 U
TPH						
PHC AS GASOLINE	mg/kg	8.8 U	7.1 U	5.5 U	4.1 U	7 U
Total Petroleum Hydrocarbons (C9-C40)	mg/kg	77.2 J	275 J	360 J	179 J	142 J
Grain Size						
0.001 mm	% passing	7	4	4	3	6
0.002 mm	% passing	10.5	10	7	5	13
0.02 mm	% passing	44	35	23	16	49
0.05 mm	% passing	72	62	41	26	74
0.064 mm	% passing	82	78	49	36	86
0.3 mm	% passing	88.3	96.5	94.8	94.7	97.3
3.35 mm	% passing	93.9	99.7	99.5	99.2	100
75000 um	% passing	100	100	100	100	100
Hydrometer Reading, Percent Finer Than 0.0050 mm	% passing	16	18	11	7	23
Sieve No. 4, Percent Passing	% passing	94.7	100	99.9	99.6	100
Sieve No. 8, Percent Passing	% passing	92.2	98.9	97.9	98.1	99.7
Sieve No. 16, Percent Passing	% passing	90.5	98.5	97.5	97.3	99.1

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED161 0 - 0.5 09/16/15 North NB03SED-CHM161	NB03SED162 0 - 0.5 09/22/15 North NB03SED-CHM162	NB03SED163 0 - 0.5 09/23/15 North NB03SED-CHM163	NB03SED164 0 - 0.5 09/14/15 North NB03SED-CHM164	NB03SED165 0 - 0.5 09/14/15 North NB03SED-CHM165
Sieve No. 30, Percent Passing	% passing	89.2	97.6	96.5	96.2	98.4
Sieve No. 100, Percent Passing	% passing	87.7	93	79.4	84.8	95.9
Sieve No. 200, Percent Passing	% passing	86.9	84.2	54.4	43.3	91.5
Sieve 19000 Microns, Percent Passing	% passing	95.2	100	100	100	100
Sieve 37500 Microns, Percent Passing	% passing	100	100	100	100	100
Physical Properties						
Moisture (water) Content	%	63.6	57.1	49.1	38.2	57.9
Oxidation Reduction Potential	mV	54	27	67.5	191	134
Percent Moisture	%	60.2	58.8	45.8	41.6	58.4
Total Solids (Percent)	%	40.2 Z	44.9 Z	51.4 Z	63.2 Z	43.1 Z
Water Content	%	175	133	96.5	61.8	137
Water Content ASTM D2216	%	151	143	84.4	71.2	141
TOC by Lloyd Kahn	mg/kg	44,000 J	34,000	54,900 J	28,200	73,200
pH	pH Units	7.63	7.46	7.38	7.34	7.83
Miscellaneous Chemicals						
Total Kjeldahl Nitrogen	mg/kg	2,680	2,300	1,630	907	1,950
Total Cyanide	mg/kg	0.5 UJ	0.42 UJ	0.34 U	0.28 U	0.41 UJ
Ammonia Nitrogen	mg/kg	140 U	157 B	100 U	82.5 U	121 U
Phosphorus	mg/kg	1,590	1,110	911	534	964

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED166 0 - 0.5 09/14/15 North NB03SED-CHM166	NB03SED167 0 - 0.5 09/15/15 North NB03SED-CHM167	NB03SED168 0 - 0.5 09/16/15 North NB03SED-CHM168	NB03SED169 0 - 0.5 09/16/15 North NB03SED-CHM169	NB03SED170 0 - 0.5 09/17/15 Central NB03SED-CHM170
Dioxins/Furans						
1,2,3,4,6,7,8-HpCDD	ng/kg	275 JB	44.2 B	202 JB [233 JB]	140 B	263 B
1,2,3,4,6,7,8-HpCDF	ng/kg	485 JB	31.9 B	233 JB [258 JB]	123 B	179 B
1,2,3,4,7,8,9-HpCDF	ng/kg	18.9 J	1.33 J	9.36 J [10.2 J]	5.59	7.82
1,2,3,4,7,8-HxCDD	ng/kg	4.44 J	0.633 J	3.21 JQ [3.65 J]	2.06 J	3.37 JQ
1,2,3,4,7,8-HxCDF	ng/kg	137 BCJ	8.06 BC	59.9 JBC [64.5 BCJ]	31.5 BC	43.3 BC
1,2,3,6,7,8-HxCDD	ng/kg	16.9 J	1.97 J	12.5 J [14 J]	7.43	14.7
1,2,3,6,7,8-HxCDF	ng/kg	27.6 BCJ	2.15 JB	15.1 JBC [17.2 BCJ]	7.34 BC	11.9 BC
1,2,3,7,8,9-HxCDD	ng/kg	10.6 JB	1.23 JB	8.01 JB [8.64 JB]	4.4 JB	8.37 B
1,2,3,7,8,9-HxCDF	ng/kg	0.262 UC	0.505 JB	0.179 U [3.43 JB]	1.87 JB	2.63 JB
1,2,3,7,8-PeCDD	ng/kg	4.53 J	0.466 J	2.99 J [4.66 J]	2.07 J	3.39 J
1,2,3,7,8-PeCDF	ng/kg	10.4 BCJ	1.19 JB	6.8 JBC [8.43 BCJ]	3.87 JB	6.88 BC
2,3,4,6,7,8-HxCDF	ng/kg	14.1 BC	1.47 J	7.8 BC [8.1 BC]	4.16 JBCQ	6.52 BC
2,3,4,7,8-PeCDF	ng/kg	24.1 BC	1.97 J	14.2 BC [14.7 BC]	7.47 BC	11.6 BC
2,3,7,8-TCDD	ng/kg	94.6 J	9.98	91.4 J [129 J]	48.6	53.8
2,3,7,8-TCDF	ng/kg	16.5 CJ	2.1 CQJ	13.5 C [13.1 C]	7.19 C	12.9 C
OCDD	ng/kg	2,950 JB	435 B	2,060 JB [2,330 JB]	1,520 B	2,650 B
OCDF	ng/kg	781 JB	50.2 B	356 JB [391 JB]	215 JB	286 B
Herbicides						
2,4,5-T	ug/kg	2.1 UJ	1.1 UJ	1.7 UJ [1.7 UJ]	1.4 U	2.3 JPN
2,4,5-TP (Silvex)	ug/kg	1.9 UJ	1 UJ	1.6 UJ [1.6 UJ]	1.3 U	1.4 U
2,4-D	ug/kg	31 UJ	16 UJ	25 UJ [25 UJ]	20 U	23 U
2,4-DB	ug/kg	16 UJ	8.4 UJ	13 UJ [13 UJ]	11 U	12 U
Metals						
Aluminum	mg/kg	13,000 J	4,670	14,400 J [12,600 J]	9,770	9,780
Antimony	mg/kg	0.641 J	0.0877 U	0.708 J [0.691 J]	0.571	0.391
Arsenic	mg/kg	11 J	2.39	12.8 J [11.9 J]	8.12	8.33
Barium	mg/kg	94 J	52.8	102 J [94.8 J]	61.4	72
Beryllium	mg/kg	0.755 J	0.311	0.762 J [0.709 J]	0.501	0.534
Cadmium	mg/kg	1.17 J	0.137	1.15 J [1.01 J]	0.648	0.881
Calcium	mg/kg	4,420 J	5,910	3,460 J [3,340 J]	3,140	5,360
Chromium	mg/kg	107 J	25.3	114 J [103 J]	69.2	70.3
Cobalt	mg/kg	10.5 J	4.25	9.98 J [9.78 J]	6.47	6.98
Copper	mg/kg	118 J	34.5	102 J [98.7 J]	56.6	77.8
Hexavalent Chromium	mg/kg	1.3 U	0.68 U	R [1.1 B]	0.85 U	0.97 U
Iron	mg/kg	27,800 J	9,060	26,700 J [23,900 J]	17,100	18,100
Lead	mg/kg	124 J	40.5	116 J [115 J]	62.4	92.8
Magnesium	mg/kg	8,200 J	2,290	6,940 J [6,400 J]	4,830	5,520
Manganese	mg/kg	303 J	76.8	274 J [247 J]	180	187
Mercury	ng/g	1,940 J	254 J	1,900 J [1,930 J]	843 J	1,480 J
Methyl Mercury	ng/g	4.36 J	0.624 B	2.33 J [2.74 J]	1.42 J	1.81 J
Nickel	mg/kg	37.1 J	16.8	34 J [34.4 J]	20.6	24.9
Potassium	mg/kg	3,000 J	1,070	3,340 J [2,930 J]	2,380	2,450

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED166 0 - 0.5 09/14/15 North	NB03SED167 0 - 0.5 09/15/15 North	NB03SED168 0 - 0.5 09/16/15 North	NB03SED169 0 - 0.5 09/16/15 North	NB03SED170 0 - 0.5 09/17/15 Central
	Units	NB03SED-CHM166	NB03SED-CHM167	NB03SED-CHM168	NB03SED-CHM169	NB03SED-CHM170
Selenium	mg/kg	0.899 JB	0.148 B	0.836 J [0.722 JB]	0.459 B	0.497 B
Silver	mg/kg	1.72 J	0.188	1.75 J [1.67 J]	0.854	1.19
Sodium	mg/kg	13,600 J	3,380	8,670 J [8,480 J]	6,320	8,110
Thallium	mg/kg	0.199 JB	0.0587 B	0.219 J [0.257 J]	0.178	0.134 B
Titanium	mg/kg	507 J	200	533 J [473 J]	350	386
Vanadium	mg/kg	35.1 J	12	36.4 J [32.2 J]	23.9	25.2
Zinc	mg/kg	265 J	81.8	218 J [209 J]	129	206
AVS/SEM						
Acid Volatile Sulfide (AVS)	umol/g	34	1.2 B	9.2 [4.1]	5.3	28.3
Cadmium	umol/g	0.00468	0.00113	0.00389 [0.004]	0.00236	0.00269
Copper	umol/g	0.396	0.312	0.396 [0.399]	0.205	0.255
Lead	umol/g	0.234	0.116	0.205 [0.208]	0.119	0.171
Mercury	umol/g	0.0000074 U	0.000019 B	0.0000073 U [0.0000073]	0.0000072 U	0.0000075 U
Nickel	umol/g	0.0857	0.229	0.144 [0.0778]	0.0456	0.141
Zinc	umol/g	1.36	0.667	1.05 [1.06]	0.668	0.928
TEPH Alkanes						
2,6,10,14-Tetramethyl Pentadecane	mg/kg	0.0431 UJ	0.0459 UJ	0.0359 U [0.035 UJ]	0.0286 U	0.0821 J
2,6,10,14-Tetramethylhexadecane	mg/kg	0.0279 UJ	0.0297 UJ	0.0232 U [0.0226 UJ]	0.0185 U	0.0421 U
Dotriacontane	mg/kg	0.155 J	0.0351 UJ	0.131 [0.167]	0.17	0.111 J
Heneicosane	mg/kg	0.0279 UJ	0.065 J	0.0464 J [0.0616 J]	0.0707	0.132
Heptacosane	mg/kg	0.0812 UJ	0.0864 UJ	0.142 J [0.137 J]	0.189	0.279 J
Heptadecane	mg/kg	0.0841 J	0.0601 J	0.0531 J [0.0866]	0.0959	0.0689 U
Heptatriacontane, -n	mg/kg	0.0478 J	0.111 J	0.131 J [0.0226 UJ]	0.0188 J	0.0643 J
Hexatriacontane	mg/kg	0.087 J	0.0297 UJ	0.0232 UJ [0.0226 UJ]	0.0751 J	0.0481 J
Hhentriacontane	mg/kg	0.227 J	0.0869 J	0.183 [0.196]	0.215	0.062 U
n-Decane	mg/kg	0.0376 UJ	0.04 UJ	0.0312 U [0.0305 U]	0.0249 U	0.0566 U
n-Docosane	mg/kg	0.0279 UJ	0.0474 J	0.0232 U [0.0226 U]	0.13	0.204
n-Dodecane	mg/kg	0.0279 UJ	0.0297 UJ	0.0232 U [0.0226 U]	0.0185 U	0.0421 U
n-Eicosane	mg/kg	0.0305 UJ	0.0324 UJ	0.0253 U [0.0247 U]	0.0202 U	0.0494 J
n-Hexacosane	mg/kg	0.0482 UJ	0.0513 UJ	0.0401 U [0.0391 U]	0.0319 U	0.126
n-Hexadecane	mg/kg	0.0279 UJ	0.0633 J	0.0988 J [0.234 J]	0.0185 U	0.0421 U
n-Nonane	mg/kg	0.0279 UJ	0.0297 UJ	0.0232 UJ [0.0226 UJ]	0.0185 UJ	0.0421 UJ
n-Octacosane	mg/kg	0.306 J	0.14 J	0.262 [0.309]	0.32	0.605
n-Octadecane	mg/kg	0.0391 J	0.0405 UJ	0.0317 U [0.0387 J]	0.0363 J	0.0676 J
Nonacosane	mg/kg	0.267 J	0.166 J	0.329 [0.333]	0.334	0.938
Nonadecane	mg/kg	0.0406 UJ	0.0509 J	0.0338 U [0.0329 U]	0.0269 U	0.0612 U
Nonatriacontane	mg/kg	0.0508 UJ	0.054 UJ	0.0422 UJ [0.0412 UJ]	0.0336 UJ	0.0765 UJ
n-Tetracosane	mg/kg	0.0279 UJ	0.0297 UJ	0.129 J [0.0395 J]	0.0503 J	0.0502 J
n-Tetradecane	mg/kg	0.0355 UJ	0.0378 UJ	0.0295 U [0.0288 U]	0.0262 J	0.0536 U
n-Triacontane	mg/kg	0.171 J	0.0546 UJ	0.215 [0.223]	0.212	0.0773 U
n-Tridecane	mg/kg	0.0279 UJ	0.0297 UJ	0.0232 U [0.0226 U]	0.0185 U	0.0421 U
n-Undecane	mg/kg	0.0513 UJ	0.0546 UJ	0.0426 U [0.0416 U]	0.034 U	0.0773 U
Octatriacontane	mg/kg	0.0381 UJ	0.0405 UJ	0.0317 UJ [0.0331 J]	0.0382 J	0.0574 UJ

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED166 0 - 0.5 09/14/15 North NB03SED-CHM166	NB03SED167 0 - 0.5 09/15/15 North NB03SED-CHM167	NB03SED168 0 - 0.5 09/16/15 North NB03SED-CHM168	NB03SED169 0 - 0.5 09/16/15 North NB03SED-CHM169	NB03SED170 0 - 0.5 09/17/15 Central NB03SED-CHM170
Pentacosane	mg/kg	0.0279 UJ	0.0469 J	0.0232 U [0.0226 U]	0.0185 U	0.396
Pentadecane	mg/kg	0.0279 UJ	0.0297 UJ	0.0232 U [0.0243 J]	0.0185 U	0.0447 J
Pentatriacontane	mg/kg	0.0279 UJ	0.0319 J	0.0232 UJ [0.0394 J]	0.0452 J	0.1 J
Tetracontane	mg/kg	0.028 J	0.0297 UJ	0.0243 J [0.0284 J]	0.0185 UJ	0.0816 J
Tetatriacontane	mg/kg	0.033 UJ	0.0351 UJ	0.0274 UJ [0.0267 UJ]	0.0218 UJ	0.0497 UJ
Tricosane	mg/kg	0.0684 J	0.0529 J	0.0869 [0.101]	0.0995	0.171
Tritriacontane	mg/kg	0.0558 UJ	0.0594 UJ	0.0464 U [0.0453 U]	0.037 U	0.129
Butyltins						
Dibutyltin	ug/kg	3.2 UJ	1.7 U	2.8 UJ [2.9 UJ]	2.2 U	2.6 U
Monobutyltin	ug/kg	51 UJCN	27 UCN	45 UJCN [46 UJCN]	35 UCN	41 UCN
Tetrabutyltin	ug/kg	4.2 UJ	2.2 U	3.7 UJ [3.8 UJ]	2.9 U	3.4 U
Tributyltin	ug/kg	3.7 UJ	2 U	3.2 UJ [3.4 UJ]	2.5 U	3 U
PCB Congeners						
PCB-1	ng/kg	444 EJ	319 E	285 J [90 B]	276	441 EJ
PCB-2	ng/kg	68.7 J	45.5	71.6 J [16.7]	58.7	82.9 J
PCB-3	ng/kg	155 J	114	106 J [30.3]	96.9	177 J
PCB-4	ng/kg	758 EJ	601 E	475 EJ [180]	516 EJ	2,020 EJ
PCB-5	ng/kg	5.94 J	5.56	4.41 J [1.87 J]	3.37 J	10.5 J
PCB-6	ng/kg	208 J	209	110 J [54.3]	75.1	1,200 EJ
PCB-7	ng/kg	22.7 J	18.7	14.7 J [0.801 U]	10.3	50.6 J
PCB-8	ng/kg	714 EJ	691 E	539 EJ [189 B]	555 E	2,960 EJ
PCB-9	ng/kg	32.8 J	30.3	19.7 J [8.65]	14.5	103 J
PCB-10	ng/kg	76.1 J	78	30.6 J [14.1]	23.6	74.2 J
PCB-11	ng/kg	511 EJ	505 E	294 J [181 B]	221	762 EJ
PCB-12/13	ng/kg	230 J	233	119 J [67.7]	90.3	801 EJ
PCB-14	ng/kg	0.793 UJ	0.765 U	0.81 UJ [0.801 U]	0.78 U	0.811 UJ
PCB-15	ng/kg	1,120 EJ	1,180 E	635 EJ [372 E]	589 E	1,680 EJ
PCB-16	ng/kg	282 BJ	235 B	209 BJ [159]	165 B	1,290 BEJ
PCB-17	ng/kg	398 EJ	387 E	266 J [200]	227	1,890 EJ
PCB-18/30	ng/kg	635 EJ	554	460 J [341]	366	3,210 EJ
PCB-19	ng/kg	170 J	161	101 J [57.1]	99.7	688 EJ
PCB-20/28	ng/kg	1,850 BEJ	1,970 BE	1,110 BEJ [1,050 E]	1,000 BE	5,360 BEJ
PCB-21/33	ng/kg	407 J	390	328 J [283]	267	1,730 EJ
PCB-22	ng/kg	434 EJ	425 E	273 J [282]	238	1,340 EJ
PCB-23	ng/kg	1.32 J	0.812 J	0.709 UJ [0.7 U]	0.683 U	3.22 J
PCB-24	ng/kg	6.77 J	5.58	4.92 J [1 U]	5.08	29.7 J
PCB-25	ng/kg	203 J	230	100 J [102]	96.7	581 EJ
PCB-26/29	ng/kg	328 J	359	176 J [174]	160	1,050 EJ
PCB-27	ng/kg	97.4 J	109	53.5 J [46.6]	44.2	299 J
PCB-31	ng/kg	1,390 EJ	1,430 E	794 EJ [631 E]	741 E	4,310 EJ
PCB-32	ng/kg	412 EJ	375 E	231 J [134]	199	1,290 EJ
PCB-34	ng/kg	8.9 J	9.57	5.44 J [4.84]	4.67	28.4 J
PCB-35	ng/kg	63.5 J	47	25.4 J [29.5]	23.6	78.2 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED166 0 - 0.5 09/14/15 North NB03SED-CHM166	NB03SED167 0 - 0.5 09/15/15 North NB03SED-CHM167	NB03SED168 0 - 0.5 09/16/15 North NB03SED-CHM168	NB03SED169 0 - 0.5 09/16/15 North NB03SED-CHM169	NB03SED170 0 - 0.5 09/17/15 Central NB03SED-CHM170
PCB-36	ng/kg	3.1 J	4.26	0.986 J [1.05 J]	1.23 J	3.76 J
PCB-37	ng/kg	440 EJ	493 E	300 J [330 E]	254	925 EJ
PCB-38	ng/kg	0.694 UJ	0.67 U	0.709 UJ [0.7 U]	0.683 U	2.06 J
PCB-39	ng/kg	9.98 J	10.6	6.02 J [6.08]	4.49	19.8 J
PCB-40/71	ng/kg	647 J	693	447 J [345]	265	1,530 EJ
PCB-41	ng/kg	51.7 J	63.6	62.8 J [47]	32.6	140 J
PCB-42	ng/kg	452 J	466	323 J [250]	195	1,130 EJ
PCB-43	ng/kg	53.7 J	46.1	40.5 J [30.4]	25.2	141 J
PCB-44/47/65	ng/kg	1,380 J	1,470	1,020 J [719]	568	3,290 EJ
PCB-45	ng/kg	140 J	149	92.2 J [78.5]	61.1	469 J
PCB-46	ng/kg	62 J	63.9	36.8 J [31.7]	24.6	188 J
PCB-48	ng/kg	203 J	203	195 J [132]	100	608 J
PCB-49/69	ng/kg	1,010 J	1,100	778 J [515]	435	2,520 EJ
PCB-50/53	ng/kg	185 J	190	110 J [85.7]	73.8	524 J
PCB-51	ng/kg	119 J	107	52.2 J [27.3]	34.6	191 J
PCB-52	ng/kg	1,310 BEJ	1,400 BE	1,140 BEJ [711 E]	618 BE	3,370 BEJ
PCB-54	ng/kg	25 J	18	5.97 J [3.35 J]	6.23	30.6 J
PCB-55	ng/kg	13.7 J	16.4	12 J [7.99]	7.66	26.5 J
PCB-56	ng/kg	687 EJ	760 E	615 EJ [462]	303	1,420 EJ
PCB-57	ng/kg	8.96 J	8.73	5.35 J [4.87 J]	3.03 J	18 J
PCB-58	ng/kg	6.84 J	8.03	4.12 J [2.19 J]	3.15 J	12.2 J
PCB-60	ng/kg	204 J	252	236 J [183]	106	459 J
PCB-61/70/74/76	ng/kg	2,050 J	2,320 E	2,340 J [1,420]	1,060	4,510 EJ
PCB-62/75	ng/kg	125 J	132	92.5 J [67.3]	55.2	344 J
PCB-63	ng/kg	52.5 J	62.4	58.9 J [36.3]	28	123 J
PCB-64	ng/kg	626 EJ	643 E	512 J [364]	275	1,590 EJ
PCB-66	ng/kg	1,360 BEJ	1,640 BE	1,360 BEJ [903 E]	680 BE	2,880 BEJ
PCB-67	ng/kg	42.3 J	48.6	37.2 J [26.1]	21.7	92.8 J
PCB-68	ng/kg	15.1 J	17.2	8.92 J [5.64]	7.05	26.9 J
PCB-72	ng/kg	19.5 J	22	12.8 J [8.39]	9.47	38 J
PCB-73	ng/kg	5.06 J	6.94	2.05 J [1.4 U]	2.11 J	1.42 UJ
PCB-77	ng/kg	R	R	119 J [118]	70.3	R
PCB-78	ng/kg	1.59 UJ	1.53 U	1.62 UJ [1.6 U]	1.56 U	1.62 UJ
PCB-79	ng/kg	1.09 UJ	14.8	12.3 J [6.9]	4.53 J	1.12 UJ
PCB-80	ng/kg	1.09 UJ	1.05 U	1.11 UJ [1.1 U]	1.07 U	1.12 UJ
PCB-81	ng/kg	4.5 J	5.53	4.6 J [3.75 J]	1.98 J	9.13 J
PCB-82	ng/kg	139 J	213	172 J [110]	57.5	391 J
PCB-83	ng/kg	63.5 J	76.5	61 J [38.3]	24.6	206 J
PCB-84	ng/kg	285 J	414	298 J [159]	122	942 EJ
PCB-85/116/117	ng/kg	219 J	319	289 J [167]	95.8	549 J
PCB-86/87/97/109/119/125	ng/kg	732 J	1,010	920 J [489]	310	1,970 J
PCB-88	ng/kg	2.18 UJ	2.1 U	2.23 UJ [2.2 U]	2.15 U	2.23 UJ
PCB-89	ng/kg	18.5 J	24.3	22.9 J [11.1]	7.11	53.7 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED166 0 - 0.5 09/14/15 North NB03SED-CHM166	NB03SED167 0 - 0.5 09/15/15 North NB03SED-CHM167	NB03SED168 0 - 0.5 09/16/15 North NB03SED-CHM168	NB03SED169 0 - 0.5 09/16/15 North NB03SED-CHM169	NB03SED170 0 - 0.5 09/17/15 Central NB03SED-CHM170
PCB-90/101/113	ng/kg	1,120 BJ	1,460 B	1,360 BJ [643]	560 B	2,880 BEJ
PCB-91	ng/kg	225 J	302	236 J [106]	97.2	653 EJ
PCB-92	ng/kg	224 J	286	245 J [109]	113	638 EJ
PCB-93/100	ng/kg	46.1 J	49	24.7 J [10.5 J]	15.6 J	64.2 J
PCB-94	ng/kg	15.9 J	18	11.2 J [5.38]	5.02	30.1 J
PCB-95	ng/kg	R	R	R [502]	R	R
PCB-96	ng/kg	14.3 J	15.8	11.1 J [4.83 J]	4.1 J	38.1 J
PCB-98/102	ng/kg	65.6 J	81.2	63.3 J [30.5]	27.2	162 J
PCB-99	ng/kg	677 EJ	866 E	758 EJ [398]	283	1,600 EJ
PCB-103	ng/kg	26.1 J	25.7	14.6 J [6.23]	8.59	41 J
PCB-104	ng/kg	6.29 J	5.62	1.42 UJ [1.4 U]	1.43 J	4.23 J
PCB-105	ng/kg	398 J	608 E	584 J [332]	185	924 EJ
PCB-106	ng/kg	1.68 UJ	1.63 U	1.72 UJ [1.7 U]	1.66 U	1.72 UJ
PCB-107	ng/kg	76.8 J	112	100 J [57.5]	35.6	186 J
PCB-108/124	ng/kg	40 J	57.7	54.6 J [30.2]	16.6	102 J
PCB-110/115	ng/kg	1,370 BEJ	2,010 BE	1,500 BEJ [885]	578 B	4,500 BEJ
PCB-111	ng/kg	1.39 UJ	1.34 U	1.42 UJ [1.4 U]	1.37 U	1.42 UJ
PCB-112	ng/kg	1.86 J	3.29 J	11.1 J [1.78 J]	1.53 J	16.9 J
PCB-114	ng/kg	24 J	31.7	43.6 J [20.6]	10.8	53.5 J
PCB-118	ng/kg	1,040 BEJ	1,450 BE	1,360 BEJ [759 E]	459 B	2,260 BEJ
PCB-120	ng/kg	5.47 J	6.71	4.19 J [2.13 J]	1.27 U	9.36 J
PCB-121	ng/kg	1.19 UJ	1.15 U	1.21 UJ [1.2 U]	1.17 U	1.22 UJ
PCB-122	ng/kg	14.8 J	21.6	20.3 J [10.5]	6.22	36 J
PCB-123	ng/kg	19.8 J	33.5	30.4 J [17.2]	9	49.7 J
PCB-126	ng/kg	1.59 UJ	7.12	4.86 J [3.5 J]	2.44 J	7.72 J
PCB-127	ng/kg	7.34 J	11.7	5.72 J [2.9 J]	2.73 J	22.7 J
PCB-128/166	ng/kg	143 J	254	167 J [139]	62.1	523 J
PCB-129/138/163	ng/kg	1,080 J	1,760 E	1,430 J [824]	477	3,940 EJ
PCB-130	ng/kg	66.3 J	109	76.5 J [48.5]	27.8	244 J
PCB-131	ng/kg	11.9 J	19.8	15.3 J [8.85]	5.26	49.6 J
PCB-132	ng/kg	303 J	509	380 J [238]	120	1,200 EJ
PCB-133	ng/kg	17.4 J	27.7	20.2 J [9.39]	8.34	55.5 J
PCB-134	ng/kg	52.1 J	82.8	65.4 J [38.8]	21.1	194 J
PCB-135/151	ng/kg	333 J	512	386 J [170]	141	1,220 EJ
PCB-136	ng/kg	114 J	160	121 J [57.6]	42.6	442 J
PCB-137	ng/kg	46.1 J	74.1	57.5 J [40.1]	19.8	184 J
PCB-139/140	ng/kg	18.2 J	26.8	19.9 J [11.9]	7.23 J	60.5 J
PCB-141	ng/kg	153 J	250	R [103]	R	624 EJ
PCB-142	ng/kg	1.68 UJ	1.63 U	1.72 UJ [1.7 U]	1.66 U	1.72 UJ
PCB-143	ng/kg	3.27 UJ	3.48 J	3.34 J [3.3 U]	3.22 U	11.7 J
PCB-144	ng/kg	44.6 J	66.8	61.9 J [22.7 J]	20.8	161 J
PCB-145	ng/kg	1.59 UJ	1.53 U	1.62 UJ [1.6 U]	1.56 U	1.62 UJ
PCB-146	ng/kg	R	R	178 J [93.7]	R	R

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED166 0 - 0.5 09/14/15 North NB03SED-CHM166	NB03SED167 0 - 0.5 09/15/15 North NB03SED-CHM167	NB03SED168 0 - 0.5 09/16/15 North NB03SED-CHM168	NB03SED169 0 - 0.5 09/16/15 North NB03SED-CHM169	NB03SED170 0 - 0.5 09/17/15 Central NB03SED-CHM170
PCB-147/149	ng/kg	768 J	1,150	900 J [461]	314	2,780 EJ
PCB-148	ng/kg	3.33 J	3.72 J	1.42 UJ [4 U]	1.37 U	1.42 UJ
PCB-150	ng/kg	4.94 J	5.3	2.47 J [1.5 U]	1.75 J	7.43 J
PCB-152	ng/kg	1.65 J	2.36 J	1.42 UJ [1.4 U]	1.37 U	3.93 J
PCB-153/168	ng/kg	936 BJ	1,360 BE	1,240 BEJ [560]	426 B	2,920 BEJ
PCB-154	ng/kg	28.8 J	30.1	14 J [8.18 J]	9.52 J	41.8 J
PCB-155	ng/kg	11.6 J	13.8	5.06 J [3.71 J]	3.97 J	24.2 J
PCB-156/157	ng/kg	113 J	193	179 J [99.4]	56.3	340 J
PCB-158	ng/kg	97.9 J	163	142 J [74.4]	45	354 J
PCB-159	ng/kg	1.39 UJ	1.34 U	1.42 UJ [4.59 J]	1.37 U	1.42 UJ
PCB-160	ng/kg	6.24 UJ	6.03 U	6.38 UJ [6.3 U]	6.14 U	6.39 UJ
PCB-161	ng/kg	1.29 UJ	1.24 U	R [1.3 U]	1.27 U	1.32 UJ
PCB-162	ng/kg	1.29 UJ	13.2	9.47 J [1.3 U]	1.97 J	26.3 J
PCB-164	ng/kg	68.1 J	112	87 J [45.2]	28.9	252 J
PCB-165	ng/kg	R	R	R [1.3 U]	R	R
PCB-167	ng/kg	40.8 J	65.1	55.3 J [28.5]	17.6	130 J
PCB-169	ng/kg	1.49 UJ	1.43 U	1.52 UJ [1.5 U]	1.46 U	1.52 UJ
PCB-170	ng/kg	226 J	371	458 J [183]	109	913 EJ
PCB-171/173	ng/kg	R	R	R [53.6]	R	R
PCB-172	ng/kg	41.7 J	64.7	79.4 J [29.8]	21.9	163 J
PCB-174	ng/kg	R	R	R [145]	R	R
PCB-175	ng/kg	R	R	R [6.78]	R	R
PCB-176	ng/kg	30.8 J	46.1	47.3 J [18.3]	15	117 J
PCB-177	ng/kg	R	R	R [103]	R	R
PCB-178	ng/kg	R	R	85.7 J [35.2]	33.4	218 J
PCB-179	ng/kg	121 J	164	148 J [62.9]	53.2	385 J
PCB-180/193	ng/kg	574 J	863	1,040 J [387]	298	2,160 EJ
PCB-181	ng/kg	R	R	R [2.01 J]	R	R
PCB-182	ng/kg	R	R	R [1.3 U]	R	R
PCB-183/185	ng/kg	R	R	301 J [117]	98.4	R
PCB-184	ng/kg	1.39 UJ	1.85 J	1.42 UJ [1.4 U]	1.37 U	2.93 J
PCB-186	ng/kg	1.49 UJ	1.43 U	1.52 UJ [1.5 U]	1.46 U	1.52 UJ
PCB-187	ng/kg	R	R	575 J [241]	214	1,470 EJ
PCB-188	ng/kg	1.49 UJ	2.46 J	1.52 UJ [1.5 U]	1.46 U	1.52 UJ
PCB-189	ng/kg	9.43 J	16.4	21.6 J [6.91]	5.42	36.1 J
PCB-190	ng/kg	52.3 J	81.8	104 J [36.2]	27.3	197 J
PCB-191	ng/kg	10.2 J	16.1	19.8 J [6.59]	5.68	39.5 J
PCB-192	ng/kg	1.29 UJ	1.24 U	1.32 UJ [1.3 U]	1.27 U	1.32 UJ
PCB-194	ng/kg	173 J	200	253 J [101]	83.7	483 J
PCB-195	ng/kg	54.8 J	69.7	89.7 J [34.4]	28.8	175 J
PCB-196	ng/kg	91.7 J	111	133 J [46.7]	47.7	278 J
PCB-197/200	ng/kg	28.6 J	31.9	R [13.3]	R	78.5 J
PCB-198/199	ng/kg	269 J	285	276 J [125]	122	646 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED166 0 - 0.5 09/14/15 North NB03SED-CHM166	NB03SED167 0 - 0.5 09/15/15 North NB03SED-CHM167	NB03SED168 0 - 0.5 09/16/15 North NB03SED-CHM168	NB03SED169 0 - 0.5 09/16/15 North NB03SED-CHM169	NB03SED170 0 - 0.5 09/17/15 Central NB03SED-CHM170
PCB-201	ng/kg	28.4 J	33	29.5 J [13.1]	14.1	74.4 J
PCB-202	ng/kg	77.4 J	82.3	60.5 J [35.3]	33.7	152 J
PCB-203	ng/kg	178 J	183	183 J [76.2]	79.3	395 J
PCB-204	ng/kg	2.08 UJ	2.01 U	2.13 UJ [2.1 U]	2.05 U	2.13 UJ
PCB-205	ng/kg	1.49 UJ	10.5	14.8 J [4.9 J]	5	24.3 J
PCB-206	ng/kg	197 J	164	133 J [125]	82	282 J
PCB-207	ng/kg	18.4 J	14.5	13.1 J [9.83]	8	28.3 J
PCB-208	ng/kg	62.7 J	59.8	46.8 J [33.5]	31.8	95.2 J
PCB-209	ng/kg	109 J	117	94.5 J [72.2]	66.4	R
Total PCB Congeners (209)	ng/kg	36,000 J	42,600 J	34,900 J [21,800 J]	17,900 J	103,000 J
Aroclor PCBs						
Aroclor-1016	ug/kg	9.2 U	4.9 U	7.6 U [7.4 U]	6.1 U	6.9 U
Aroclor-1221	ug/kg	12 U	6.2 U	9.7 U [9.5 U]	7.7 U	8.8 U
Aroclor-1232	ug/kg	20 U	11 U	17 U [16 U]	13 U	15 U
Aroclor-1242	ug/kg	8.4 U	4.5 U	7 U [6.8 U]	5.6 U	6.3 U
Aroclor-1248	ug/kg	63	26	83 [80]	69	130
Aroclor-1254	ug/kg	57	29	81 [65]	73	100
Aroclor-1260	ug/kg	44	13 J	39 J [29 J]	25 J	39
Aroclor-1262	ug/kg	8.4 U	4.5 U	7 U [6.8 U]	5.6 U	6.3 U
Aroclor-1268	ug/kg	8.4 U	4.5 U	7 U [6.8 U]	5.6 U	6.3 U
Total Aroclor PCBs (Sum of 7 Aroclors)	ug/kg	160	68 J	200 J [170 J]	170 J	270
Total Aroclor PCBs (Sum of 9 Aroclors)	ug/kg	160	68 J	200 J [170 J]	170 J	270
Pesticides						
2,4'-DDD	pg/g	4,640 J	695 J	2,940 J [2,890 J]	1,810 J	4,140 J
2,4'-DDE	pg/g	3,580 J	444 J	4,520 J [4,450 J]	1,680 J	3,510 J
2,4'-DDT	pg/g	353 J	366 J	6.1 UJ [429 J]	378 J	214 J
4,4'-DDD	pg/g	13,100 JB	2,350 JB	7,540 JB [6,920 JB]	4,880 JB	10,300 JB
4,4'-DDE	pg/g	26,700 JBD	2,740 JBD	24,600 JBD [17,700 JB]	7,750 JB	17,500 JB
4,4'-DDT	pg/g	1,660 JB	5,900 JB	950 JB [1,820 JB]	880 JB	1,170 JB
Aldrin	pg/g	5.37 UJD	R	5.37 UJD [R]	R	5.37 UJD
Alpha-BHC	pg/g	44.7 J	9.17 J	30.7 J [41 J]	19 J	22.8 J
Alpha-Chlordane	pg/g	6,480 J	647 J	2,960 J [3,050 J]	1,580 J	5,780 J
Beta-BHC	pg/g	78.7 J	12.6 UJ	12.6 UJ [47.2 J]	36.2 J	29.6 J
cis-Nonachlor	pg/g	1,930 J	10.1 UJ	1,130 J [1,030 J]	542 J	1,800 J
Delta-BHC	pg/g	7.34 UJ	7.34 UJ	7.34 UJ [9.52 J]	7.34 UJ	7.34 UJ
Dieldrin	pg/g	2,020 J	265 J	355 J [1,250 J]	689 J	2,590 J
Endosulfan I	pg/g	222 J	20.5 UJ	20.5 UJ [20.5 UJ]	20.5 UJ	20.5 UJ
Endosulfan II	pg/g	42.6 UJ	42.6 UJ	42.6 UJ [42.6 UJ]	42.6 UJ	42.6 UJ
Endosulfan Sulfate	pg/g	44.7 UJ	44.7 UJ	44.7 UJ [44.7 UJ]	44.7 UJ	44.7 UJ
Endrin	pg/g	10.4 UJ	10.4 UJ	10.4 UJ [10.4 UJ]	10.4 UJ	10.4 UJ
Endrin Aldehyde	pg/g	40.6 UJ	40.6 UJ	40.6 UJ [40.6 UJ]	40.6 UJ	40.6 UJ
Endrin Ketone	pg/g	25.8 UJ	25.8 UJ	25.8 UJ [25.8 UJ]	25.8 UJ	25.8 UJ
Gamma-BHC (Lindane)	pg/g	18 J	7.3 UJ	7.3 UJ [33.3 J]	7.3 UJ	10.8 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED166 0 - 0.5 09/14/15 North NB03SED-CHM166	NB03SED167 0 - 0.5 09/15/15 North NB03SED-CHM167	NB03SED168 0 - 0.5 09/16/15 North NB03SED-CHM168	NB03SED169 0 - 0.5 09/16/15 North NB03SED-CHM169	NB03SED170 0 - 0.5 09/17/15 Central NB03SED-CHM170
Heptachlor	pg/g	10.4 UJ	10.4 UJ	10.4 UJ [10.4 UJ]	19.2 J	44.4 J
Heptachlor Epoxide	pg/g	371 J	47.8 J	72.3 J [73.8 J]	66 J	178 J
Hexachlorobenzene	pg/g	1,510 JB	207 JB	847 JB [1,230 JB]	567 JB	1,310 JB
Methoxychlor	pg/g	11.8 UJ	11.8 UJ	11.8 UJ [11.8 UJ]	R	11.8 UJ
Mirex	pg/g	4.91 UJ	205 J	R [4.91 UJ]	4.91 UJ	4.91 UJ
Nonachlor, trans-	pg/g	3,870 J	425 J	1,560 J [1,640 J]	936 J	3,490 J
Oxychlordane	pg/g	30.4 J	11.4 UJ	11.4 UJ [11.4 UJ]	11.4 UJ	11.4 UJ
trans-Chlordane	pg/g	6,250 J	652 J	3,000 J [3,150 J]	1,620 J	7,150 J
trans-Heptachlor Epoxide	pg/g	295 J	12.9 UJ	12.9 UJ [219 J]	110 J	391 J
Total Alpha + Gamma Chlordane	ppb	13 J	1.3 J	6 J [6.2 J]	3.2 J	13 J
Total DDT (2,4)	ppb	8.6 J	1.5 J	7.5 J [7.8 J]	3.9 J	7.9 J
Total DDT (4,4)	ppb	41 BDJ	11 BDJ	33 BDJ [26 BJ]	14 BJ	29 BJ
Total DDT (2,4 & 4,4)	ppb	50 BDJ	12 BDJ	41 BDJ [34 BJ]	17 BJ	37 BJ
Semivolatiles						
1,2,4,5-Tetrachlorobenzene	ug/kg	42 U	23 U	R [R]	R	R
1,2-Diphenylhydrazine	ug/kg	42 U	23 U	R [R]	R	R
1-Methylnaphthalene	ug/kg	1.9 J	46	1.4 UJ [3.2 J-]	6.1	20
2,2'-oxybis(1-Chloropropane)	ug/kg	42 U	23 U	R [R]	R	R
2,3,4,6-Tetrachlorophenol	ug/kg	170 U	90 U	R [R]	R	R
2,4,5-Trichlorophenol	ug/kg	42 U	23 U	R [R]	R	R
2,4,6-Trichlorophenol	ug/kg	42 U	23 U	R [R]	R	R
2,4-Dichlorophenol	ug/kg	42 U	23 U	R [R]	R	R
2,4-Dimethylphenol	ug/kg	42 U	23 U	R [R]	R	R
2,4-Dinitrophenol	ug/kg	760 U	410 U	R [R]	R	R
2,4-Dinitrotoluene	ug/kg	170 U	90 U	R [R]	R	R
2,6-Dinitrotoluene	ug/kg	42 U	23 U	R [R]	R	R
2-Chloronaphthalene	ug/kg	17 U	9 U	R [R]	R	R
2-Chlorophenol	ug/kg	42 U	23 U	R [R]	R	R
2-Methylnaphthalene	ug/kg	3.6 J	76	2.8 J- [6.6 J-]	12	31
2-Methylphenol	ug/kg	42 U	23 U	R [R]	R	R
2-Nitroaniline	ug/kg	42 U	23 U	R [R]	R	R
2-Nitrophenol	ug/kg	42 U	23 U	R [R]	R	R
3,3'-Dichlorobenzidine	ug/kg	250 U	140 U	R [R]	R	R
3-Nitroaniline	ug/kg	170 U	90 U	R [R]	R	R
4,6-Dinitro-2-methylphenol	ug/kg	420 U	230 U	R [R]	R	R
4-Bromophenyl phenyl ether	ug/kg	42 U	23 U	R [R]	R	R
4-Chloro-3-Methylphenol	ug/kg	42 U	23 U	R [R]	R	R
4-Chloroaniline	ug/kg	84 U	45 U	R [R]	R	R
4-Chlorophenyl phenyl ether	ug/kg	42 U	23 U	R [R]	R	R
4-Methylphenol	ug/kg	42 U	23 U	R [R]	33 J	R
4-Nitroaniline	ug/kg	170 U	90 U	R [R]	R	R
4-Nitrophenol	ug/kg	420 U	230 U	R [R]	R	R
Acenaphthene	ug/kg	2.6 J	53	1.6 J- [3.1 J-]	6.6	35

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED166 0 - 0.5 09/14/15 North	NB03SED167 0 - 0.5 09/15/15 North	NB03SED168 0 - 0.5 09/16/15 North	NB03SED169 0 - 0.5 09/16/15 North	NB03SED170 0 - 0.5 09/17/15 Central
	Units	NB03SED-CHM166	NB03SED-CHM167	NB03SED-CHM168	NB03SED-CHM169	NB03SED-CHM170
Acenaphthylene	ug/kg	8.3	14	13 J- [26 J-]	47	36
Acetophenone	ug/kg	100	23 U	180 J [55 J]	120 J	76 J
Anthracene	ug/kg	9.5	77	9.7 J- [16 J-]	37	87
Atrazine	ug/kg	84 U	45 U	R [R]	R	R
Benzaldehyde	ug/kg	170 U	90 U	R [R]	R	R
Benzidine	ug/kg	1,800 U	950 U	R [R]	R	R
Benzo(a)anthracene	ug/kg	36	140	33 J [48 J-]	130 J-	280 J-
Benzo(a)pyrene	ug/kg	47	150	54 J- [96 J-]	200 J-	310 J-
Benzo(b)fluoranthene	ug/kg	44	150	39 J- [65 J-]	160 J-	260 J-
Benzo(e)pyrene	ug/kg	35	110	36 J [66 J]	140	240
Benzo(g,h,i)perylene	ug/kg	31	100	33 J- [60 J-]	120 J-	200 J-
Benzo(j,k)fluoranthene	ug/kg	36	120	38 J- [66 J-]	130 J-	290 J-
Benzoic Acid	ug/kg	420 U	230 U	R [R]	R	R
Biphenyl	ug/kg	42 U	23 U	R [R]	R	R
bis(2-Chloroethoxy)methane	ug/kg	42 U	23 U	R [R]	R	R
bis(2-Chloroethyl)ether	ug/kg	42 U	23 U	R [R]	R	R
bis(2-Ethylhexyl)phthalate	ug/kg	460	280	280 J [R]	280 J	940 J
Butyl benzyl phthalate	ug/kg	170 U	90 U	R [R]	R	R
C1-Chrysenes	ug/kg	29	84	39 J [84 J]	160	210
C1-Fluoranthenes/Pyrenes	ug/kg	43	130	48 J [100 J]	200	290
C1-Fluorenes	ug/kg	3.6 J	15	3.9 J [9.7 J]	19	29
C1-Naphthalenes	ug/kg	4.9	83	4.2 J [11 J]	19	42
C1-Phenanthrenes/Anthracenes	ug/kg	17	100	14 J [25 J]	72	190
C2-Chrysenes	ug/kg	21	66	25 J [100 J]	120	150
C2-Fluoranthenes/Pyrenes	ug/kg	25	71	33 J [88 J]	130	160
C2-Fluorenes	ug/kg	1.7 U	4.5 U	1.4 U [1.4 U]	19	6.4 U
C2-Naphthalenes	ug/kg	4 J	46	4.6 J [16 J]	33	64
C2-Phenanthrene/anthracenes	ug/kg	19	67	21 J [42 J]	98	140
C3-Chrysenes	ug/kg	11	38	16 J [63 J]	54	83
C3-Fluoranthenes/Pyrenes	ug/kg	11	50	17 J [80 J]	76	110
C3-Fluorenes	ug/kg	1.7 U	4.5 U	1.4 U [1.4 U]	23	6.4 U
C3-Naphthalene	ug/kg	4.4	21	5 J [22 J]	24	46
C3-Phenanthrene/anthracenes	ug/kg	13	35	17 J [38 J]	65	77
C4-Chrysenes	ug/kg	1.7 U	24	1.4 U [39]	1.1 U	40
C4-Naphthalene	ug/kg	3.8 J	14	4.7 J [17 J]	21	36
C4-Phenanthrenes/anthracenes	ug/kg	1.7 U	4.5 U	1.4 U [1.4 U]	1.1 U	6.4 U
Caprolactam	ug/kg	84 U	45 U	R [R]	R	R
Carbazole	ug/kg	42 U	23 U	R [R]	R	75 J
Chrysene	ug/kg	42	150	39 J [56 J-]	170 J-	320 J-
Dibenzo(a,h)anthracene	ug/kg	8.2	24	9 J- [16 J-]	36 J-	56 J-
Dibenzofuran	ug/kg	42 U	23 U	R [R]	R	35 J
Diethyl phthalate	ug/kg	170 U	90 U	R [R]	R	R
Dimethylphthalate	ug/kg	170 U	90 U	R [R]	R	R

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED166 0 - 0.5 09/14/15 North	NB03SED167 0 - 0.5 09/15/15 North	NB03SED168 0 - 0.5 09/16/15 North	NB03SED169 0 - 0.5 09/16/15 North	NB03SED170 0 - 0.5 09/17/15 Central
	Units	NB03SED-CHM166	NB03SED-CHM167	NB03SED-CHM168	NB03SED-CHM169	NB03SED-CHM170
Di-n-Butylphthalate	ug/kg	170 U	90 U	R [R]	R	R
Di-n-Octylphthalate	ug/kg	170 U	90 U	R [R]	R	R
Fluoranthene	ug/kg	59	320	38 J [51 J-]	150 J-	540 J-
Fluorene	ug/kg	2.1 J	46	1.7 J- [1.7 J-]	7.5	41
Hexachlorobutadiene	ug/kg	42 U	23 U	R [R]	R	R
Hexachlorocyclopentadiene	ug/kg	420 U	230 U	R [R]	R	R
Hexachloroethane	ug/kg	84 U	45 U	R [R]	R	R
Indeno(1,2,3-cd)pyrene	ug/kg	33	100	35 J- [61 J-]	130 J-	220 J-
Isophorone	ug/kg	42 U	23 U	R [R]	R	R
Naphthalene	ug/kg	13	98	7.9 J- [21 J-]	34	69
Nitrobenzene	ug/kg	42 U	23 U	R [R]	R	R
N-Nitroso-di-n-propylamine	ug/kg	42 U	23 U	R [R]	R	R
N-Nitrosodiphenylamine	ug/kg	42 U	23 U	R [R]	R	R
Pentachlorophenol	ug/kg	84 U	45 U	R [R]	R	R
Perylene	ug/kg	12	43	13 J [22 J]	47	77
Phenanthrene	ug/kg	18	290	11 J- [21 J-]	63	340
Phenol	ug/kg	42 U	23 U	R [R]	R	R
Pyrene	ug/kg	65	290	46 J [92 J-]	200 J-	550 J-
Pyridine	ug/kg	170 U	90 U	R [R]	R	R
Total HMW PAHs	ug/kg	400	1,500	360 J [610 J]	1,400 J	3,000 J
Total LMW PAHs	ug/kg	57 J	650	48 J [95 J]	210	640
TOTAL PAHs	ug/kg	460 J	2,200	410 J [710 J]	1,600 J	3,700 J
Volatiles						
1,2,4-Trichlorobenzene	ug/kg	3 U	1 U	2 UJ [3 U]	2 U	3 U
1,2-Dichlorobenzene	ug/kg	3 U	1 U	2 U [3 U]	2 U	3 U
1,3-Dichlorobenzene	ug/kg	3 U	1 U	2 U [3 U]	2 U	3 U
1,4-Dichlorobenzene	ug/kg	3 U	1 U	2 U [3 U]	2 U	3 U
TPH						
PHC AS GASOLINE	mg/kg	7 U	3.1 U	5.7 U [7.2 J]	4.2 U	6.6 U
Total Petroleum Hydrocarbons (C9-C40)	mg/kg	90 J	105 J	117 [131]	129	282
Grain Size						
0.001 mm	% passing	6	0.5 U	6 [6]	3	3
0.002 mm	% passing	9.5	2	9 [10]	6	6
0.02 mm	% passing	51	6	42 [43]	28	28
0.05 mm	% passing	75	9	67 [68]	37	42
0.064 mm	% passing	87	11	76 [76]	41	49
0.3 mm	% passing	94.8	53.3	95.9 [94]	89.7	90.4
3.35 mm	% passing	99.6	97.1	99.2 [99.3]	98.5	99.2
75000 um	% passing	100	100	100 [100]	100	100
Hydrometer Reading, Percent Finer Than 0.0050 mm	% passing	18	3	18 [17]	10	10
Sieve No. 4, Percent Passing	% passing	100	98.3	99.4 [100]	99.4	99.8
Sieve No. 8, Percent Passing	% passing	98.6	95.6	98.8 [96.7]	96.2	97.3
Sieve No. 16, Percent Passing	% passing	97.2	93.9	98.2 [96]	94.6	95.9

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED166 0 - 0.5 09/14/15 North NB03SED-CHM166	NB03SED167 0 - 0.5 09/15/15 North NB03SED-CHM167	NB03SED168 0 - 0.5 09/16/15 North NB03SED-CHM168	NB03SED169 0 - 0.5 09/16/15 North NB03SED-CHM169	NB03SED170 0 - 0.5 09/17/15 Central NB03SED-CHM170
Sieve No. 30, Percent Passing	% passing	96	85.1	97.3 [95.2]	93.3	94.3
Sieve No. 100, Percent Passing	% passing	93.4	18.8	90.3 [89.4]	64.2	72.9
Sieve No. 200, Percent Passing	% passing	91.5	12	80.8 [80.2]	45.1	52.8
Sieve 19000 Microns, Percent Passing	% passing	100	100	100 [100]	100	100
Sieve 37500 Microns, Percent Passing	% passing	100	100	100 [100]	100	100
Physical Properties						
Moisture (water) Content	%	61	26.9	53 [52.1]	41.4	48.2
Oxidation Reduction Potential	mV	70.5	162	96.5 [104]	92.5	76.5
Percent Moisture	%	56.2	28.1	46.8 [48.1]	39.6	54.6
Total Solids (Percent)	%	40.6 Z	75.3 Z	49.8 Z [47.5 Z]	57.9 Z	50.1 Z
Water Content	%	157	36.8	113 [109]	70.7	93.2
Water Content ASTM D2216	%	128	39.1	88.1 [92.7]	65.7	120
TOC by Lloyd Kahn	mg/kg	53,700	9,200 J	36,700 J [34,000 J]	16,300 J	31,600 J
pH	pH Units	7.63	7.77	7.58 [7.4]	7.59	7.6
Miscellaneous Chemicals						
Total Kjeldahl Nitrogen	mg/kg	2,310	510	1,590 [1,370]	1,180	2,320
Total Cyanide	mg/kg	0.44 UJ	0.24 U	0.37 UJ [0.37 UJ]	0.31 U	0.34 U
Ammonia Nitrogen	mg/kg	235 B	116 U	109 U [106 U]	87 U	109 B
Phosphorus	mg/kg	1,430	389	620 J [688]	423	641

Table E-1
Surface Sediment Analytical Results

Location ID:		NB03SED171	NB03SED172	NB03SED173	NB03SED174	NB03SED175
Sample Depth(ft):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Date Processed:		09/18/15	09/24/15	09/24/15	09/21/15	09/22/15
Zone:		Central	Central	South	South	South
Sample Name:	Units	NB03SED-CHM171	NB03SED-CHM172	NB03SED-CHM173	NB03SED-CHM174	NB03SED-CHM175
Dioxins/Furans						
1,2,3,4,6,7,8-HpCDD	ng/kg	187 B	252 BJ	339 BJ	244 BJ	20 BJ
1,2,3,4,6,7,8-HpCDF	ng/kg	126 B	189 BJ	394 BJ	134 BJ	11.2 BJ
1,2,3,4,7,8,9-HpCDF	ng/kg	5.59	8.97 BJ	14 BJ	6.63 BJ	2.78 JB
1,2,3,4,7,8-HxCDD	ng/kg	2.97 JQ	4.26 J	4.24 J	3.23 J	0.32 J
1,2,3,4,7,8-HxCDF	ng/kg	27.9 BC	39.3 BCJ	62.8 BCJ	26.1 BCJ	2.14 JB
1,2,3,6,7,8-HxCDD	ng/kg	10.2	17.3 BJ	21.9 BJ	14.2 BJ	1.23 JB
1,2,3,6,7,8-HxCDF	ng/kg	8.31 BC	15.1 BCJ	20.9 BCJ	9.32 BCJ	1.21 JB
1,2,3,7,8,9-HxCDD	ng/kg	6.35 B	9.02 BJ	10.4 BJ	9 BJ	0.685 JB
1,2,3,7,8,9-HxCDF	ng/kg	2.06 JB	3.86 JB	0.543 UCJ	2.28 JB	0.473 JB
1,2,3,7,8-PeCDD	ng/kg	3.12 JQ	4.28 JB	5.22 BJ	2.88 JBQ	0.222 JBQ
1,2,3,7,8-PeCDF	ng/kg	5.19 BCQJ	9.95 BCJ	9.61 BCJ	6.56 BCJ	0.728 JB
2,3,4,6,7,8-HxCDF	ng/kg	5.66 BC	10.1 CJ	11.6 BCJ	5.21 BCJ	1.05 JB
2,3,4,7,8-PeCDF	ng/kg	8.49 BC	14.8 CJ	22 BCJ	9.65 BCJ	1.04 JB
2,3,7,8-TCDD	ng/kg	38.8	49.2 J	261 J	20.3 J	1.76 J
2,3,7,8-TCDF	ng/kg	9.75 C	20.7 CJ	15.6 CJ	15.6 CJ	1.28 J
OCDD	ng/kg	1,780 B	2,410 BJ	3,170 BJ	2,520 BJ	212 BJ
OCDF	ng/kg	193 B	266 BJ	449 BJ	211 BJ	18.9 BJ
Herbicides						
2,4,5-T	ug/kg	6.1 J	1.7 UJ	1.9 UJ	7 J	1.2 U
2,4,5-TP (Silvex)	ug/kg	1.4 UJ	1.6 UJ	1.7 UJ	1.8 UJ	1.1 U
2,4-D	ug/kg	22 UJ	25 UJ	28 UJ	29 UJ	18 U
2,4-DB	ug/kg	30 UJ	13 UJ	14 UJ	15 UJ	9.4 U
Metals						
Aluminum	mg/kg	10,300	18,200 J	19,700 J	20,500 J	5,420
Antimony	mg/kg	0.706	1.44 J	4.21 J	0.689 J	0.226 B
Arsenic	mg/kg	8.67	12.4 J	27.4 J	13.9 J	4.67
Barium	mg/kg	87.3	302 J	214 J	133 J	32.1
Beryllium	mg/kg	0.57	1.04 J	1.14 J	1.1 J	0.327
Cadmium	mg/kg	1.15	2.18 J	3.65 J	0.799 J	0.213
Calcium	mg/kg	8,810	7,520 J	7,100 J	9,410 J	27,400
Chromium	mg/kg	60.7	128 J	280 J	89.1 J	20.8
Cobalt	mg/kg	7.42	15.1 J	17 J	15.9 J	6.22
Copper	mg/kg	108	282 J	262 J	102 J	19
Hexavalent Chromium	mg/kg	0.92 U	1.1 U	1.2 U	1.2 U	0.74 U
Iron	mg/kg	19,200	38,000 J	37,400 J	37,200 J	15,000
Lead	mg/kg	116	207 J	265 J	108 J	164
Magnesium	mg/kg	6,670	10,500 J	11,600 J	14,000 J	5,560
Manganese	mg/kg	189	422 J	440 J	545 J	180
Mercury	ng/g	881 J	1,260 J	3,010 J	1,300 J	169 J
Methyl Mercury	ng/g	2.3	1.08 J	1.87 J	1.41 J	0.334 J
Nickel	mg/kg	26.9	182 J	82.9 J	103 J	18.2
Potassium	mg/kg	2,490	4,860 J	5,220 J	5,620 J	1,550

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED171 0 - 0.5 09/18/15 Central NB03SED-CHM171	NB03SED172 0 - 0.5 09/24/15 Central NB03SED-CHM172	NB03SED173 0 - 0.5 09/24/15 South NB03SED-CHM173	NB03SED174 0 - 0.5 09/21/15 South NB03SED-CHM174	NB03SED175 0 - 0.5 09/22/15 South NB03SED-CHM175
Selenium	mg/kg	0.451 B	0.888 J	1.26 J	0.792 B	0.151 B
Silver	mg/kg	1.43	2.85 J	4.32 J	1.75 J	0.263
Sodium	mg/kg	9,540	12,800 J	13,200 J	12,900 J	3,840
Thallium	mg/kg	0.145 B	0.3 J	0.392 J	0.277 J	0.108 B
Titanium	mg/kg	350	606 J	610 J	675 J	380
Vanadium	mg/kg	28.9	55.1 J	54.2 J	50.3 J	27.2
Zinc	mg/kg	240	353 J	457 J	236 J	79.6
AVS/SEM						
Acid Volatile Sulfide (AVS)	umol/g	20.1	8.6	13.8	18.3	1.8 B
Cadmium	umol/g	0.00306	0.00775	0.00706	0.00212	0.000856 B
Copper	umol/g	0.265	0.676	0.621	0.252	0.25
Lead	umol/g	0.212	0.288	0.247	0.166	0.233
Mercury	umol/g	0.0000072 U	0.0000074 U	0.0000074 U	0.0000073 U	0.000018 B
Nickel	umol/g	0.315	0.164	0.181	0.369	0.345
Zinc	umol/g	1.1	1.58	1.25	0.796	0.63
TEPH Alkanes						
2,6,10,14-Tetramethyl Pentadecane	mg/kg	0.0619 U	0.181 UJ	0.199 UJ	0.0414 UJ	0.0249 UJ
2,6,10,14-Tetramethylhexadecane	mg/kg	0.04 U	0.117 UJ	0.129 UJ	0.0268 UJ	0.0161 UJ
Dotriacontane	mg/kg	0.157	0.404 J	0.536 J	0.0327 J	0.019 UJ
Heneicosane	mg/kg	0.148	0.13 J	0.171 J	0.0301 J	0.0161 UJ
Heptacosane	mg/kg	0.312 J	0.34 UJ	0.374 UJ	0.0779 UJ	0.0469 UJ
Heptadecane	mg/kg	0.0655 U	0.246 J	0.21 UJ	0.0438 UJ	0.0264 UJ
Heptatriacontane, -n	mg/kg	0.0915 J	0.269 J	0.151 J	0.0424 J	0.0238 J
Hexatriacontane	mg/kg	0.112 J	0.117 UJ	0.129 UJ	0.0268 UJ	0.0161 UJ
Hhentriacontane	mg/kg	0.0807 J	0.172 UJ	0.189 UJ	0.0477 J	0.0237 UJ
n-Decane	mg/kg	0.0539 U	0.157 UJ	0.173 UJ	0.036 UJ	0.0217 UJ
n-Docosane	mg/kg	0.217	0.303 J	0.268 J	0.0404 J	0.0161 UJ
n-Dodecane	mg/kg	0.04 U	0.117 UJ	0.129 UJ	0.0268 UJ	0.0161 UJ
n-Eicosane	mg/kg	0.0767 J	0.128 J	0.264 J	0.0292 UJ	0.0176 UJ
n-Hexacosane	mg/kg	0.0891 J	0.478 J	1.04 J	0.0604 J	0.0278 UJ
n-Hexadecane	mg/kg	0.04 U	0.697 J	0.241 J	0.0332 J	0.0161 UJ
n-Nonane	mg/kg	0.04 UJ	0.117 UJ	0.129 UJ	0.0268 UJ	0.0161 UJ
n-Octacosane	mg/kg	0.826	0.6 J	0.615 J	0.116 J	0.0264 J
n-Octadecane	mg/kg	0.0756 J	0.16 UJ	0.175 UJ	0.0365 UJ	0.022 UJ
Nonacosane	mg/kg	1.15	0.38 J	0.597 J	0.136 J	0.054
Nonadecane	mg/kg	0.224	0.17 UJ	0.187 UJ	0.039 UJ	0.0234 UJ
Nonatriacontane	mg/kg	0.074 J	0.304 J	0.234 UJ	0.0487 UJ	0.0317 J
n-Tetracosane	mg/kg	0.0469 J	0.117 UJ	0.129 UJ	0.0268 UJ	0.0161 UJ
n-Tetradecane	mg/kg	0.051 U	0.149 UJ	0.164 UJ	0.0341 UJ	0.0205 UJ
n-Triacontane	mg/kg	0.0735 U	1.24 J	0.851 J	0.135 J	0.0848 J
n-Tridecane	mg/kg	0.04 U	0.117 UJ	0.129 UJ	0.0268 UJ	0.0161 UJ
n-Undecane	mg/kg	0.0735 U	0.215 UJ	0.236 UJ	0.0492 UJ	0.0296 UJ
Octatriacontane	mg/kg	0.648 J	0.16 UJ	0.175 UJ	0.0365 UJ	0.022 UJ

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED171 0 - 0.5 09/18/15 Central NB03SED-CHM171	NB03SED172 0 - 0.5 09/24/15 Central NB03SED-CHM172	NB03SED173 0 - 0.5 09/24/15 South NB03SED-CHM173	NB03SED174 0 - 0.5 09/21/15 South NB03SED-CHM174	NB03SED175 0 - 0.5 09/22/15 South NB03SED-CHM175
Pentacosane	mg/kg	0.0624 J	0.117 UJ	0.23 J	0.0268 UJ	0.02 J
Pentadecane	mg/kg	0.0407 J	0.117 UJ	0.129 UJ	0.0268 UJ	0.0161 UJ
Pentatriacontane	mg/kg	0.105 J	0.36 J	0.26 J	0.0512 J	0.0161 UJ
Tetracontane	mg/kg	0.119 J	0.137 J	0.129 UJ	0.0268 UJ	0.0161 UJ
Tetratriacontane	mg/kg	0.0473 UJ	0.138 UJ	0.152 UJ	0.0317 UJ	0.019 UJ
Tricosane	mg/kg	0.051 U	0.149 UJ	0.311 J	0.0341 UJ	0.0205 UJ
Tritriacontane	mg/kg	0.118 J	0.234 UJ	0.257 UJ	0.0536 UJ	0.0322 UJ
Butyltins						
Dibutyltin	ug/kg	2.4 U	5.2	2.9 UJ	3.2 UJ	1.7 U
Monobutyltin	ug/kg	39 UCN	39 UCN	47 UCNJ	51 UCNJ	27 UCN
Tetrabutyltin	ug/kg	3.2 U	3.2 U	3.8 UJ	4.2 UJ	2.2 U
Tributyltin	ug/kg	2.8 U	4.7 P	3.4 UJ	3.7 UJ	2 U
PCB Congeners						
PCB-1	ng/kg	370 E	78.2 J	65.9 BJ	308 J	104 J
PCB-2	ng/kg	68	15 BJ	7.25 BJ	25.6 BJ	14.2 BJ
PCB-3	ng/kg	155	R	23.4 BJ	82.8 BJ	40.2 J
PCB-4	ng/kg	825 E	180 J	113 BJ	418 BEJ	212 J
PCB-5	ng/kg	6.35	3.74 J	1.3 J	3.26 J	0.776 UJ
PCB-6	ng/kg	222	64.7 J	0.684 UJ	121 BJ	77.2 J
PCB-7	ng/kg	24.1	0.81 UJ	0.781 UJ	0.776 UJ	0.776 UJ
PCB-8	ng/kg	869 E	259 BJ	99.5 BJ	330 BEJ	256 BJ
PCB-9	ng/kg	32.3	0.709 UJ	0.684 UJ	0.679 UJ	0.679 UJ
PCB-10	ng/kg	78.7	21.4 J	11.6 J	46.1 J	34.4 J
PCB-11	ng/kg	674 E	214 BJ	184 BJ	155 BJ	138 BJ
PCB-12/13	ng/kg	286	79.2 J	47.5 J	118 J	90.6 J
PCB-14	ng/kg	0.787 U	0.81 UJ	0.781 UJ	0.776 UJ	0.776 UJ
PCB-15	ng/kg	1,340 E	R	219 BJ	649 BEJ	559 BEJ
PCB-16	ng/kg	371 BE	239 J	R	R	138 J
PCB-17	ng/kg	554 E	313 EJ	95.6 BJ	209 BJ	243 J
PCB-18/30	ng/kg	857 E	470 J	161 BJ	298 BJ	314 J
PCB-19	ng/kg	260	74.4 J	29.2 J	71.9 J	53.3 J
PCB-20/28	ng/kg	2,580 BE	1,220 EJ	527 BJ	1,000 BEJ	1,010 EJ
PCB-21/33	ng/kg	506	262 J	104 J	225 J	182 J
PCB-22	ng/kg	582 E	270 J	114 J	235 J	183 J
PCB-23	ng/kg	1.29 J	0.709 UJ	0.684 UJ	0.679 UJ	0.679 UJ
PCB-24	ng/kg	8.96	1.01 UJ	3 J	3.82 J	0.971 UJ
PCB-25	ng/kg	267	235 J	55.5 J	147 J	125 J
PCB-26/29	ng/kg	458	484 J	103 J	295 J	206 J
PCB-27	ng/kg	136	87.6 J	25.3 J	62.5 J	68 J
PCB-31	ng/kg	1,920 E	821 EJ	315 EJ	632 EJ	666 EJ
PCB-32	ng/kg	560 E	237 J	87 J	183 J	160 J
PCB-34	ng/kg	13.5	5.65 J	2.58 J	5.98 J	5.58 J
PCB-35	ng/kg	70	26.6 J	44.9 J	22.7 J	23.4 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED171 0 - 0.5 09/18/15 Central NB03SED-CHM171	NB03SED172 0 - 0.5 09/24/15 Central NB03SED-CHM172	NB03SED173 0 - 0.5 09/24/15 South NB03SED-CHM173	NB03SED174 0 - 0.5 09/21/15 South NB03SED-CHM174	NB03SED175 0 - 0.5 09/22/15 South NB03SED-CHM175
PCB-36	ng/kg	5.41	0.81 UJ	0.91 J	1.25 J	1.3 J
PCB-37	ng/kg	649 E	331 EJ	135 J	295 EJ	320 EJ
PCB-38	ng/kg	0.688 U	0.709 UJ	0.684 UJ	0.679 UJ	0.679 UJ
PCB-39	ng/kg	15.2	5.38 J	3.44 J	5.11 J	4.36 J
PCB-40/71	ng/kg	945	763 J	219 J	366 J	346 J
PCB-41	ng/kg	96.3	50.1 J	26.1 J	49.2 J	26.8 J
PCB-42	ng/kg	677 E	629 EJ	152 J	249 J	225 J
PCB-43	ng/kg	76.1	59.2 J	21.5 J	30.9 J	25.9 J
PCB-44/47/65	ng/kg	2,090 E	2,520 EJ	594 J	883 J	735 J
PCB-45	ng/kg	195	135 J	52.5 J	93.4 J	66.3 J
PCB-46	ng/kg	85.3	87 J	23.1 J	46.3 J	31.5 J
PCB-48	ng/kg	319	206 J	80.5 J	112 J	99.3 J
PCB-49/69	ng/kg	1,590 E	2,290 EJ	433 J	710 J	562 J
PCB-50/53	ng/kg	259	290 J	62.3 J	122 J	105 J
PCB-51	ng/kg	127	143 J	27.1 J	60.4 J	96.8 J
PCB-52	ng/kg	2,190 BE	3,680 BEJ	867 EJ	1,020 EJ	707 BEJ
PCB-54	ng/kg	21.1	9.12 J	2.1 J	7.07 J	16 J
PCB-55	ng/kg	19	1.22 UJ	4.61 J	8.34 J	4.97 J
PCB-56	ng/kg	1,060 E	612 EJ	267 J	301 J	285 J
PCB-57	ng/kg	13.1	17.9 J	4.22 J	7.44 J	4.61 J
PCB-58	ng/kg	10.4	8.52 J	2.66 J	3.55 J	3.45 J
PCB-60	ng/kg	352	231 J	98.3 J	96.8 J	99.2 J
PCB-61/70/74/76	ng/kg	3,310 E	3,050 EJ	1,180 J	1,000 J	901 J
PCB-62/75	ng/kg	198	183 J	45.3 J	72.3 J	68.4 J
PCB-63	ng/kg	92.8	63.5 J	25.7 J	27.3 J	28.7 J
PCB-64	ng/kg	955 E	845 EJ	237 J	313 J	290 J
PCB-66	ng/kg	2,150 BE	1,760 EJ	628 BEJ	628 BEJ	641 EJ
PCB-67	ng/kg	65.3	50 J	16.5 J	20.6 J	20.2 J
PCB-68	ng/kg	23.7	32.4 J	6.46 J	9.97 J	8.92 J
PCB-72	ng/kg	32.7	42.6 J	8.85 J	13.9 J	11.4 J
PCB-73	ng/kg	4.27 J	1.42 UJ	1.37 UJ	2.48 J	1.36 UJ
PCB-77	ng/kg	R	152 J	141 J	66.9 J	R
PCB-78	ng/kg	1.57 U	1.62 UJ	1.56 UJ	1.55 UJ	1.55 UJ
PCB-79	ng/kg	22.7	39.5 J	9.52 J	7.12 J	5.49 J
PCB-80	ng/kg	1.08 U	1.11 UJ	1.07 UJ	5 J	1.07 UJ
PCB-81	ng/kg	7.36	3.76 J	2.76 J	2.11 J	1.75 UJ
PCB-82	ng/kg	310	576 J	128 J	83.5 J	86.2 J
PCB-83	ng/kg	157	316 J	50.3 J	47.3 J	43.1 J
PCB-84	ng/kg	590	1,500 EJ	247 J	184 J	173 J
PCB-85/116/117	ng/kg	480	921 J	215 J	138 J	144 J
PCB-86/87/97/109/119/125	ng/kg	1,600	4,070 EJ	755 J	528 J	470 J
PCB-88	ng/kg	2.16 U	2.23 UJ	2.15 UJ	2.14 UJ	2.14 UJ
PCB-89	ng/kg	34.2	37.7 J	9.87 J	7.14 J	8.74 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED171 0 - 0.5 09/18/15 Central NB03SED-CHM171	NB03SED172 0 - 0.5 09/24/15 Central NB03SED-CHM172	NB03SED173 0 - 0.5 09/24/15 South NB03SED-CHM173	NB03SED174 0 - 0.5 09/21/15 South NB03SED-CHM174	NB03SED175 0 - 0.5 09/22/15 South NB03SED-CHM175
PCB-90/101/113	ng/kg	2,350 BE	6,280 BEJ	1,150 BJ	828 BJ	756 BJ
PCB-91	ng/kg	432	1,300 EJ	167 J	152 J	143 J
PCB-92	ng/kg	465	1,220 EJ	208 J	167 J	145 J
PCB-93/100	ng/kg	52.7	101 J	15.5 J	18.1 J	62.8 J
PCB-94	ng/kg	21.7	33.4 J	5.62 J	6.26 J	8.83 J
PCB-95	ng/kg	R	4,390 EJ	861 EJ	690 EJ	R
PCB-96	ng/kg	23	37.8 J	5.84 J	8.18 J	8.94 J
PCB-98/102	ng/kg	109	193 J	32.7 J	30.2 J	44.1 J
PCB-99	ng/kg	1,330 E	3,960 EJ	630 EJ	521 J	480 J
PCB-103	ng/kg	34.4	85.3 J	9.09 J	12.6 J	20 J
PCB-104	ng/kg	4.64 J	1.42 UJ	1.37 UJ	1.36 UJ	10.2 J
PCB-105	ng/kg	897 E	1,630 EJ	502 J	263 J	219 J
PCB-106	ng/kg	1.67 U	1.72 UJ	1.66 UJ	1.65 UJ	1.65 UJ
PCB-107	ng/kg	178	354 J	87.2 J	60.8 J	46.2 J
PCB-108/124	ng/kg	98.5	217 J	52.1 J	33.1 J	19.3 J
PCB-110/115	ng/kg	3,020 BE	8,110 BEJ	1,410 BEJ	1,050 BJ	967 BJ
PCB-111	ng/kg	1.38 U	1.42 UJ	1.37 UJ	1.36 UJ	1.36 UJ
PCB-112	ng/kg	4.37 J	1.42 UJ	1.42 J	1.36 UJ	1.36 UJ
PCB-114	ng/kg	61.1	94.4 J	30.5 J	16.8 J	11.3 J
PCB-118	ng/kg	2,260 BE	5,590 EJ	1,300 BEJ	813 BEJ	610 EJ
PCB-120	ng/kg	9.22	17.5 J	2.9 J	3.57 J	5.56 J
PCB-121	ng/kg	1.18 U	1.22 UJ	1.17 UJ	1.16 UJ	1.16 UJ
PCB-122	ng/kg	33.5	54.3 J	14.7 J	9.93 J	7.31 J
PCB-123	ng/kg	54.5	116 J	23.5 J	16.4 J	R
PCB-126	ng/kg	24	1.62 UJ	3.31 J	1.62 J	1.55 UJ
PCB-127	ng/kg	30.6	20.1 J	R	1.36 UJ	1.36 UJ
PCB-128/166	ng/kg	377	1,170 J	213 J	153 J	111 J
PCB-129/138/163	ng/kg	2,500 E	6,960 EJ	1,510 J	1,010 J	859 J
PCB-130	ng/kg	156	445 J	84 J	61.3 J	49 J
PCB-131	ng/kg	39.5	105 J	18.4 J	13.8 J	8.93 J
PCB-132	ng/kg	721 E	2,060 EJ	423 BJ	269 BJ	243 J
PCB-133	ng/kg	38.6	86 J	17.8 J	15 J	14.2 J
PCB-134	ng/kg	115	435 J	76.1 J	61.9 J	44.5 J
PCB-135/151	ng/kg	716	1,840 EJ	341 J	230 J	327 J
PCB-136	ng/kg	246	758 EJ	124 J	86.7 J	113 J
PCB-137	ng/kg	127	426 J	82.7 J	54.9 J	29.9 J
PCB-139/140	ng/kg	50.4	124 J	25.5 J	17.5 J	13.8 J
PCB-141	ng/kg	360	820 EJ	206 J	119 J	103 J
PCB-142	ng/kg	1.67 U	1.72 UJ	1.66 UJ	1.65 UJ	1.65 UJ
PCB-143	ng/kg	7.16 J	3.34 UJ	3.22 UJ	3.2 UJ	R
PCB-144	ng/kg	117	248 J	49.5 J	26.8 J	39.5 J
PCB-145	ng/kg	2.49 J	3.17 J	1.56 UJ	1.55 UJ	1.55 UJ
PCB-146	ng/kg	R	R	175 J	133 J	R

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED171 0 - 0.5 09/18/15 Central NB03SED-CHM171	NB03SED172 0 - 0.5 09/24/15 Central NB03SED-CHM172	NB03SED173 0 - 0.5 09/24/15 South NB03SED-CHM173	NB03SED174 0 - 0.5 09/21/15 South NB03SED-CHM174	NB03SED175 0 - 0.5 09/22/15 South NB03SED-CHM175
PCB-147/149	ng/kg	1,550 E	4,240 BEJ	952 BJ	646 BJ	651 BJ
PCB-148	ng/kg	4.38 J	12.1 J	3.91 UJ	3.88 UJ	4.37 J
PCB-150	ng/kg	7.08	24.9 J	3.5 J	2.82 J	10.6 J
PCB-152	ng/kg	2.96 J	7.72 J	1.37 UJ	1.36 UJ	2.72 J
PCB-153/168	ng/kg	1,920 BE	5,170 BEJ	1,150 BJ	791 BJ	781 BJ
PCB-154	ng/kg	40.2	132 J	17.2 J	17.6 J	4.46 UJ
PCB-155	ng/kg	17.8	1.42 UJ	1.37 UJ	1.7 J	6.98 J
PCB-156/157	ng/kg	330	909 J	189 J	143 J	73.8 J
PCB-158	ng/kg	252	743 EJ	150 J	96.9 J	76.5 J
PCB-159	ng/kg	1.38 U	1.42 UJ	1.37 UJ	1.36 UJ	1.36 UJ
PCB-160	ng/kg	6.19 U	6.38 UJ	6.15 UJ	6.11 UJ	6.11 UJ
PCB-161	ng/kg	1.28 U	1.32 UJ	1.27 UJ	1.26 UJ	R
PCB-162	ng/kg	19.3	39.7 J	9.28 J	9.79 J	R
PCB-164	ng/kg	154	471 J	86.1 J	62.2 J	R
PCB-165	ng/kg	R	R	1.27 UJ	1.26 UJ	R
PCB-167	ng/kg	105	301 J	R	46.6 J	25.7 J
PCB-169	ng/kg	1.47 U	1.52 UJ	1.47 UJ	1.46 UJ	1.46 UJ
PCB-170	ng/kg	463	902 EJ	270 J	255 J	198 J
PCB-171/173	ng/kg	R	R	85.2 J	75 J	R
PCB-172	ng/kg	82.8	135 J	49.9 J	44.7 J	39.5 J
PCB-174	ng/kg	R	R	249 J	210 J	R
PCB-175	ng/kg	R	R	12.6 J	9.9 J	R
PCB-176	ng/kg	63.7	91.1 J	34.3 J	26.1 J	31.9 J
PCB-177	ng/kg	R	R	162 J	137 J	R
PCB-178	ng/kg	122	R	61.1 J	48.8 J	R
PCB-179	ng/kg	207	293 J	123 J	86.1 J	161 J
PCB-180/193	ng/kg	1,070	1,500 EJ	670 J	570 J	848 J
PCB-181	ng/kg	R	R	3.68 J	4 J	R
PCB-182	ng/kg	R	R	3.91 UJ	3.88 UJ	R
PCB-183/185	ng/kg	R	R	231 J	175 J	R
PCB-184	ng/kg	2.32 J	1.42 UJ	1.37 UJ	1.36 UJ	1.36 UJ
PCB-186	ng/kg	1.47 U	1.52 UJ	1.47 UJ	1.46 UJ	1.46 UJ
PCB-187	ng/kg	785 E	R	419 J	322 J	R
PCB-188	ng/kg	2.74 J	5.95 J	1.47 UJ	1.46 UJ	11.2 J
PCB-189	ng/kg	22.3	40.3 J	11.1 J	11.4 J	8.03 J
PCB-190	ng/kg	108	177 J	59.2 J	55 J	48.6 J
PCB-191	ng/kg	21.8	34.7 J	12.1 J	10.6 J	8.79 J
PCB-192	ng/kg	1.28 U	1.32 UJ	1.27 UJ	1.26 UJ	1.26 UJ
PCB-194	ng/kg	250	197 J	190 J	229 J	931 EJ
PCB-195	ng/kg	84.8	72 J	60.1 J	70.5 J	78.6 J
PCB-196	ng/kg	146	131 J	101 J	110 J	425 J
PCB-197/200	ng/kg	41.8	R	R	32.7 J	R
PCB-198/199	ng/kg	401	318 J	307 J	324 J	3,100 EJ

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED171 0 - 0.5 09/18/15 Central NB03SED-CHM171	NB03SED172 0 - 0.5 09/24/15 Central NB03SED-CHM172	NB03SED173 0 - 0.5 09/24/15 South NB03SED-CHM173	NB03SED174 0 - 0.5 09/21/15 South NB03SED-CHM174	NB03SED175 0 - 0.5 09/22/15 South NB03SED-CHM175
PCB-201	ng/kg	44.1	35.3 J	30.6 J	30 J	214 J
PCB-202	ng/kg	125	89 J	113 J	80.3 J	888 EJ
PCB-203	ng/kg	249	202 J	192 J	206 J	2,590 EJ
PCB-204	ng/kg	2.06 U	2.13 UJ	2.05 UJ	2.04 UJ	2.04 UJ
PCB-205	ng/kg	12.9	10.3 J	8.89 J	10 J	12.2 J
PCB-206	ng/kg	278	195 J	332 J	347 J	5,700 EJ
PCB-207	ng/kg	24.3	15.5 J	24.4 J	28 J	442 J
PCB-208	ng/kg	106	68.6 J	141 J	116 J	2,030 EJ
PCB-209	ng/kg	R	98.3 J	351 J	92 J	1,150 EJ
Total PCB Congeners (209)	ng/kg	61,100 J	97,300 J	25,900 J	25,800 J	37,600 J
Aroclor PCBs						
Aroclor-1016	ug/kg	6.5 U	38 U	8.4 U	8.8 U	5.3 U
Aroclor-1221	ug/kg	8.3 U	48 U	11 U	11 U	6.7 U
Aroclor-1232	ug/kg	14 U	84 U	19 U	20 U	12 U
Aroclor-1242	ug/kg	6 U	35 U	7.7 U	8.1 U	4.8 U
Aroclor-1248	ug/kg	69	35 U	7.7 U	78	4.8 U
Aroclor-1254	ug/kg	63	750	140	93	11 J
Aroclor-1260	ug/kg	8.9 U	51 U	11 U	12 U	7.2 U
Aroclor-1262	ug/kg	6 U	35 U	7.7 U	25 J	4.8 U
Aroclor-1268	ug/kg	6 U	35 U	7.7 U	8.1 U	20 J
Total Aroclor PCBs (Sum of 7 Aroclors)	ug/kg	130	750	140	170	11 J
Total Aroclor PCBs (Sum of 9 Aroclors)	ug/kg	130	750	140	200 J	31 J
Pesticides						
2,4'-DDD	pg/g	3,320 J	7,670	43,800 D	2,870	620
2,4'-DDE	pg/g	2,810 J	6,190	111,000 D	3,350	495
2,4'-DDT	pg/g	219 J	154	700	6.1 U	19.3 J
4,4'-DDD	pg/g	8,410 JB	22,400 B	72,200 BD	8,530 B	1,930 B
4,4'-DDE	pg/g	12,800 JB	24,100 B	241,000 BD	13,200 B	1,480 B
4,4'-DDT	pg/g	1,400 JB	644 B	1,230 B	545 BJ	336 B
Aldrin	pg/g	5.37 UJD	5.37 UD	R	R	5.37 UD
Alpha-BHC	pg/g	17.9 J	50.6 J	130	361	8.06 J
Alpha-Chlordane	pg/g	6,050 J	4,000	1,700	1,540	1,550
Beta-BHC	pg/g	28.3 J	12.6 U	12.6 U	65.4 J	6.63 J
cis-Nonachlor	pg/g	1,540 J	1,210	605	559	215
Delta-BHC	pg/g	7.34 UJ	7.34 U	7.34 U	7.34 U	7.34 U
Dieldrin	pg/g	1,810 J	2,330 B	947 B	605 B	148 B
Endosulfan I	pg/g	20.5 UJ	20.5 U	20.5 U	20.5 U	20.5 U
Endosulfan II	pg/g	42.6 UJ	42.6 U	42.6 U	42.6 U	42.6 U
Endosulfan Sulfate	pg/g	44.7 UJ	44.7 U	44.7 U	44.7 U	44.7 U
Endrin	pg/g	10.4 UJ	10.4 U	10.4 U	10.4 U	10.4 U
Endrin Aldehyde	pg/g	40.6 UJ	40.6 U	40.6 U	R	40.6 U
Endrin Ketone	pg/g	25.8 UJ	25.8 U	25.8 U	25.8 U	25.8 U
Gamma-BHC (Lindane)	pg/g	6.29 J	7.3 U	7.3 U	113	7.3 U

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED171 0 - 0.5 09/18/15 Central NB03SED-CHM171	NB03SED172 0 - 0.5 09/24/15 Central NB03SED-CHM172	NB03SED173 0 - 0.5 09/24/15 South NB03SED-CHM173	NB03SED174 0 - 0.5 09/21/15 South NB03SED-CHM174	NB03SED175 0 - 0.5 09/22/15 South NB03SED-CHM175
Heptachlor	pg/g	10.4 UJ	10.4 U	10.4 U	153	10.4 U
Heptachlor Epoxide	pg/g	171 J	113	188	9.35 U	43.9
Hexachlorobenzene	pg/g	678 JB	1,180 B	3,200 B	517 B	217 B
Methoxychlor	pg/g	11.8 UJ	11.8 UJ	11.8 UJ	R	11.8 UJ
Mirex	pg/g	77.2 J	4.91 U	4.91 U	4.91 U	4.91 U
Nonachlor, trans-	pg/g	3,580 J	2,420	1,170	828	1,060
Oxychlordane	pg/g	11.4 UJ	11.4 U	11.4 U	11.4 U	41.8
trans-Chlordane	pg/g	6,140 J	4,950	2,570	1,580	1,790
trans-Heptachlor Epoxide	pg/g	520 J	12.9 U	12.9 U	12.9 U	550
Total Alpha + Gamma Chlordane	ppb	12 J	9	4.3	3.1	3.3
Total DDT (2,4)	ppb	6.3 J	14	160 D	6.2	1.1 J
Total DDT (4,4)	ppb	23 BJ	47 B	310 BD	22 BJ	3.7 B
Total DDT (2,4 & 4,4)	ppb	29 BJ	61 B	470 BD	28 BJ	4.9 BJ
Semivolatiles						
1,2,4,5-Tetrachlorobenzene	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
1,2-Diphenylhydrazine	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
1-Methylnaphthalene	ug/kg	15 J	10	3.9 J	4.3	1.4 J
2,2'-oxybis(1-Chloropropane)	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
2,3,4,6-Tetrachlorophenol	ug/kg	120 U	140 UJ	160 UJ	160 UJ	99 U
2,4,5-Trichlorophenol	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
2,4,6-Trichlorophenol	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
2,4-Dichlorophenol	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
2,4-Dimethylphenol	ug/kg	30 U	35 UJ	92	41 UJ	25 U
2,4-Dinitrophenol	ug/kg	540 U	630 UJ	700 UJ	740 UJ	440 U
2,4-Dinitrotoluene	ug/kg	120 U	140 UJ	160 UJ	160 UJ	99 U
2,6-Dinitrotoluene	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
2-Chloronaphthalene	ug/kg	12 U	14 UJ	16 UJ	16 UJ	10 U
2-Chlorophenol	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
2-Methylnaphthalene	ug/kg	24	10	8.1	7.8	2.7
2-Methylphenol	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
2-Nitroaniline	ug/kg	33 J	35 UJ	39 UJ	41 UJ	25 U
2-Nitrophenol	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
3,3'-Dichlorobenzidine	ug/kg	180 U	210 UJ	230 UJ	250 UJ	150 U
3-Nitroaniline	ug/kg	120 U	140 UJ	160 UJ	160 UJ	99 U
4,6-Dinitro-2-methylphenol	ug/kg	300 U	350 UJ	390 UJ	410 UJ	250 U
4-Bromophenyl phenyl ether	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
4-Chloro-3-Methylphenol	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
4-Chloroaniline	ug/kg	60 U	70 UJ	78 UJ	82 UJ	49 U
4-Chlorophenyl phenyl ether	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
4-Methylphenol	ug/kg	54 J	110 J	57 J	54 J	25 U
4-Nitroaniline	ug/kg	120 U	140 UJ	160 UJ	160 UJ	99 U
4-Nitrophenol	ug/kg	300 U	350 UJ	390 UJ	410 UJ	250 U
Acenaphthene	ug/kg	27	12	4.3	5.6	1 U

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED171 0 - 0.5 09/18/15 Central NB03SED-CHM171	NB03SED172 0 - 0.5 09/24/15 Central NB03SED-CHM172	NB03SED173 0 - 0.5 09/24/15 South NB03SED-CHM173	NB03SED174 0 - 0.5 09/21/15 South NB03SED-CHM174	NB03SED175 0 - 0.5 09/22/15 South NB03SED-CHM175
Acenaphthylene	ug/kg	40	9.1	33	24	2.4 J
Acetophenone	ug/kg	30 U	35 UJ	39 UJ	41 UJ	27 J
Anthracene	ug/kg	74	50	25	30	4.4
Atrazine	ug/kg	60 U	70 UJ	78 UJ	82 UJ	49 U
Benzaldehyde	ug/kg	120 U	140 UJ	160 UJ	160 UJ	99 U
Benzidine	ug/kg	1,300 U	1,500 UJ	1,600 UJ	1,700 UJ	1,000 U
Benzo(a)anthracene	ug/kg	260 J-	92	74	86	8.7
Benzo(a)pyrene	ug/kg	300 J-	85	120	110	13
Benzo(b)fluoranthene	ug/kg	290 J-	69	79	84	11
Benzo(e)pyrene	ug/kg	240	62	91	77	10
Benzo(g,h,i)perylene	ug/kg	220 J-	54	84	70	10
Benzo(j,k)fluoranthene	ug/kg	270 J-	72	95	81	12
Benzoic Acid	ug/kg	300 U	350 UJ	390 UJ	410 UJ	250 U
Biphenyl	ug/kg	30 U	55 J	39 UJ	41 UJ	25 U
bis(2-Chloroethoxy)methane	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
bis(2-Chloroethyl)ether	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
bis(2-Ethylhexyl)phthalate	ug/kg	1,700	38,000 DJ	310 J	290 J	99 U
Butyl benzyl phthalate	ug/kg	120 U	140 UJ	160 UJ	160 UJ	99 U
C1-Chrysenes	ug/kg	170	66	140	89	9.1
C1-Fluoranthenes/Pyrenes	ug/kg	240	100	210	130	15
C1-Fluorenes	ug/kg	21	14	1.6 U	11	1.3 J
C1-Naphthalenes	ug/kg	27	14	8.7	8.6	3
C1-Phenanthrenes/Anthracenes	ug/kg	160	110	40	56	7.3
C2-Chrysenes	ug/kg	140	59	210	88	8.3
C2-Fluoranthenes/Pyrenes	ug/kg	150	76	180	92	8.3
C2-Fluorenes	ug/kg	23	19	1.6 U	12	2.3 J
C2-Naphthalenes	ug/kg	24	19	26	24	3.2
C2-Phenanthrene/anthracenes	ug/kg	120	73	92	64	11
C3-Chrysenes	ug/kg	79	38	150	53	4.2
C3-Fluoranthenes/Pyrenes	ug/kg	99	59	240	61	6.7
C3-Fluorenes	ug/kg	6.1 U	1.4 U	1.6 U	16	1 U
C3-Naphthalene	ug/kg	33	22	41	21	3.6
C3-Phenanthrene/anthracenes	ug/kg	71	53	140	61	9.8
C4-Chrysenes	ug/kg	47	24	98	28	1 U
C4-Naphthalene	ug/kg	26	17	99	22	3.3
C4-Phenanthrenes/anthracenes	ug/kg	6.1 U	30	200	41	1 U
Caprolactam	ug/kg	60 U	70 UJ	78 UJ	82 UJ	49 U
Carbazole	ug/kg	75	480 J	39 UJ	41 UJ	25 U
Chrysene	ug/kg	310 J-	97	91	110	12
Dibenzo(a,h)anthracene	ug/kg	53 J-	15	26	19	2.7
Dibenzofuran	ug/kg	43 J	240 J	39 UJ	41 UJ	25 U
Diethyl phthalate	ug/kg	120 U	140 UJ	160 UJ	160 UJ	99 U
Dimethylphthalate	ug/kg	120 U	140 UJ	160 UJ	160 UJ	99 U

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED171 0 - 0.5 09/18/15 Central	NB03SED172 0 - 0.5 09/24/15 Central	NB03SED173 0 - 0.5 09/24/15 South	NB03SED174 0 - 0.5 09/21/15 South	NB03SED175 0 - 0.5 09/22/15 South
	Units	NB03SED-CHM171	NB03SED-CHM172	NB03SED-CHM173	NB03SED-CHM174	NB03SED-CHM175
Di-n-Butylphthalate	ug/kg	120 U	140 UJ	160 UJ	160 UJ	99 U
Di-n-Octylphthalate	ug/kg	120 U	140 UJ	160 UJ	160 UJ	99 U
Fluoranthene	ug/kg	490 J-	210	68	120	15
Fluorene	ug/kg	32	21	2.1 J	6.2	1.8 J
Hexachlorobutadiene	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
Hexachlorocyclopentadiene	ug/kg	300 U	350 UJ	390 UJ	410 UJ	250 U
Hexachloroethane	ug/kg	60 U	70 UJ	78 UJ	82 UJ	49 U
Indeno(1,2,3-cd)pyrene	ug/kg	230 J-	56	81	72	11
Isophorone	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
Naphthalene	ug/kg	64	45	16	14	4.9
Nitrobenzene	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
N-Nitroso-di-n-propylamine	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
N-Nitrosodiphenylamine	ug/kg	30 U	35 UJ	39 UJ	41 UJ	25 U
Pentachlorophenol	ug/kg	60 U	70 UJ	78 UJ	82 UJ	49 U
Perylene	ug/kg	80	22	30	28	4.8
Phenanthrene	ug/kg	270	180	21	55	6.7
Phenol	ug/kg	30 U	88 J	39 UJ	41 UJ	25 U
Pyrene	ug/kg	490 J-	190	130	140	17
Pyridine	ug/kg	120 U	140 UJ	160 UJ	160 UJ	99 U
Total HMW PAHs	ug/kg	2,900 J	940	850	890	110
Total LMW PAHs	ug/kg	530	330	110 J	140	23 J
TOTAL PAHs	ug/kg	3,400 J	1,300	960 J	1,000	140 J
Volatiles						
1,2,4-Trichlorobenzene	ug/kg	2 U	2 U	3 U	4 UJ	1 U
1,2-Dichlorobenzene	ug/kg	2 U	2 U	3 U	4 UJ	1 U
1,3-Dichlorobenzene	ug/kg	2 U	2 U	3 U	4 UJ	1 U
1,4-Dichlorobenzene	ug/kg	2 U	2 UJ	3 U	4 UJ	1 U
TPH						
PHC AS GASOLINE	mg/kg	4 U	4.8 U	5.8 JD	8.3 U	2.8 U
Total Petroleum Hydrocarbons (C9-C40)	mg/kg	395	612 J	643 J	58.2 J	23.4 J
Grain Size						
0.001 mm	% passing	0.5 U	3	4	8	0.5 U
0.002 mm	% passing	3	6	7	14	0.5
0.02 mm	% passing	16	27	35	48	4
0.05 mm	% passing	26	43	57	68	5
0.064 mm	% passing	31	51	67	78	5
0.3 mm	% passing	67.2	90.7	89.5	93	24.7
3.35 mm	% passing	90	97.5	98.3	99.7	77.2
75000 um	% passing	100	100	100	100	100
Hydrometer Reading, Percent Finer Than 0.0050 mm	% passing	7	9	12	22	2
Sieve No. 4, Percent Passing	% passing	92.7	98.6	99.5	100	80.1
Sieve No. 8, Percent Passing	% passing	84.8	95	95.2	99.1	73.9
Sieve No. 16, Percent Passing	% passing	81.8	94.5	94	97.7	69.2

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED171 0 - 0.5 09/18/15 Central NB03SED-CHM171	NB03SED172 0 - 0.5 09/24/15 Central NB03SED-CHM172	NB03SED173 0 - 0.5 09/24/15 South NB03SED-CHM173	NB03SED174 0 - 0.5 09/21/15 South NB03SED-CHM174	NB03SED175 0 - 0.5 09/22/15 South NB03SED-CHM175
Sieve No. 30, Percent Passing	% passing	78	93.6	92.6	95.4	56
Sieve No. 100, Percent Passing	% passing	48.1	75.8	83.5	90.4	10
Sieve No. 200, Percent Passing	% passing	34.8	56.5	71.8	82.9	5.9
Sieve 19000 Microns, Percent Passing	% passing	100	100	100	100	85
Sieve 37500 Microns, Percent Passing	% passing	100	100	100	100	100
Physical Properties						
Moisture (water) Content	%	45.5	53.1	57.5	59.5	32.7
Oxidation Reduction Potential	mV	88.5	179	105	38.5 J	252
Percent Moisture	%	37.8	42.8	49.8	59.5	23.2
Total Solids (Percent)	%	53.5 Z	53 Z	45.1 Z	41.4 Z	72.2 Z
Water Content	%	83.6	113	135	147	48.6
Water Content ASTM D2216	%	60.8	74.8	99.4	147	30.2
TOC by Lloyd Kahn	mg/kg	27,800 J	51,800 J	47,100 J	43,900 J	13,800
pH	pH Units	7.88	7.96	7.86	7.9	7.98
Miscellaneous Chemicals						
Total Kjeldahl Nitrogen	mg/kg	2,030	1,850	1,170	1,910	274
Total Cyanide	mg/kg	0.32 U	0.37 UJ	0.41 UJ	0.42 UJ	0.26 U
Ammonia Nitrogen	mg/kg	103 B	109 U	120 U	188 B	126 U
Phosphorus	mg/kg	852	790	973	1,040	158

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED176 0 - 0.5 09/24/15 South NB03SED-CHM176	NB03SED177 0 - 0.5 09/30/15 South NB03SED-CHM177	NB03SED178 0 - 0.5 09/24/15 South NB03SED-CHM178
Dioxins/Furans				
1,2,3,4,6,7,8-HpCDD	ng/kg	503 BJ	98.3 JB	75.9 BJ
1,2,3,4,6,7,8-HpCDF	ng/kg	308 BJ	23.4 JB	26.8 BJ
1,2,3,4,7,8,9-HpCDF	ng/kg	22.8 BJ	1.57 JB	2.53 JB
1,2,3,4,7,8-HxCDD	ng/kg	6.82 J	2.09 JB	1.18 J
1,2,3,4,7,8-HxCDF	ng/kg	62.3 BCJ	4.42 JB	5.93 BCJ
1,2,3,6,7,8-HxCDD	ng/kg	31.2 BJ	4.84 JB	3.22 JB
1,2,3,6,7,8-HxCDF	ng/kg	26.9 BCJ	2.09 JB	3.56 JB
1,2,3,7,8,9-HxCDD	ng/kg	16 BJ	4.58 J	2.42 JB
1,2,3,7,8,9-HxCDF	ng/kg	0.142 UJ	0.0495 UJ	1.25 JB
1,2,3,7,8-PeCDD	ng/kg	6.58 BJ	1.59 JB	1.12 JB
1,2,3,7,8-PeCDF	ng/kg	16.9 BCJ	2.1 JB	3.47 JB
2,3,4,6,7,8-HxCDF	ng/kg	17 BCJ	2.45 JB	3.47 JB
2,3,4,7,8-PeCDF	ng/kg	23.5 BCJ	3.56 JB	4.1 JB
2,3,7,8-TCDD	ng/kg	50.4 J	6.12 JB	2.53 J
2,3,7,8-TCDF	ng/kg	29.2 CJ	3.63 JC	5.94 CJ
OCDD	ng/kg	NA	1,450 JB	1,580 BJ
OCDF	ng/kg	551 BJ	32.3 JB	61.9 BJ
Herbicides				
2,4,5-T	ug/kg	3.7 N	2.1 UJ	1.9 UJ
2,4,5-TP (Silvex)	ug/kg	1.7 UJ	2 UJ	1.8 UJ
2,4-D	ug/kg	27 UJ	31 UJ	28 UJ
2,4-DB	ug/kg	14 UJ	16 UJ	15 UJ
Metals				
Aluminum	mg/kg	17,100 J	11,200 J	23,300 J
Antimony	mg/kg	2.13 J	0.385 JB	2.58 J
Arsenic	mg/kg	19.5 J	11.2 J	55.6 J
Barium	mg/kg	346 J	87.6 J	374 J
Beryllium	mg/kg	1.78 J	0.995 J	1.29 J
Cadmium	mg/kg	4.11 J	0.432 J	1.86 J
Calcium	mg/kg	8,770 J	11,300 J	9,600 J
Chromium	mg/kg	155 J	41.4 J	163 J
Cobalt	mg/kg	15.7 J	9.18 J	18.8 J
Copper	mg/kg	366 J	76.7 J	319 J
Hexavalent Chromium	mg/kg	1.1 U	1.3 U	1.2 U
Iron	mg/kg	35,300 J	22,700 J	47,600 J
Lead	mg/kg	274 J	66.5 J	441 J
Magnesium	mg/kg	9,680 J	6,460 J	12,300 J
Manganese	mg/kg	435 J	242 J	589 J
Mercury	ng/g	4,480 J	386 J	3,230 J
Methyl Mercury	ng/g	1.84 J	1.37 B	1.65 J
Nickel	mg/kg	78.4 J	39.5 J	86.7 J
Potassium	mg/kg	4,520 J	3,020 J	6,170 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED176 0 - 0.5 09/24/15 South NB03SED-CHM176	NB03SED177 0 - 0.5 09/30/15 South NB03SED-CHM177	NB03SED178 0 - 0.5 09/24/15 South NB03SED-CHM178
	Units			
Selenium	mg/kg	1.84 J	0.725 JB	3.74 J
Silver	mg/kg	4.61 J	0.228 JB	3.15 J
Sodium	mg/kg	12,300 J	18,400 J	16,100 J
Thallium	mg/kg	0.386 J	0.145 JB	0.62 J
Titanium	mg/kg	564 J	316 J	536 J
Vanadium	mg/kg	51.8 J	29.8 J	66.7 J
Zinc	mg/kg	752 J	257 J	551 J
AVS/SEM				
Acid Volatile Sulfide (AVS)	umol/g	11.3	0.66 B	7.4
Cadmium	umol/g	0.0133	0.000632 B	0.00277
Copper	umol/g	1.1	0.00105 U	0.458
Lead	umol/g	0.395	0.0137	0.237
Mercury	umol/g	0.0000072 U	0.0000072 U	0.0000074 U
Nickel	umol/g	0.144	0.116	0.276
Zinc	umol/g	2.52	0.242	0.963
TEPH Alkanes				
2,6,10,14-Tetramethyl Pentadecane	mg/kg	0.0381 UJ	0.0441 UJ	0.694 J
2,6,10,14-Tetramethylhexadecane	mg/kg	0.03 J	0.0285 UJ	0.453 J
Dotriacontane	mg/kg	0.0779 J	0.0337 UJ	0.691 J
Heneicosane	mg/kg	0.0246 UJ	0.0285 UJ	0.258 UJ
Heptacosane	mg/kg	0.0716 UJ	0.083 UJ	0.751 UJ
Heptadecane	mg/kg	0.11 J	0.0467 UJ	0.688 J
Heptatriacontane, -n	mg/kg	0.0834 J	0.0285 UJ	0.258 UJ
Hexatriacontane	mg/kg	0.0246 U	0.0589 J	0.277 J
Hhentriacontane	mg/kg	0.173 J	0.0448 J	0.38 UJ
n-Decane	mg/kg	0.0331 UJ	0.0384 UJ	0.348 UJ
n-Docosane	mg/kg	0.169 J	0.0285 UJ	0.979 J
n-Dodecane	mg/kg	0.0246 UJ	0.0285 UJ	0.258 UJ
n-Eicosane	mg/kg	0.0358 J	0.0311 UJ	0.282 UJ
n-Hexacosane	mg/kg	0.0592 J	0.0493 UJ	0.446 UJ
n-Hexadecane	mg/kg	0.0693 J	0.0285 UJ	0.588 J
n-Nonane	mg/kg	0.0246 UJ	0.0285 UJ	0.258 UJ
n-Octacosane	mg/kg	0.399 J	0.045 J	1.92 J
n-Octadecane	mg/kg	0.0453 J	0.0389 UJ	0.352 UJ
Nonacosane	mg/kg	0.21 J	0.0439 J	0.258 UJ
Nonadecane	mg/kg	0.16 J	0.0415 UJ	0.376 UJ
Nonatriacontane	mg/kg	0.0448 UJ	0.0519 UJ	0.47 UJ
n-Tetracosane	mg/kg	0.0371 J	0.0285 UJ	0.344 J
n-Tetradecane	mg/kg	0.0313 UJ	0.0363 UJ	0.329 UJ
n-Triacontane	mg/kg	0.245 J	0.0792 J	0.474 UJ
n-Tridecane	mg/kg	0.0246 UJ	0.0285 UJ	0.258 UJ
n-Undecane	mg/kg	0.0452 UJ	0.0524 UJ	0.474 UJ
Octatriacontane	mg/kg	0.0508 J	0.0389 UJ	0.352 UJ

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED176 0 - 0.5 09/24/15 South NB03SED-CHM176	NB03SED177 0 - 0.5 09/30/15 South NB03SED-CHM177	NB03SED178 0 - 0.5 09/24/15 South NB03SED-CHM178
Pentacosane	mg/kg	0.113 J	0.0285 UJ	1.03 J
Pentadecane	mg/kg	0.0343 J	0.0285 UJ	0.258 UJ
Pentatriacontane	mg/kg	0.0823 J	0.0285 UJ	0.258 UJ
Tetracontane	mg/kg	0.0464 J	0.0285 UJ	0.258 UJ
Tetratriacontane	mg/kg	0.0428 J	0.0337 UJ	0.305 UJ
Tricosane	mg/kg	0.12 J	0.0363 UJ	0.93 J
Tritriacontane	mg/kg	0.0672 J	0.0571 UJ	0.517 UJ
Butyltins				
Dibutyltin	ug/kg	15 J	3.5 UJ	2.5 U
Monobutyltin	ug/kg	46 UCNJ	55 UJCN	40 UCN
Tetrabutyltin	ug/kg	3.8 UJ	4.5 UJ	3.3 U
Tributyltin	ug/kg	8.1 PJ	4 UJ	2.9 U
PCB Congeners				
PCB-1	ng/kg	1,030 BJ	R	25.3 BJ
PCB-2	ng/kg	330 BJ	5.03 J	0.685 UJ
PCB-3	ng/kg	803 BJ	R	10.6 BJ
PCB-4	ng/kg	4,850 BEJ	74.4 BJ	34.2 BJ
PCB-5	ng/kg	87.8 J	1.79 J	0.783 UJ
PCB-6	ng/kg	1,820 BJ	15.2 J	0.685 UJ
PCB-7	ng/kg	7.72 UJ	4.66 J	0.783 UJ
PCB-8	ng/kg	6,260 BEJ	70.3 BJ	1.47 UJ
PCB-9	ng/kg	297 BJ	4.65 J	0.685 UJ
PCB-10	ng/kg	378 J	6 J	3.92 J
PCB-11	ng/kg	8,970 BEJ	76.5 BJ	34.7 BJ
PCB-12/13	ng/kg	3,200 J	22.5 J	14.7 J
PCB-14	ng/kg	8.95 J	0.798 UJ	0.783 UJ
PCB-15	ng/kg	14,800 BEJ	101 BJ	75 BJ
PCB-16	ng/kg	R	95.6 J	R
PCB-17	ng/kg	9,890 BEJ	117 J	21.2 BJ
PCB-18/30	ng/kg	15,500 BEJ	210 BJ	29 BJ
PCB-19	ng/kg	2,280 J	37 J	0.783 UJ
PCB-20/28	ng/kg	56,300 BEJ	625 EJ	125 BJ
PCB-21/33	ng/kg	11,100 EJ	159 J	19.9 J
PCB-22	ng/kg	12,600 EJ	174 J	25.2 J
PCB-23	ng/kg	30.3 J	0.698 UJ	0.685 UJ
PCB-24	ng/kg	174 J	0.997 UJ	0.979 UJ
PCB-25	ng/kg	4,990 EJ	51.6 J	14.8 J
PCB-26/29	ng/kg	8,530 EJ	89.8 J	27.5 J
PCB-27	ng/kg	2,130 J	27.9 J	6.74 J
PCB-31	ng/kg	31,800 EJ	392 EJ	70.6 J
PCB-32	ng/kg	8,090 EJ	111 J	17.7 J
PCB-34	ng/kg	275 J	2.41 J	0.823 J
PCB-35	ng/kg	1,340 J	14.3 J	3.85 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED176 0 - 0.5 09/24/15 South NB03SED-CHM176	NB03SED177 0 - 0.5 09/30/15 South NB03SED-CHM177	NB03SED178 0 - 0.5 09/24/15 South NB03SED-CHM178
PCB-36	ng/kg	41.1 J	0.798 UJ	0.783 UJ
PCB-37	ng/kg	14,000 EJ	149 J	37 J
PCB-38	ng/kg	18.1 J	0.698 UJ	0.685 UJ
PCB-39	ng/kg	264 J	3.98 J	1.04 J
PCB-40/71	ng/kg	17,900 EJ	345 J	34.1 J
PCB-41	ng/kg	1,960 J	54.9 J	4.11 UJ
PCB-42	ng/kg	12,200 EJ	232 J	22.7 J
PCB-43	ng/kg	1,810 J	33.5 J	3.04 J
PCB-44/47/65	ng/kg	37,500 EJ	729 J	81.6 J
PCB-45	ng/kg	5,030 J	96.4 J	8.34 J
PCB-46	ng/kg	1,760 J	37 J	3.62 J
PCB-48	ng/kg	7,730 EJ	137 J	10.8 J
PCB-49/69	ng/kg	27,000 EJ	490 J	63.9 J
PCB-50/53	ng/kg	4,820 J	96.7 J	11.2 J
PCB-51	ng/kg	1,630 J	35.1 J	4.95 J
PCB-52	ng/kg	39,000 EJ	775 BEJ	161 J
PCB-54	ng/kg	121 J	3.36 J	1.37 UJ
PCB-55	ng/kg	310 J	8.82 J	1.17 UJ
PCB-56	ng/kg	20,500 EJ	387 J	32.4 J
PCB-57	ng/kg	271 J	4.33 J	1.08 UJ
PCB-58	ng/kg	191 J	2.59 J	1.37 UJ
PCB-60	ng/kg	5,970 EJ	149 J	11.3 J
PCB-61/70/74/76	ng/kg	67,500 EJ	1,250 J	95.3 J
PCB-62/75	ng/kg	3,780 J	68.8 J	8.48 J
PCB-63	ng/kg	1,950 J	34 J	2.93 J
PCB-64	ng/kg	16,900 EJ	335 J	28.5 J
PCB-66	ng/kg	42,800 BEJ	755 EJ	67.3 BJ
PCB-67	ng/kg	1,300 J	21.7 J	2.17 J
PCB-68	ng/kg	342 J	5.24 J	1.37 UJ
PCB-72	ng/kg	538 J	7.9 J	1.83 J
PCB-73	ng/kg	83 J	1.4 UJ	1.37 UJ
PCB-77	ng/kg	5,350 J	81.4 J	10.2 J
PCB-78	ng/kg	18.9 J	1.6 UJ	1.57 UJ
PCB-79	ng/kg	317 J	6.61 J	1.08 UJ
PCB-80	ng/kg	10.6 UJ	1.1 UJ	1.08 UJ
PCB-81	ng/kg	152 J	3.06 J	1.76 UJ
PCB-82	ng/kg	4,170 J	107 J	8.25 J
PCB-83	ng/kg	1,800 J	41.3 J	4.8 J
PCB-84	ng/kg	7,130 EJ	202 J	11.5 J
PCB-85/116/117	ng/kg	6,450 J	156 J	15 J
PCB-86/87/97/109/119/125	ng/kg	20,400 J	532 J	47.7 J
PCB-88	ng/kg	21.2 UJ	2.19 UJ	2.15 UJ
PCB-89	ng/kg	495 J	12.9 J	1.27 UJ

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED176 0 - 0.5 09/24/15 South NB03SED-CHM176	NB03SED177 0 - 0.5 09/30/15 South NB03SED-CHM177	NB03SED178 0 - 0.5 09/24/15 South NB03SED-CHM178
PCB-90/101/113	ng/kg	29,700 BEJ	760 BJ	81.7 BJ
PCB-91	ng/kg	4,840 J	132 J	10.2 J
PCB-92	ng/kg	5,790 EJ	142 J	14.4 J
PCB-93/100	ng/kg	475 J	15.2 J	7.54 UJ
PCB-94	ng/kg	236 J	6.68 J	1.27 UJ
PCB-95	ng/kg	23,200 EJ	667 EJ	60.8 J
PCB-96	ng/kg	267 J	7.17 J	1.47 UJ
PCB-98/102	ng/kg	1,300 J	35 J	7.54 UJ
PCB-99	ng/kg	16,600 EJ	400 J	45.9 J
PCB-103	ng/kg	326 J	8.67 J	1.08 UJ
PCB-104	ng/kg	21.3 J	1.4 UJ	1.37 UJ
PCB-105	ng/kg	12,800 EJ	302 J	26.7 J
PCB-106	ng/kg	16.4 UJ	1.7 UJ	1.66 UJ
PCB-107	ng/kg	2,650 J	54 J	6.67 J
PCB-108/124	ng/kg	1,260 J	30.6 J	3.15 J
PCB-110/115	ng/kg	37,300 BEJ	967 J	92.8 BJ
PCB-111	ng/kg	24.8 J	1.4 UJ	1.37 UJ
PCB-112	ng/kg	65.1 J	1.4 UJ	1.37 UJ
PCB-114	ng/kg	800 J	18.7 J	1.76 J
PCB-118	ng/kg	31,500 BEJ	698 EJ	80.8 BJ
PCB-120	ng/kg	141 J	2.26 J	1.27 UJ
PCB-121	ng/kg	11.6 UJ	1.2 UJ	1.17 UJ
PCB-122	ng/kg	463 J	11.2 J	1.17 UJ
PCB-123	ng/kg	623 J	18.2 J	1.66 UJ
PCB-126	ng/kg	176 J	2.73 J	1.57 UJ
PCB-127	ng/kg	R	R	R
PCB-128/166	ng/kg	5,160 J	127 J	11.1 J
PCB-129/138/163	ng/kg	41,700 EJ	1,060 J	85.5 J
PCB-130	ng/kg	2,410 J	56.4 J	6 J
PCB-131	ng/kg	460 J	13.2 J	1.66 UJ
PCB-132	ng/kg	12,100 BEJ	324 BJ	25.1 BJ
PCB-133	ng/kg	599 J	13.2 J	1.92 J
PCB-134	ng/kg	2,050 J	58.8 J	5.24 J
PCB-135/151	ng/kg	11,200 J	322 J	26.6 J
PCB-136	ng/kg	3,610 J	113 J	8.02 J
PCB-137	ng/kg	1,650 J	40.2 J	3.61 J
PCB-139/140	ng/kg	570 J	14.5 J	2.84 UJ
PCB-141	ng/kg	6,210 EJ	175 BJ	10.7 J
PCB-142	ng/kg	16.4 UJ	1.7 UJ	1.66 UJ
PCB-143	ng/kg	81.6 J	3.29 UJ	3.23 UJ
PCB-144	ng/kg	1,470 J	43.4 J	2.32 J
PCB-145	ng/kg	15.4 UJ	1.6 UJ	1.57 UJ
PCB-146	ng/kg	5,700 J	131 J	15 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED176 0 - 0.5 09/24/15 South NB03SED-CHM176	NB03SED177 0 - 0.5 09/30/15 South NB03SED-CHM177	NB03SED178 0 - 0.5 09/24/15 South NB03SED-CHM178
PCB-147/149	ng/kg	28,600 BEJ	797 BJ	64.7 BJ
PCB-148	ng/kg	60.8 J	3.99 UJ	3.92 UJ
PCB-150	ng/kg	78.5 J	2.89 J	1.47 UJ
PCB-152	ng/kg	28.1 J	1.4 UJ	1.37 UJ
PCB-153/168	ng/kg	34,600 BEJ	870 BJ	80.2 BJ
PCB-154	ng/kg	467 J	14.3 J	4.5 UJ
PCB-155	ng/kg	256 J	4.28 J	1.37 UJ
PCB-156/157	ng/kg	4,460 J	92.9 J	8.52 J
PCB-158	ng/kg	3,840 J	95 J	7.55 J
PCB-159	ng/kg	13.5 UJ	1.4 UJ	1.37 UJ
PCB-160	ng/kg	60.8 UJ	6.28 UJ	6.17 UJ
PCB-161	ng/kg	12.5 UJ	1.3 UJ	1.27 UJ
PCB-162	ng/kg	12.5 UJ	7.92 J	1.27 UJ
PCB-164	ng/kg	2,550 J	65.2 J	5.59 J
PCB-165	ng/kg	17.8 J	1.3 UJ	1.27 UJ
PCB-167	ng/kg	R	R	R
PCB-169	ng/kg	15.4 J	1.5 UJ	1.47 UJ
PCB-170	ng/kg	11,200 EJ	260 J	13.6 J
PCB-171/173	ng/kg	3,560 J	84.1 J	5.26 J
PCB-172	ng/kg	2,170 J	48.7 J	3.3 J
PCB-174	ng/kg	10,700 EJ	271 J	15.8 J
PCB-175	ng/kg	513 J	11.5 J	1.37 UJ
PCB-176	ng/kg	1,390 J	34.9 J	2.43 J
PCB-177	ng/kg	7,260 EJ	169 J	12.7 J
PCB-178	ng/kg	2,510 J	59.4 J	6.84 J
PCB-179	ng/kg	4,820 J	125 J	9.97 J
PCB-180/193	ng/kg	26,900 EJ	621 J	48.4 J
PCB-181	ng/kg	88.7 J	1.98 J	1.27 UJ
PCB-182	ng/kg	52.9 J	3.99 UJ	3.92 UJ
PCB-183/185	ng/kg	8,990 J	211 J	17.2 J
PCB-184	ng/kg	25.1 J	1.4 UJ	1.37 UJ
PCB-186	ng/kg	14.5 UJ	1.5 UJ	1.47 UJ
PCB-187	ng/kg	16,000 EJ	380 J	42.3 J
PCB-188	ng/kg	45.3 J	1.5 UJ	1.47 UJ
PCB-189	ng/kg	424 J	8.52 J	1.27 UJ
PCB-190	ng/kg	2,420 J	55.8 J	3.77 J
PCB-191	ng/kg	493 J	11.2 J	1.27 UJ
PCB-192	ng/kg	12.5 UJ	1.3 UJ	1.27 UJ
PCB-194	ng/kg	6,860 J	121 J	17.7 J
PCB-195	ng/kg	2,450 J	47 J	4.56 J
PCB-196	ng/kg	3,450 J	66.2 J	10.3 J
PCB-197/200	ng/kg	R	20.1 J	R
PCB-198/199	ng/kg	8,520 J	155 J	39.5 J

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED176 0 - 0.5 09/24/15 South NB03SED-CHM176	NB03SED177 0 - 0.5 09/30/15 South NB03SED-CHM177	NB03SED178 0 - 0.5 09/24/15 South NB03SED-CHM178
	Units			
PCB-201	ng/kg	961 J	17.4 J	4.6 J
PCB-202	ng/kg	2,290 J	36.7 J	17.5 J
PCB-203	ng/kg	5,100 J	91.7 J	22.8 J
PCB-204	ng/kg	20.3 UJ	2.09 UJ	2.06 UJ
PCB-205	ng/kg	340 J	5.59 J	1.47 UJ
PCB-206	ng/kg	5,700 J	72.7 J	41.4 J
PCB-207	ng/kg	475 J	6.51 J	3.44 J
PCB-208	ng/kg	2,120 J	24.7 J	20.9 J
PCB-209	ng/kg	5,090 J	98.7 J	26.9 J
Total PCB Congeners (209)	ng/kg	1,070,000 J	21,700 J	2,540 J
Aroclor PCBs				
Aroclor-1016	ug/kg	8.1 U	9.4 U	8.4 U
Aroclor-1221	ug/kg	10 U	12 U	11 U
Aroclor-1232	ug/kg	18 U	21 U	19 U
Aroclor-1242	ug/kg	7.4 U	8.6 U	7.7 U
Aroclor-1248	ug/kg	210	36 J	7.7 U
Aroclor-1254	ug/kg	180	8.6 U	7.7 U
Aroclor-1260	ug/kg	81 J	25 J	11 U
Aroclor-1262	ug/kg	7.4 U	8.6 U	7.7 U
Aroclor-1268	ug/kg	7.4 U	8.6 U	7.7 U
Total Aroclor PCBs (Sum of 7 Aroclors)	ug/kg	470 J	61 J	19 U
Total Aroclor PCBs (Sum of 9 Aroclors)	ug/kg	470 J	61 J	19 U
Pesticides				
2,4'-DDD	pg/g	20,700	9,210	243
2,4'-DDE	pg/g	31,800	3,800	307
2,4'-DDT	pg/g	260	1,340	6.1 U
4,4'-DDD	pg/g	72,500 BD	27,900 D	863 B
4,4'-DDE	pg/g	84,900 BD	16,500	1,050 B
4,4'-DDT	pg/g	1,980 B	4,530 B	381 B
Aldrin	pg/g	5.37 UD	5.37 UD	R
Alpha-BHC	pg/g	249	24.3 J	65.9
Alpha-Chlordane	pg/g	4,050	1,350	9.59 U
Beta-BHC	pg/g	146	12.6 U	12.6 U
cis-Nonachlor	pg/g	1,940	365	10.1 U
Delta-BHC	pg/g	7.34 U	7.34 U	7.34 U
Dieldrin	pg/g	1,720 B	628	10.5 U
Endosulfan I	pg/g	20.5 U	20.5 U	20.5 U
Endosulfan II	pg/g	42.6 U	42.6 U	42.6 U
Endosulfan Sulfate	pg/g	44.7 U	44.7 U	44.7 U
Endrin	pg/g	10.4 U	10.4 U	10.4 U
Endrin Aldehyde	pg/g	40.6 U	40.6 UJ	40.6 U
Endrin Ketone	pg/g	25.8 U	25.8 U	25.8 U
Gamma-BHC (Lindane)	pg/g	7.3 U	7.3 U	7.3 U

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED176 0 - 0.5 09/24/15 South NB03SED-CHM176	NB03SED177 0 - 0.5 09/30/15 South NB03SED-CHM177	NB03SED178 0 - 0.5 09/24/15 South NB03SED-CHM178
	Units			
Heptachlor	pg/g	10.4 U	10.4 U	10.4 U
Heptachlor Epoxide	pg/g	9.35 U	9.35 U	9.35 U
Hexachlorobenzene	pg/g	3,760 B	867 B	445 B
Methoxychlor	pg/g	11.8 UJ	11.8 UJ	11.8 U
Mirex	pg/g	172	4.91 U	4.91 U
Nonachlor, trans-	pg/g	2,310	852	7.6 U
Oxychlordanes	pg/g	11.4 U	11.4 U	11.4 U
trans-Chlordane	pg/g	6,150	1,640	11.4 U
trans-Heptachlor Epoxide	pg/g	599	12.9 U	12.9 U
Total Alpha + Gamma Chlordane	ppb	10	3	0.011 U
Total DDT (2,4)	ppb	53	14	0.55
Total DDT (4,4)	ppb	160 BD	49 BD	2.3 B
Total DDT (2,4 & 4,4)	ppb	210 BD	63 BD	2.8 B
Semivolatiles				
1,2,4,5-Tetrachlorobenzene	ug/kg	37 UJ	43 UJ	39 UJ
1,2-Diphenylhydrazine	ug/kg	37 UJ	43 UJ	39 UJ
1-Methylnaphthalene	ug/kg	2.8 J	1.7 U	2.7 J
2,2'-oxybis(1-Chloropropane)	ug/kg	37 UJ	43 UJ	39 UJ
2,3,4,6-Tetrachlorophenol	ug/kg	150 UJ	170 UJ	160 UJ
2,4,5-Trichlorophenol	ug/kg	37 UJ	43 UJ	39 UJ
2,4,6-Trichlorophenol	ug/kg	37 UJ	43 UJ	39 UJ
2,4-Dichlorophenol	ug/kg	37 UJ	43 UJ	39 UJ
2,4-Dimethylphenol	ug/kg	37 UJ	43 UJ	130
2,4-Dinitrophenol	ug/kg	660 UJ	780 UJ	700 UJ
2,4-Dinitrotoluene	ug/kg	150 UJ	170 UJ	160 UJ
2,6-Dinitrotoluene	ug/kg	37 UJ	43 UJ	39 UJ
2-Chloronaphthalene	ug/kg	15 UJ	17 UJ	16 UJ
2-Chlorophenol	ug/kg	37 UJ	43 UJ	39 UJ
2-Methylnaphthalene	ug/kg	4.2	1.7 U	6.1
2-Methylphenol	ug/kg	37 UJ	43 UJ	39 UJ
2-Nitroaniline	ug/kg	37 UJ	43 UJ	39 UJ
2-Nitrophenol	ug/kg	37 UJ	43 UJ	39 UJ
3,3'-Dichlorobenzidine	ug/kg	220 UJ	260 UJ	230 UJ
3-Nitroaniline	ug/kg	150 UJ	170 UJ	160 UJ
4,6-Dinitro-2-methylphenol	ug/kg	370 UJ	430 UJ	390 UJ
4-Bromophenyl phenyl ether	ug/kg	37 UJ	43 UJ	39 UJ
4-Chloro-3-Methylphenol	ug/kg	37 UJ	43 UJ	39 UJ
4-Chloroaniline	ug/kg	74 UJ	87 UJ	78 UJ
4-Chlorophenyl phenyl ether	ug/kg	37 UJ	43 UJ	39 UJ
4-Methylphenol	ug/kg	58 J	43 UJ	140 J
4-Nitroaniline	ug/kg	150 UJ	170 UJ	160 UJ
4-Nitrophenol	ug/kg	370 UJ	430 UJ	390 UJ
Acenaphthene	ug/kg	7.7	1.7 U	5.3

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED176 0 - 0.5 09/24/15 South NB03SED-CHM176	NB03SED177 0 - 0.5 09/30/15 South NB03SED-CHM177	NB03SED178 0 - 0.5 09/24/15 South NB03SED-CHM178
Acenaphthylene	ug/kg	8.1	1.7 U	52
Acetophenone	ug/kg	37 UJ	43 UJ	47 J
Anthracene	ug/kg	12	2 J	44
Atrazine	ug/kg	74 UJ	87 UJ	78 UJ
Benzaldehyde	ug/kg	150 UJ	170 UJ	160 UJ
Benazidine	ug/kg	1,600 UJ	1,800 UJ	1,600 UJ
Benzo(a)anthracene	ug/kg	32 J-	6.3	190
Benzo(a)pyrene	ug/kg	42 J-	7.2	220
Benzo(b)fluoranthene	ug/kg	34 J-	6.7	130
Benzo(e)pyrene	ug/kg	30	5.6	140
Benzo(g,h,i)perylene	ug/kg	27 J-	5.1	120
Benzo(j,k)fluoranthene	ug/kg	33 J-	5.9	140
Benzoic Acid	ug/kg	370 UJ	430 UJ	390 UJ
Biphenyl	ug/kg	37 UJ	43 UJ	60 J
bis(2-Chloroethoxy)methane	ug/kg	37 UJ	43 UJ	39 UJ
bis(2-Chloroethyl)ether	ug/kg	37 UJ	43 UJ	39 UJ
bis(2-Ethylhexyl)phthalate	ug/kg	2,000	170 UJ	160 UJ
Butyl benzyl phthalate	ug/kg	150 UJ	170 UJ	160 UJ
C1-Chrysenes	ug/kg	30	5.9	250
C1-Fluoranthenes/Pyrenes	ug/kg	48	9.2	340
C1-Fluorenes	ug/kg	5.4	1.7 U	26
C1-Naphthalenes	ug/kg	4.8	1.7 U	6.7
C1-Phenanthrenes/Anthracenes	ug/kg	25	3.8 J	110
C2-Chrysenes	ug/kg	31	5.9	200
C2-Fluoranthenes/Pyrenes	ug/kg	34	5.9	240
C2-Fluorenes	ug/kg	3 J	1.7 U	33
C2-Naphthalenes	ug/kg	10	1.7 U	30
C2-Phenanthrene/anthracenes	ug/kg	24	6.7	240
C3-Chrysenes	ug/kg	19	2.9 J	93
C3-Fluoranthenes/Pyrenes	ug/kg	24	4.3 J	150
C3-Fluorenes	ug/kg	1.5 U	1.7 U	78
C3-Naphthalene	ug/kg	8.6	3.1 J	90
C3-Phenanthrene/anthracenes	ug/kg	17	6.6	220
C4-Chrysenes	ug/kg	11	1.7 U	54
C4-Naphthalene	ug/kg	9.1	3.6 J	130
C4-Phenanthrenes/anthracenes	ug/kg	1.5 U	1.7 U	150
Caprolactam	ug/kg	74 UJ	87 UJ	78 UJ
Carbazole	ug/kg	37 UJ	74 J	39 UJ
Chrysene	ug/kg	36 J-	6.7	200
Dibenzo(a,h)anthracene	ug/kg	7.7 J-	1.7 U	41
Dibenzofuran	ug/kg	37 UJ	56 J	75 J
Diethyl phthalate	ug/kg	150 UJ	170 UJ	160 UJ
Dimethylphthalate	ug/kg	150 UJ	170 UJ	160 UJ

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:		NB03SED176 0 - 0.5 09/24/15 South NB03SED-CHM176	NB03SED177 0 - 0.5 09/30/15 South NB03SED-CHM177	NB03SED178 0 - 0.5 09/24/15 South NB03SED-CHM178
	Units			
Di-n-Butylphthalate	ug/kg	150 UJ	170 UJ	160 UJ
Di-n-Octylphthalate	ug/kg	150 UJ	170 UJ	160 UJ
Fluoranthene	ug/kg	53 J-	11	220
Fluorene	ug/kg	7.2	1.7 U	1.8 J
Hexachlorobutadiene	ug/kg	37 UJ	43 UJ	39 UJ
Hexachlorocyclopentadiene	ug/kg	370 UJ	430 UJ	390 UJ
Hexachloroethane	ug/kg	74 UJ	87 UJ	78 UJ
Indeno(1,2,3-cd)pyrene	ug/kg	28 J-	5.4	120
Isophorone	ug/kg	37 UJ	43 UJ	39 UJ
Naphthalene	ug/kg	7.9	1.8 J	13
Nitrobenzene	ug/kg	37 UJ	43 UJ	39 UJ
N-Nitroso-di-n-propylamine	ug/kg	37 UJ	43 UJ	39 UJ
N-Nitrosodiphenylamine	ug/kg	37 UJ	43 UJ	39 UJ
Pentachlorophenol	ug/kg	74 UJ	87 UJ	78 UJ
Perylene	ug/kg	10	2.8 J	43
Phenanthrene	ug/kg	38	2.8 J	31
Phenol	ug/kg	37 UJ	43 UJ	39 UJ
Pyrene	ug/kg	62 J-	10	260
Pyridine	ug/kg	150 UJ	170 UJ	160 UJ
Total HMW PAHs	ug/kg	350 J	64	1,600
Total LMW PAHs	ug/kg	85	6.6 J	150 J
TOTAL PAHs	ug/kg	440 J	71 J	1,800 J
Volatiles				
1,2,4-Trichlorobenzene	ug/kg	3 UJ	4 UJ	2 U
1,2-Dichlorobenzene	ug/kg	3 UJ	4 UJ	2 U
1,3-Dichlorobenzene	ug/kg	3 UJ	4 UJ	2 U
1,4-Dichlorobenzene	ug/kg	3 UJ	4 UJ	2 U
TPH				
PHC AS GASOLINE	mg/kg	5.7 U	8.4 UJ	6.8 J
Total Petroleum Hydrocarbons (C9-C40)	mg/kg	153 J	10.4 UJ	1,290 J
Grain Size				
0.001 mm	% passing	0.5 U	10	3
0.002 mm	% passing	5	15	6
0.02 mm	% passing	14	46	29
0.05 mm	% passing	38	59	52
0.064 mm	% passing	55	63	58
0.3 mm	% passing	81.7	84.2	86.3
3.35 mm	% passing	98.8	98	96.7
75000 um	% passing	100	100	100
Hydrometer Reading, Percent Finer Than 0.0050 mm	% passing	8	21	9.5
Sieve No. 4, Percent Passing	% passing	99.6	99.1	98.3
Sieve No. 8, Percent Passing	% passing	97.5	95	93.6
Sieve No. 16, Percent Passing	% passing	97.1	93.6	93

Table E-1
Surface Sediment Analytical Results

Location ID: Sample Depth(ft): Date Processed: Zone: Sample Name:	Units	NB03SED176 0 - 0.5 09/24/15 South NB03SED-CHM176	NB03SED177 0 - 0.5 09/30/15 South NB03SED-CHM177	NB03SED178 0 - 0.5 09/24/15 South NB03SED-CHM178
Sieve No. 30, Percent Passing	% passing	95.8	90.6	91.8
Sieve No. 100, Percent Passing	% passing	66.9	72.7	76.8
Sieve No. 200, Percent Passing	% passing	62	65.8	62.1
Sieve 19000 Microns, Percent Passing	% passing	100	100	100
Sieve 37500 Microns, Percent Passing	% passing	100	100	100
Physical Properties				
Moisture (water) Content	%	55.5	61.9	57.6
Oxidation Reduction Potential	mV	122	129	135
Percent Moisture	%	52.8	66.6	37.6
Total Solids (Percent)	%	46.3 Z	37 Z	51.9 Z
Water Content	%	125	163	136
Water Content ASTM D2216	%	112	200	60.3
TOC by Lloyd Kahn	mg/kg	39,400 J	60,700	48,300 J
pH	pH Units	7.84	7.58	7.92
Miscellaneous Chemicals				
Total Kjeldahl Nitrogen	mg/kg	2,280	1,660	2,050
Total Cyanide	mg/kg	0.4 UJ	0.45 UJ	0.4 UJ
Ammonia Nitrogen	mg/kg	216 B	148 B	120 U
Phosphorus	mg/kg	977	712	855

Table E-1
Surface Sediment Analytical Results

Notes:

1. Totals were calculated using detected values only. If all analytes that make up a given total are nondetect, the total will be reported as the highest detection limit of the individual analytes and will be qualified with a "U" flag to indicate it is a non-detect.
2. Total PCB Congeners (209) = sum of 209 individual congener PCBs
3. Total Aroclor PCBs (Sum of 7 Aroclors) = sum of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260
4. Total Aroclor PCBs (Sum of 9 Aroclors) = sum of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260, Aroclor-1262, and Aroclor-1268
5. Total Alpha + Gamma Chlordane = sum of alpha-Chlordane and gamma-Chlordane
6. Total DDT (2,4) = sum of 2,4'-DDD, 2,4'-DDE, and 2,4'-DDT
7. Total DDT (4,4) = sum of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT
8. Total DDT (2,4 & 4,4) = sum of 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT
9. Total HMW PAHs = sum of fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene.
10. Total LMW PAHs = sum of naphthalene, 2-methylnaphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, and anthracene.
11. Total PAHs = sum of Total LMW PAHs and Total HMW PAHs.
12. C1-Naphthalenes = sum of 1-methylnaphthalene and 2-methylnaphthalene

ASTM = American Society for Testing Materials

DDD = dichlorodiphenyldichloroethane

DDE = dichlorodiphenyldichloroethylene

DDT = dichlorodiphenyltrichloroethane

HMW = high molecular weight

LMW = low molecular weight

PAH = polycyclic aromatic hydrocarbon

PCB = polychlorinated biphenyl

TCDD = tetrachlorodibenzo-p-dioxin

TEPH = total extractable petroleum hydrocarbons

% = percent

mg/kg = milligrams per kilogram

ng/g = nanograms per gram

ng/kg = nanograms per kilogram

pg/g = picograms per gram

ppb = parts per billion

ug/kg = micrograms per kilogram

Table E-2
Bioaccumulation Tissue (Polychaete) Analytical Results

Sample Name: Date Homogenized:	Units	NB03TIS-BIO136 12/2/2015	NB03TIS-BIO138 12/2/2015	NB03TIS-BIO141 12/1/2015	NB03TIS-BIO146 12/2/2015	NB03TIS-BIO147 12/2/2015	NB03TIS-BIO149 12/2/2015	NB03TIS-BIO160 12/2/2015	NB03TIS-BIO161 12/1/2015
Dioxins/Furans									
1,2,3,4,6,7,8-HpCDD	ng/kg	1.93 JB	3.32 JB	1.9 JB	2.14 JB	2.72 JB	2.19 JB [20.1 JB]	2.82 JB	2.96 JB
1,2,3,4,6,7,8-HpCDF	ng/kg	2.25 JB	4.53 JB	2.5 JB	1.64 JBQ	1.85 JB	1.61 JB [6.35 JB]	3.04 JB	3.48 JB
1,2,3,4,7,8,9-HpCDF	ng/kg	0.162 JBQ	0.241 JB	0.106 JBQ	0.113 JBQ	0.125 JBQ	0.0586 JB [0.314 JB]	0.172 JBQ	0.168 JBQ
1,2,3,4,7,8-HxCDD	ng/kg	0.127 JBQ	0.171 JB	0.128 JBQ	0.139 JB	0.15 JBQ	0.111 JBQ [0.471 JB]	0.178 JBQ	0.106 JBQ
1,2,3,4,7,8-HxCDF	ng/kg	0.831 JB	1.96 JB	0.831 JB	0.42 JB	0.545 JBQ	0.4 JBQ [0.647 JB]	0.985 JB	1.12 JB
1,2,3,6,7,8-HxCDD	ng/kg	0.37 JB	0.547 JB	0.316 JBQ	0.38 JB	0.47 JB	0.374 JB [1.61 JB]	0.583 JB	0.399 JB
1,2,3,6,7,8-HxCDF	ng/kg	0.387 JB	0.586 JB	0.339 JB	0.27 JB	0.319 JB	0.281 JB [0.605 JB]	0.433 JB	0.637 JB
1,2,3,7,8,9-HxCDD	ng/kg	0.125 JQ	0.228 J	0.13 JB	0.169 J	0.228 J	0.151 J [0.682 J]	0.281 JQ	0.177 JB
1,2,3,7,8,9-HxCDF	ng/kg	0.0933 JBQ	0.105 JBQ	0.0674 JB	0.0929 JB	0.0993 JB	0.099 JBQ [0.122 JB]	0.0994 JBQ	0.0823 JBQ
1,2,3,7,8-PCDD	ng/kg	0.108 U	0.124 U	0.279 JB	0.0967 U	0.116 U	1.22 JQ [1.67 JQ]	0.0989 U	0.0692 U
1,2,3,7,8-PCDF	ng/kg	0.567 JB	0.819 JB	0.569 JB	0.518 JB	0.575 JB	0.606 JB [0.365 JC]	0.675 JB	0.696 JB
2,3,4,6,7,8-HxCDF	ng/kg	0.218 JBQ	0.311 JB	0.197 JB	0.173 JBQ	0.21 JBQ	0.188 JB [0.403 JBQ]	0.252 JB	0.249 JB
2,3,4,7,8-PCDF	ng/kg	0.922 JB	1.32 JB	0.756 JB	0.645 JB	0.894 JB	0.794 JB [0.76 BCJ]	1.1 JB	1.2 JB
2,3,7,8-TCDD	ng/kg	2.67	17.1	2.4	1.2 QJ	4.52	1.81 [1.6]	5.67	3.98
2,3,7,8-TCDF	ng/kg	1.99 C	2.26 C	1.68 C	1.81 C	1.95 C	1.85 C [1.83 C]	2.26 C	1.97 C
OCDD	ng/kg	9.4 JB	21.2 B	10.9 B	11.1 B	14.8 B	12.8 BJ [108 JB]	15.3 B	20.9 B
OCDF	ng/kg	1.79 JB	4.18 JB	1.73 JB	1.23 JB	1.75 JB	1.04 JBQ [16 JB]	1.96 JB	3.44 JB
Percent Lipids	%	0.97	0.9	0.86	1.1	1.2	1.1 [0.88]	1.1	1.1
Metals									
Aluminum	mg/kg	7.81 B	63.4	29	55.8	38.9	7.41 BJ [14.5 BJ]	5.33 U	173
Antimony	mg/kg	0.0629 U	0.0647 U	0.0641 U	0.0647 U	0.0629 U	0.0647 U [0.0647 U]	0.0629 U	0.0641 U
Arsenic	mg/kg	2.64	2.79	2.17	2.84	2.57	2.66 J [3.21]	2.53	2.18
Barium	mg/kg	0.175 U	0.652	0.179 U	0.512	0.434	0.296 BJ [0.19 B]	0.175 U	0.179 U
Beryllium	mg/kg	0.0135 U	0.0139 U	0.0138 U	0.0139 U	0.0135 U	0.0139 U [0.0139 U]	0.0135 U	0.0138 U
Cadmium	mg/kg	0.0661 B	0.104	0.0516 B	0.0451 U	0.0561 B	0.0587 B [0.0737 B]	0.121	0.0756 B
Calcium	mg/kg	240	268	277	257	262	230 [240]	202	327
Chromium, Total	mg/kg	0.223 B	0.927	0.0971 U	0.799	0.537	0.098 U [0.268 B]	0.23 B	0.0971 U
Cobalt	mg/kg	0.12	0.154	0.127	0.136	0.133	0.113 [0.119]	0.129	0.154
Copper	mg/kg	1.81	2.18	1.8	2.1	1.99	1.77 [2.29]	1.67	2.44
Iron	mg/kg	93	180	103	170	143	80.7 [124]	67.5	258
Lead	mg/kg	0.256	0.78	0.281	0.626	0.407	0.456 [0.642]	0.505	0.839
Magnesium	mg/kg	672	742	595	629	671	610 J [701]	571	739
Manganese	mg/kg	0.821	1.73	1.17	2.2	1.86	0.646 [0.991]	0.859	3.03
Mercury	ng/g	24.3	34	24.6	26.8	24	26 [23.3]	24.7	33.1
Methyl Mercury	ng/g	0.5 U	0.5 U	3.7	0.5 U	0.5 U	0.4 U [0.5 U]	0.5 U	0.4 U
Nickel	mg/kg	0.316 B	0.553	0.312 B	0.57	0.465	0.407 [0.431]	0.509	0.474
Potassium	mg/kg	3,220	3,210	2,860	2,870	2,770	2,790 [3,540]	2,730	3,140
Selenium	mg/kg	0.306 B	0.387 B	0.319 B	0.282 B	0.377 B	0.304 B [0.316 B]	0.353 B	0.341 B
Silver	mg/kg	0.0356 B	0.0392 B	0.0316 B	0.0378 B	0.0262 B	0.0196 U [0.0204 B]	0.0269 B	0.041 B
Sodium	mg/kg	3,870	4,640	3,750	3,620	4,360	3,880 [3,250]	3,770	4,650
Thallium	mg/kg	0.0286 U	0.0294 U	0.0291 U	0.0294 U	0.0286 U	0.0294 U [0.0294 U]	0.0286 U	0.0291 U
Titanium	mg/kg	0.162 U	2.05	0.705 B	1.92 B	1.43 B	0.167 U [0.167 U]	0.162 U	2.79
Vanadium	mg/kg	0.0286 U	0.0294 U	0.139	0.0294 U	0.0286 U	0.128 [0.0294 U]	0.0286 U	0.288
Zinc	mg/kg	17.8	17.4	28.1	26.6	42.7	35 J [17 J]	46.3	16.4

Table E-2
Bioaccumulation Tissue (Polychaete) Analytical Results

Sample Name: Date Homogenized:	Units	NB03TIS-BIO136 12/2/2015	NB03TIS-BIO138 12/2/2015	NB03TIS-BIO141 12/1/2015	NB03TIS-BIO146 12/2/2015	NB03TIS-BIO147 12/2/2015	NB03TIS-BIO149 12/2/2015	NB03TIS-BIO160 12/2/2015	NB03TIS-BIO161 12/1/2015
Butyltins									
Dibutyltin	ug/kg	1.3 U	1.2 U	1.2 U	1.2 U	1.2 U	1.3 U [1.2 U]	1.2 U	1.3 U
Monobutyltin	ug/kg	20 UCN	20 UCN	19 UCN	20 UCN	19 UCN	21 UCN [19 UCN]	19 UCN	20 UCN
Tetra-n-butyltin	ug/kg	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U [1.6 U]	1.6 U	1.7 U
Tributyltin	ug/kg	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.5 U [1.4 U]	1.4 U	1.5 U
Pesticides									
2,4'-DDD	pg/g	470	517	395	587	935	1,560 [1,380]	316	451
2,4'-DDE	pg/g	R	R	57.7	302 J	R	147 [137 J]	R	58.8
2,4'-DDT	pg/g	10.8 U	10.8 U	10.8 U	10.8 U	10.8 U	10.8 U [10.8 U]	10.8 U	10.8 U
4,4'-DDD	pg/g	1,070	1,100	757	1,200	2,890	3,920 J [3,160]	670	1,110
4,4'-DDE	pg/g	391 B	987 B	330 B	851 B	1,460 B	987 B [773 B]	728 B	439 B
4,4'-DDT	pg/g	31.9 JB	28 JB	9.4 U	40.5 BJ	100 B	61.1 B [39.2 BJ]	31.3 JB	26.1 J
Aldrin	pg/g	4.77 J	9.16 U	9.16 U	9.16 U	9.16 U	9.16 U [9.16 U]	15.3 J	9.18 J
Alpha BHC	pg/g	R	R	6.4 U	R	6.4 U	6.8 J [R]	R	18.1 J
Alpha Endosulfan	pg/g	57.4 U	57.4 U	57.4 U	57.4 U	57.4 U	57.4 U [57.4 U]	57.4 U	57.4 U
Beta BHC	pg/g	5.71 J	5.71 J	11.1 U	11.1 U	11.1 U	5.74 J [11.1 U]	8.05 J	11.2 J
Beta Endosulfan	pg/g	58.3 U	58.3 U	58.3 U	58.3 U	58.3 U	58.3 U [58.3 U]	58.3 U	58.3 U
Cis-Chlordane	pg/g	585	786	862	272	501	548 [331]	222	1,360
Cis-Nonachlor	pg/g	472	349	331	197	270	216 [246]	479	380
Delta Bhc	pg/g	5.08 U	5.08 U	5.08 U	5.08 U	5.08 U	5.08 U [5.08 U]	5.08 U	5.08 U
Dieldrin	pg/g	949	3,140	785	438	1,330	1,340 J [1,400]	1,240	1,130
Endosulfan Sulfate	pg/g	63.3 U	63.3 U	63.3 U	63.3 U	63.3 U	63.3 U [63.3 U]	63.3 U	63.3 U
Endrin	pg/g	13.9 U	13.9 U	13.9 U	13.9 UJ	13.9 UJ	13.9 U [13.9 UJ]	13.9 UJ	13.9 U
Endrin Aldehyde	pg/g	131 U	131 U	131 U	131 U	131 U	131 U [131 U]	131 U	R
Endrin Ketone	pg/g	76 U	76 U	76 U	76 U	76 U	76 U [76 U]	76 U	R
Gamma BHC (Lindane)	pg/g	7.69 U	7.69 U	7.69 U	7.69 U	7.69 U	7.69 U [7.69 U]	7.69 U	7.69 U
Heptachlor	pg/g	32.5 U	32.5 U	32.5 UJ	32.5 U	32.5 U	32.5 U [32.5 U]	32.5 UJ	32.5 UJ
Heptachlor Epoxide	pg/g	73.2	35.1 J	41	23.5 J	46.9	55 [R]	40.7	134
Hexachlorobenzene	pg/g	161 B	556 B	106 B	157 B	401 B	129 B [129 B]	457 B	188 B
Methoxychlor	pg/g	38.9 U	38.9 U	38.9 UJ	38.9 U	38.9 U	38.9 U [38.9 UJ]	38.9 UJ	38.9 UJ
Mirex	pg/g	9.33 U	R	9.33 U	R	R	9.33 U [9.33 U]	9.33 U	9.33 U
Oxychlordane	pg/g	10 U	50.4	42.3	26.1 J	39.9	10 U [33.5 J]	50.8	47.9
Trans-Chlordane	pg/g	799 B	828 B	R	13.7 U	13.7 U	13.7 U [13.7 U]	616 B	R
Trans-Heptachlor Epoxide	pg/g	17 U	17 U	17 U	17 U	17 U	17 U [17 U]	17 U	17 U
Trans-Nonachlor	pg/g	737	584	655	247	345	423 [436]	630	857
Total Alpha + Gamma Chlordane	pg/g	1,380	1,610	862	272	501	548 [331]	838	1,360
Total DDT (2,4)	pg/g	470	517	453	889 J	935	1,710 [1,520 J]	316	510
Total DDT (4,4)	pg/g	1,490 J	2,120 J	1,090	2,090 J	4,450	4,970 J [3,970 J]	1,430 J	1,580 J
Total DDT (2,4 & 4,4)	pg/g	1,960 J	2,630 J	1,540	2,980 J	5,390	6,680 J [5,490 J]	1,750 J	2,080 J
Aroclor PCBs									
Aroclor 1016	ug/kg	7.2 U	7.2 U	7.1 U	7 U	7.2 U	7.1 U [7.1 U]	7 U	7.2 U
Aroclor 1221	ug/kg	9.2 U	9.2 U	9 U	9 U	9.2 U	9 U [9.1 U]	9 U	9.1 U
Aroclor 1232	ug/kg	16 U	16 U	16 U	16 U	16 U	16 U [16 U]	16 U	16 U
Aroclor 1242	ug/kg	6.6 U	6.6 U	6.5 U	6.4 U	6.6 U	6.5 U [6.5 U]	6.4 U	6.6 U
Aroclor 1248	ug/kg	22 J	82	6.5 U	19 J	40	22 J [21 J]	47 J	6.6 U
Aroclor 1254	ug/kg	27 J	44	15 J	26 J	39 J	17 J [16 J]	27 J	25 JPN
Aroclor 1260	ug/kg	13 J	17 J	9.6 U	9.5 U	9.8 U	9.6 U [9.7 U]	9.5 U	19 J
Aroclor 1262	ug/kg	6.6 U	6.6 U	6.5 U	6.4 U	6.6 U	6.5 U [6.5 U]	6.4 U	6.6 U
Aroclor 1268	ug/kg	6.6 U	6.6 U	6.5 U	6.4 U	6.6 U	6.5 U [6.5 U]	6.4 U	6.6 U

Table E-2
Bioaccumulation Tissue (Polychaete) Analytical Results

Sample Name: Date Homogenized:	Units	NB03TIS-BIO136 12/2/2015	NB03TIS-BIO138 12/2/2015	NB03TIS-BIO141 12/1/2015	NB03TIS-BIO146 12/2/2015	NB03TIS-BIO147 12/2/2015	NB03TIS-BIO149 12/2/2015	NB03TIS-BIO160 12/2/2015	NB03TIS-BIO161 12/1/2015
Total Aroclor PCBs (Sum of 7 Aroclors)	ug/kg	62 J	143 J	15 J	45 J	79 J	39 J [37 J]	74 J	44 J
Total Aroclor PCBs (Sum of 9 Aroclors)	ug/kg	62 J	143 J	15 J	45 J	79 J	39 J [37 J]	74 J	44 J
PCB Congeners									
PCB-1	ng/kg	7.5	6.93	8.62	4.86	24.6	4.71 [4]	4.35	13.5
PCB-2	ng/kg	1.07 J	2.99	0.902 J	1.09 J	4.11	1.68 J [1.56 J]	3.13	1.77 J
PCB-3	ng/kg	2.19 J	3.96 J	1.07 U	2.78 J	4.63 J	3.18 J [2.29 J]	3.1 J	1.07 U
PCB-4	ng/kg	65.8	441 E	65.6	47.8	308 E	101 [102]	285	82.9
PCB-5	ng/kg	0.791 U	0.775 U	0.778 U	0.791 U	0.795 U	0.785 U [0.77 U]	0.789 U	0.78 U
PCB-6	ng/kg	2.53	14.3	3.33	4.28	23.9	0.687 U [0.674 U]	11	6.4
PCB-7	ng/kg	5.74	6.88	0.966 J	0.791 U	9.78	0.785 U [6.53]	5.75	0.78 U
PCB-8	ng/kg	7.04	66.1	1.46 U	12.7	64.3	13.7 [12.3]	33.9	21.1 B
PCB-9	ng/kg	0.692 U	12.8	1.18 J	0.692 U	11.5	0.687 U [2.34]	11.9	1.96
PCB-10	ng/kg	17.1	46.2	13	10.7	42.5	1.28 U [16.2]	32.5	11.9
PCB-11	ng/kg	57.6 B	286 B	54.9 B	65.5 B	273 B	96.9 B [81.4 B]	431 BE	74.4 B
PCB-12/13	ng/kg	8.15	42.5	6.35	11.5	59.8	20.6 [17.1]	46.2	13.8
PCB-14	ng/kg	0.791 U	0.775 U	0.778 U	0.791 U	1.15 J	0.785 U [0.77 U]	0.789 U	0.78 U
PCB-15	ng/kg	126 B	791 BE	126 B	168 B	699 BE	183 B [172 B]	696 BE	165 B
PCB-16	ng/kg	0.89 U	78.7 B	5.56	7.63 B	76.4 B	16.6 B [15.3 B]	28.8 B	9.51
PCB-17	ng/kg	21	226	20.3	26.4	215	52.4 [50.7]	153	36.1
PCB-18/30	ng/kg	394 B	3,730 BE	334 B	336 B	2,360 BE	785 BEJ [735 BE]	2,200 BE	393 B
PCB-19	ng/kg	114	573 E	106	79.4	383 E	136 [145]	330 E	121
PCB-20/28	ng/kg	732 BE	3,750 BE	553	577 B	3,130 BE	1,110 BEJ [1,040 BE]	3,270 BE	844 E
PCB-21/33	ng/kg	5.2	91.6	9.19	10.2	70.7	15.9 [16.2]	37.5	22.7
PCB-22	ng/kg	118 B	854 BE	78.1	83.9 B	647 BE	214 BJ [196 B]	752 BE	122
PCB-23	ng/kg	0.692 U	2.93	0.681 U	0.692 U	1.91 J	0.775 J [0.675 J]	3.52	0.683 U
PCB-24	ng/kg	3.76	36.7	3.3	3.01	21.2	9.26 [8.44]	30.4	4.09
PCB-25	ng/kg	47.6	162	36	35.6	161	61.6 [57.7]	140	54.5
PCB-26/29	ng/kg	61	299	48.6	53.4	290	107 [92.4]	256	80.7
PCB-27	ng/kg	54.8	220	46.4	41.8	193	70.8 [68.8]	155	48.1
PCB-31	ng/kg	151 B	1,010 BE	90.7	114 B	889 BE	271 BJ [236 B]	905 BE	193
PCB-32	ng/kg	111	728 E	99.8	95.8	571 E	185 [186]	498 E	131
PCB-34	ng/kg	2.91	12.7	2.79	2.46	13.1	4.67 [4.41]	8.93	4.12
PCB-35	ng/kg	6.96	33.2	4.68	6.97	28.7	9.99 [9.48]	35	7.61
PCB-36	ng/kg	0.791 U	0.775 U	1.71 J	1.95 J	0.795 U	0.785 U [1.99]	0.789 U	3.03
PCB-37	ng/kg	155	939 E	105	144	757 E	216 J [207]	897 E	188
PCB-38	ng/kg	0.692 U	3.32	1.16 J	0.692 U	1.89 J	1.11 J [0.674 U]	2.34	1.13 J
PCB-39	ng/kg	4.09	15.2	4.01	4.63	17.1	0.785 U [5.59]	15.3	5.73
PCB-40/71	ng/kg	155	766	143	129	533	222 [202]	449	171
PCB-41	ng/kg	4.15 U	4.07 U	4.09 U	4.15 U	4.17 U	4.12 U [4.04 U]	4.14 U	4.1 U
PCB-42	ng/kg	229	907 E	194	152	564	286 [260]	564	222
PCB-43	ng/kg	56.4	262	46.1	40.9	160	80.7 [63.2]	174	61
PCB-44/47/65	ng/kg	1,140 B	3,490 BE	1,010	725 B	2,520 BE	1,230 B [1,060 B]	2,110 BE	1,290
PCB-45	ng/kg	107	605 E	83.1	75.9	419	168 [160]	376	78.7
PCB-46	ng/kg	23.9	114	18.6	16.8	74.7	34.1 [30]	64.4	17.7
PCB-48	ng/kg	60.4	457	59.1	52.8	319	115 [102]	297	94.3
PCB-49/69	ng/kg	758 B	2,300 BE	654	485 B	1,830 BE	882 B [777 B]	1,460 BE	929
PCB-50/53	ng/kg	457	1,780 E	401	284	999	490 [427]	919	390
PCB-51	ng/kg	153	301	126	63.3	223	102 [79.4]	172	166
PCB-52	ng/kg	1,780 BE	7,160 BE	1,650 BE	1,350 BE	4,590 BE	2,270 BE [1,970 BE]	4,040 BE	2,090 BE

Table E-2
Bioaccumulation Tissue (Polychaete) Analytical Results

Sample Name: Date Homogenized:	Units	NB03TIS-BIO136 12/2/2015	NB03TIS-BIO138 12/2/2015	NB03TIS-BIO141 12/1/2015	NB03TIS-BIO146 12/2/2015	NB03TIS-BIO147 12/2/2015	NB03TIS-BIO149 12/2/2015	NB03TIS-BIO160 12/2/2015	NB03TIS-BIO161 12/1/2015
PCB-54	ng/kg	17.4	20.6	14	4.33 J	14.2	6.39 [1.35 U]	9.63	17.7
PCB-55	ng/kg	1.19 U	1.16 U	1.17 U	3.47 J	15.9	1.18 U [1.15 U]	18.4	1.17 U
PCB-56	ng/kg	398	1,950 E	323	285	1,110 E	489 [438]	1,070 E	382
PCB-57	ng/kg	7.04	23.5	6.56	5.56	14.5	7.79 [6.17]	18	7.29
PCB-58	ng/kg	6.64	13.8	5.69	4.43 J	9.56	5.35 [5.73]	8.9	6.91
PCB-60	ng/kg	198	1,090 E	144	132	497	204 [179]	636 E	178
PCB-61/70/74/76	ng/kg	596	2,500 E	421	416	1,900	760 [658]	1,620	733
PCB-62/75	ng/kg	163	638	151	115	393	203 [179]	392	155
PCB-63	ng/kg	78.6	305	69.8	62.2	176	91 [80.9]	202	92.1
PCB-64	ng/kg	548 B	2,280 BE	452	362 B	1,470 BE	700 BE [616 BE]	1,390 BE	557
PCB-66	ng/kg	720 BE	2,550 BE	567	490 B	1,910 BE	858 BE [751 BE]	1,590 BE	811 E
PCB-67	ng/kg	26.1	88.3	21.1	16.2	59.3	28.9 [25.9]	61.8	29.2
PCB-68	ng/kg	23.3	36.7	22.7	19.4	33.8	22.2 [19.5]	26.6	29.9
PCB-72	ng/kg	14.9	28.1	14.6	12.4	26.8	18.4 [15.2]	20.8	21.8
PCB-73	ng/kg	1.38 U	1.36 U	17.6	1.38 U	1.39 U	1.37 U [1.35 U]	1.38 U	22.7
PCB-77	ng/kg	108	412	85.8	86.9	264	118 [104]	297	110
PCB-78	ng/kg	1.58 U	1.55 U	1.56 U	1.58 U	1.59 U	1.57 U [1.54 U]	1.58 U	1.56 U
PCB-79	ng/kg	13.6	41.5	9.33	11.8	31.2	15.8 [14.1]	28	11.1
PCB-80	ng/kg	1.09 U	1.07 U	1.07 U	1.09 U	1.09 U	1.08 U [1.06 U]	1.08 U	1.07 U
PCB-81	ng/kg	5.04	19.5	4.07 J	3.52 J	9.25	1.77 U [4.42 J]	15.2	4.52 J
PCB-82	ng/kg	17.2	84.7	17.6	19.3	61.7	25.5 [23.4]	47.1	22.7
PCB-83	ng/kg	52.7	131	71.9	50.2	118	60.6 [56.9]	90.5	78.7
PCB-84	ng/kg	302	1,010 E	317	265	680 E	346 [303]	514	259
PCB-85/116/117	ng/kg	284	758	299	229	514	292 [257]	479	325
PCB-86/87/97/109/119/125	ng/kg	457	1,400	467	380	1,010	525 [461]	824	571
PCB-88	ng/kg	2.18 U	2.13 U	2.14 U	2.17 U	2.19 U	2.16 U [2.12 U]	2.17 U	2.15 U
PCB-89	ng/kg	2.14 J	10.4	2.41 J	1.81 J	7.09	1.28 U [3.17 J]	6.17	1.27 U
PCB-90/101/113	ng/kg	1,270 B	2,960 BE	1,350 B	1,030 B	2,470 BE	1,310 B [1,180 B]	1,840 BE	2,060 BE
PCB-91	ng/kg	296	720 E	296	237	527	305 [271]	403	317
PCB-92	ng/kg	212	491	236	180	414	231 [201]	290	364
PCB-93/100	ng/kg	63.4	81.7	62.7	29.9	65.8	39.5 [33.4]	52.1	89.2
PCB-94	ng/kg	26.4	48	26.4	15.1	31.5	18.9 [17]	26.9	31
PCB-95	ng/kg	1,420 E	4,000 E	1,490 E	1,290 E	3,120 E	1,580 EJ [1,540 E]	2,480 E	1,930 E
PCB-96	ng/kg	15.6	43.9	12.3	8.79	25.4	14.3 [12.4]	22.1	9.96
PCB-98/102	ng/kg	73.1	195	74.1	55.7	145	71.7 [64.6]	118	92.7
PCB-99	ng/kg	830 E	1,630 E	837 E	658 E	1,430 E	850 EJ [752 E]	1,020 E	1,120 E
PCB-103	ng/kg	42.4	59	42.6	28	48.6	35.8 [30.9]	34	68.2
PCB-104	ng/kg	6.82	5.56	5.64	1.53 J	4.34 J	1.79 J [1.35 U]	4.68 J	1.37 U
PCB-105	ng/kg	487	1,440 E	435	444	939 E	529 [455]	1,070 E	519
PCB-106	ng/kg	1.68 U	1.65 U	1.65 U	1.68 U	1.69 U	1.67 U [1.64 U]	1.68 U	1.66 U
PCB-107	ng/kg	103	201	93.1	82.2	181	109 [99.1]	154	123
PCB-108/124	ng/kg	19.1	50.8	17.8	15.2	44.9	23 [19]	40	26.3
PCB-110/115	ng/kg	R	R	1,230 E	952 B	2,440 BE	1,300 BE [1,130 B]	1,860 BE	1,440 E
PCB-111	ng/kg	1.38 U	5.6	4.5 J	4.24 J	4.63 J	1.37 U [4.04 J]	4.15 J	6.04
PCB-112	ng/kg	1.38 U	1.36 U	1.36 U	1.85 J	8.75	1.37 U [1.35 U]	6.33	1.37 U
PCB-114	ng/kg	31	107	27	26.4	63.4	32.7 [29.5]	75.6	33.4
PCB-118	ng/kg	816 BE	1,850 BE	697 E	696 BE	1,730 BE	911 BEJ [780 BE]	1,450 BE	939 E
PCB-120	ng/kg	17.9	21	17.4	16.3	22.1	17 [16]	15.1	25.5
PCB-121	ng/kg	1.93 J	1.16 U	1.88 J	1.19 U	1.19 U	1.3 J [1.19 J]	2.25 J	2.8 J

Table E-2
Bioaccumulation Tissue (Polychaete) Analytical Results

Sample Name: Date Homogenized:	Units	NB03TIS-BIO136 12/2/2015	NB03TIS-BIO138 12/2/2015	NB03TIS-BIO141 12/1/2015	NB03TIS-BIO146 12/2/2015	NB03TIS-BIO147 12/2/2015	NB03TIS-BIO149 12/2/2015	NB03TIS-BIO160 12/2/2015	NB03TIS-BIO161 12/1/2015
PCB-122	ng/kg	6.7	23	6.67	5.35	13.2	7.19 [5.96]	15.4	1.17 U
PCB-123	ng/kg	40.6	89.5	32.2	34.1	57.2	37.6 [35.8]	57.4	37.3
PCB-126	ng/kg	R	R	6.02	5.8	8.97	1.57 U [5.09]	13.8	6.82
PCB-127	ng/kg	1.38 U	1.36 U	1.36 U	1.38 U	1.39 U	R [R]	1.38 U	4.67 J
PCB-128/166	ng/kg	244	422	218	223	384	257 [230]	353	260
PCB-129/138/163	ng/kg	2,320 E	3,570 E	2,160 E	2,060 E	3,330 E	2,260 E [2,130 E]	2,950 E	3,320 E
PCB-130	ng/kg	100	148	93.1	87.6	150	103 [92.3]	122	141
PCB-131	ng/kg	9.15	23.7	9.46	7.77	19.4	11.3 [8.54]	17.2	12.6
PCB-132	ng/kg	220	481	207	190	406	227 [200]	354	319
PCB-133	ng/kg	72.6	90.5	56.7	63.2	85.6	69.7 [63.2]	72.6	81.7
PCB-134	ng/kg	71.7	151	67.2	63.3	124	84.1 [66.8]	108	95.6
PCB-135/151	ng/kg	604	992	490	499	897	562 [503]	800	958
PCB-136	ng/kg	215	416	176	188	348	216 [181]	299	253
PCB-137	ng/kg	73.5	146	72.8	60.7	122	77.6 [65.1]	115	91.6
PCB-139/140	ng/kg	25.4	43.7	23.3	20.5	37.4	26.4 [21.4]	32.7	32
PCB-141	ng/kg	125	255	109	84.2	216	130 [107]	219	251
PCB-142	ng/kg	1.68 U	1.65 U	1.65 U	1.68 U	1.69 U	R [R]	1.68 U	1.66 U
PCB-143	ng/kg	3.26 U	3.2 U	3.21 U	3.26 U	3.28 U	3.24 U [3.18 U]	3.25 U	3.22 U
PCB-144	ng/kg	64.8	123	56.2	55.6	112	65.2 [59.7]	97.9	119
PCB-145	ng/kg	1.58 U	1.56 J	1.56 U	1.58 U	1.59 U	1.57 U [1.54 U]	1.58 U	1.56 U
PCB-146	ng/kg	539	699 E	488	479	663 E	497 [474]	569	789 E
PCB-147/149	ng/kg	1,670 BE	2,740 BE	1,540 BE	1,410 BE	2,350 BE	1,580 BE [1,420 BE]	2,120 BE	2,640 BE
PCB-148	ng/kg	12.5	15.2	10.8	10.6	14.5	12.1 [10.2]	10.4	14.8
PCB-150	ng/kg	11.3	15	8.67	8.71	13.2	10.2 [10.5]	8.68	11.5
PCB-152	ng/kg	2.79 J	3.95 J	1.36 U	1.54 J	2.75 J	1.37 U [1.61 J]	1.38 U	2.75 J
PCB-153/168	ng/kg	2,990 BE	4,000 BE	2,650 BE	2,630 BE	3,610 BE	2,760 BE [2,610 BE]	3,330 BE	4,420 BE
PCB-154	ng/kg	87.5	105	68.9	73.3	104	87.4 [77]	66.5	104
PCB-155	ng/kg	15.5	15.9	13.1	6.37	15.2	1.37 U [9.24]	142	19.1
PCB-156/157	ng/kg	205	363	166	193	314	204 [188]	331	248
PCB-158	ng/kg	162	297	149	142	254	161 [147]	249	242
PCB-159	ng/kg	1.38 U	1.36 U	1.36 U	1.38 U	1.39 U	1.37 U [1.35 U]	1.38 U	1.37 U
PCB-160	ng/kg	6.23 U	6.1 U	6.13 U	6.23 U	6.26 U	6.18 U [6.06 U]	6.21 U	6.15 U
PCB-161	ng/kg	1.29 U	1.26 U	1.26 U	1.28 U	1.29 U	1.28 U [1.25 U]	1.28 U	1.27 U
PCB-162	ng/kg	28	38.9	22.7	27.7	37.1	24.9 [23.2]	38.4	1.27 U
PCB-164	ng/kg	34.8	73.7	33.3	29.7	61.6	38.7 [32.5]	59.2	67.8
PCB-165	ng/kg	4.38 J	4.52 J	4.08 J	4.34 J	5.03	R [R]	4 J	5.8
PCB-167	ng/kg	86.7	134	R	82.5	119	90.5 [80.7]	120	R
PCB-169	ng/kg	1.48 U	1.45 U	1.46 U	1.48 U	1.49 U	1.47 U [1.44 U]	1.48 U	1.46 U
PCB-170	ng/kg	540	726 E	471	458	660 E	478 J [470]	698 E	761 E
PCB-171/173	ng/kg	158	214	148	R	R	R [R]	R	257
PCB-172	ng/kg	96.1	127	91.6	83.4	117	87.3 [85.7]	123	168
PCB-174	ng/kg	89.8	147	81.6	R	R	R [R]	R	206
PCB-175	ng/kg	R	R	30.6	R	R	R [R]	R	50
PCB-176	ng/kg	61.7	85.2	53.1	54.1	85.7	57.3 [50.6]	82.7	96.8
PCB-177	ng/kg	338	429	295	R	R	R [R]	R	475
PCB-178	ng/kg	169	223	156	163	220	158 [148]	207	250
PCB-179	ng/kg	143	214	126	127	208	132 [119]	200	224
PCB-180/193	ng/kg	1,330 E	1,790 E	1,190 E	1,180	1,640 E	1,210 E J [1,180 E]	1,690 E	2,170 E
PCB-181	ng/kg	R	R	4.94	R	R	R [R]	R	6.92

Table E-2
Bioaccumulation Tissue (Polychaete) Analytical Results

Sample Name: Date Homogenized:	Units	NB03TIS-BIO136 12/2/2015	NB03TIS-BIO138 12/2/2015	NB03TIS-BIO141 12/1/2015	NB03TIS-BIO146 12/2/2015	NB03TIS-BIO147 12/2/2015	NB03TIS-BIO149 12/2/2015	NB03TIS-BIO160 12/2/2015	NB03TIS-BIO161 12/1/2015
PCB-182	ng/kg	4.58 J	5.21	5.55	R	R	R [R]	R	9.21
PCB-183/185	ng/kg	R	R	503	R	R	R [R]	R	911
PCB-184	ng/kg	4.26 J	3.98 J	3.79 J	3.09 J	4.36 J	3.15 J [3.14 J]	9.1	4.68 J
PCB-186	ng/kg	1.48 U	1.45 U	1.46 U	1.48 U	1.49 U	1.47 U [1.44 U]	1.48 U	1.46 U
PCB-187	ng/kg	R	R	1,220 E	R	R	R [R]	R	1,930 E
PCB-188	ng/kg	9.73	9.84	7.97	8.94	10.8	11 [9.45]	7.87	9.22
PCB-189	ng/kg	22.4	28.1	16.7	19.8	26.9	20.4 [19.9]	27.3	29.5
PCB-190	ng/kg	135	178	118	112	159	126 [119]	162	187
PCB-191	ng/kg	25.4	34.3	24.2	22.1	31.7	23.9 [22.3]	33.7	43.7
PCB-192	ng/kg	1.29 U	1.26 U	1.26 U	1.28 U	1.29 U	1.28 U [1.25 U]	1.28 U	1.27 U
PCB-194	ng/kg	224	308	175	206	262	208 [201]	263	276
PCB-195	ng/kg	127	159	93.8	112	150	119 [117]	144	137
PCB-196	ng/kg	179	228	165 J	169	230	166 [164]	223	260 J
PCB-197/200	ng/kg	37.1	44.3	32.8	33.5	47.7	34.8 [33.6]	43.6	50.7
PCB-198/199	ng/kg	363	481	341	374	491	338 [333]	453	462
PCB-201	ng/kg	57.8	71.5	55.7	58.3	76.5	55.2 [53.4]	69.7	73.6
PCB-202	ng/kg	102	134	90.4	120	134	96 [94.8]	118	125
PCB-203	ng/kg	342	417	297	338	434	316 [317]	381	444
PCB-204	ng/kg	2.08 U	2.03 U	2.04 U	2.08 U	2.09 U	2.06 U [2.02 U]	2.07 U	2.05 U
PCB-205	ng/kg	21.3	26.5	16.6	18.8	25	19.8 [19]	22.4	25.8
PCB-206	ng/kg	432	519	383	490	512	436 [391]	416	470
PCB-207	ng/kg	54.1	63	47.1	53.3	60	52.9 [49.2]	54.6	59.8
PCB-208	ng/kg	143	171	120	172	165	132 [126]	137	154
PCB-209	ng/kg	R	R	273	392	387	320 [317]	332	340
Total PCB Congeners (209)	ng/kg	32,200 J	84,200 J	32,300 J	27,600 J	67,600 J	35,900 J [32,800 J]	60,800 J	47,000 J
Semivolatiles									
1,2,4,5-Tetrachlorobenzene	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
1,2-Diphenylhydrazine	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
1-Methylnaphthalene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 UJ	5.2 U
2,3,4,6-Tetrachlorophenol	ug/kg	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U [1,300 U]	1,300 U	1,300 U
2,4,5-Trichlorophenol	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
2,4,6-Trichlorophenol	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
2,4-Dichlorophenol	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
2,4-Dimethylphenol	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
2,4-Dinitrophenol	ug/kg	5,900 U	6,000 U	6,000 U	6,000 U	6,000 U	6,000 U [6,000 U]	6,000 U	5,900 U
2,4-Dinitrotoluene	ug/kg	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U [1,300 U]	1,300 U	1,300 U
2,6-Dinitrotoluene	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
2-Chloronaphthalene	ug/kg	130 U	130 U	130 U	130 U	130 U	130 U [130 U]	130 U	130 U
2-Chlorophenol	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
2-Methylnaphthalene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 UJ	5.2 U
2-Methylphenol (O-Cresol)	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
2-Nitroaniline	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
2-Nitrophenol	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
3,3'-Dichlorobenzidine	ug/kg	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U [2,000 U]	2,000 U	2,000 U
3-Nitroaniline	ug/kg	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U [1,300 U]	1,300 U	1,300 U
4,6-Dinitro-2-Methylphenol	ug/kg	3,300 U	3,300 U	3,300 U	3,300 U	3,300 U	3,300 U [3,300 U]	3,300 U	3,300 U
4-Bromophenyl Phenyl Ether	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
4-Chloro-3-Methylphenol	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
4-Chloroaniline	ug/kg	650 U	660 U	670 U	670 U	660 U	660 U [660 U]	670 U	650 U

Table E-2
Bioaccumulation Tissue (Polychaete) Analytical Results

Sample Name: Date Homogenized:	Units	NB03TIS-BIO136 12/2/2015	NB03TIS-BIO138 12/2/2015	NB03TIS-BIO141 12/1/2015	NB03TIS-BIO146 12/2/2015	NB03TIS-BIO147 12/2/2015	NB03TIS-BIO149 12/2/2015	NB03TIS-BIO160 12/2/2015	NB03TIS-BIO161 12/1/2015
4-Chlorophenyl Phenyl Ether	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
4-Methylphenol (P-Cresol)	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
4-Nitroaniline	ug/kg	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U [1,300 U]	1,300 U	1,300 U
4-Nitrophenol	ug/kg	3,300 U	3,300 U	3,300 U	3,300 U	3,300 U	3,300 U [3,300 U]	3,300 U	3,300 U
Acenaphthene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 UJ	5.2 U
Acenaphthylene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 UJ	5.2 U
Acetophenone	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
Anthracene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 UJ	5.2 U
Atrazine	ug/kg	650 U	660 U	670 U	670 U	660 U	660 U [660 U]	670 U	650 U
Benzaldehyde	ug/kg	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U [1,300 U]	1,300 U	1,300 U
Benzidine	ug/kg	14,000 U	14,000 U	14,000 U	14,000 U	14,000 U	14,000 U [14,000 U]	14,000 U	14,000 U
Benzo(a)anthracene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 UJ	5.2 U
Benzo(a)pyrene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 UJ [5.3 U]	5.3 UJ	5.2 U
Benzo(b)fluoranthene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 UJ [5.3 U]	5.3 UJ	6.6 J
Benzo(g,h,i)perylene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 UJ [5.3 U]	5.3 UJ	5.2 U
Benzo(j)+(k)fluoranthene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 UJ [5.3 U]	5.3 UJ	6.2 J
Benzo[e]pyrene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	6.1 J
Benzoic Acid	ug/kg	3,300 U	3,300 U	3,300 U	3,300 U	3,300 U	3,300 U [3,300 U]	3,300 U	3,300 U
Benzyl Butyl Phthalate	ug/kg	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U [1,300 U]	1,300 U	1,300 U
Biphenyl (Diphenyl)	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
Bis(2-Chloroethoxy) Methane	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
Bis(2-Chloroisopropyl) Ether	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
Bis(2-Ethylhexyl) Phthalate	ug/kg	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U [1,300 U]	1,300 U	1,300 U
C1-Chrysenes	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	5.2 U
C1-Fluoranthenes/Pyrenes	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	5.2 U
C1-Fluorenes	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	5.2 U
C1-Naphthalenes	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	5.2 U
C1-Phenanthrene/Anthracene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	5.2 U
C2-Chrysene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	5.2 U
C2-Fluoranthenes/Pyrene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	5.2 U
C2-Fluorenes	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	5.2 U
C2-Naphthalenes	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	5.2 U
C2-Phenanthrene/Anthracene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	5.2 U
C3-Chrysene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	5.2 U
C3-Fluoranthenes/Pyrene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	5.2 U
C3-Fluorenes	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	5.2 U
C3-Naphthalenes	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	13 J	5.2 U [5.3 U]	5.3 U	5.2 U
C3-Phenanthrene/Anthracene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	5.2 U
C4-Chrysene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	5.2 U
C4-Naphthalenes	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	14	5.2 U [5.3 U]	5.3 U	5.2 U
C4-Phenanthrene/Anthracene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	5.2 U
Caprolactam	ug/kg	650 U	660 U	670 U	670 U	660 U	660 U [660 U]	670 U	650 U
Carbazole	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
Chrysene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	12 J	5.2 U [5.3 U]	5.3 UJ	12 J
Dibenz(a,h)anthracene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 UJ [5.3 U]	5.3 UJ	5.2 U
Dibenzofuran	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
Diethyl Phthalate	ug/kg	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U [1,300 U]	1,300 U	1,300 U
Dimethyl Phthalate	ug/kg	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U [1,300 U]	1,300 U	1,300 U

Table E-2
Bioaccumulation Tissue (Polychaete) Analytical Results

Sample Name: Date Homogenized:	Units	NB03TIS-BIO136 12/2/2015	NB03TIS-BIO138 12/2/2015	NB03TIS-BIO141 12/1/2015	NB03TIS-BIO146 12/2/2015	NB03TIS-BIO147 12/2/2015	NB03TIS-BIO149 12/2/2015	NB03TIS-BIO160 12/2/2015	NB03TIS-BIO161 12/1/2015
Di-n-Butyl Phthalate	ug/kg	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U [1,300 U]	1,300 U	1,300 U
Di-n-Octylphthalate	ug/kg	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U [1,300 U]	1,300 U	1,300 U
Fluoranthene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	15	5.2 U [5.3 U]	5.3 UJ	11 J
Fluorene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 UJ	5.2 U
Hexachlorobutadiene	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
Hexachlorocyclopentadiene	ug/kg	3,300 U	3,300 U	3,300 U	3,300 U	3,300 U	3,300 U [3,300 U]	3,300 U	3,300 U
Hexachloroethane	ug/kg	650 U	660 U	670 U	670 U	660 U	660 U [660 U]	670 U	650 U
Indeno(1,2,3-c,d)pyrene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 UJ [5.3 U]	5.3 UJ	5.2 U
Isophorone	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
Naphthalene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 UJ	5.2 U
Nitrobenzene	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
N-Nitrosodi-N-Propylamine	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
N-Nitrosodiphenylamine	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
Pentachlorophenol	ug/kg	650 U	660 U	670 U	670 U	660 U	660 U [660 U]	670 U	650 U
Perylene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	14
Phenanthrene	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 UJ	5.2 U
Phenol	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U [330 U]	330 U	330 U
Pyrene	ug/kg	9 J	12 J	5.2 U	9.9 J	23	11 J [5.3 U]	5.3 UJ	19
Pyridine	ug/kg	1,300 U	1,300 U	1,300 U	2,900 J	1,300 U	1,300 U [1,300 U]	1,300 U	1,300 U
Total HMW PAHs	ug/kg	9 J	12 J	5.2 U	9.9 J	50 J	11 J [5.3 U]	5.3 U	54.8 J
Total LMW PAHs	ug/kg	5.2 U	5.3 U	5.2 U	5.3 U	5.3 U	5.2 U [5.3 U]	5.3 U	5.2 U
Total PAHs	ug/kg	9 J	12 J	5.2 U	9.9 J	50 J	11 J [5.3 U]	5.3 U	54.8 J
Physical Properties									
Moisture (Water) Content	%	562	536	567	590	558	591 [601]	611	524
Moisture, Percent	%	84.9	84.3	85	85.5	84.8	85.5 [85.7]	85.9	84

Table E-2
Bioaccumulation Tissue (Polychaete) Analytical Results

Notes:

1. Totals were calculated using detected values only. If all analytes that make up a given total are nondetect, the total will be reported as the highest detection limit of the individual analytes and will be qualified with a "U" flag to indicate it is a non-detect.
2. Total PCB Congeners (209) = sum of 209 individual congener PCBs
3. Total Aroclor PCBs (Sum of 7 Aroclors) = sum of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260
4. Total Aroclor PCBs (Sum of 9 Aroclors) = sum of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260, Aroclor-1262, and Aroclor-1268
5. Total Alpha + Gamma Chlordane = sum of alpha-Chlordane and gamma-Chlordane
6. Total DDT (2,4) = sum of 2,4'-DDD, 2,4'-DDE, and 2,4'-DDT
7. Total DDT (4,4) = sum of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT
8. Total DDT (2,4 & 4,4) = sum of 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT
9. Total HMW PAHs = sum of fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene.
10. Total LMW PAHs = sum of naphthalene, 2-methylnaphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, and anthracene.
11. Total PAHs = sum of Total LMW PAHs and Total HMW PAHs.
12. C1-Naphthalenes = sum of 1-methylnaphthalene and 2-methylnaphthalene

ASTM = American Society for Testing Materials

DDD = dichlorodiphenyldichloroethane

DDE = dichlorodiphenyldichloroethylene

DDT = dichlorodiphenyltrichloroethane

HMW = high molecular weight

LMW = low molecular weight

PAH = polycyclic aromatic hydrocarbon

PCB = polychlorinated biphenyl

TCDD = tetrachlorodibenzo-p-dioxin

% = percent

mg/kg = milligrams per kilogram

ng/g = nanograms per gram

ng/kg = nanograms per kilogram

pg/g = picograms per gram

ug/kg = micrograms per kilogram

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR136	NB03SED-POR137	NB03SED-POR138	NB03SED-POR139	NB03SED-POR140	NB03SED-POR141	NB03SED-POR142	NB03SED-POR143
Dioxins/Furans									
1,2,3,4,6,7,8-HpCDD	pg/L	1.54 JB	1.35 JB	1.37 JBQ	1.33 JB	1.29 JB	1.79 JB	1.71 JB	1.74 JB
1,2,3,4,6,7,8-HpCDF	pg/L	2.67 JB	2.41 JB	2.34 JB	2.13 JB	20.7 B	2.81 JB	0.979 JB	2.31 JB
1,2,3,4,7,8,9-HpCDF	pg/L	0.168 JBQ	0.133 JB	0.133 JBQ	0.154 JBQ	0.464 JBQ	0.165 JB	0.0946 JBQ	0.147 JBQ
1,2,3,4,7,8-HxCDD	pg/L	0.0736 JBQ	0.0588 JB	0.0481 JBQ	0.0471 U	0.160 JBQ	0.122 JBQ	0.106 JB	0.121 JBQ
1,2,3,4,7,8-HxCDF	pg/L	2.96 JB	2.66 JB	3.04 JB	2.69 JB	23.0 BCQ	2.83 JB	0.993 JB	2.03 JB
1,2,3,6,7,8-HxCDD	pg/L	0.577 JB	0.397 JB	0.611 JB	0.576 JB	0.631 JB	0.823 JB	0.402 JBQ	0.734 JBQ
1,2,3,6,7,8-HxCDF	pg/L	0.946 JB	0.480 JBQ	0.821 JB	0.681 JBQ	6.17 B	0.735 JBQ	0.414 JB	0.806 JB
1,2,3,7,8,9-HxCDD	pg/L	0.285 JBQ	0.194 JBQ	0.190 JB	0.239 JB	0.359 JB	0.445 JB	0.300 JBQ	0.261 JB
1,2,3,7,8,9-HxCDF	pg/L	0.334 JBQ	0.426 JBQ	0.397 JBQ	0.400 JBQ	0.776 JBQ	0.498 JB	0.300 JBQ	0.357 JBQ
1,2,3,7,8-PeCDD	pg/L	0.622 JBQ	0.550 JBQ	0.853 JBQ	0.499 JBQ	1.25 JB	0.774 JBQ	0.703 JB	1.01 JBQ
1,2,3,7,8-PeCDF	pg/L	1.44 JBQ	1.02 JBQ	1.80 JBQ	1.60 JBQ	9.36 B	1.72 JBQ	1.31 JB	2.21 JB
2,3,4,6,7,8-HxCDF	pg/L	0.554 JB	0.433 JBQ	0.405 JBQ	0.417 JB	2.15 JB	0.530 JBQ	0.342 JB	0.693 JBQ
2,3,4,7,8-PeCDF	pg/L	3.64 JB	2.17 JB	3.51 JB	3.03 JBQ	17.4 B	3.37 JB	2.22 JB	4.28 JB
2,3,7,8-TCDD	pg/L	21.1	13.1 JQ	76.1	23.1	44.5	21.9	10.6	20.8
2,3,7,8-TCDF	pg/L	5.41	3.36 JQ	5.69	4.44 JQ	8.03	5.54	4.57	4.04 JQ
OCDD	pg/L	3.13 JB	2.55 JB	2.55 JB	2.91 JB	2.18 JB	2.98 JBQ	2.96 JB	5.06 B
OCDF	pg/L	0.00706 JB	0.00589 JB	0.00541 JBQ	0.00607 JB	0.0348 B	0.00688 JB	0.00228 JB	0.00706 JBQ
Metals									
Aluminum	mg/L	0.130 U	0.130 U	0.130 U	0.898	0.130 U	0.130 U	0.130 U	0.130 U
Antimony	mg/L	0.00170 U	0.00170 U	0.00170 U	0.00170 U	0.00170 U	0.00170 U	0.00170 U	0.00170 U
Arsenic	mg/L	0.00540 U	0.00540 U	0.00540 U	0.0191 B	0.00540 U	0.00540 U	0.0209	0.0371
Barium	mg/L	0.0484	0.0638	0.0575	0.0530	0.0524	0.0485	0.0819	0.0761
Beryllium	mg/L	0.000360 U	0.000360 U	0.000360 U	0.000360 U	0.000360 U	0.000360 U	0.000360 U	0.000360 U
Cadmium	mg/L	0.00230 U	0.00230 U	0.00230 U	0.00230 U	0.00230 U	0.00230 U	0.00230 U	0.00230 U
Calcium	mg/L	243	246	240	252	242	249	281	292
Chromium	mg/L	0.00450 B	0.00350 U	0.00420 B	0.0100	0.00530 B	0.00440 B	0.00440 B	0.00760 B
Cobalt	mg/L	0.00100 U	0.000500 U	0.000500 U	0.00100 U	0.000500 U	0.00100 U	0.000500 U	0.000500 U
Copper	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00420 BJ	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Iron	mg/L	0.399 B	1.09	0.158 B	1.90	1.59	0.890	0.857	0.128 B
Lead	mg/L	0.000650 U	0.000650 U	0.000650 U	0.00600	0.000650 U	0.000650 U	0.000650 U	0.000650 U
Magnesium	mg/L	696	705	670	727	653	697	781	827
Manganese	mg/L	0.412	1.03	0.774	0.907	0.852	0.771	0.808	0.258
Mercury	ng/L	143	134	125	276	176	160	138	118
Methyl Mercury	ng/L	123 J	154 J	104 J	195 J	176 J	106 J	102 J	98.0 J
Nickel	mg/L	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U
Potassium	mg/L	251	251	238	272	236	254	267	314
Selenium	mg/L	0.00250 U	0.00290 B	0.00250 U	0.00250 B	0.00250 U	0.00250 U	0.00250 U	0.00250 B
Silver	mg/L	0.000550 U	0.000550 U	0.000550 U	0.000550 U	0.000550 U	0.000550 U	0.000550 U	0.000550 U
Sodium	mg/L	6,840	6,990	6,400	7,040	6,240	6,770	6,940	8,390
Thallium	mg/L	0.000750 U	0.000750 U	0.000750 U	0.000750 U	0.000750 U	0.000750 U	0.000750 U	0.000750 U
Titanium	mg/L	0.0106 B	0.00170 U	0.00170 U	0.0510	0.00560 B	0.00170 U	0.00690 B	0.00170 U
Vanadium	mg/L	0.00290 B	0.00220 U	0.00260 B	0.00350 B	0.00430 B	0.00220 U	0.00720	0.00320 B
Zinc	mg/L	0.0370 U	0.0370 U	0.0370 U	0.0370 U	0.0370 U	0.0967 J	0.0370 U	0.0370 U

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR136	NB03SED-POR137	NB03SED-POR138	NB03SED-POR139	NB03SED-POR140	NB03SED-POR141	NB03SED-POR142	NB03SED-POR143
Pesticides									
2,4'-DDD	pg/L	77.5 J	75.3 J	92.9 J	100 J	114 J	74.7 J	93.4 J	418 J
2,4'-DDE	pg/L	64.8 BJ	68.5 BJ	116 BJ	157 BJ	158 BJ	99.4 BJ	58.7 BJ	1,090 BDJ
2,4'-DDT	pg/L	0.00717 UJ	0.00717 UJ	0.00717 UJ	0.00717 UJ	0.00717 UJ	0.00717 UJ	0.00717 UJ	0.00717 UJ
4,4'-DDD	pg/L	139 J	126 J	142 J	147 J	193 J	117 J	163 J	406 J
4,4'-DDE	pg/L	457 BDJ	438 BDJ	572 BDJ	867 BDJ	973 BDJ	507 BDJ	304 BJ	2,990 BDJ
4,4'-DDT	pg/L	0.0108 UJ	0.0108 UJ	0.210 JB	0.0108 UJ	0.404 JB	0.329 JB	0.0108 UJ	0.0108 UJ
Aldrin	pg/L	1.11 J	0.761 J	0.342 J	0.906 J	0.861 J	0.826 J	0.00866 UJ	0.553 J
Alpha BHC	pg/L	2.04 UJ	2.04 UJ	2.04 UJ	2.04 UJ	2.04 UJ	2.04 UJ	2.04 UJ	2.04 UJ
Alpha Endosulfan	pg/L	5.12 UJ	5.12 UJ	5.12 UJ	5.12 UJ	5.12 UJ	5.12 UJ	5.12 UJ	5.12 UJ
Beta BHC	pg/L	3.31 UJ	3.31 UJ	3.31 UJ	3.31 UJ	3.31 UJ	3.31 UJ	3.31 UJ	3.31 UJ
Beta Endosulfan	pg/L	15.3 UJ	15.3 UJ	15.3 UJ	15.3 UJ	15.3 UJ	15.3 UJ	15.3 UJ	15.3 UJ
Cis-Chlordane	pg/L	205 BJ	166 BJ	138 BJ	147 BJ	208 BJ	148 BJ	148 BJ	157 BJ
Cis-Nonachlor	pg/L	18.0 J	14.5 J	17.0 J	17.8 J	17.2 J	16.4 J	12.5 J	18.5 J
Delta BHC	pg/L	1.07 UJ	1.07 UJ	1.07 UJ	1.07 UJ	1.07 UJ	1.07 UJ	1.07 UJ	1.07 UJ
Dieldrin	pg/L	195 J	181 J	615 J	202 J	292 J	180 J	242 J	224 J
Endosulfan Sulfate	pg/L	18.1 UJ	18.1 UJ	18.1 UJ	18.1 UJ	18.1 UJ	18.1 UJ	18.1 UJ	18.1 UJ
Endrin	pg/L	0.0157 UJ	0.0157 UJ	0.0157 UJ	0.0157 UJ	0.0157 UJ	0.0157 UJ	0.0157 UJ	0.0157 UJ
Endrin Aldehyde	pg/L	1.90 UJ	1.90 UJ	1.90 UJ	1.90 UJ	1.90 UJ	1.90 UJ	11.4 J	1.90 UJ
Endrin Ketone	pg/L	0.605 UJ	0.605 UJ	0.605 UJ	0.605 UJ	40.8 J	0.605 UJ	0.605 UJ	0.605 UJ
Gamma BHC (Lindane)	pg/L	2.20 UJ	2.20 UJ	2.20 UJ	2.20 UJ	2.20 UJ	2.20 UJ	2.20 UJ	2.20 UJ
Heptachlor	pg/L	2.96 BJ	2.72 BJ	3.29 BJ	2.57 BJ	3.38 BJ	2.35 BJ	2.88 BJ	0.0780 UJ
Heptachlor Epoxide	pg/L	15.1 BJ	16.7 BJ	0.142 UJ	9.62 BJ	26.2 BJ	9.18 BJ	36.4 BJ	0.142 UJ
Hexachlorobenzene	pg/L	158 BJ	223 BJ	466 BJ	184 BJ	729 BJ	134 BJ	449 BJ	658 BJ
Methoxychlor	pg/L	7.23 UJ	7.23 UJ	7.23 UJ	7.23 UJ	7.23 UJ	7.23 UJ	7.23 UJ	7.23 UJ
Mirex	pg/L	1.39 J	0.921 J	NA	NA	1.28 J	0.916 J	0.756 J	0.00505 UJ
Oxychlordane	pg/L	0.0238 UJ	0.0238 UJ	0.0238 UJ	0.0238 UJ	0.0238 UJ	0.0238 UJ	1.28 J	0.0238 UJ
Trans-Chlordane	pg/L	159 BJ	126 BJ	165 BJ	129 BJ	173 BJ	128 BJ	143 BJ	165 BJ
Trans-Heptachlor Epoxide	pg/L	0.190 UJ	0.190 UJ	0.190 UJ	0.190 UJ	0.190 UJ	0.190 UJ	0.190 UJ	0.190 UJ
Trans-Nonachlor	pg/L	85.4 BJ	70.5 BJ	51.0 BJ	55.4 BJ	82.4 BJ	59.5 BJ	65.8 BJ	64.2 BJ
Total Alpha + Gamma Chlordane	pg/L	364 J	293 J	303 J	277 J	381 J	277 J	291 J	322 J
Total DDT (2,4 & 4,4)	pg/L	738 J	708 J	923 J	1,270 J	1,440 J	798 J	619 J	4,900 J
Total DDT (2,4)	pg/L	142 J	144 J	209 J	257 J	272 J	174 J	152 J	1,500 J
Total DDT (4,4)	pg/L	596 J	564 J	714 J	1,010 J	1,170 J	624 J	467 J	3,400 J
PCB Congeners									
PCB-1	ng/L	6.26	6.57	8.69	6.93	4.13	8.10	3.57	3.57
PCB-2	ng/L	0.920	0.851	7.40	1.28	2.32	0.735	1.28	1.31
PCB-3	ng/L	0.561 J	0.559 J	2.70	0.291 U	1.03 J	0.527 J	0.625 J	0.648 J
PCB-4	ng/L	15.8	16.8	165	25.5	37.8	19.3	9.54	25.1
PCB-5	ng/L	0.101 U	0.109 U	2.10	0.134 J	0.484	0.114 U	0.108 U	0.269 J
PCB-6	ng/L	1.51	1.34	12.7	2.07	5.07	1.44	0.0740 U	2.22
PCB-7	ng/L	0.304	0.206 J	4.33	0.403	0.969	0.281	0.127 J	0.537
PCB-8	ng/L	5.24	4.19	94.1	8.49	29.5	5.75	3.01	9.31
PCB-9	ng/L	0.304	0.268	6.31	0.422	1.92	0.249	0.173 J	0.819
PCB-10	ng/L	0.937	1.11	3.48	1.15	0.884 J	1.10	0.542 J	0.925 J
PCB-11	ng/L	1.97	2.32	28.8	2.40	4.86	1.59	3.35	9.47
PCB-12/13	ng/L	0.845	0.906	7.05	1.07	2.93	0.652	0.773	1.92
PCB-14	ng/L	0.0435 U	0.0472 U	0.0428 U	0.0422 U	0.0765 J	0.0493 U	0.0466 U	0.0840 J
PCB-15	ng/L	3.54	3.02	24.5	4.04	7.43	2.93	2.90	5.55
PCB-16	ng/L	6.48	6.05	111	11.8	38.0	6.33	4.20	11.6
PCB-17	ng/L	9.62	9.14	102	15.0	38.1	9.53	6.00	12.6

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR136	NB03SED-POR137	NB03SED-POR138	NB03SED-POR139	NB03SED-POR140	NB03SED-POR141	NB03SED-POR142	NB03SED-POR143
PCB-18/30	ng/L	11.4	10.5	157	19.0	50.7	11.0	6.80	18.0
PCB-19	ng/L	5.55	4.86	36.9	6.88	13.6	5.24	3.19	5.72
PCB-20/28	ng/L	17.0	14.2	126	21.7	48.0	14.3	11.6	19.6
PCB-21/33	ng/L	3.33	2.95	57.3	5.31	22.3	2.84	2.38	6.08
PCB-22	ng/L	3.48	2.96	39.0	4.90	14.5	2.75	2.47	5.07
PCB-23	ng/L	0.0174 U	0.0189 U	0.134	0.0187 J	0.0716	0.0197 U	0.0186 U	0.0404 J
PCB-24	ng/L	0.161	0.145	1.89	0.257	0.680	0.170	0.102	0.284
PCB-25	ng/L	1.63	1.52	7.86	1.78	3.43	1.32	0.981	1.58
PCB-26/29	ng/L	2.56	2.55	18.3	3.33	6.96	2.32	1.70	3.35
PCB-27	ng/L	1.61	1.45	8.70	2.05	3.51	1.62	1.01	1.52
PCB-31	ng/L	8.29	7.81	83.1	11.9	29.0	7.40	5.98	11.4
PCB-32	ng/L	3.56	2.89	27.6	5.10	9.96	3.42	2.14	3.96
PCB-34	ng/L	0.0979	0.105	0.641	0.140	0.262	0.0963	0.0579	0.105
PCB-35	ng/L	0.138	0.125	1.01	0.174	0.325	0.114	0.105	0.432
PCB-36	ng/L	0.0133 J	0.0145 J	0.0204 J	0.0117 J	0.0216 J	0.0113 J	0.0158 J	0.0160 J
PCB-37	ng/L	1.45	1.23	11.1	1.71	4.42	1.00	1.24	2.18
PCB-38	ng/L	0.0166 J	0.0131 J	0.0716	0.0270 J	0.0207 J	0.0193 J	0.0135 J	0.0233 J
PCB-39	ng/L	0.0753	0.0698	0.389	0.0967	0.161	0.0665	0.0537	0.0906
PCB-40/71	ng/L	7.02	6.67	31.4	9.00	12.3	7.32	5.02	5.74
PCB-41	ng/L	0.943	0.613	9.91	1.29	2.64	0.817	0.579	1.12
PCB-42	ng/L	6.32	5.74	27.3	7.76	10.7	6.27	4.39	5.11
PCB-43	ng/L	0.904	0.789	4.92	1.14	1.80	0.931	0.600	0.742
PCB-44/47/65	ng/L	19.4	18.4	78.5	23.5	31.7	19.6	14.6	17.5
PCB-45	ng/L	3.57	2.65	21.0	4.32	7.33	3.29	2.22	3.19
PCB-46	ng/L	1.33	1.19	7.24	1.65	2.74	1.30	0.846	1.24
PCB-48	ng/L	2.70	2.52	18.7	3.59	6.47	2.55	1.88	2.44
PCB-49/69	ng/L	10.1	9.64	39.7	12.1	15.9	10.2	7.50	8.70
PCB-50/53	ng/L	3.81	3.47	15.9	4.35	6.30	3.66	2.41	2.99
PCB-51	ng/L	2.76	2.96	5.74	2.82	3.92	2.66	1.35	1.27
PCB-52	ng/L	16.3	15.7	79.3	21.2	27.6	16.9	16.2	22.2
PCB-54	ng/L	0.824	0.754	1.22	0.819	1.04	0.725	0.375	0.369
PCB-55	ng/L	0.0601	0.0559	0.409	0.0737	0.150	0.0522	0.0441	0.0621
PCB-56	ng/L	2.77	2.38	14.4	3.36	5.11	2.43	2.05	2.76
PCB-57	ng/L	0.0456	0.0340	0.158	0.0522	0.0721	0.0409	0.0269	0.0382
PCB-58	ng/L	0.0365	0.0402	0.0972	0.0427	0.0436	0.0357	0.0247 J	0.0318
PCB-60	ng/L	0.914	0.697	6.01	1.11	1.72	0.737	0.772	0.994
PCB-61/70/74/76	ng/L	9.59	8.74	54.1	12.1	18.2	8.50	9.02	11.9
PCB-62/75	ng/L	3.46	3.16	14.4	4.22	5.78	3.50	2.29	2.55
PCB-63	ng/L	0.648	0.586	2.97	0.789	1.11	0.604	0.486	0.574
PCB-64	ng/L	2.64	2.40	13.5	3.38	4.79	2.53	2.04	2.49
PCB-66	ng/L	5.29	4.59	24.3	6.27	9.10	4.62	4.11	5.25
PCB-67	ng/L	0.180	0.155	0.769	0.205	0.318	0.158	0.115	0.140
PCB-68	ng/L	0.140	0.140	0.254	0.146	0.162	0.142	0.0930	0.122
PCB-72	ng/L	0.0880	0.0922	0.217	0.106	0.104	0.0921	0.0609	0.0862
PCB-73	ng/L	0.0464	0.0450	0.113	0.0494	0.0590	0.0626	0.0103 U	0.0257 J
PCB-77	ng/L	0.253	0.220	1.17	0.290	0.427	0.218	0.203	0.338
PCB-78	ng/L	0.00478 U	0.00518 U	0.00470 U	0.00464 U	0.00574 U	0.00542 U	0.00512 U	0.00522 U
PCB-79	ng/L	0.0352	0.0356	0.114	0.0466	0.0452	0.0364	0.0447	0.0583
PCB-80	ng/L	0.00227 U	0.00246 U	0.00224 U	0.00221 U	0.00273 U	0.00258 U	0.00244 U	0.00248 U
PCB-81	ng/L	0.0116 J	0.00570 U	0.0580	0.0139 J	0.0211	0.0101 J	0.00957 J	0.0130 J
PCB-82	ng/L	0.761	0.673	3.02	0.987	1.11	0.827	0.929	1.18

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR136	NB03SED-POR137	NB03SED-POR138	NB03SED-POR139	NB03SED-POR140	NB03SED-POR141	NB03SED-POR142	NB03SED-POR143
PCB-83	ng/L	0.432	0.387	1.23	0.553	0.532	0.485	0.466	0.555
PCB-84	ng/L	2.08	2.05	7.96	2.75	3.06	2.44	3.04	3.60
PCB-85/116/117	ng/L	1.23	1.14	4.05	1.53	1.64	1.29	1.38	1.59
PCB-86/87/97/109/119/125	ng/L	3.33	3.13	11.8	4.29	4.81	3.65	4.46	5.29
PCB-88	ng/L	0.0140 U	0.0152 U	0.0779	0.0268 J	0.0230 J	0.0159 U	0.0253 J	0.0153 U
PCB-89	ng/L	0.134	0.121	0.555	0.165	0.207	0.144	0.129	0.152
PCB-90/101/113	ng/L	5.50	5.36	17.0	7.04	7.90	6.12	7.11	7.97
PCB-91	ng/L	1.72	1.73	5.10	2.09	2.30	1.92	1.92	2.02
PCB-92	ng/L	1.13	1.09	3.24	1.43	1.56	1.29	1.41	1.54
PCB-93/100	ng/L	0.564	0.621	0.788	0.552	0.759	0.536	0.355	0.240
PCB-94	ng/L	0.135	0.137	0.263	0.145	0.171	0.139	0.0980	0.0851
PCB-95	ng/L	5.35	4.69	17.0	7.03	7.30	5.61	7.31	9.02
PCB-96	ng/L	0.230	0.222	0.711	0.261	0.305	0.248	0.200	0.201
PCB-98/102	ng/L	0.550	0.550	1.45	0.633	0.718	0.609	0.489	0.465
PCB-99	ng/L	3.66	3.60	10.0	4.43	4.90	3.83	4.02	4.38
PCB-103	ng/L	0.202	0.222	0.340	0.214	0.267	0.214	0.142	0.125
PCB-104	ng/L	0.111	0.115	0.0867	0.105	0.147	0.101	0.0524 J	0.0362 J
PCB-105	ng/L	0.560	0.498	2.03	0.717	0.767	0.538	0.701	0.925
PCB-106	ng/L	0.00227 U	0.00246 U	0.00559 J	0.00220 U	0.00272 U	0.00257 U	0.00243 U	0.00248 U
PCB-107	ng/L	0.141	0.126	0.386	0.172	0.172	0.132	0.147	0.184
PCB-108/124	ng/L	0.0648	0.0576	0.216	0.0819	0.0872	0.0600	0.0827	0.0942
PCB-110/115	ng/L	3.81	3.67	12.3	4.98	5.36	4.25	5.23	6.41
PCB-111	ng/L	0.00271 J	0.00287 J	0.00344 J	0.00283 J	0.00323 J	0.00250 J	0.00207 J	0.00255 J
PCB-112	ng/L	0.0154	0.0121 J	0.0349	0.0176	0.0149	0.0160	0.0156	0.00757 J
PCB-114	ng/L	0.0472	0.0416	0.184	0.0605	0.0786	0.0438	0.0562	0.0632
PCB-118	ng/L	1.59	1.44	4.81	1.96	2.08	1.50	2.00	2.42
PCB-120	ng/L	0.0123	0.0135	0.0209	0.0157	0.0159	0.0123	0.0102	0.0126
PCB-121	ng/L	0.00336 J	0.00365 J	0.00305 J	0.00301 J	0.00372 J	0.00278 J	0.00188 J	0.00175 U
PCB-122	ng/L	0.0250	0.0215	0.0814	0.0308	0.0362	0.0227	0.0258	0.0323
PCB-123	ng/L	0.0358	0.0296	0.119	0.0479	0.0512	0.0352	0.0428	0.0409
PCB-126	ng/L	0.00322 J	0.00237 J	0.00753	0.00360	0.00421	0.00276 J	0.00260 J	0.00120 U
PCB-127	ng/L	0.00585	0.00109 J	0.00244 J	0.00163 J	0.00466	0.00110 J	0.00161 J	0.00200 J
PCB-128/166	ng/L	0.163	0.148	0.436	0.211	0.208	0.179	0.199	0.284
PCB-129/138/163	ng/L	2.01	1.85	4.83	2.53	2.75	2.06	2.10	2.66
PCB-130	ng/L	0.208	0.186	0.537	0.258	0.263	0.235	0.227	0.306
PCB-131	ng/L	0.0375	0.0339	0.118	0.0477	0.0505	0.0421	0.0481	0.0702
PCB-132	ng/L	0.353	0.329	1.05	0.459	0.503	0.436	0.418	0.698
PCB-133	ng/L	0.0749	0.0693	0.157	0.0911	0.0953	0.0783	0.0685	0.0772
PCB-134	ng/L	0.142	0.134	0.387	0.179	0.194	0.170	0.170	0.238
PCB-135/151	ng/L	2.89	2.86	7.57	3.71	4.58	3.65	2.89	4.06
PCB-136	ng/L	0.129	0.131	0.362	0.170	0.203	0.163	0.142	0.216
PCB-137	ng/L	0.0833	0.0711	0.230	0.103	0.110	0.0857	0.0999	0.132
PCB-139/140	ng/L	0.0538	0.0508	0.142	0.0670	0.0756	0.0567	0.0587	0.0791
PCB-141	ng/L	0.248	0.219	0.707	0.312	0.385	0.268	0.236	0.358
PCB-142	ng/L	0.00328 U	0.00356 U	0.00358 U	0.00318 U	0.00394 U	0.00420 U	0.00351 U	0.00418 U
PCB-143	ng/L	0.00599 J	0.00656 J	0.0143 J	0.00643 J	0.00647 J	0.00644 U	0.00882 J	0.0115 J
PCB-144	ng/L	0.110	0.108	0.329	0.150	0.182	0.141	0.119	0.158
PCB-145	ng/L	0.00615 U	0.00668 U	0.0103 J	0.00598 U	0.00739 U	0.00757 U	0.00660 U	0.00752 U
PCB-146	ng/L	0.280	0.261	0.619	0.335	0.380	0.296	0.254	0.314
PCB-147/149	ng/L	2.13	2.12	5.50	2.64	3.15	2.52	2.09	3.20
PCB-148	ng/L	0.0104	0.0119	0.0148	0.0118	0.0156	0.0113	0.00747	0.00729

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR136	NB03SED-POR137	NB03SED-POR138	NB03SED-POR139	NB03SED-POR140	NB03SED-POR141	NB03SED-POR142	NB03SED-POR143
PCB-150	ng/L	0.0375	0.0479	0.0759	0.0431	0.0649	0.0410	0.0239	0.0317
PCB-152	ng/L	0.0154 J	0.0183 J	0.0243	0.0169 J	0.0208 J	0.0174 J	0.0133 J	0.0158 J
PCB-153/168	ng/L	1.12	1.06	2.75	1.38	1.64	1.23	1.02	1.45
PCB-154	ng/L	0.0734	0.0914	0.139	0.0856	0.113	0.0779	0.0561	0.0462
PCB-155	ng/L	0.0844	0.0744	0.0856	0.103	0.105	0.0678	0.0454	0.0295
PCB-156/157	ng/L	0.0590	0.0516	0.188	0.0753	0.0849	0.0676	0.0668	0.115
PCB-158	ng/L	0.0949	0.0823	0.284	0.119	0.131	0.108	0.105	0.188
PCB-159	ng/L	0.000373 U	0.000404 U	0.000481 U	0.000362 U	0.000447 U	0.000612 U	0.000399 U	0.000559 U
PCB-160	ng/L	0.00384 U	0.00417 U	0.00453 U	0.00373 U	0.00461 U	0.00550 U	0.00412 U	0.00576 U
PCB-161	ng/L	0.000536 U	0.000581 U	0.000658 U	0.000521 U	0.000644 U	0.000814 U	0.000574 U	0.000845 U
PCB-162	ng/L	0.00196	0.00162	0.00595	0.00225	0.000415 U	0.00175 J	0.00243	0.00865
PCB-164	ng/L	0.0551	0.0521	0.159	0.0696	0.0783	0.0693	0.0585	0.103
PCB-165	ng/L	0.000954 J	0.00114 J	0.00127 J	0.00111 J	0.00105 J	0.00120 J	0.000744 J	0.00107 U
PCB-167	ng/L	0.0194	0.0179	0.0539	0.0236	0.0268	0.0215	0.0207	0.0334
PCB-169	ng/L	0.000241 U	0.000261 U	0.000332 U	0.000234 U	0.000289 U	0.000440 U	0.000258 U	0.000511 U
PCB-170	ng/L	0.110	0.0932	0.259	0.132	0.196	0.112	0.0749	0.150
PCB-171/173	ng/L	0.0667	0.0568	0.153	0.0803	0.100	0.0651	0.0483	0.0732
PCB-172	ng/L	0.0214	0.0190	0.0499	0.0254	0.0341	0.0218	0.0133	0.0263
PCB-174	ng/L	0.177	0.161	0.412	0.210	0.314	0.179	0.120	0.235
PCB-175	ng/L	0.0127	0.0112	0.0284	0.0149	0.0198	0.0126	0.00870	0.0130
PCB-176	ng/L	0.0257	0.0244	0.0588	0.0317	0.0440	0.0259	0.0186	0.0280
PCB-177	ng/L	0.346	0.314	0.767	0.421	0.548	0.359	0.251	0.377
PCB-178	ng/L	0.0754	0.0693	0.152	0.0873	0.114	0.0668	0.0532	0.0720
PCB-179	ng/L	0.100	0.0989	0.223	0.125	0.169	0.124	0.0728	0.110
PCB-180/193	ng/L	1.38	1.21	3.17	1.65	2.25	1.47	0.949	1.92
PCB-181	ng/L	0.00226	0.00212	0.00530	0.00284	0.00340	0.00193 J	0.000524 U	0.00237 J
PCB-182	ng/L	0.00171	0.00175	0.00288	0.00189	0.00261	0.00154 J	0.00121 J	0.000683 U
PCB-183/185	ng/L	0.151	0.136	0.343	0.181	0.250	0.150	0.106	0.164
PCB-184	ng/L	0.00384 J	0.00351 J	0.00415 J	0.00382	0.00531	0.00327 J	0.00275 J	0.00156 U
PCB-186	ng/L	0.00178 U	0.00193 U	0.00201 U	0.00173 U	0.00214 U	0.00239 U	0.00191 U	0.00243 U
PCB-187	ng/L	0.363	0.343	0.766	0.435	0.581	0.373	0.263	0.376
PCB-188	ng/L	0.00487	0.00567	0.00755	0.00591	0.00887	0.00416 J	0.00361 J	0.00276 J
PCB-189	ng/L	0.00114	0.00102	0.00319	0.00127	0.00227	0.00139	0.000793	0.00228
PCB-190	ng/L	0.0155	0.0136	0.0391	0.0176	0.0249	0.0169	0.0107	0.0213
PCB-191	ng/L	0.00344	0.00276	0.00865	0.00399	0.00517	0.00379	0.00238	0.00510
PCB-192	ng/L	0.000162 U	0.000176 U	0.000236 U	0.000157 U	0.000194 U	0.000322 U	0.000173 U	0.000386 U
PCB-194	ng/L	0.00880	0.00812	0.0249	0.00960	0.0140	0.0110	0.00514	0.0278
PCB-195	ng/L	0.00701	0.00633	0.0175	0.00761	0.0114	0.00730	0.00400	0.0154
PCB-196	ng/L	0.00928	0.00934	0.0245	0.0105	0.0151	0.0113	0.00626	0.0230
PCB-197/200	ng/L	0.00933	0.00934	0.0197	0.00924	0.0164	0.00859	0.00553	0.0161
PCB-198/199	ng/L	0.0323	0.0295	0.0609	0.0334	0.0460	0.0266	0.0225	0.0502
PCB-201	ng/L	0.00434	0.00459	0.0106	0.00523	0.00694	0.00532	0.00310	0.00962
PCB-202	ng/L	0.0343	0.0320	0.0619	0.0417	0.0422	0.0316	0.0259	0.0592
PCB-203	ng/L	0.0161	0.0134	0.0362	0.0181	0.0240	0.0188	0.0107	0.0412
PCB-204	ng/L	0.000476 U	0.000516 U	0.000639 U	0.000462 U	0.000571 U	0.000827 U	0.000510 U	0.000940 U
PCB-205	ng/L	0.000296	0.000265	0.000922	0.000323	0.000563	0.000491 J	0.000181	0.00113
PCB-206	ng/L	0.00260	0.00250	0.00872	0.00305	0.00314	0.00496	0.00193	0.0286
PCB-207	ng/L	0.000809	0.000755	0.00197	0.000880	0.00107	0.00100	0.000562	0.00504
PCB-208	ng/L	0.00359	0.00347	0.00906	0.00446	0.00410	0.00474	0.00270	0.0243
PCB-209	ng/L	0.000830	0.000807	0.00423	0.00103	0.00118	0.00176	0.000607	0.0287
Total PCB Congeners (209)	ng/L	264 J	246 J	1,770 J	350 J	628 J	263 J	210 J	333 J

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR136	NB03SED-POR137	NB03SED-POR138	NB03SED-POR139	NB03SED-POR140	NB03SED-POR141	NB03SED-POR142	NB03SED-POR143
PAHs									
1-Methylnaphthalene	ng/L	92 UJ	74 UJ	74 UJ	78 UJ	93 UJ	78 UJ	78 UJ	85 U
2-Methylnaphthalene	ng/L	94 UJ	76 UJ	76 UJ	79 UJ	95 UJ	80 UJ	80 UJ	87 U
Acenaphthene	ng/L	46 UJ	37 UJ	37 UJ	39 UJ	46 UJ	39 UJ	96 J-	42 U
Acenaphthylene	ng/L	590 UJ	480 UJ	480 UJ	500 UJ	600 UJ	510 UJ	500 UJ	2,400
Anthracene	ng/L	15 UJ	14 J-	12 UJ	13 UJ	15 J-	13 UJ	27 J-	22 J
Benzo(a)anthracene	ng/L	1.2 J	2.5	1.4 J-	1.5	2.9	0.85 J	2.2	9.8
Benzo(a)pyrene	ng/L	1.7	2.3	1.8 J-	2.5	2.5	1.5	1.2	6.1
Benzo(b)fluoranthene	ng/L	1.5	1.8	1.5 J-	1.8	1.9	1.2	1.0	3.3
Benzo(g,h,i)perylene	ng/L	0.49	0.47	0.19 J-	0.29	0.53	0.32	0.30	0.99
Benzo(j)+(k)fluoranthene	ng/L	0.85	1.1	0.93 J-	0.98	1.5	0.72	0.67	2.9
Benzo[e]pyrene	ng/L	2.2	2.5	1.7	2.8	2.6	2.0	1.4	4.9
C1-Chrysenes	ng/L	3.4	4.9	3.5	5.6	5.8	3.0	3.3	20
C1-Fluoranthenes/Pyrenes	ng/L	38	62	58	75	64	35	39	250
C1-Fluorenes	ng/L	11 U	8.8 U	8.7 U	9.2 U	11 U	9.3 U	11 J	10 U
C1-Naphthalenes	ng/L	110 U	89 U	88 U	92 U	110 U	93 U	93 U	100 U
C1-Phenanthrene/Anthracene	ng/L	4.9 U	3.9 U	3.9 U	4.1 U	4.9 U	4.2 U	13	4.5 U
C2-Chrysene	ng/L	2.2	2.3	1.4	2.8	3.2	1.8	1.9	14
C2-Fluoranthenes/Pyrene	ng/L	19	24	22	36	31	19	18	140
C2-Fluorenes	ng/L	3.3 U	2.6 U	2.6 U	2.8 U	3.3 U	2.8 U	2.8 U	3.0 U
C2-Naphthalenes	ng/L	31 U	25 U	25 U	26 U	31 U	27 U	37 J	29 U
C2-Phenanthrene/Anthracene	ng/L	1.7 U	13	1.4 U	1.4 U	1.7 U	1.4 U	9.4	78
C3-Chrysene	ng/L	0.37	0.33	0.20	0.28	0.48	0.28	0.35	2.7
C3-Fluoranthenes/Pyrene	ng/L	2.6	2.7	2.4	3.8	4.6	2.5	2.6	22
C3-Fluorenes	ng/L	0.93 U	0.75 U	0.75 U	0.78 U	0.94 U	0.79 U	0.79 U	0.86 U
C3-Naphthalenes	ng/L	8.9 U	7.2 U	7.2 U	7.5 U	9.0 U	7.6 U	7.6 U	8.2 U
C3-Phenanthrene/Anthracene	ng/L	4.3	6.5	0.43 U	5.0	6.5	0.46 U	4.5	54
C4-Chrysene	ng/L	0.053	0.039	0.021 J	0.032	0.053	0.033	0.037	0.42
C4-Naphthalenes	ng/L	2.5 U	2.1 U	2.0 U	2.1 U	2.6 U	2.2 U	2.2 U	2.3 U
C4-Phenanthrene/Anthracene	ng/L	0.20 U	0.16 U	0.16 U	0.17 U	0.20 U	0.17 U	0.17 U	21
Chrysene	ng/L	2.7	4.4	1.2 J-	2.1	4.1	1.8	2.8	10
Dibenz(a,h)anthracene	ng/L	1.0 J	1.0 J	0.51 J	0.74 J	1.3 J	0.67 J	0.64 J	2.4
Fluoranthene	ng/L	8.6	23	5.8 J	7.4	23	5.4 J	30	35
Fluorene	ng/L	38 UJ	30 UJ	30 UJ	32 UJ	38 UJ	32 UJ	70 J-	35 U
Indeno(1,2,3-c,d)pyrene	ng/L	0.18	0.17	0.087 J-	0.079	0.27	0.080	0.12	0.48
Naphthalene	ng/L	410 UJ	330 UJ	330 UJ	350 UJ	410 UJ	350 UJ	450 J-	380 U
Perylene	ng/L	0.17 U	0.18 J	0.20 J	0.15 J	0.35 J	0.14 U	0.15 J	0.77
Phenanthrene	ng/L	13 UJ	11 UJ	11 UJ	11 UJ	13 UJ	11 UJ	39 J-	12 U
Pyrene	ng/L	71	130	180 J-	130	110	62	79	470
Total HMW PAHs	ng/L	89 J	170 J	190 J	140 J	150 J	75 J	120 J	540
Total LMW PAHs	ng/L	600 U	14 J	480 U	500 U	15 J	510 U	690 J	2,400 J
Total PAHs	ng/L	89 J	190 J	190 J	140 J	170 J	75 J	800 J	2,900 J

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR144	NB03SED-POR145	NB03SED-POR146	NB03SED-POR147	NB03SED-POR148	NB03SED-POR149	NB03SED-POR150	NB03SED-POR151
Dioxins/Furans									
1,2,3,4,6,7,8-HpCDD	pg/L	2.44 B	1.71 JBQ	1.52 JB	2.67 B [2.50 B]	1.66 JB	2.16 B	2.40 B	17.5 B
1,2,3,4,6,7,8-HpCDF	pg/L	2.57 JB	1.45 JB	1.20 JB	2.14 JB [1.54 JB]	1.25 JB	1.56 JB	1.53 JBQ	5.39 B
1,2,3,4,7,8,9-HpCDF	pg/L	0.254 JBQ	0.133 JBQ	0.0853 JB	0.197 JBQ [0.0939 JBQ]	0.102 JBQ	0.144 JBQ	0.140 JBQ	1.04 JB
1,2,3,4,7,8-HxCDD	pg/L	0.0876 JBQ	0.0645 JB	0.0908 JBQ	0.136 JBQ [0.115 JBQ]	0.0663 JB	0.127 JBQ	0.147 JBQ	0.314 JB
1,2,3,4,7,8-HxCDF	pg/L	2.05 JB	1.43 JB	1.05 JB	1.55 JBQ [1.40 JB]	1.31 JBQ	1.26 JB	1.37 JBQ	3.60 JB
1,2,3,6,7,8-HxCDD	pg/L	0.869 JB	0.552 JB	0.662 JBQ	1.04 JBQ [0.819 JBQ]	0.823 JB	0.831 JBQ	0.905 JB	2.22 JB
1,2,3,6,7,8-HxCDF	pg/L	0.734 JBQ	0.590 JB	0.499 JB	0.646 JB [0.653 JB]	0.392 JB	0.608 JB	0.616 JBQ	1.25 JBQ
1,2,3,7,8,9-HxCDD	pg/L	0.485 JBQ	0.337 JBQ	0.243 JBQ	0.569 JB [0.452 JB]	0.495 JBQ	0.354 JBQ	0.499 JB	1.23 JBQ
1,2,3,7,8,9-HxCDF	pg/L	0.547 JB	0.454 JB	0.448 JBQ	0.267 JBQ [0.260 JBQ]	0.512 JBQ	0.346 JBQ	0.388 JBQ	1.15 JB
1,2,3,7,8-PeCDD	pg/L	0.783 JBQ	0.683 JBQ	0.223 U	1.45 JBQ [1.17 JB]	0.765 JBQ	0.831 JB	0.946 JBQ	2.09 JBQ
1,2,3,7,8-PeCDF	pg/L	2.03 JBQ	1.27 JB	1.61 JBQ	1.86 JB [1.44 JB]	1.64 JBQ	1.78 JBQ	1.50 JB	4.37 JBQ
2,3,4,6,7,8-HxCDF	pg/L	0.708 JB	0.470 JB	0.566 JB	0.612 JB [0.627 JBQ]	0.435 JBQ	0.655 JB	0.647 JB	1.58 JB
2,3,4,7,8-PeCDF	pg/L	4.32 JB	2.64 JB	2.87 JB	3.06 JB [3.20 JB]	1.95 JBQ	2.77 JB	2.96 JB	6.91 JB
2,3,7,8-TCDD	pg/L	23.8	22.2	12.7	38.5 [31.0]	21.8	14.0	13.3	66.1
2,3,7,8-TCDF	pg/L	7.41 JQ	4.54	5.83 JQ	6.89 [6.24]	5.39 JQ	5.26	6.40	15.4 C
OCDD	pg/L	5.54 B	4.04 B	3.83 B	7.48 B [5.77 B]	3.05 JB	6.40 B	4.74 B	112 B
OCDF	pg/L	0.00716 JBQ	0.00403 JBQ	0.00373 JBQ	0.00934 JBQ [0.00581 JB]	0.00362 JBQ	0.00471 JB	0.00414 JBQ	0.0429 B
Metals									
Aluminum	mg/L	0.130 U	0.130 U	0.130 U	0.130 U [0.388 B]	0.130 U	0.130 U	0.130 U	0.130 U
Antimony	mg/L	0.00170 U	0.00170 U	0.00170 U	0.00170 U [0.00170 U]	0.00170 U	0.00760	0.00170 U	0.00170 U
Arsenic	mg/L	0.00540 U	0.00540 U	0.0330	0.00540 U [0.00540 U]	0.00540 U	0.0268	0.00540 U	0.0748
Barium	mg/L	0.0805	0.0563	0.0476	0.0963 J [0.0683 J]	0.0770	0.0486	0.0754	0.179
Beryllium	mg/L	0.000360 U	0.000360 U	0.000360 U	0.000360 U [0.000360 U]	0.000360 U	0.000360 U	0.000360 U	0.000360 U
Cadmium	mg/L	0.00230 U	0.00230 U	0.00230 U	0.00230 U [0.00230 U]	0.00230 U	0.00230 U	0.00230 U	0.00230 U
Calcium	mg/L	270	277	241	252 J [179 J]	279	243	259	262
Chromium	mg/L	0.00450 B	0.00580 B	0.00350 U	0.00700 B [0.00850 B]	0.0103	0.00350 U	0.00640 B	0.00360 B
Cobalt	mg/L	0.000500 U	0.000500 U	0.00100 U	0.00100 U [0.00100 U]	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Copper	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U [0.0155]	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Iron	mg/L	0.413 B	0.777	0.160 B	2.50 [2.24]	1.17	0.115 U	1.21	0.164 B
Lead	mg/L	0.000650 U	0.000650 U	0.000650 U	0.000650 U [0.00550]	0.000650 U	0.000650 U	0.000650 U	0.000650 U
Magnesium	mg/L	730	761	723	725 J [528 J]	875	689	744	696
Manganese	mg/L	1.01	0.284	0.661	1.27 J [1.02 J]	1.92	0.114	1.45	0.555
Mercury	ng/L	153	184	148	80.7 J [100 J]	134	59.0	118	348
Methyl Mercury	ng/L	156 J	208 J	149 J	81.5 J [73.1 J]	138 J	61.1 J	131 J	332 J
Nickel	mg/L	0.00470 U	0.00470 U	0.00470 U	0.00470 U [0.00470 U]	0.00470 U	0.00470 U	0.00470 U	0.00470 U
Potassium	mg/L	245	274	276	270 J [180 J]	270	260	243	253
Selenium	mg/L	0.00250 U	0.00250 U	0.00340 B	0.00300 B [0.00250 U]	0.00300 B	0.00260 B	0.00330 B	0.00280 B
Silver	mg/L	0.000550 U	0.000550 U	0.000550 U	0.000550 U [0.000550 U]	0.000550 U	0.000550 U	0.000550 U	0.000550 U
Sodium	mg/L	6,390	7,270	7,440	7,130 J [4,900 J]	7,730	7,150	7,380	7,170
Thallium	mg/L	0.000750 U	0.000750 U	0.000750 U	0.000750 U [0.000750 U]	0.000750 U	0.000750 U	0.000750 U	0.000750 U
Titanium	mg/L	NA	0.00170 U	0.00660 B	0.00750 B	0.00680 B	0.00170 U	0.00770 B	0.00170 U
Vanadium	mg/L	0.00360 B	0.00360 B	0.00570	0.00490 BJ [0.00650 J]	0.00650	0.00220 U	0.00520	0.00360 B
Zinc	mg/L	0.0370 U	0.0370 U	0.0370 U	0.0370 U [0.0370 U]	0.0370 U	0.0370 U	0.402	0.0370 U

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR144	NB03SED-POR145	NB03SED-POR146	NB03SED-POR147	NB03SED-POR148	NB03SED-POR149	NB03SED-POR150	NB03SED-POR151
Pesticides									
2,4'-DDD	pg/L	59.4 J	198 J	169 J	247 J [231 J]	114 J	325 J	186 J	382 J
2,4'-DDE	pg/L	231 BJ	217 BDJ	499 BEJ	290 BJ [346 BDJ]	219 BJ	255 BJ	280 BJ	1,330 BDJ
2,4'-DDT	pg/L	0.00717 UJ	0.00717 UJ	0.00717 UJ	0.201 JB [0.00717 UDJ]	0.00717 UJ	0.00717 UJ	0.00717 UJ	0.00717 UJ
4,4'-DDD	pg/L	114 J	256 J	224 J	404 J [395 DJ]	195 J	687 J	376 J	1,210 DJ
4,4'-DDE	pg/L	1,000 BDJ	801 BDJ	1,510 BDJ	1,230 BDJ [1,170 BDJ]	1,020 BDJ	1,060 BDJ	1,200 BDJ	4,570 BDJ
4,4'-DDT	pg/L	0.0108 UJ	0.0108 UJ	0.0108 UJ	0.0108 UJ [0.0108 UDJ]	0.0108 UJ	0.0108 UJ	0.0108 UJ	0.0108 UJ
Aldrin	pg/L	0.00866 UJ	1.18 J	0.00866 UJ	0.927 J [0.840 J]	0.00866 UJ	0.918 J	0.00866 UJ	0.00866 UJ
Alpha BHC	pg/L	2.04 UJ	2.04 UJ	2.04 UJ	2.04 UJ [2.04 UJ]	2.04 UJ	2.04 UJ	2.04 UJ	2.04 UJ
Alpha Endosulfan	pg/L	5.12 UJ	5.12 UJ	5.12 UJ	5.12 UJ [5.12 UJ]	5.12 UJ	5.12 UJ	5.12 UJ	5.12 UJ
Beta BHC	pg/L	3.31 UJ	3.31 UJ	3.31 UJ	3.31 UJ [3.31 UJ]	3.31 UJ	3.31 UJ	3.31 UJ	3.31 UJ
Beta Endosulfan	pg/L	15.3 UJ	15.3 UJ	15.3 UJ	15.3 UJ [15.3 UJ]	15.3 UJ	15.3 UJ	15.3 UJ	15.3 UJ
Cis-Chlordane	pg/L	65.0 BJ	171 BJ	72.9 BJ	95.5 BJ [97.7 BJ]	98.1 BJ	120 BJ	117 BJ	157 BJ
Cis-Nonachlor	pg/L	18.1 J	21.6 J	11.8 J	14.3 J [14.3 J]	17.9 J	14.0 J	15.3 J	36.9 J
Delta BHC	pg/L	1.07 UJ	1.07 UJ	1.07 UJ	1.07 UJ [1.07 UJ]	1.07 UJ	1.07 UJ	1.07 UJ	1.07 UJ
Dieldrin	pg/L	138 J	499 J	143 J	332 J [297 J]	254 J	298 J	163 J	868 J
Endosulfan Sulfate	pg/L	18.1 UJ	18.1 UJ	18.1 UJ	18.1 UJ [18.1 UJ]	18.1 UJ	18.1 UJ	18.1 UJ	18.1 UJ
Endrin	pg/L	0.0157 UJ	0.0157 UJ	0.0157 UJ	0.0157 UJ [0.0157 UJ]	0.0157 UJ	0.0157 UJ	0.0157 UJ	0.0157 UJ
Endrin Aldehyde	pg/L	1.90 UJ	1.90 UJ	1.90 UJ	1.90 UJ [1.90 UJ]	1.90 UJ	1.90 UJ	1.90 UJ	1.90 UJ
Endrin Ketone	pg/L	0.605 UJ	0.605 UJ	0.605 UJ	0.605 UJ [0.605 UJ]	0.605 UJ	0.605 UJ	0.605 UJ	0.605 UJ
Gamma BHC (Lindane)	pg/L	2.20 UJ	2.20 UJ	2.20 UJ	2.20 UJ [2.20 UJ]	2.20 UJ	2.20 UJ	2.20 UJ	2.20 UJ
Heptachlor	pg/L	3.65 BJ	3.67 BJ	5.74 BJ	3.41 BJ [5.74 BJ]	0.0780 UJ	3.69 BJ	3.64 BJ	0.0780 UJ
Heptachlor Epoxide	pg/L	0.142 UJ	0.142 UJ	0.142 UJ	0.142 UJ [0.142 UJ]	0.142 UJ	0.142 UJ	0.142 UJ	0.142 UJ
Hexachlorobenzene	pg/L	38.3 BJ	328 BJ	204 BJ	418 BJ [372 BJ]	234 BJ	147 BJ	119 BJ	7,780 BDJ
Methoxychlor	pg/L	7.23 UJ	7.23 UJ	7.23 UJ	7.23 UJ [7.23 UJ]	7.23 UJ	7.23 UJ	7.23 UJ	7.23 UJ
Mirex	pg/L	0.00505 UJ	0.00505 UJ	0.00505 UJ	0.00505 UJ [0.00505 UJ]	0.00505 UJ	0.00505 UJ	0.00505 UJ	0.00505 UJ
Oxychlordane	pg/L	0.0238 UJ	0.0238 UJ	0.0238 UJ	0.0238 UJ [0.0238 UJ]	0.0238 UJ	0.0238 UJ	0.0238 UJ	0.0238 UJ
Trans-Chlordane	pg/L	78.2 BJ	203 BJ	80.4 BJ	113 BJ [104 BJ]	112 BJ	125 BJ	113 BJ	258 BJ
Trans-Heptachlor Epoxide	pg/L	0.190 UJ	0.190 UJ	0.190 UJ	0.190 UJ [0.190 UJ]	0.190 UJ	0.190 UJ	0.190 UJ	0.190 UJ
Trans-Nonachlor	pg/L	21.2 BJ	63.9 BJ	29.2 BJ	33.6 BJ [34.7 BJ]	35.0 BJ	47.6 BJ	45.2 BJ	44.1 BJ
Total Alpha + Gamma Chlordane	pg/L	143 J	374 J	153 J	208 J [202 J]	210 J	245 J	230 J	415 J
Total DDT (2,4 & 4,4)	pg/L	1,410 J	1,470 J	2,410 J	2,180 J [2,140 J]	1,550 J	2,330 J	2,040 J	7,490 J
Total DDT (2,4)	pg/L	290 J	415 J	668 J	538 J [577 J]	333 J	581 J	466 J	1,710 J
Total DDT (4,4)	pg/L	1,120 J	1,060 J	1,740 J	1,640 J [1,560 J]	1,210 J	1,750 J	1,570 J	5,780 J
PCB Congeners									
PCB-1	ng/L	14.2	4.15	6.46	32.4 J [24.2 J]	21.8	2.61	14.1	72.1
PCB-2	ng/L	6.27	2.78	1.61	5.42 J [4.01 J]	4.26	1.36	2.30	9.42
PCB-3	ng/L	2.68	1.63	0.931 J	3.58 J [2.64 J]	1.75	0.647 J	1.02 J	28.8
PCB-4	ng/L	91.4	62.4	31.1	115 [108]	89.3	26.7	55.5	695
PCB-5	ng/L	0.673	0.602	0.159 J	1.03 J [0.776 J]	0.723	0.216 J	0.332	0.0863 U
PCB-6	ng/L	8.27	4.61	2.80	13.8 J [9.91 J]	8.70	2.96	4.25	59.5
PCB-7	ng/L	1.67	1.29	0.465	2.91 J [1.98 J]	1.93	0.548	0.830	17.6
PCB-8	ng/L	28.6	27.9	9.35	53.0 J [40.2 J]	36.0	9.87	15.2	478
PCB-9	ng/L	2.21	1.30	0.420	3.84 J [2.79 J]	2.45	0.634	1.13	22.6
PCB-10	ng/L	3.31	1.71	1.45	3.53 [4.50]	3.32	1.09	2.68	221
PCB-11	ng/L	14.4	11.0	4.93	20.6 J [14.8 J]	20.1	4.74	7.57	137
PCB-12/13	ng/L	10.3	4.40	2.04	7.40 J [5.53 J]	6.54	1.96	3.30	25.8
PCB-14	ng/L	0.0603 J	0.0474 U	0.0453 U	0.0604 J [0.0500 U]	0.0501 J	0.0517 U	0.0409 U	0.188
PCB-15	ng/L	12.8	11.8	5.85	18.5 J [14.1 J]	14.7	5.32	7.47	153
PCB-16	ng/L	38.1	38.6	13.3	49.9 [59.5]	46.1	16.2	22.2	610 E
PCB-17	ng/L	52.1	37.7	18.1	58.7 [68.3]	56.8	21.0	31.7	520 E

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR144	NB03SED-POR145	NB03SED-POR146	NB03SED-POR147	NB03SED-POR148	NB03SED-POR149	NB03SED-POR150	NB03SED-POR151
PCB-18/30	ng/L	60.0	53.2	21.9	79.1 [91.0]	70.4	26.2	35.9	855 E
PCB-19	ng/L	19.5	15.4	7.15	24.5 [22.0]	21.4	8.44	12.7	140
PCB-20/28	ng/L	65.8	45.5	23.5	75.1 J [52.7 J]	71.2	29.2	38.4	670 E
PCB-21/33	ng/L	15.2	16.5	5.69	27.4 J [18.8 J]	23.0	7.92	9.74	364 E
PCB-22	ng/L	14.8	13.0	4.91	20.4 J [14.4 J]	18.6	7.04	8.91	233 E
PCB-23	ng/L	0.0487 J	0.0464 J	0.0243 J	0.0789 J [0.0474 J]	0.0714	0.0207 U	0.0416 J	0.910
PCB-24	ng/L	0.904	0.728	0.341	1.02 [1.24]	0.924	0.368	0.566	0.0387 U
PCB-25	ng/L	5.69	3.42	2.32	5.95 J [4.17 J]	5.70	2.34	3.33	34.2
PCB-26/29	ng/L	10.8	7.10	4.72	12.2 J [8.50 J]	11.4	4.64	6.52	88.3
PCB-27	ng/L	6.01	4.00	2.44	5.83 [6.97]	5.72	2.30	3.95	35.6
PCB-31	ng/L	37.7	27.3	13.5	44.8 J [36.5 J]	43.1	16.9	22.4	410 E
PCB-32	ng/L	14.0	10.6	5.29	15.7 [14.2]	14.4	6.14	8.65	93.4
PCB-34	ng/L	0.509	0.236	0.164	0.483 J [0.334 J]	0.489	0.186	0.293	2.83
PCB-35	ng/L	0.512	0.410	0.232	0.587 J [0.432 J]	0.552	0.244	0.297	7.05
PCB-36	ng/L	0.0342	0.0145 J	0.0151 J	0.0354 J [0.0301 J]	0.0370	0.0180 J	0.0214	0.00728 U
PCB-37	ng/L	4.33	4.54	1.95	6.84 J [5.29 J]	6.02	2.34	2.93	35.9
PCB-38	ng/L	0.0629	0.0341	0.0256 J	0.0605 J [0.0444 J]	0.0583	0.0289 J	0.0294	0.00883 U
PCB-39	ng/L	0.271	0.144	0.104	0.261 J [0.185 J]	0.270	0.118	0.152	1.73
PCB-40/71	ng/L	19.7	15.4	8.64	17.7 [19.7]	18.5	9.33	12.9	95.7
PCB-41	ng/L	2.02	3.52	1.19	2.67 [3.11]	2.95	1.31	1.66	24.9
PCB-42	ng/L	17.3	14.6	7.23	14.7 [16.5]	15.9	8.11	11.1	76.6
PCB-43	ng/L	2.68	2.31	1.18	2.54 [2.80]	2.83	1.35	1.91	13.1
PCB-44/47/65	ng/L	49.5	44.5	22.9	44.6 [49.7]	46.4	24.2	32.9	212
PCB-45	ng/L	10.8	9.72	4.04	11.2 [12.0]	11.6	5.15	6.66	87.6
PCB-46	ng/L	3.90	3.64	1.61	3.99 [4.44]	4.07	1.72	2.50	24.0
PCB-48	ng/L	8.91	8.07	3.54	9.32 [10.2]	9.83	4.48	6.19	41.2
PCB-49/69	ng/L	26.6	23.4	13.1	23.0 [25.9]	24.7	13.3	17.9	95.2
PCB-50/53	ng/L	9.55	8.68	4.06	9.52 [10.5]	9.44	4.38	6.44	48.1
PCB-51	ng/L	4.22	3.48	1.95	3.90 [4.61]	3.50	1.70	3.10	0.0398 U
PCB-52	ng/L	45.4	46.0	23.7	44.0 [48.9]	45.0	23.7	30.6	226 E
PCB-54	ng/L	0.808	0.693	0.0953 U	1.03 [0.961]	0.727	0.418	0.676	2.75
PCB-55	ng/L	0.117	0.185	0.0640	0.152 J [0.109 J]	0.150	0.0694	0.0801	0.00584 U
PCB-56	ng/L	6.93	7.71	3.06	7.40 J [5.79 J]	7.35	3.63	4.57	50.8
PCB-57	ng/L	0.125	0.101	0.0808	0.0852 [0.0804]	0.112	0.0616	0.0805	1.77
PCB-58	ng/L	0.0992	0.0687	0.0453	0.0749 J [0.0590 J]	0.0926	0.0453	0.0649	0.00580 U
PCB-60	ng/L	1.62	2.78	0.973	2.30 J [1.90 J]	2.06	1.07	1.16	24.0
PCB-61/70/74/76	ng/L	24.6	27.1	11.8	27.4 J [22.1 J]	27.0	13.8	17.0	178
PCB-62/75	ng/L	9.66	8.53	4.27	7.97 [9.09]	9.05	4.76	6.39	24.6
PCB-63	ng/L	1.72	1.52	0.799	1.67 J [1.35 J]	1.76	0.899	1.23	8.01
PCB-64	ng/L	7.47	7.31	3.23	6.84 [7.71]	7.31	3.81	4.97	54.9 E
PCB-66	ng/L	13.2	13.4	5.98	13.3 J [10.7 J]	13.5	7.18	8.81	80.1 E
PCB-67	ng/L	0.389	0.397	0.195	0.400 J [0.325 J]	0.417	0.223	0.270	1.90
PCB-68	ng/L	0.318	0.201	0.173	0.238 J [0.206 J]	0.255	0.154	0.219	0.433
PCB-72	ng/L	0.262	0.171	0.138	0.196 J [0.161 J]	0.220	0.125	0.168	0.447
PCB-73	ng/L	0.0858	0.0747	0.0441	0.0710 J [0.0593 J]	0.0778	0.0410	0.0793	0.00820 U
PCB-77	ng/L	0.577	0.756	0.297	0.626 J [0.512 J]	0.613	0.326	0.381	5.69
PCB-78	ng/L	0.00534 U	0.00933 U	0.00498 U	0.00503 U [0.00549 U]	0.00452 U	0.00568 U	0.00449 U	0.00409 U
PCB-79	ng/L	0.0841	0.0877	0.0443	0.0771 J [0.0533 J]	0.0799	0.0522	0.0534	0.843
PCB-80	ng/L	0.00254 U	0.00483 U	0.00237 U	0.00239 U [0.00261 U]	0.00215 U	0.00270 U	0.00214 U	0.00194 U
PCB-81	ng/L	0.0216	0.0273 J	0.0116 J	0.0268 J [0.0212 J]	0.0254	0.0151 J	0.0171	0.212
PCB-82	ng/L	1.61	2.12	0.939	1.59 [1.97]	1.55	0.971	1.13	7.86

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR144	NB03SED-POR145	NB03SED-POR146	NB03SED-POR147	NB03SED-POR148	NB03SED-POR149	NB03SED-POR150	NB03SED-POR151
PCB-83	ng/L	0.908	1.01	0.555	0.886 [1.05]	0.818	0.522	0.690	2.28
PCB-84	ng/L	5.08	6.46	3.15	4.77 [6.35]	4.95	2.80	3.57	0.00644 U
PCB-85/116/117	ng/L	2.47	2.86	1.43	2.31 [2.84]	2.27	1.48	1.75	8.63
PCB-86/87/97/109/119/125	ng/L	7.08	9.00	4.38	6.85 [8.65]	6.72	4.32	5.01	28.0
PCB-88	ng/L	0.0234 J	0.0438 J	0.0273 J	0.0239 J [0.0467 J]	0.0417	0.0167 U	0.0151 J	0.0120 U
PCB-89	ng/L	0.294	0.338	0.149	0.278 [0.370]	0.298	0.170	0.217	0.00710 U
PCB-90/101/113	ng/L	11.5	14.4	7.32	10.9 [14.1]	11.0	7.03	8.44	34.0
PCB-91	ng/L	3.64	3.87	2.45	3.16 J [4.27 J]	3.34	2.09	2.60	8.84
PCB-92	ng/L	2.43	2.71	1.56	2.17 [2.83]	2.26	1.43	1.76	6.18
PCB-93/100	ng/L	0.579	0.509	0.380	0.551 [0.697]	0.483	0.320	0.468	0.0350 U
PCB-94	ng/L	0.213	0.189	0.113	0.169 J [0.234 J]	0.176	0.101	0.155	0.479
PCB-95	ng/L	11.6	14.3	7.33	11.4 [10.8]	11.0	7.43	7.67	49.4
PCB-96	ng/L	0.473	0.459	0.247	0.417 J [0.656 J]	0.439	0.235	0.344	2.30
PCB-98/102	ng/L	1.02	0.977	0.595	0.888 J [1.22 J]	0.932	0.553	0.783	2.94
PCB-99	ng/L	7.38	7.51	4.53	6.61 [8.38]	6.70	4.61	5.36	19.1
PCB-103	ng/L	0.316	0.256	0.203	0.257 J [0.356 J]	0.266	0.172	0.230	0.384
PCB-104	ng/L	0.0592 J	0.0270 U	0.0340 J	0.0812 J [0.0723 J]	0.0460 J	0.0303 J	0.0515 J	0.0153 U
PCB-105	ng/L	1.08	1.72	0.652	1.09 J [0.926 J]	0.997	0.685	0.716	8.17
PCB-106	ng/L	0.00253 U	0.00553 U	0.00236 U	0.00239 U [0.00261 U]	0.00215 U	0.00270 U	0.00213 U	0.00194 U
PCB-107	ng/L	0.285	0.337	0.154	0.273 J [0.201 J]	0.262	0.178	0.193	1.44
PCB-108/124	ng/L	0.122	0.181	0.0732	0.129 J [0.0949 J]	0.119	0.0807	0.0843	0.826
PCB-110/115	ng/L	8.36	12.0	5.34	7.91 [9.92]	7.70	5.26	5.87	NA
PCB-111	ng/L	0.00499 J	0.00368 U	0.00238 J	0.00429 J [0.00555 J]	0.00411 J	0.00319 J	0.00393 J	0.00116 U
PCB-112	ng/L	0.0228	0.0277	0.0132	0.0252 [0.0264]	0.0163	0.0152	0.0166	0.00271 U
PCB-114	ng/L	0.0880	0.125	0.0497	0.0946 J [0.0785 J]	0.0898	0.0567	0.0660	0.678
PCB-118	ng/L	3.15	4.58	1.86	3.12 J [2.71 J]	3.02	2.03	2.22	17.6 E
PCB-120	ng/L	0.0260	0.0216	0.0144	0.0232 [0.0274]	0.0232	0.0166	0.0199	0.0682
PCB-121	ng/L	0.00337 J	0.00390 U	0.00186 J	0.00300 J [0.00405 J]	0.00278 J	0.00190 U	0.00299 J	0.00146 J
PCB-122	ng/L	0.0450	0.0638	0.0254	0.0458 J [0.0340 J]	0.0432	0.0296	0.0316	0.235
PCB-123	ng/L	0.0690	0.0971	0.0401	0.0660 J [0.0559 J]	0.0611	0.0451	0.0460	0.395
PCB-126	ng/L	0.00450	0.00678 J	0.00225 J	0.00513 J [0.00311 J]	0.00343	0.00337 J	0.00103 U	0.0525 J
PCB-127	ng/L	0.00142 J	0.00256 U	0.00119 J	0.00222 J [0.00187 J]	0.00213 J	0.00170 J	0.000767 U	0.000698 U
PCB-128/166	ng/L	0.318	0.247	0.214	0.306 J [0.264 J]	0.291	0.211	0.223	1.26
PCB-129/138/163	ng/L	3.75	2.31	2.28	3.63 J [3.14 J]	3.42	2.44	2.73	11.1
PCB-130	ng/L	0.402	0.440	0.280	0.378 J [0.329 J]	0.364	0.253	0.287	1.05
PCB-131	ng/L	0.0757	0.0924	0.0544	0.0783 J [0.0682 J]	0.0728	0.0465	0.0528	0.324
PCB-132	ng/L	0.763	0.911	0.549	0.737 J [0.643 J]	0.711	0.444	0.526	2.76
PCB-133	ng/L	0.126	0.118	0.0927	0.118 J [0.102 J]	0.111	0.0813	0.100	0.356
PCB-134	ng/L	0.296	0.332	0.222	0.284 [0.254]	0.278	0.174	0.214	0.911
PCB-135/151	ng/L	5.78	6.06	4.42	5.41 [6.61]	5.04	3.33	4.21	18.8
PCB-136	ng/L	0.288	0.298	0.207	0.259 [0.334]	0.256	0.150	0.194	1.02
PCB-137	ng/L	0.147	0.172	0.0981	0.149 J [0.125 J]	0.133	0.107	0.112	0.387
PCB-139/140	ng/L	0.100	0.0990	0.0672	0.102 J [0.0881 J]	0.0940	0.0634	0.0745	0.305
PCB-141	ng/L	0.443	0.512	0.295	0.417 J [0.372 J]	0.403	0.301	0.319	1.58
PCB-142	ng/L	0.00366 U	0.00741 U	0.00414 U	0.00345 U [0.00377 U]	0.00310 U	0.00390 U	0.00308 U	0.00281 U
PCB-143	ng/L	0.0094 J	0.0129 J	0.00843 J	0.00765 J [0.00887 J]	0.00943 J	0.0118 J	0.00741 J	0.00423 U
PCB-144	ng/L	0.227	0.244	0.162	0.215 [0.268]	0.205	0.131	0.168	1.32
PCB-145	ng/L	0.00688 U	0.0117 U	0.00726 U	0.00648 U [0.00928 J]	0.00675 J	0.00732 U	0.00594 J	0.00527 U
PCB-146	ng/L	0.494	0.456	0.349	0.482 J [0.413 J]	0.448	0.306	0.371	1.18
PCB-147/149	ng/L	4.15	4.48	3.12	4.10 J [3.59 J]	3.84	2.47	2.96	11.7
PCB-148	ng/L	0.0147	0.00952 J	0.0124	0.0148 [0.0188]	0.0126	0.00176 U	0.0126	0.0296

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR144	NB03SED-POR145	NB03SED-POR146	NB03SED-POR147	NB03SED-POR148	NB03SED-POR149	NB03SED-POR150	NB03SED-POR151
PCB-150	ng/L	0.0534	0.0453	0.0468	0.0552 [0.0711]	0.0500	0.0419	0.0411	0.138
PCB-152	ng/L	0.0205 J	0.0172 J	0.0151 J	0.0180 J [0.0252 J]	0.0169 J	0.0113 J	0.0151 J	0.0486
PCB-153/168	ng/L	1.95	2.13	1.49	1.95 J [1.68 J]	1.75	1.24	1.48	5.05
PCB-154	ng/L	0.107	0.105	0.0919	0.122 [0.149]	0.101	0.0938	0.0876	0.349
PCB-155	ng/L	0.169	0.0617	0.0334	0.0845 [0.0771]	0.0770	0.0579	0.109	0.0661
PCB-156/157	ng/L	0.111	0.173	0.0898	0.111 J [0.0963 J]	0.0994	0.0744	0.0794	0.503
PCB-158	ng/L	0.178	0.245	0.136	0.175 J [0.150 J]	0.162	0.118	0.128	0.563
PCB-159	ng/L	0.000417 U	0.00158 U	0.000709 U	0.000392 U [0.000428 U]	0.000353 U	0.000443 U	0.000351 U	0.000319 U
PCB-160	ng/L	0.00429 U	0.0122 U	0.00586 U	0.00404 U [0.00441 U]	0.00363 U	0.00457 U	0.00361 U	0.00329 U
PCB-161	ng/L	0.000599 U	0.00195 U	0.000902 U	0.000564 U [0.000616 U]	0.000507 U	0.000637 U	0.000504 U	0.602
PCB-162	ng/L	0.000387 U	0.00473 J	0.000659 U	0.0114 J [0.00269 J]	0.00273	0.00722	0.00225	0.0365
PCB-164	ng/L	0.105	0.155	0.0869	0.102 J [0.0897 J]	0.0981	0.0679	0.0744	0.363
PCB-165	ng/L	0.00144 J	0.00203 U	0.000946 U	0.00143 J [0.00129 J]	0.00117 J	0.000683 U	0.00133 J	0.000491 U
PCB-167	ng/L	0.0344	0.0497	0.0272	0.0338 J [0.0300 J]	0.0304	0.0229	0.0248	0.123
PCB-169	ng/L	0.000269 U	0.00122 U	0.000539 U	0.000253 U [0.000276 U]	0.000228 U	0.000286 U	0.000226 U	0.000417 J
PCB-170	ng/L	0.189	0.201	0.117	0.171 [0.190]	0.149	0.113	0.143	0.515
PCB-171/173	ng/L	0.114	0.0968	0.0674	0.109 [0.131]	0.100	0.0670	0.0877	0.000965 U
PCB-172	ng/L	0.0355	0.0357	0.0232	0.0350 [0.0378]	0.0293	0.0220	0.0287	0.0877
PCB-174	ng/L	0.297	0.308	0.195	0.296 [0.333]	0.277	0.194	0.259	0.483
PCB-175	ng/L	0.0220	0.0196	0.0137	0.0214 [0.0250]	0.0187	0.0126	0.0177	NA
PCB-176	ng/L	0.0491	0.0335	0.0264	0.0475 [0.0546]	0.0423	0.0267	0.0385	0.136
PCB-177	ng/L	0.614	0.502	0.359	0.578 [0.00122 U]	0.501	0.342	0.489	NA
PCB-178	ng/L	0.123	0.103	0.0855	0.123 [0.139]	0.107	0.0708	0.102	0.271
PCB-179	ng/L	0.187	0.133	0.115	0.183 [0.210]	0.164	0.104	0.149	0.478
PCB-180/193	ng/L	2.21	2.68	1.62	2.13 [2.35]	1.79	1.35	1.71	6.08
PCB-181	ng/L	0.00364	0.00391 J	0.00206 J	0.00394 [0.000562 U]	0.00300	0.00256	0.00301	NA
PCB-182	ng/L	0.00276	0.00218 J	0.000710 U	0.00297 [0.00299]	0.00224	0.00173 J	0.00237	0.884
PCB-183/185	ng/L	0.261	0.220	0.147	0.270 [0.288]	0.226	0.149	0.213	NA
PCB-184	ng/L	0.00508	0.00325 U	0.00220 J	0.00113 U [0.00568]	0.00376	0.00228 J	0.00439	0.000920 U
PCB-186	ng/L	0.00199 U	0.00471 U	0.00243 U	0.00188 U [0.00205 U]	0.00169 U	0.00212 U	0.00168 U	0.00153 U
PCB-187	ng/L	0.607	0.537	0.420	0.620 [0.702]	0.518	0.363	0.500	NA
PCB-188	ng/L	0.00625	0.00668 J	0.00480 J	0.00950 J [0.00826 J]	0.00643	0.00925	0.00569	0.0117
PCB-189	ng/L	0.00197	0.00300	0.00157	0.00204 J [0.00177 J]	0.00154	0.00115	0.00142	0.00837
PCB-190	ng/L	0.0241	0.0313	0.0177	0.0238 [0.0253]	0.0199	0.0148	0.0196	0.0683
PCB-191	ng/L	0.00537	0.00711	0.00434	0.00547 [0.00562]	0.00431	0.00317	0.00415	0.0137
PCB-192	ng/L	0.000181 U	0.000937 U	0.000410 U	0.000170 U [0.000186 U]	0.000153 U	0.000192 U	0.000152 U	0.000139 U
PCB-194	ng/L	0.0158	0.0277	0.0165	0.0180 J [0.0134 J]	0.0109	0.00906	0.0107	0.0672
PCB-195	ng/L	0.0124	0.0154	0.00910	0.0140 J [0.0108 J]	0.00876	0.00657	0.00845	0.0492
PCB-196	ng/L	0.0166	0.0256	0.0166	0.0188 [0.0204]	0.0125	0.00926	0.0123	0.0660
PCB-197/200	ng/L	0.0151	0.0158	0.0118	0.0187 [0.0226]	0.0124	0.00911	0.0133	0.0617
PCB-198/199	ng/L	0.0500	0.0299	0.0426	0.0616 [0.0764]	0.0436	0.0301	0.0414	0.178
PCB-201	ng/L	0.00787	0.0123	0.00840	0.00974 [0.0109]	0.00649	0.00449	0.00679	0.0246
PCB-202	ng/L	0.0601	0.0632	0.0600	0.0689 [0.0630]	0.0454	0.0339	0.0471	0.117
PCB-203	ng/L	0.0266	0.0478	0.0315	0.0314 [0.0370]	0.0217	0.0147	0.0224	0.0936
PCB-204	ng/L	0.000532 U	0.00225 U	0.000986 U	0.000501 U [0.000547 U]	0.000450 U	0.000566 U	0.000448 U	0.000407 U
PCB-205	ng/L	0.000512	0.00110 J	0.000696 J	0.000601 J [0.000511 J]	0.000365	0.000277	0.000357	0.00227
PCB-206	ng/L	0.00518	0.0221	0.0176	0.00766 J [0.00669 J]	0.00414	0.00301	0.00401	0.0261
PCB-207	ng/L	0.00140	0.00353	0.00279	0.00223 J [0.00195 J]	0.00118	0.000825	0.00109	0.00821
PCB-208	ng/L	0.00719	0.0189	0.0158	0.00992 J [0.00881 J]	0.00551	0.00403	0.00542	0.0258
PCB-209	ng/L	0.00205	0.0117	0.00558	0.00403 J [0.00302 J]	0.00169	0.00131	0.00148	0.0285
Total PCB Congeners (209)	ng/L	907 J	779 J	379 J	1,060 J [1,010 J]	962 J	404 J	573 J	7,670 J

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR144	NB03SED-POR145	NB03SED-POR146	NB03SED-POR147	NB03SED-POR148	NB03SED-POR149	NB03SED-POR150	NB03SED-POR151
PAHs									
1-Methylnaphthalene	ng/L	89 UJ	94 UJ	95 U	73 UJ [95 UJ]	86 UJ	100 U	67 UJ	83 U
2-Methylnaphthalene	ng/L	91 UJ	96 UJ	98 U	74 UJ [97 UJ]	88 UJ	110 U	69 UJ	430
Acenaphthene	ng/L	45 UJ	470 J-	48 U	36 UJ [48 UJ]	43 UJ	52 U	34 UJ	42 U
Acenaphthylene	ng/L	580 J-	610 UJ	1,000 J	800 J- [800 J-]	550 UJ	680 U	430 UJ	1,300 J
Anthracene	ng/L	42 J-	75 J-	24 J	51 J- [49 J-]	26 J-	17 U	11 UJ	330
Benzo(a)anthracene	ng/L	3.8	7.3	3.8	6.0 [6.3]	4.0	2.6	2.4	23
Benzo(a)pyrene	ng/L	1.9	8.9	3.2	1.6 [1.7]	1.1	2.7	1.1	4.6
Benzo(b)fluoranthene	ng/L	1.4	7.7	1.9	1.2 [1.4]	0.92	1.8	0.89	2.7
Benzo(g,h,i)perylene	ng/L	0.45	5.3	0.63	0.39 [0.45]	0.30	0.56	0.34	0.61
Benzo(j)+(k)fluoranthene	ng/L	0.67	4.1	0.99	0.54 [0.65]	0.40	1.3	0.39	1.5
Benzo[e]pyrene	ng/L	2.2	8.5	3.0	2.0 [2.2]	1.6	2.8	1.7	4.4
C1-Chrysenes	ng/L	5.5	25	10	6.7 [7.3]	4.5	8.9	4.5	21
C1-Fluoranthenes/Pyrenes	ng/L	66	150	110	78 [85]	50	96	44	280
C1-Fluorenes	ng/L	11 U	11 U	11 U	8.6 U [11 U]	10 U	12 U	8.0 U	9.9 U
C1-Naphthalenes	ng/L	110 U	110 U	110 U	86 U [110 U]	100 U	120 U	80 U	99 U
C1-Phenanthrene/Anthracene	ng/L	4.7 U	57	5.1 U	3.8 U [58]	4.6 U	5.5 U	3.6 U	290
C2-Chrysene	ng/L	3.4	23	7.7	4.4 [4.7]	2.6	6.6	3.1	12
C2-Fluoranthenes/Pyrene	ng/L	33	100	70	40 [44]	26	62	26	110
C2-Fluorenes	ng/L	3.2 U	3.8 U	3.4 U	40 [39]	3.0 U	3.7 U	2.4 U	240
C2-Naphthalenes	ng/L	30 U	32 U	32 U	25 U [32 U]	29 U	36 U	23 U	28 U
C2-Phenanthrene/Anthracene	ng/L	33	32	33	87 [88]	37	1.9 U	21	320
C3-Chrysene	ng/L	0.64	17	1.8	0.85 [0.92]	0.46	1.3	0.62	1.7
C3-Fluoranthenes/Pyrene	ng/L	5.0	30	11	6.4 [7.0]	3.9	11	4.4	16
C3-Fluorenes	ng/L	0.90 U	1.4 U	0.96 U	36 [36]	0.87 U	1.1 U	0.68 U	160
C3-Naphthalenes	ng/L	8.6 U	10 U	9.2 U	7.0 U [9.2 U]	8.3 U	10 U	6.5 U	8.1 U
C3-Phenanthrene/Anthracene	ng/L	16	1.3 U	19	38 [39]	19	9.1	14	110
C4-Chrysene	ng/L	0.098	2.5	0.28	0.13 [0.13]	0.060	0.17	0.090	0.26
C4-Naphthalenes	ng/L	2.5 U	3.0 U	2.6 U	190 [180]	2.4 U	2.9 U	1.9 U	990
C4-Phenanthrene/Anthracene	ng/L	5.0	0.55 U	7.6	8.5 [9.5]	5.9	5.2	4.7	22
Chrysene	ng/L	4.5	6.0	3.9	6.6 [7.0]	4.6	2.5	3.4	23
Dibenz(a,h)anthracene	ng/L	0.88 J	10	1.4 J	0.77 J [0.94 J]	0.57 U	1.4 J	0.62 J	1.4 J
Fluoranthene	ng/L	29	130	12	53 [56]	31	17	14	190
Fluorene	ng/L	36 UJ	110 J-	39 U	30 UJ [39 UJ]	35 UJ	43 U	27 UJ	34 U
Indeno(1,2,3-c,d)pyrene	ng/L	0.12	2.9	0.20	0.091 [0.11]	0.054 J	0.22	0.060	0.14
Naphthalene	ng/L	400 UJ	410 UJ	430 U	320 UJ [420 UJ]	380 UJ	470 U	300 UJ	370 U
Perylene	ng/L	0.16 U	0.77 J	0.20 J	0.13 U [0.17 U]	0.16 U	0.29 J	0.12 U	0.21 J
Phenanthrene	ng/L	13 UJ	27 J-	14 U	10 UJ [14 UJ]	12 UJ	15 U	9.7 UJ	12 U
Pyrene	ng/L	140	500	210	180 [180]	97	200	74	690
Total HMW PAHs	ng/L	180 J	680	240 J	250 J [250 J]	140 J	230 J	97 J	930 J
Total LMW PAHs	ng/L	620 J	690 J	1,000 J	850 J [850 J]	26 J	680 U	440 U	2,100 J
Total PAHs	ng/L	800 J	1,400 J	1,300 J	1,100 J [1,100 J]	170 J	230 J	97 J	3,000 J

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR152	NB03SED-POR153	NB03SED-POR154	NB03SED-POR155 ¹	NB03SED-POR156	NB03SED-POR157	NB03SED-POR158
Dioxins/Furans								
1,2,3,4,6,7,8-HpCDD	pg/L	1.17 JB [1.72 JB]	1.16 JB	26.6 B	1.23 JBQ	1.29 JB	1.06 JB	1.14 JB
1,2,3,4,6,7,8-HpCDF	pg/L	0.881 JB [1.27 JB]	0.946 JB	12.2 B	1.04 JB	0.866 JB	1.38 JB	1.72 JB
1,2,3,4,7,8,9-HpCDF	pg/L	0.115 JB [0.219 JBQ]	0.0946 JBQ	1.11 JB	0.0668 JBQ	0.292 JB	0.183 JB	0.180 JBQ
1,2,3,4,7,8-HxCDD	pg/L	0.0991 JBQ [0.0913 JBQ]	0.0395 U	0.353 JB	0.0936 JBQ	0.158 JB	0.0876 JBQ	0.118 JBQ
1,2,3,4,7,8-HxCDF	pg/L	0.819 JB [1.19 JB]	0.906 JB	5.79 B	0.876 JB	1.06 JB	1.74 JB	2.05 JB
1,2,3,6,7,8-HxCDD	pg/L	0.524 JBQ [0.697 JB]	0.473 JBQ	3.76 QBJ	0.394 JB	0.589 JB	0.244 JBQ	0.494 JB
1,2,3,6,7,8-HxCDF	pg/L	0.407 JB [0.486 JBQ]	0.318 JBQ	2.04 JB	0.368 JB	0.516 JBQ	0.374 JB	0.561 JBQ
1,2,3,7,8,9-HxCDD	pg/L	0.231 JB [0.267 JBQ]	0.348 JB	1.99 JBQ	0.187 JBQ	0.310 JB	0.377 JB	0.219 JBQ
1,2,3,7,8,9-HxCDF	pg/L	0.411 JBQ [0.368 JB]	0.357 JBQ	0.896 JB	0.274 JB	0.686 JB	0.454 JBQ	0.379 JBQ
1,2,3,7,8-PeCDD	pg/L	0.687 JB [0.433 JBQ]	0.513 JB	2.31 JB	0.454 JBQ	0.592 JBQ	0.156 U	0.690 JB
1,2,3,7,8-PeCDF	pg/L	1.33 JB [1.48 JBQ]	1.21 JB	3.33 JB	0.926 JB	1.33 JBQ	1.03 JB	1.57 JBQ
2,3,4,6,7,8-HxCDF	pg/L	0.396 JBQ [0.460 JBQ]	0.324 JB	1.81 JB	0.292 JB	0.490 JB	0.411 JB	0.447 JB
2,3,4,7,8-PeCDF	pg/L	2.16 JB [2.46 JBQ]	1.61 JBQ	6.52 B	1.62 JBQ	2.17 JB	1.91 JB	2.97 JB
2,3,7,8-TCDD	pg/L	6.94 B [8.91 B]	5.93 JQ	468	11.6	6.63 B	11.8 B	19.8 B
2,3,7,8-TCDF	pg/L	3.82 JQ [4.95]	3.77	6.83 C	4.00 QJ	3.57	3.17	5.03
OCDD	pg/L	3.23 B [5.17 B]	2.36 JB	105 B	3.52 B	1.98 JB	1.87 JB	2.96 JB
OCDF	pg/L	0.00303 JBQ [0.00426 JBQ]	0.00242 JB	0.0847 B	0.00344 JBQ	0.00358 JB	0.00411 JBQ	0.00514 JB
Metals								
Aluminum	mg/L	0.130 U [0.130 U]	0.130 U	0.130 U	NA	0.130 U	0.130 U	0.130 U
Antimony	mg/L	0.00170 UJ [0.00170 U]	0.00170 U	0.00170 U	NA	0.00170 U	0.00170 U	0.00170 U
Arsenic	mg/L	0.00540 U [0.00540 U]	0.0183 BJ	0.00540 U	NA	0.0227	0.00540 U	0.00540 U
Barium	mg/L	0.0832 J- [0.0650 J]	0.0499 J+	0.138	NA	0.0782	0.0605	0.0596
Beryllium	mg/L	0.000360 U [0.000360 U]	0.000360 U	0.000360 U	NA	0.000360 U	0.000360 U	0.000360 U
Cadmium	mg/L	0.00120 U [0.00120 U]	0.00230 U	0.00230 U	NA	0.00120 U	0.00120 U	0.00120 U
Calcium	mg/L	284 [269]	249	235	NA	275	259	267
Chromium	mg/L	0.00380 B [0.00350 U]	0.00450 B	0.00390 B	NA	0.00840 B	0.00530 B	0.00750 B
Cobalt	mg/L	0.000500 U [0.000500 U]	0.00100 U	0.000500 U	NA	0.000500 U	0.000500 U	0.000500 U
Copper	mg/L	0.00200 U [0.00200 U]	0.00200 U	0.00200 U	NA	0.00200 U	0.00200 U	0.00200 U
Iron	mg/L	1.84 J [2.24]	0.898 J+	0.171 B	NA	2.79	0.360 B	0.477 B
Lead	mg/L	0.000970 B [0.000650 U]	0.000650 U	0.000650 U	NA	0.000650 U	0.000650 U	0.000650 U
Magnesium	mg/L	758 J [727]	706 J	645	NA	697	757	692
Manganese	mg/L	0.603 [0.498]	1.50 J	0.327	NA	3.99	1.13	2.42
Mercury	ng/L	152 J [99.8 J]	122	114	1.65 U	117	126	146
Methyl Mercury	ng/L	58.5 J [80.0 J]	141 J	106 J	368 J	80.0 J	110 J	117 J
Nickel	mg/L	0.00470 U [0.00470 U]	0.00470 U	0.00470 U	NA	0.00470 U	0.00470 U	0.00470 U
Potassium	mg/L	249 [253]	256	240	NA	231	239	254
Selenium	mg/L	0.00250 U [0.00250 U]	0.00250 U	0.00320 B	NA	0.00250 U	0.00250 U	0.00250 U
Silver	mg/L	0.000550 U [0.000550 U]	0.000550 U	0.000550 U	NA	0.000550 U	0.000550 U	0.000550 U
Sodium	mg/L	7,480 [6,810]	7,380	5,760	NA	6,840	7,330	6,690
Thallium	mg/L	0.000750 U [0.000750 U]	0.000750 U	0.000750 U	NA	0.000750 U	0.000750 U	0.000750 U
Titanium	mg/L	0.00500 BJ [0.00310 BJ]	0.00700 BJ	0.00170 U	NA	0.00790 B	0.00390 B	0.00650 B
Vanadium	mg/L	0.00350 BJ [0.00510 J]	0.00320 BJ	0.00220 U	NA	0.00690	0.00220 U	0.00540
Zinc	mg/L	0.0370 U [0.0370 U]	0.0370 U	0.0370 U	NA	0.0370 U	0.0370 U	0.0370 U

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR152	NB03SED-POR153	NB03SED-POR154	NB03SED-POR155 ¹	NB03SED-POR156	NB03SED-POR157	NB03SED-POR158
Pesticides								
2,4'-DDD	pg/L	1,090 J [1,210 DJ]	101 J	243 DJ	175 J	72.0 J	96.2 J	81.9 J
2,4'-DDE	pg/L	573 DJ [603 DJ]	203 BJ	4,400 BDJ	474 BDJ	112 DJ	142 J	98.5 DJ
2,4'-DDT	pg/L	0.0202 UJ [0.555 J]	0.00717 UJ	0.00717 UDJ	0.00717 UJ	0.0202 UJ	0.175 J	0.0202 UJ
4,4'-DDD	pg/L	2,800 DJ [3,110 DJ]	211 J	912 DJ	427 J	158 J	187 J	224 J
4,4'-DDE	pg/L	1,770 BDJ [1,790 BDJ]	752 BDJ	9,580 BEDJ	1,420 BDJ	469 BDJ	584 BDJ	480 BDJ
4,4'-DDT	pg/L	2.43 J [1.83 J]	0.0108 UJ	0.0108 UDJ	0.0108 UJ	0.0202 UJ	0.0202 UJ	0.0202 UJ
Aldrin	pg/L	0.0141 UJ [0.648 J]	0.260 J	0.00866 UDJ	0.00866 UJ	0.0141 UJ	0.539 J	0.422 J
Alpha BHC	pg/L	75.7 J [52.0 J]	2.04 UJ	2.04 UDJ	2.04 UJ	1.82 UJ	1.82 UJ	134 J
Alpha Endosulfan	pg/L	19.5 UJ [19.5 UJ]	5.12 UJ	5.12 UDJ	5.12 UJ	19.5 UJ	834 J	402 J
Beta BHC	pg/L	1.84 UJ [1.84 UJ]	3.31 UJ	3.31 UDJ	3.31 UJ	1.84 UJ	1.84 UJ	1.84 UJ
Beta Endosulfan	pg/L	25.4 UJ [25.4 UJ]	15.3 UJ	15.3 UDJ	15.3 UJ	25.4 UJ	25.4 UJ	25.4 UJ
Cis-Chlordane	pg/L	141 BJ [160 BJ]	95.5 BJ	68.4 BDJ	86.4 BJ	131 BJ	138 BJ	131 BJ
Cis-Nonachlor	pg/L	15.0 J [16.2 J]	9.89 J	0.0278 UDJ	10.0 J	9.94 J	15.9 J	12.1 J
Delta BHC	pg/L	1.11 UJ [1.11 UJ]	1.07 UJ	1.07 UDJ	1.07 UJ	1.11 UJ	1.11 UJ	1.11 UJ
Dieldrin	pg/L	210 J [202 J]	132 J	288 DJ	146 J	127 J	177 J	133 J
Endosulfan Sulfate	pg/L	28.7 UJ	18.1 UJ	18.1 UD	18.1 UJ	28.7 UJ	28.7 UJ	28.7 UJ
Endrin	pg/L	0.0295 UJ [0.0295 UJ]	0.0157 UJ	0.0157 UDJ	0.0157 UJ	0.0295 UJ	0.0295 UJ	0.0295 UJ
Endrin Aldehyde	pg/L	3.32 UJ	1.90 UJ	1.90 UDJ	1.90 UJ	3.32 UJ	3.32 UJ	3.32 UJ
Endrin Ketone	pg/L	1.12 UJ	0.605 UJ	0.605 UDJ	0.605 UJ	1.12 UJ	1.12 UJ	1.12 UJ
Gamma BHC (Lindane)	pg/L	1.50 UJ [1.50 UJ]	2.20 UJ	2.20 UDJ	2.20 UJ	1.50 UJ	1.50 UJ	1.50 UJ
Heptachlor	pg/L	2.89 BJ [3.61 BJ]	3.34 BJ	0.0780 UDJ	3.30 BJ	3.60 BJ	3.82 BJ	2.69 BJ
Heptachlor Epoxide	pg/L	0.146 UJ [9.06 J]	0.142 UJ	0.142 UDJ	0.142 UJ	14.1 J	0.146 UJ	0.146 UJ
Hexachlorobenzene	pg/L	178 BJ [181 BJ]	95.9 BJ	5,310 BDJ	293 BJ	93.1 BJ	125 BJ	239 BJ
Methoxychlor	pg/L	41.6 UJ	7.23 UJ	7.23 UD	7.23 UJ	41.6 UJ	41.6 UJ	41.6 UJ
Mirex	pg/L	2.21 J [2.50 J]	0.587 J	0.00505 UD	0.00505 UJ	0.825 J	0.796 J	0.00683 UJ
Oxychlordane	pg/L	0.0322 UJ [0.0322 UJ]	0.0238 UJ	0.0238 UDJ	0.0238 UJ	0.0322 UJ	0.0322 UJ	0.0322 UJ
Trans-Chlordane	pg/L	148 BJ [150 BJ]	84.9 BJ	143 BDJ	85.7 BJ	120 BJ	154 BJ	102 BJ
Trans-Heptachlor Epoxide	pg/L	0.475 UJ [0.475 UJ]	0.190 UJ	0.190 UDJ	0.190 UJ	72.8 J	0.475 UJ	0.475 UJ
Trans-Nonachlor	pg/L	58.4 BJ [58.1 BJ]	36.4 BJ	22.3 BDJ	37.2 BJ	52.1 BJ	68.3 BJ	52.3 BJ
Total Alpha + Gamma Chlordane	pg/L	288 J [310 J]	180 J	212 J	172 J	251 J	291 J	233 J
Total DDT (2,4 & 4,4)	pg/L	6,230 J [6,710 J]	1,270 J	15,100 J	2,490 J	810 J	1,010 J	884 J
Total DDT (2,4)	pg/L	1,660 J [1,810 J]	304 J	4,640 J	649 J	184 J	238 J	180 J
Total DDT (4,4)	pg/L	4,570 J [4,900 J]	963 J	10,500 J	1,850 J	627 J	771 J	703 J
PCB Congeners								
PCB-1	ng/L	3.91 [4.41]	4.41	12.1	5.46	12.3	8.30	8.80
PCB-2	ng/L	0.671 J [0.770 J]	0.770	0.161 U	2.91	0.898	0.904	1.46
PCB-3	ng/L	0.545 J [0.636 J]	0.636 J	3.19	0.824 J	0.867 J	0.338 U	1.39
PCB-4	ng/L	23.3 [24.5]	24.5 J	119	20.1	24.1	23.7	17.3
PCB-5	ng/L	0.264 J [0.103 U]	0.103 U	1.21	0.120 J	0.115 U	0.238 J	0.129 J
PCB-6	ng/L	4.13 [4.49]	4.49	13.5	1.62	1.15	2.34	1.82
PCB-7	ng/L	0.602 [0.591]	0.591 U	3.68	0.283	0.166 J	0.432	0.0745 U
PCB-8	ng/L	11.5 [12.2]	12.2	84.3	6.72	4.72	8.09	5.40
PCB-9	ng/L	0.0760 U [0.645]	0.645 J	4.40	0.335	0.242	0.548	0.423
PCB-10	ng/L	1.39 [0.239 U]	0.239	3.07	1.20	1.82	1.88	1.36
PCB-11	ng/L	2.93 [3.18]	3.18	53.1	4.51	1.90	2.04	3.47
PCB-12/13	ng/L	1.35 [1.36]	1.36	9.63	1.36	0.550	0.855	1.29
PCB-14	ng/L	0.0478 U [0.0446 U]	0.0446 U	0.147	0.0463 U	0.0494 U	0.0491 U	0.0421 U
PCB-15	ng/L	6.62 [7.44]	7.44	29.4	4.34	2.73	4.01	4.90
PCB-16	ng/L	14.8 [13.5]	13.5 J	89.3	14.4	5.02	10.6	5.50
PCB-17	ng/L	19.7 B [17.8 B]	17.8 J	82.0	18.4	8.85 B	13.7 B	8.56 B

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR152	NB03SED-POR153	NB03SED-POR154	NB03SED-POR155 ¹	NB03SED-POR156	NB03SED-POR157	NB03SED-POR158
PCB-18/30	ng/L	24.5 [22.8]	22.8 J	135	23.8	8.86	16.4	9.86
PCB-19	ng/L	7.59 [7.66]	7.66	29.7	5.44	4.47	6.04	3.98
PCB-20/28	ng/L	38.7 J [42.3]	42.3 J	136	19.9	10.8	19.5	17.0
PCB-21/33	ng/L	9.10 [10.2]	10.2	62.1	5.82	2.21	5.35	3.38
PCB-22	ng/L	9.35 J [9.95]	9.95	40.7	4.95	2.06	4.47	3.31
PCB-23	ng/L	0.0191 U [0.0264 J]	0.0264 U	0.187	0.0185 U	0.0198 U	0.0207 J	0.0169 U
PCB-24	ng/L	0.0497 U [0.0463 U]	0.0463	0.0383 U	0.314	0.132	0.0510 U	0.163
PCB-25	ng/L	3.67 J [4.02]	4.02	7.18	1.53	1.22	1.77	1.71
PCB-26/29	ng/L	6.23 [6.85]	6.85	16.7	2.83	2.32	3.22	2.84
PCB-27	ng/L	2.61 [2.50]	2.50 J	6.66	2.36	1.48	1.77	1.34
PCB-31	ng/L	21.3 J [23.1]	23.1 J	93.2	13.3	6.81	11.7	9.17
PCB-32	ng/L	6.68 [6.78]	6.78 J	21.3	4.40	2.24	3.93	2.57
PCB-34	ng/L	0.217 [0.217]	0.217	0.575	0.102	0.104	0.133	0.0994
PCB-35	ng/L	0.306 J [0.354 J]	0.354	2.10	0.190	0.0843	0.151	0.160
PCB-36	ng/L	0.00936 U [0.00872 U]	0.00872 J	0.00721 U	0.0184 J	0.00967 U	0.00961 U	0.0229
PCB-37	ng/L	3.46 [3.80]	3.80	14.8	2.50	0.892	1.41	1.72
PCB-38	ng/L	0.0357 [0.0106 U]	0.0106 J	0.00874 U	0.0224 J	0.0117 U	0.0116 U	0.0100 U
PCB-39	ng/L	0.151 [0.153]	0.153	0.387	0.0878	0.0464	0.0783	0.0704
PCB-40/71	ng/L	15.6 [14.2]	14.2 J	26.8	12.1	4.81	7.40	5.41
PCB-41	ng/L	2.47 [2.42]	2.42	6.31	2.22	0.495	1.02	0.621
PCB-42	ng/L	13.1 J [12.1]	12.1 J	22.2	10.4	3.69	6.18	4.42
PCB-43	ng/L	2.25 [1.85]	1.85	3.35	1.63	0.623	1.02	0.606
PCB-44/47/65	ng/L	40.2 [36.4]	36.4 J	68.5	29.9	12.5	20.3	14.9
PCB-45	ng/L	7.85 [6.53]	6.53 J	16.5	5.34	2.16	3.30	2.23
PCB-46	ng/L	2.85 [2.48]	2.48	6.46	2.05	0.873	1.48	1.03
PCB-48	ng/L	6.55 [5.91]	5.91 J	12.7	5.65	1.68	3.07	1.98
PCB-49/69	ng/L	21.3 [19.1]	19.1 J	30.5	15.8	6.77	10.3	7.52
PCB-50/53	ng/L	7.49 [6.46]	6.46 J	13.4	5.14	2.52	4.13	3.05
PCB-51	ng/L	3.49 [3.31]	3.31	5.34	2.29	1.61	3.42	2.65
PCB-52	ng/L	38.7 BJ [34.6 B]	34.6 J	76.3	28.9	10.9 B	17.5 B	12.7 B
PCB-54	ng/L	0.712 [0.682]	0.682	0.0775 U	0.366	0.413	0.847	0.660
PCB-55	ng/L	0.203 [0.210]	0.210	0.00578 U	0.0867	0.0333	0.0623	0.0516
PCB-56	ng/L	7.56 [8.12]	8.12 J	15.1	4.35	1.57	2.76	2.24
PCB-57	ng/L	0.0865 [0.0859]	0.0859	0.870	0.0498	0.0330	0.0515	0.0393
PCB-58	ng/L	0.0703 [0.0693]	0.0693 J	0.00574 U	0.0326	0.0257 J	0.0381	0.0352
PCB-60	ng/L	3.11 [3.31]	3.31	6.93	1.89	0.503	0.924	0.716
PCB-61/70/74/76	ng/L	28.7 [29.9]	29.9 J	57.6	15.4	5.87	10.7	8.71
PCB-62/75	ng/L	7.26 [6.62]	6.62	9.38	5.43	2.20	3.46	2.64
PCB-63	ng/L	1.70 [1.79]	1.79	2.54	0.956	0.464	0.725	0.566
PCB-64	ng/L	6.50 J [5.90]	5.90 J	11.9	5.10	1.64	2.81	2.00
PCB-66	ng/L	14.9 J [15.5]	15.5 J	25.1	7.94	2.92	5.23	4.61
PCB-67	ng/L	0.435 [0.445]	0.445	0.532	0.224	0.104	0.186	0.154
PCB-68	ng/L	0.241 [0.223]	0.223	0.192	0.107	0.109	0.158	0.151
PCB-72	ng/L	0.163 [0.164]	0.164	0.180	0.0809	0.0752	0.0977	0.0897
PCB-73	ng/L	0.0105 U [0.0624]	0.0624	0.00811 U	0.0350 J	0.0314 J	0.0451	0.0602
PCB-77	ng/L	0.751 [0.790]	0.790	1.82	0.435	0.164	0.270	0.259
PCB-78	ng/L	0.00526 U [0.00490 U]	0.00490 U	0.00405 U	0.00509 U	0.00543 U	0.00540 U	0.00463 U
PCB-79	ng/L	0.0929 J [0.109 J]	0.109	0.130	0.0442	0.0264	0.0395	0.00306 U
PCB-80	ng/L	0.00250 U [0.00233 U]	0.00233 U	0.00192 U	0.00242 U	0.00258 U	0.00257 U	0.00220 U
PCB-81	ng/L	0.00578 U [0.0421]	0.0421 J	0.0796	0.0238	0.00597 U	0.00593 U	0.0111 J
PCB-82	ng/L	2.02 [1.86]	1.86 J	2.90	1.85	0.415	0.665	0.470

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR152	NB03SED-POR153	NB03SED-POR154	NB03SED-POR155 ¹	NB03SED-POR156	NB03SED-POR157	NB03SED-POR158
PCB-83	ng/L	0.844 [0.778]	0.778 J	0.841	0.874	0.222	0.317	0.225
PCB-84	ng/L	5.34 J [4.63]	4.63 J	7.30	4.51	1.36	2.01	1.46
PCB-85/116/117	ng/L	3.12 [2.85]	2.85 J	3.43	2.75	0.741	1.09	0.813
PCB-86/87/97/109/119/125	ng/L	8.61 J [7.71]	7.71 J	11.1	7.26	2.04	3.09	2.26
PCB-88	ng/L	0.0155 U [0.0144 U]	0.0144 U	0.0119 U	0.0199 J	0.0160 U	0.0159 U	0.0136 U
PCB-89	ng/L	0.368 [0.314]	0.314 J	0.417	0.331	0.00944 U	0.121	0.0850
PCB-90/101/113	ng/L	12.6 J [11.3]	11.3 J	14.9	10.7	3.49	5.14	3.92
PCB-91	ng/L	3.96 J [3.35]	3.35 J	3.80	3.19	1.18	1.63	1.31
PCB-92	ng/L	2.47 J [2.18]	2.18 J	2.63	2.08	0.727	1.03	0.782
PCB-93/100	ng/L	0.597 [0.512]	0.512 J	0.193	0.445	0.314	0.501	0.439
PCB-94	ng/L	0.212 [0.173]	0.173 J	0.150	0.169	0.0807	0.123	0.100
PCB-95	ng/L	12.9 J [13.3]	13.3 J	23.7	7.32	3.73	5.22	4.05
PCB-96	ng/L	0.577 [0.482]	0.482 J	0.666	0.480	0.165	0.236	0.180
PCB-98/102	ng/L	1.10 [0.923]	0.923 J	0.958	0.905	0.352	0.525	0.386
PCB-99	ng/L	8.26 J [7.31]	7.31 J	7.80	6.69	2.37	3.32	2.65
PCB-103	ng/L	0.270 [0.240]	0.240 J	0.159	0.192	0.132	0.193	0.167
PCB-104	ng/L	0.0816 [0.0781]	0.0781 J	0.0151 U	0.0190 U	0.0203 U	0.126	0.0948
PCB-105	ng/L	1.86 J [1.99]	1.99 J	3.56	0.959	0.374	0.621	0.521
PCB-106	ng/L	0.00250 U [0.00232 U]	0.00232 U	0.00192 U	0.00242 U	0.00258 U	0.00256 U	0.00220 U
PCB-107	ng/L	0.386 [0.407]	0.407	0.545	0.166	0.104	0.146	0.126
PCB-108/124	ng/L	0.204 [0.212]	0.212	0.331	0.0864	0.0436	0.0666	0.0576
PCB-110/115	ng/L	9.23 J [8.47]	8.47 J	NA	8.02	2.34	0.00910 U	2.62
PCB-111	ng/L	0.00149 U [0.00378 J]	0.00378 J	0.00115 U	0.00303 J	0.00154 U	0.00290 J	0.00260 J
PCB-112	ng/L	0.0453 [0.0415]	0.0415	0.00269 U	0.00338 U	0.0123 J	0.0200	0.0114
PCB-114	ng/L	0.162 [0.179]	0.179	0.261	0.0823	0.0317	0.0533	0.0402
PCB-118	ng/L	4.90 J [5.31]	5.31 J	8.30	2.43	1.15	1.73	1.43
PCB-120	ng/L	0.0204 [0.0178]	0.0178 J	0.0107	0.0155	0.0102	0.0118	0.0102
PCB-121	ng/L	0.00332 J [0.00350 J]	0.00350 J	0.00136 U	0.00256 J	0.00221 J	0.00181 U	0.00155 U
PCB-122	ng/L	0.0787 [0.0859]	0.0859	0.107	0.0338	0.0157	0.0252	0.0205
PCB-123	ng/L	0.113 [0.120]	0.120	0.139	0.0649	0.0230	0.0374	0.0259
PCB-126	ng/L	0.00697	J	0.000927 U	0.00429	0.00193 J	0.00284 J	NA
PCB-127	ng/L	NA	0.00279 J	0.00531	0.00289 J	NA	NA	0.00114 J
PCB-128/166	ng/L	0.425 [0.417]	0.479	0.654	0.223	0.122	0.166	0.132
PCB-129/138/163	ng/L	4.43 J [4.26]	4.78 J	6.01	2.40	1.43	2.02	1.64
PCB-130	ng/L	0.452 [0.440]	0.556 J	0.655	0.253	0.147	0.203	0.158
PCB-131	ng/L	0.0949 [0.0927]	0.109	0.167	0.0475	0.0251	0.0369	0.0311
PCB-132	ng/L	NA	0.966 J	1.59	0.461	NA	NA	0.294
PCB-133	ng/L	0.189 [0.188]	0.244	0.196	0.0736	0.0696	0.0862	0.0746
PCB-134	ng/L	0.317 [0.303]	0.353	0.528	0.176	0.109	0.142	0.118
PCB-135/151	ng/L	6.98 J [6.52]	8.30 J	11.3	4.62	2.48	3.46	2.99
PCB-136	ng/L	0.322 [0.300]	0.326 J	0.518	0.219	0.111	0.156	0.135
PCB-137	ng/L	0.218 [0.208]	0.265	0.284	0.109	0.0536	0.0779	0.0661
PCB-139/140	ng/L	0.132 [0.124]	0.149	0.163	0.0616	0.0388	0.0545	0.0504
PCB-141	ng/L	0.608 [0.632]	0.804 J	1.10	0.295	0.166	0.268	0.204
PCB-142	ng/L	0.00361 U [0.00336 U]	0.00387 U	0.00328 U	0.00349 U	0.00373 U	0.00370 U	0.00318 U
PCB-143	ng/L	0.0239 J [0.0156 J]	0.0184 U	0.00506 U	0.0110 J	0.00562 U	0.00720 J	0.00479 U
PCB-144	ng/L	0.285 [0.258]	0.310 J	0.916	0.187	0.0900	0.127	0.103
PCB-145	ng/L	0.00974 J [0.0102 J]	0.0111 U	0.0123 J	0.00733 J	0.00700 U	0.00695 U	0.00597 U
PCB-146	ng/L	0.590 J [0.550]	0.720 J	0.675	0.284	0.207	0.277	0.243
PCB-147/149	ng/L	4.32 J [4.13]	4.97 J	6.89	2.35	1.55	2.14	1.96
PCB-148	ng/L	0.0298 [0.0258]	0.0318	0.0167	0.0111	0.0105	0.00168 U	0.0132

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR152	NB03SED-POR153	NB03SED-POR154	NB03SED-POR155 ¹	NB03SED-POR156	NB03SED-POR157	NB03SED-POR158
PCB-150	ng/L	0.0739 [0.0648]	0.0717	0.0668	0.0355	0.0333	0.0473	0.0576
PCB-152	ng/L	0.0303 [0.0250]	0.0272 J	0.0221	0.0167 J	0.0115 J	0.0203 J	0.0155 J
PCB-153/168	ng/L	2.28 J [2.14]	3.02 J	3.36	1.19	0.808	1.12	0.995
PCB-154	ng/L	0.179 [0.150]	0.186 J	0.0872	0.0717	0.0727	0.0956	0.0976
PCB-155	ng/L	0.0688 [0.0641]	0.0721	0.0253	0.0591	0.00405 U	0.0787	0.0621
PCB-156/157	ng/L	0.164 [0.181]	0.280	0.368	0.0800	0.0421	0.0641	0.0538
PCB-158	ng/L	0.224 [0.217]	0.304 J	0.388	0.114	0.0614	0.0936	0.0742
PCB-159	ng/L	0.000410 U [0.000382 U]	0.000614 U	0.000518 U	0.000397 U	0.000424 U	0.000421 U	0.000361 U
PCB-160	ng/L	0.00423 U [0.00394 U]	0.00526 U	0.00447 U	0.00409 U	0.00437 U	0.00434 U	0.00372 U
PCB-161	ng/L	0.000590 U [0.000549 U]	0.000795 U	0.000674 U	0.000571 U	0.000609 U	0.000605 U	0.000520 U
PCB-162	ng/L	0.0115 [0.0125]	0.0201 J	0.0289	0.000369 U	0.000393 U	0.000391 U	0.00507
PCB-164	ng/L	0.127 [0.120]	0.168	0.236	0.0655	0.0369	0.0574	0.0462
PCB-165	ng/L	0.00164 J	J	0.000710 U	0.000710 J	0.00111 J	0.00103 J	NA
PCB-167	ng/L	0.0451 [0.0503]	0.0826	0.0861	0.0238	0.0140	0.0198	0.0176
PCB-169	ng/L	0.000265 U [0.000247 U]	0.000458 U	0.000382 U	0.000256 U	0.000274 U	0.000272 U	0.000233 U
PCB-170	ng/L	0.195 [0.196]	0.327 J	0.380	0.129	0.0629	0.0981	0.0880
PCB-171/173	ng/L	NA	J	0.178	0.0784	NA	NA	NA
PCB-172	ng/L	0.0329 [0.0322]	0.0563 J	0.0622	0.0254	0.0114	0.0174	0.0163
PCB-174	ng/L	NA	0.476 J	0.618	0.217	NA	NA	0.142
PCB-175	ng/L	NA	0.0296 J	NA	0.0147	NA	NA	0.0104
PCB-176	ng/L	0.0465 [0.0453]	0.0567 J	0.0712	0.0341	0.0172	0.0241	0.0231
PCB-177	ng/L	NA	0.838 J	NA	0.435	NA	NA	0.294
PCB-178	ng/L	0.119 [0.112]	0.171 J	0.172	0.0861	0.0506	0.0652	0.0667
PCB-179	ng/L	0.183 [0.174]	0.215 J	0.265	0.134	0.0687	0.0937	0.0917
PCB-180/193	ng/L	2.30 [2.30]	4.47 J	5.02	1.56	0.790	1.20	1.16
PCB-181	ng/L	NA	0.00565 J	NA	0.00261	NA	NA	0.00204
PCB-182	ng/L	NA	0.00455 J	0.000521 U	0.00154 J	NA	NA	0.00158
PCB-183/185	ng/L	NA	J	NA	0.174	NA	NA	NA
PCB-184	ng/L	0.00118 U [0.00228 J]	0.00296 J	0.00122 U	0.00247 J	0.00260 J	0.00319 J	0.00330 J
PCB-186	ng/L	0.00196 U [0.00183 U]	0.00223 U	0.00189 U	0.00190 U	0.00203 U	0.00201 U	0.00173 U
PCB-187	ng/L	NA	0.903 J	NA	0.434	NA	NA	0.329
PCB-188	ng/L	0.00818 [0.00727]	0.00931 J	0.00425 J	0.00338 J	0.00466 J	0.00600	0.00702
PCB-189	ng/L	0.00206 [0.00218]	0.00551	0.00736	0.00113	0.000719	0.00116	0.00117
PCB-190	ng/L	0.0256 [0.0262]	0.0514 J	0.0567	0.0179	0.00915	0.0137	0.0129
PCB-191	ng/L	0.00501 [0.00521]	0.0111 J	0.0118	0.00354	0.00182	0.00265	0.00276
PCB-192	ng/L	0.000178 U [0.000166 U]	0.000344 U	0.000285 U	0.000172 U	0.000184 U	0.000183 U	0.000157 U
PCB-194	ng/L	0.0164 [0.0168]	0.0482	0.0845	0.00855	0.00624	0.00929	0.00927
PCB-195	ng/L	0.0122 [0.0127]	0.0279	0.0470	0.00669	0.00452	0.00687	0.00701
PCB-196	ng/L	0.0171 [0.0166]	0.0400 J	0.0638	0.0116	0.00637	0.00951	0.00957
PCB-197/200	ng/L	0.0159 [0.0158]	0.0267 J	0.0435	0.0114	0.00598	0.00880	0.00887
PCB-198/199	ng/L	0.0503 [0.0488]	0.114 J	0.101	0.0382	0.0221	0.0303	0.0302
PCB-201	ng/L	0.00671 [0.00637]	0.0149 J	0.0216	0.00572	0.00324	0.00403	0.00456
PCB-202	ng/L	0.0452 [0.0462]	0.0763 J	0.0905	0.0343	0.0295	0.0334	0.0350
PCB-203	ng/L	0.0267 [0.0249]	0.0601 J	0.0984	0.0198	0.0116	0.0159	0.0156
PCB-204	ng/L	0.000523 U [0.000488 U]	0.000844 U	0.000710 U	0.000507 U	0.000541 U	0.000537 U	0.000461 U
PCB-205	ng/L	0.000533 [0.000492]	0.00181 J	0.00314	0.000290	0.000194	0.000297	0.000311
PCB-206	ng/L	0.00348 [0.00319]	0.0135	0.0604	0.00309	0.00227	0.00251	0.00296
PCB-207	ng/L	0.00102 [0.000928]	0.00252	0.00720	0.000863	0.000667	0.000709	0.000903
PCB-208	ng/L	0.00415 [0.00409]	0.0107	0.0334	0.00386	0.00340	0.00359	0.00416
PCB-209	ng/L	0.00127 [0.00124]	0.00608	0.0670	0.00144	0.000728	0.000849	0.00130
Total PCB Congeners (209)	ng/L	566 J [553 J]	562 J	1,630 J	413 J	204 J	302 J	236 J

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR152	NB03SED-POR153	NB03SED-POR154	NB03SED-POR155 ¹	NB03SED-POR156	NB03SED-POR157	NB03SED-POR158
PAHs								
1-Methylnaphthalene	ng/L	78 UJ [93 UJ]	100 U	87 U	72 UJ	88 U	92 UJ	98 U
2-Methylnaphthalene	ng/L	80 UJ [95 UJ]	100 U	89 U	73 UJ	91 U	95 UJ	100 U
Acenaphthene	ng/L	39 UJ [46 UJ]	51 U	44 U	36 UJ	44 U	46 UJ	49 U
Acenaphthylene	ng/L	510 UJ [600 UJ]	660 U	3,100	460 UJ	570 U	600 UJ	3,200
Anthracene	ng/L	13 UJ [15 UJ]	17 U	130	12 UJ	14 U	15 UJ	41
Benzo(a)anthracene	ng/L	2.0 J [1.3 J-]	1.7	16	2.1	1.9	1.2 J	6.8
Benzo(a)pyrene	ng/L	2.3 J [1.4 J-]	1.2	4.6	1.4	0.80	1.2	7.6
Benzo(b)fluoranthene	ng/L	1.6 J [0.93 J-]	0.84	2.8	1.3	0.61	0.87	3.3
Benzo(g,h,i)perylene	ng/L	0.37 J [0.28 J-]	0.36	0.80	0.38	0.22	0.21	0.81
Benzo(j)+(k)fluoranthene	ng/L	0.99 J [0.64 J-]	0.46	1.8	0.74	0.35	0.49	2.5
Benzo[e]pyrene	ng/L	2.1 J [1.4 J]	1.7	4.4	1.8	1.0	1.5	4.7
C1-Chrysenes	ng/L	6.3 J [4.0 J]	4.1	23	4.1	2.7	3.1	21
C1-Fluoranthenes/Pyrenes	ng/L	69 J [47 J]	41	360	42	26	42	310
C1-Fluorenes	ng/L	9.3 U [11 U]	12 U	10 U	8.5 U	10 U	11 U	12 U
C1-Naphthalenes	ng/L	93 U [110 U]	120 U	100 U	85 U	110 U	110 U	120 U
C1-Phenanthrene/Anthracene	ng/L	4.2 U [4.9 U]	5.4 U	440	3.8 U	4.7 U	4.9 U	5.2 U
C2-Chrysene	ng/L	4.4 J [2.9 J]	2.9	17	3.5	1.6	1.6	7.7
C2-Fluoranthenes/Pyrene	ng/L	36 [26]	25	190	29	15	19	130
C2-Fluorenes	ng/L	2.8 U [3.3 U]	3.6 U	200	2.5 U	3.1 U	3.3 U	61
C2-Naphthalenes	ng/L	27 U [31 U]	35 U	30 U	24 U	30 U	31 U	33 U
C2-Phenanthrene/Anthracene	ng/L	1.4 U [1.7 U]	1.9 U	730	14	8.2	1.7 U	110
C3-Chrysene	ng/L	0.72 [0.58]	0.48	3.5	0.61	0.26	0.23	0.97
C3-Fluoranthenes/Pyrene	ng/L	5.4 [3.9]	3.5	28	4.7	2.4	2.5	9.6
C3-Fluorenes	ng/L	0.79 U [0.94 U]	1.0 U	240	0.72 U	0.90 U	0.94 U	0.99 U
C3-Naphthalenes	ng/L	7.6 U [9.0 U]	9.9 U	8.4 U	6.9 U	8.6 U	9.0 U	130
C3-Phenanthrene/Anthracene	ng/L	6.2 [5.1]	7.4	250	7.9	6.2	6.5	29
C4-Chrysene	ng/L	0.092 [0.073]	0.069	0.62	0.079	0.036	0.026 J	0.15
C4-Naphthalenes	ng/L	2.2 U [2.6 U]	2.8 U	1,200	2.0 U	2.4 U	2.6 U	57
C4-Phenanthrene/Anthracene	ng/L	0.17 U [0.20 U]	0.22 U	45	3.2	0.19 U	0.20 U	6.8
Chrysene	ng/L	2.0 J [1.5 J-]	2.6	16	2.3	2.3	1.9	10
Dibenz(a,h)anthracene	ng/L	1.0 J [0.70 J-]	0.68 J	1.6	0.85 J	0.58 U	0.61 U	2.3
Fluoranthene	ng/L	7.6 J [5.3 J-]	9.8	110	17	17	8.8	51
Fluorene	ng/L	32 UJ [38 UJ]	42 U	36 U	29 UJ	36 U	38 UJ	40 U
Indeno(1,2,3-c,d)pyrene	ng/L	0.15 J [0.11 J-]	0.090	0.27	0.14	0.057 J	0.056 J	0.36
Naphthalene	ng/L	350 UJ [410 UJ]	460 U	390 U	320 UJ	400 U	410 UJ	440 U
Perylene	ng/L	0.18 J [0.17 U]	0.19 U	0.46	0.21 J	0.16 U	0.17 U	0.21 J
Phenanthrene	ng/L	11 UJ [13 UJ]	15 U	13 U	10 UJ	13 U	13 UJ	14 U
Pyrene	ng/L	150 J [99 J-]	62	600	81	36	63	760
Total HMW PAHs	ng/L	170 J [110 J]	80 J	760	110 J	60 J	78 J	840
Total LMW PAHs	ng/L	510 U [600 U]	660 U	3,200	460 U	570 U	600 U	3,200
Total PAHs	ng/L	170 J [110 J]	80 J	4,000	110 J	60 J	78 J	4,100

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR159	NB03SED-POR160	NB03SED-POR161	NB03SED-POR162	NB03SED-POR163	NB03SED-POR164	NB03SED-POR165
Dioxins/Furans								
1,2,3,4,6,7,8-HpCDD	pg/L	1.50 JB	3.50 B	1.23 JBQ	1.70 JBQ	1.22 JB	1.21 JB	1.78 JB
1,2,3,4,6,7,8-HpCDF	pg/L	2.28 JBQ	3.42 B	1.98 JB	2.88 JB	2.42 JB	3.11 JB	3.30 B
1,2,3,4,7,8,9-HpCDF	pg/L	0.186 JBQ	0.142 JBQ	0.158 JB	0.190 JB	0.145 JBQ	0.135 JBQ	0.342 JBQ
1,2,3,4,7,8-HxCDD	pg/L	0.100 JB	0.130 JBQ	0.134 JBQ	0.157 JB	0.0680 JBQ	0.147 JBQ	0.118 JB
1,2,3,4,7,8-HxCDF	pg/L	2.80 JB	2.57 JB	2.50 JB	3.38 JBQ	3.09 JB	3.31 JB	3.58 JB
1,2,3,6,7,8-HxCDD	pg/L	0.572 JB	1.51 JB	0.632 JBQ	0.756 JBQ	0.400 JBQ	0.525 JB	0.606 JBQ
1,2,3,6,7,8-HxCDF	pg/L	0.760 JBQ	0.857 JB	0.634 JBQ	0.722 JB	0.756 JB	0.666 JBQ	1.07 JBQ
1,2,3,7,8,9-HxCDD	pg/L	0.361 JBQ	0.881 JB	0.414 JBQ	0.292 JBQ	0.283 JB	0.287 JB	0.396 JBQ
1,2,3,7,8,9-HxCDF	pg/L	0.499 JBQ	0.239 JB	0.366 JB	0.340 JBQ	0.341 JB	0.353 JBQ	0.372 JB
1,2,3,7,8-PeCDD	pg/L	0.995 JBQ	1.68 JBQ	0.347 JB	0.718 JB	0.557 JB	0.569 JBQ	0.736 JBQ
1,2,3,7,8-PeCDF	pg/L	1.61 JB	1.85 JB	1.44 JBQ	2.02 JB	1.71 JBQ	1.61 JBQ	1.63 JBQ
2,3,4,6,7,8-HxCDF	pg/L	0.452 JB	0.725 JBQ	0.484 JB	0.612 JB	0.386 JB	0.387 JBQ	0.554 JBQ
2,3,4,7,8-PeCDF	pg/L	3.97 JB	4.58 JB	2.80 JB	3.40 JBQ	3.15 JB	3.02 JBQ	4.01 JBQ
2,3,7,8-TCDD	pg/L	21.2 B	39.6 B	22.1 B	18.6 B	17.7 B	27.7 B	23.8 B
2,3,7,8-TCDF	pg/L	4.19	8.08	4.50	4.59 JQ	4.25	3.95 JQ	4.78
OCDD	pg/L	3.57 JB	10.3 B	2.88 JB	4.36 B	2.24 JB	2.30 JB	3.79 B
OCDF	pg/L	0.00611 JB	0.0115 JB	0.00567 JB	0.00522 JBQ	0.00549 JB	0.00644 JBQ	0.00934 JBQ
Metals								
Aluminum	mg/L	0.203 B	0.130 U	0.130 U	0.130 U	1.51	0.130 U	0.130 U
Antimony	mg/L	0.00170 U	0.00170 U	0.00170 U	0.00170 U	0.00170 U	0.00170 U	0.00170 U
Arsenic	mg/L	0.00540 U	0.0500	0.00540 U	0.00540 U	0.00540 U	0.00540 U	0.00540 U
Barium	mg/L	0.116	0.0707	0.0893	0.137	0.0655	0.0764	0.0532
Beryllium	mg/L	0.000360 U	0.000360 U	0.000360 U	0.000360 U	0.000360 U	0.000360 U	0.000360 U
Cadmium	mg/L	0.00120 U	0.00120 U	0.00120 U	0.00120 U	0.00120 U	0.00120 U	0.00120 U
Calcium	mg/L	296	231	257	253	228	263	262
Chromium	mg/L	0.00710 B	0.00820 B	0.00950 B	0.00830 B	0.0148	0.00760 B	0.00660 B
Cobalt	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Copper	mg/L	0.00210 B	0.00220 B	0.00200 U	0.00200 U	0.00730 B	0.00200 U	0.00200 U
Iron	mg/L	1.26	0.191 B	1.09	5.14	2.77	1.74	0.309 B
Lead	mg/L	0.00180 B	0.00150 B	0.000650 U	0.000650 U	0.00760	0.000650 U	0.000650 U
Magnesium	mg/L	866	629	712	631	624	651	710
Manganese	mg/L	2.13	0.266	0.924	4.29	1.73	1.33	0.549
Mercury	ng/L	113	149	106	52.9	174	115	200
Methyl Mercury	ng/L	83.3 J	108 J	102 J	33.1 J	108 J	194 J	184 J
Nickel	mg/L	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U
Potassium	mg/L	281	245	238	237	217	247	234
Selenium	mg/L	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U	0.00250 U
Silver	mg/L	0.000550 U	0.000550 U	0.000550 U	0.000550 U	0.000550 U	0.000550 U	0.000550 U
Sodium	mg/L	8,550	6,910	6,960	6,240	6,140	6,410	6,670
Thallium	mg/L	0.000750 U	0.000750 U	0.000750 U	0.000750 U	0.000750 U	0.000750 U	0.000750 U
Titanium	mg/L	0.00760 B	0.0102 B	0.00840 B	0.00970 B	0.0898	0.00770 B	0.00660 B
Vanadium	mg/L	0.00300 B	0.00250 B	0.00510	0.00740	0.00550	0.00390 B	0.00250 B
Zinc	mg/L	0.176 J	0.0370 U	0.0370 U	0.0370 U	0.0370 U	0.0370 U	0.0370 U

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR159	NB03SED-POR160	NB03SED-POR161	NB03SED-POR162	NB03SED-POR163	NB03SED-POR164	NB03SED-POR165
Pesticides								
2,4'-DDD	pg/L	79.1 J	87.4 J	87.9 J	85.7 J	77.5 J	112 J	81.9 J
2,4'-DDE	pg/L	94.2 DJ	233 DJ	87.6 DJ	111 DJ	97.0 DJ	101 DJ	92.3 J
2,4'-DDT	pg/L	0.0202 UJ	0.0202 UJ	0.0202 UJ	0.0202 UJ	0.0202 UJ	0.0202 UJ	0.0202 UJ
4,4'-DDD	pg/L	180 J	201 J	187 J	195 J	175 J	257 J	170 J
4,4'-DDE	pg/L	481 BDJ	1,200 BDJ	492 BDJ	525 BDJ	540 BDJ	579 BDJ	466 BDJ
4,4'-DDT	pg/L	0.0202 UJ	0.0202 UJ	0.0202 UJ	0.0202 UJ	0.0202 UJ	0.0202 UJ	0.0202 UJ
Aldrin	pg/L	1.31 J	0.0141 UJ	0.801 J	0.440 J	0.561 J	0.953 J	0.987 J
Alpha BHC	pg/L	42.9 J	1.82 UJ	96.9 J	1.82 UJ	21.8 J	1.82 UJ	1.82 UJ
Alpha Endosulfan	pg/L	405 J	19.5 UJ	722 J	812 J	19.5 UJ	19.5 UJ	335 J
Beta BHC	pg/L	1.84 UJ	1.84 UJ	1.84 UJ	1.84 UJ	1.84 UJ	1.84 UJ	1.84 UJ
Beta Endosulfan	pg/L	25.4 UJ	25.4 UJ	25.4 UJ	25.4 UJ	25.4 UJ	25.4 UJ	25.4 UJ
Cis-Chlordane	pg/L	259 BJ	176 BJ	197 BJ	136 BJ	195 BJ	283 BJ	197 BJ
Cis-Nonachlor	pg/L	21.6 J	28.6 J	18.6 J	12.5 J	15.1 J	20.8 J	19.3 J
Delta BHC	pg/L	1.11 UJ	1.11 UJ	1.11 UJ	1.11 UJ	1.11 UJ	1.11 UJ	1.11 UJ
Dieldrin	pg/L	189 J	292 J	212 J	135 J	180 J	221 J	180 J
Endosulfan Sulfate	pg/L	28.7 UJ	28.7 UJ	28.7 UJ	28.7 UJ	28.7 UJ	28.7 UJ	28.7 UJ
Endrin	pg/L	0.0295 UJ	0.0295 UJ	0.0295 UJ	0.0295 UJ	0.0295 UJ	0.0295 UJ	0.0295 UJ
Endrin Aldehyde	pg/L	3.32 UJ	3.32 UJ	3.32 UJ	3.32 UJ	3.32 UJ	3.32 UJ	3.32 UJ
Endrin Ketone	pg/L	1.12 UJ	1.12 UJ	1.12 UJ	1.12 UJ	NA	NA	NA
Gamma BHC (Lindane)	pg/L	1.50 UJ	1.50 UJ	1.50 UJ	1.50 UJ	1.50 UJ	1.50 UJ	1.50 UJ
Heptachlor	pg/L	3.06 BJ	2.81 BJ	3.94 BJ	3.22 BJ	4.00 BJ	2.94 BJ	2.99 BJ
Heptachlor Epoxide	pg/L	0.146 UJ	0.146 UJ	23.1 J	14.9 J	14.9 J	26.2 J	12.9 J
Hexachlorobenzene	pg/L	123 BJ	726 BJ	243 BJ	527 BJ	260 BJ	466 BJ	189 BJ
Methoxychlor	pg/L	41.6 UJ	41.6 UJ	41.6 UJ	41.6 UJ	41.6 UJ	41.6 UJ	NA
Mirex	pg/L	0.908 J	1.37 J	1.15 J	1.03 J	1.02 J	1.18 J	1.26 J
Oxychlordane	pg/L	0.0322 UJ	0.0322 UJ	0.0322 UJ	0.0322 UJ	0.0322 UJ	0.825 J	0.0322 UJ
Trans-Chlordane	pg/L	204 BJ	213 BJ	158 BJ	114 BJ	144 BJ	188 BJ	157 BJ
Trans-Heptachlor Epoxide	pg/L	0.475 UJ	0.475 UJ	0.475 UJ	0.475 UJ	0.475 UJ	0.475 UJ	0.475 UJ
Trans-Nonachlor	pg/L	95.3 BJ	73.8 BJ	75.2 BJ	54.3 BJ	77.7 BJ	109 BJ	75.5 BJ
Total Alpha + Gamma Chlordane	pg/L	462 J	389 J	354 J	250 J	339 J	471 J	354 J
Total DDT (2,4 & 4,4)	pg/L	834 J	1,720 J	855 J	916 J	890 J	1,050 J	810 J
Total DDT (2,4)	pg/L	173 J	320 J	176 J	197 J	174 J	213 J	174 J
Total DDT (4,4)	pg/L	661 J	1,400 J	679 J	719 J	716 J	835 J	636 J
PCB Congeners								
PCB-1	ng/L	7.71	5.85	6.97	10.3	11.1	4.90	8.46
PCB-2	ng/L	1.45	6.98	1.22	1.17	1.14	1.27	1.35
PCB-3	ng/L	0.968 J	2.73	0.706 J	1.18 J	1.10 J	0.858 J	0.801 J
PCB-4	ng/L	28.1	103	17.3	18.3	22.2	14.0	18.7
PCB-5	ng/L	0.249 J	1.83	0.230	0.108 U	0.202 J	0.163 J	0.146 J
PCB-6	ng/L	3.62	12.6	1.68	1.95	2.48	1.95	2.18
PCB-7	ng/L	0.630	3.87	0.334	0.0824 U	0.0819 U	0.342	0.427
PCB-8	ng/L	10.9	71.9	5.47	6.04	7.49	6.81	8.15
PCB-9	ng/L	0.944	5.45	0.393	0.477	0.0736 U	0.519	0.490
PCB-10	ng/L	0.278 U	3.52	1.36	1.49	2.26	1.11	1.15
PCB-11	ng/L	2.60	44.3	3.04	3.59	3.36	3.36	2.44
PCB-12/13	ng/L	1.45	7.12	1.06	1.37	1.51	1.17	1.01
PCB-14	ng/L	0.0518 U	0.0353 U	0.0378 U	0.0466 U	0.0463 U	0.0463 U	0.0467 U
PCB-15	ng/L	4.53	23.0	3.32	4.35	4.72	4.10	4.06
PCB-16	ng/L	12.6	60.5	6.88	6.60	6.76	8.43	9.18
PCB-17	ng/L	16.3 B	61.0 B	9.62 B	9.41 B	9.26 B	10.6 B	11.9 B

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR159	NB03SED-POR160	NB03SED-POR161	NB03SED-POR162	NB03SED-POR163	NB03SED-POR164	NB03SED-POR165
PCB-18/30	ng/L	19.2	83.3	11.2	10.9	11.0	13.0	14.9
PCB-19	ng/L	6.85	20.3	4.60	3.81	5.65	4.75	5.62
PCB-20/28	ng/L	23.3	106	17.0	16.6	16.2	21.3	21.1
PCB-21/33	ng/L	7.01	43.5	3.96	3.92	3.90	5.36	4.96
PCB-22	ng/L	5.29	32.7	3.70	3.52	3.52	4.55	4.58
PCB-23	ng/L	0.0207 U	0.148	0.0151 U	0.0187 U	0.0189 J	0.0201 J	0.0187 U
PCB-24	ng/L	0.0539 U	0.0367 U	0.186	0.0485 U	0.0482 U	0.0481 U	0.0485 U
PCB-25	ng/L	2.44	7.46	1.69	1.78	1.71	1.98	1.96
PCB-26/29	ng/L	4.21	15.9	2.84	3.05	3.12	3.13	3.28
PCB-27	ng/L	1.97	5.52	1.45	1.37	1.33	1.46	1.64
PCB-31	ng/L	13.9	66.7	9.54	10.1	11.6	11.4	11.6
PCB-32	ng/L	4.41	16.1	3.06	2.57	3.28	3.45	3.99
PCB-34	ng/L	0.210	0.451	0.111	0.123	0.124	0.129	0.135
PCB-35	ng/L	0.190	1.19	0.160	0.167	0.150	0.203	0.168
PCB-36	ng/L	0.0101 U	0.00690 U	0.00740 U	0.00913 U	0.00907 U	0.00906 U	0.00914 U
PCB-37	ng/L	1.90	11.0	1.54	1.60	1.83	2.11	1.63
PCB-38	ng/L	0.0123 U	0.0428	0.00898 U	0.0111 U	0.0110 U	0.0110 U	0.0111 U
PCB-39	ng/L	0.0893	0.287	0.0735	0.0757	0.0715	0.0871	0.0960
PCB-40/71	ng/L	7.48	17.8	6.20	5.96	7.43	6.76	7.57
PCB-41	ng/L	0.837	4.94	0.820	0.734	0.0806 U	0.977	0.893
PCB-42	ng/L	6.14	15.9	5.27	4.99	5.67	5.86	6.72
PCB-43	ng/L	0.964	3.23	0.821	0.710	0.877	0.848	1.06
PCB-44/47/65	ng/L	21.4	44.6	17.6	16.2	19.6	19.5	21.1
PCB-45	ng/L	3.40	11.9	2.66	2.42	3.02	3.38	4.00
PCB-46	ng/L	1.52	3.90	1.19	1.06	1.29	1.30	1.42
PCB-48	ng/L	3.10	10.2	2.51	2.32	2.63	2.70	3.09
PCB-49/69	ng/L	10.8	22.6	8.94	8.59	10.7	9.50	11.1
PCB-50/53	ng/L	4.52	8.99	3.58	3.08	4.42	3.93	4.11
PCB-51	ng/L	4.41	3.43	3.16	2.59	4.29	3.69	2.79
PCB-52	ng/L	17.5 B	43.8 B	15.4 B	14.1 B	17.8 B	15.3 B	18.4 B
PCB-54	ng/L	1.21	0.760	0.896	0.695	1.30	1.28	0.790
PCB-55	ng/L	0.0669	0.228	0.0750	0.0681	0.00728 U	0.0826	0.0772
PCB-56	ng/L	2.84	8.18	2.56	2.50	2.75	3.02	3.21
PCB-57	ng/L	0.0491	0.116	0.0345	0.0366	0.00568 U	0.0401	0.0415
PCB-58	ng/L	0.0442	0.0613	0.0342	0.0345	0.00723 U	0.0362	0.0449
PCB-60	ng/L	0.870	3.87	0.857	0.781	0.853	1.03	1.11
PCB-61/70/74/76	ng/L	11.5	32.8	10.3	9.69	10.7	11.3	12.4
PCB-62/75	ng/L	3.57	8.47	2.90	2.76	3.24	3.31	3.72
PCB-63	ng/L	0.751	2.10	0.658	0.633	0.704	0.712	0.801
PCB-64	ng/L	2.78	7.94	2.36	2.19	2.54	2.58	2.93
PCB-66	ng/L	5.54	14.8	5.05	4.84	5.44	5.83	6.37
PCB-67	ng/L	0.203	0.534	0.175	0.161	0.200	0.200	0.212
PCB-68	ng/L	0.188	0.201	0.148	0.153	0.175	0.157	0.165
PCB-72	ng/L	0.113	0.161	0.0909	0.0944	0.119	0.0921	0.112
PCB-73	ng/L	0.0514	0.00777 U	0.0461	0.0443	0.0102 U	0.0635	0.0457
PCB-77	ng/L	0.286	0.999	0.261	0.261	0.295	0.318	0.297
PCB-78	ng/L	0.00570 U	0.00388 U	0.00416 U	0.00513 U	0.00509 U	0.00509 U	0.00513 U
PCB-79	ng/L	0.0361	0.0780	0.0384	0.0331	0.0408	0.0395	0.0439
PCB-80	ng/L	0.00271 U	0.00184 U	0.00198 U	0.00244 U	0.00242 U	0.00242 U	0.00244 U
PCB-81	ng/L	0.0132 J	0.0446	0.0124 J	0.0128 J	0.0113 J	0.0130 J	0.0137 J
PCB-82	ng/L	0.561	1.30	0.567	0.517	0.577	0.583	0.675

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR159	NB03SED-POR160	NB03SED-POR161	NB03SED-POR162	NB03SED-POR163	NB03SED-POR164	NB03SED-POR165
PCB-83	ng/L	0.260	0.508	0.275	0.283	0.308	0.279	0.314
PCB-84	ng/L	1.81	3.25	1.74	1.59	1.82	1.72	2.03
PCB-85/116/117	ng/L	0.952	1.99	0.963	0.885	1.01	1.01	1.15
PCB-86/87/97/109/119/125	ng/L	2.77	5.43	2.84	2.55	3.06	2.81	3.18
PCB-88	ng/L	0.0167 U	0.0114 U	0.0122 U	0.0151 U	0.0150 U	0.0150 U	0.0151 U
PCB-89	ng/L	0.112	0.220	0.105	0.0977	0.110	0.104	0.123
PCB-90/101/113	ng/L	4.78	8.37	5.67	4.31	5.33	4.62	5.33
PCB-91	ng/L	1.61	2.27	1.39	1.49	2.14	1.46	1.74
PCB-92	ng/L	0.933	0.00315 U	1.14	0.846	1.02	0.916	1.01
PCB-93/100	ng/L	0.625	0.356	0.492	0.508	1.09	0.614	0.481
PCB-94	ng/L	0.131	0.135	0.118	0.103	0.145	0.133	0.121
PCB-95	ng/L	5.49	10.3	6.47	4.66	5.61	5.06	6.07
PCB-96	ng/L	0.274	0.431	0.224	0.227	0.310	0.244	0.249
PCB-98/102	ng/L	0.525	0.651	0.456	0.483	0.624	0.487	0.496
PCB-99	ng/L	3.12	4.84	2.97	2.94	4.09	3.01	3.50
PCB-103	ng/L	0.228	0.143	0.206	0.199	0.413	0.196	0.188
PCB-104	ng/L	0.161	0.0697	0.118	0.119	0.215	0.162	0.106
PCB-105	ng/L	0.606	1.75	0.588	0.554	0.622	0.675	0.736
PCB-106	ng/L	0.00270 U	0.00184 U	0.00197 U	0.00243 U	0.00242 U	0.00241 U	0.00244 U
PCB-107	ng/L	0.145	0.328	0.150	0.137	0.146	0.151	0.171
PCB-108/124	ng/L	0.0682	0.174	0.0677	0.0612	0.0666	0.0709	0.0796
PCB-110/115	ng/L	3.19	6.04	3.42	2.87	3.36	3.17	3.63
PCB-111	ng/L	0.00161 U	0.00234 J	0.00360 J	0.00257 J	0.00144 U	0.00224 J	0.00272 J
PCB-112	ng/L	0.0250	0.0441	0.0249	0.0165	0.0245	0.0200	0.0280
PCB-114	ng/L	0.0497	0.147	0.0481	0.0464	0.0492	0.0530	0.0605
PCB-118	ng/L	1.79	4.23	1.74	1.62	1.73	1.87	2.09
PCB-120	ng/L	0.0119	0.0118	0.0118	0.0121	0.0202	0.0103	0.0115
PCB-121	ng/L	0.00353 J	0.00333 J	0.00313 J	0.00172 U	0.00518 J	0.00310 J	0.00284 J
PCB-122	ng/L	0.0267	0.0697	0.0258	0.0236	0.0266	0.0284	0.0307
PCB-123	ng/L	0.0356	0.0844	0.0306	0.0342	0.0380	0.0392	0.0440
PCB-126	ng/L	NA	NA	NA	NA	NA	NA	NA
PCB-127	ng/L	0.000972 U	0.000661 U	0.00118 J	0.000875 U	0.000869 U	0.000868 U	0.000875 U
PCB-128/166	ng/L	0.152	0.312	0.196	0.143	0.152	0.156	0.177
PCB-129/138/163	ng/L	1.88	3.65	3.09	1.75	2.09	1.93	2.12
PCB-130	ng/L	0.184	0.344	0.292	0.177	0.187	0.187	0.217
PCB-131	ng/L	0.0342	0.0703	0.0552	0.0308	0.0379	0.0362	0.0400
PCB-132	ng/L	0.331	0.689	0.655	0.299	0.336	0.340	0.372
PCB-133	ng/L	0.0869	0.121	0.143	0.0837	0.104	0.0864	0.0904
PCB-134	ng/L	0.132	0.236	0.234	0.123	0.150	0.135	0.147
PCB-135/151	ng/L	3.28	5.89	7.26	2.99	4.31	3.34	3.51
PCB-136	ng/L	0.149	0.260	0.314	0.142	0.219	0.149	0.161
PCB-137	ng/L	0.0734	0.145	0.0837	0.0667	0.0920	0.0731	0.0875
PCB-139/140	ng/L	0.0528	0.0842	0.0650	0.0478	0.0796	0.0506	0.0580
PCB-141	ng/L	0.267	0.570	0.597	0.219	0.256	0.275	0.300
PCB-142	ng/L	0.00391 U	0.00266 U	0.00322 U	0.00352 U	0.00349 U	0.00349 U	0.00352 U
PCB-143	ng/L	0.00589 J	0.0145	0.0110 J	0.00530 U	0.00657 J	0.00526 U	0.00530 U
PCB-144	ng/L	0.123	0.249	0.279	0.102	0.131	0.130	0.137
PCB-145	ng/L	0.00734 U	0.00499 U	0.00583 U	0.00660 U	0.00656 U	0.00655 U	0.00661 U
PCB-146	ng/L	0.269	0.422	0.476	0.260	0.341	0.272	0.294
PCB-147/149	ng/L	2.10	3.57	4.08	1.99	3.33	2.09	2.21
PCB-148	ng/L	0.0155	0.00927	0.0174	0.0154	0.0346	0.0139	0.0133

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR159	NB03SED-POR160	NB03SED-POR161	NB03SED-POR162	NB03SED-POR163	NB03SED-POR164	NB03SED-POR165
PCB-150	ng/L	0.0570	0.0330	0.0440	0.0651	0.220	0.0495	0.0496
PCB-152	ng/L	0.0214 J	0.0180	0.00558 U	0.0159 J	0.0265	0.0234	0.0183 J
PCB-153/168	ng/L	1.11	1.90	2.06	1.10	1.77	1.11	1.22
PCB-154	ng/L	0.109	0.0673	0.112	0.136	0.410	0.0971	0.0982
PCB-155	ng/L	0.0885	0.586	0.0816	0.0725	0.0981	0.114	0.125
PCB-156/157	ng/L	0.0652	0.160	0.101	0.0584	0.0653	0.0673	0.0759
PCB-158	ng/L	0.0881	0.187	0.161	0.0774	0.0932	0.0903	0.104
PCB-159	ng/L	0.000444 U	0.000302 U	0.000445 U	0.000400 U	0.000397 U	0.000397 U	0.000400 U
PCB-160	ng/L	0.00458 U	0.00312 U	0.00413 U	0.00412 U	0.00409 U	0.00409 U	0.00413 U
PCB-161	ng/L	0.000639 U	0.000435 U	0.000604 U	0.000575 U	0.000571 U	0.000571 U	0.000576 U
PCB-162	ng/L	0.00569	0.0135	0.000413 U	0.000371 U	0.00557	0.00550	0.000372 U
PCB-164	ng/L	0.0536	0.101	0.112	0.0493	0.0639	0.0554	0.0602
PCB-165	ng/L	0.00103 J	NA	NA	NA	NA	NA	NA
PCB-167	ng/L	0.0207	0.0473	0.0329	0.0197	0.0255	0.0218	0.0242
PCB-169	ng/L	0.000287 U	0.000195 U	0.000311 U	0.000258 U	0.000256 U	0.000256 U	0.000258 U
PCB-170	ng/L	0.106	0.209	0.224	0.0969	0.114	0.112	0.121
PCB-171/173	ng/L	NA	NA	NA	NA	NA	NA	NA
PCB-172	ng/L	0.0194	0.0396	0.0424	0.0183	0.0209	0.0204	0.0219
PCB-174	ng/L	NA	0.337	0.401	0.143	0.170	0.171	0.176
PCB-175	ng/L	NA	0.0226	0.0237	0.0111	0.0126	0.0122	0.0126
PCB-176	ng/L	0.0242	0.0497	0.0529	0.0227	0.0263	0.0256	0.0265
PCB-177	ng/L	NA	0.612	0.676	0.309	0.328	0.331	0.353
PCB-178	ng/L	0.0687	0.118	0.129	0.0726	0.0958	0.0729	0.0753
PCB-179	ng/L	0.0948	0.177	0.185	0.0934	0.132	0.0978	0.103
PCB-180/193	ng/L	1.33	2.58	2.90	1.26	1.53	1.41	1.48
PCB-181	ng/L	NA	0.00339	0.00314	0.00229	0.00424	0.00245	0.00240
PCB-182	ng/L	NA	0.000308 U	0.00263	0.00152 J	0.00185	0.00158	0.00182
PCB-183/185	ng/L	NA	NA	NA	NA	NA	NA	NA
PCB-184	ng/L	0.00342 J	0.0103	0.00114 U	0.00399 J	0.00115 U	0.00351 J	0.00391 J
PCB-186	ng/L	0.00213 U	0.00145 U	0.00182 U	0.00191 U	0.00190 U	0.00190 U	0.00192 U
PCB-187	ng/L	NA	0.587	0.619	0.371	0.528	0.367	0.381
PCB-188	ng/L	0.00688	0.00351	0.00550	0.00948	0.0251	0.00643	0.00673
PCB-189	ng/L	0.00135	0.00321	0.00335	0.00138	0.00177	0.00143	0.00157
PCB-190	ng/L	0.0152	0.0280	0.0339	0.0145	0.0183	0.0160	0.0161
PCB-191	ng/L	0.00311	0.00587	0.00768	0.00283	0.00393	0.00318	0.00372
PCB-192	ng/L	0.000193 U	0.000131 U	0.000223 U	0.000174 U	0.000172 U	0.000172 U	0.000174 U
PCB-194	ng/L	0.0104	0.0231	0.0231	0.0114	0.0129	0.0115	0.0130
PCB-195	ng/L	0.00802	0.0169	0.0173	0.00838	0.00960	0.00874	0.00949
PCB-196	ng/L	0.0106	0.0228	0.0217	0.0113	0.0122	0.0114	0.0127
PCB-197/200	ng/L	0.0100	0.0199	0.0162	0.0110	0.0106	0.0103	0.0113
PCB-198/199	ng/L	0.0329	0.0636	0.0466	0.0369	0.0348	0.0346	0.0394
PCB-201	ng/L	0.00435	0.00863	0.00788	0.00537	0.00485	0.00485	0.00546
PCB-202	ng/L	0.0352	0.0523	0.0397	0.0429	0.0411	0.0366	0.0416
PCB-203	ng/L	0.0173	0.0323	0.0304	0.0200	0.0202	0.0185	0.0207
PCB-204	ng/L	0.000567 U	0.000386 U	0.000595 U	0.000510 U	0.000507 U	0.000506 U	0.000511 U
PCB-205	ng/L	0.0000599 U	0.000723	0.000917	0.000407	0.000475	0.000393	0.000407
PCB-206	ng/L	0.00282	0.00515	0.00509	0.00364	0.00293	0.00266	0.00346
PCB-207	ng/L	0.000843	0.00167	0.00125	0.00107	0.000139 U	0.000817	0.00104
PCB-208	ng/L	0.00393	0.00694	0.00521	0.00539	0.00389	0.00365	0.00476
PCB-209	ng/L	0.000921	0.00342	0.00211	0.00126	0.00103	0.000972	0.00126
Total PCB Congeners (209)	ng/L	338 J	1,170 J	273 J	253 J	295 J	280 J	309 J

Table E-3
Porewater Analytical Results

Sample Name:	Units	NB03SED-POR159	NB03SED-POR160	NB03SED-POR161	NB03SED-POR162	NB03SED-POR163	NB03SED-POR164	NB03SED-POR165
PAHs								
1-Methylnaphthalene	ng/L	75 U	99 U	90 UJ	87 U	80 U	71 UJ	76 U
2-Methylnaphthalene	ng/L	77 U	270	92 UJ	89 U	82 U	73 UJ	78 U
Acenaphthene	ng/L	37 U	50 U	45 UJ	170	40 U	36 UJ	38 U
Acenaphthylene	ng/L	480 U	930 J	580 UJ	560 U	520 U	460 UJ	490 U
Anthracene	ng/L	12 U	16 U	15 UJ	62	34	12 UJ	12 U
Benzo(a)anthracene	ng/L	1.7	3.6 J-	1.8 J-	4.3 J-	5.6	1.5 J-	1.7
Benzo(a)pyrene	ng/L	1.5	1.4 J-	1.3 J-	1.5 J-	2.6	1.5 J-	2.5
Benzo(b)fluoranthene	ng/L	1.1	1.1 J-	1.1 J-	1.1 J-	1.8	1.0 J-	1.8
Benzo(g,h,i)perylene	ng/L	0.35	0.31 J-	0.26 J-	0.27 J-	0.40	0.27 J-	0.53
Benzo(j)+(k)fluoranthene	ng/L	0.60	0.85 J-	0.62 J-	0.60 J-	1.0	0.61 J-	1.2
Benzo[e]pyrene	ng/L	1.8	1.4	1.5	1.4	2.3	1.2	2.6
C1-Chrysenes	ng/L	4.0	4.5	3.0	3.9	6.0	3.6	4.1
C1-Fluoranthenes/Pyrenes	ng/L	54	55	38	54	110	42	50
C1-Fluorenes	ng/L	8.8 U	12 U	11 U	35	9.5 U	8.4 U	9.0 U
C1-Naphthalenes	ng/L	89 U	120 U	110 U	100 U	95 U	85 U	91 U
C1-Phenanthrene/Anthracene	ng/L	4.0 U	5.3 U	4.8 U	25	38	3.8 U	4.0 U
C2-Chrysene	ng/L	2.1	3.0	1.6	1.8	2.6	1.9	2.5
C2-Fluoranthenes/Pyrene	ng/L	20	28	17	18	30	18	21
C2-Fluorenes	ng/L	2.7 U	3.5 U	3.2 U	3.1 U	2.8 U	2.5 U	2.7 U
C2-Naphthalenes	ng/L	25 U	34 U	31 U	100	27 U	24 U	26 U
C2-Phenanthrene/Anthracene	ng/L	12	18	13	20	33	9.2	1.4 U
C3-Chrysene	ng/L	0.32	0.65	0.22	0.29	0.40	0.30	0.43
C3-Fluoranthenes/Pyrene	ng/L	3.0	4.6	1.9	2.5	3.4	2.3	2.8
C3-Fluorenes	ng/L	0.76 U	1.0 U	0.91 U	0.88 U	0.81 U	0.72 U	0.77 U
C3-Naphthalenes	ng/L	7.2 U	9.6 U	8.7 U	8.4 U	7.7 U	6.9 U	7.4 U
C3-Phenanthrene/Anthracene	ng/L	6.1	13	7.1	7.1	9.8	4.6	0.44 U
C4-Chrysene	ng/L	0.045	0.10	0.025 J	0.046	0.051	0.036	0.056
C4-Naphthalenes	ng/L	2.1 U	2.7 U	2.5 U	22	34	2.0 U	2.1 U
C4-Phenanthrene/Anthracene	ng/L	2.0	5.3	1.7	0.19 U	0.17 U	1.6	0.16 U
Chrysene	ng/L	2.6	2.3 J-	2.7 J-	4.6 J-	5.9	2.1 J-	2.5
Dibenz(a,h)anthracene	ng/L	0.67 J	0.75 J-	0.60 UJ	0.63 J-	0.98 J	0.64 J-	1.1 J
Fluoranthene	ng/L	11	21 J-	14 J-	59 J-	76	11 J-	12
Fluorene	ng/L	30 U	40 U	37 UJ	35 U	33 U	29 UJ	31 U
Indeno(1,2,3-c,d)pyrene	ng/L	0.11	0.15 J-	0.077 J-	0.13 J-	0.17	0.12 J-	0.21
Naphthalene	ng/L	330 U	440 U	400 UJ	390 U	360 U	320 UJ	340 U
Perylene	ng/L	0.14 U	0.20 J	0.16 U	0.16 U	0.17 J	0.13 U	0.17 J
Phenanthrene	ng/L	11 U	14 U	13 UJ	13 U	12 U	10 UJ	11 U
Pyrene	ng/L	140	130 J-	72 J-	130 J-	350	78 J-	130
Total HMW PAHs	ng/L	160 J	160 J	94 J	200 J	450 J	97 J	150 J
Total LMW PAHs	ng/L	480 U	1,200 J	580 U	230	34	460 U	490 U
Total PAHs	ng/L	160 J	1,400 J	94 J	430 J	480 J	97 J	150 J

Table E-3
Porewater Analytical Results

Footnotes:

¹ While removing the dialysis bags from the sediment in the 5-gallon bucket in the laboratory for Location 155, one of the dialysis bags broke and the contents were lost. As such, there was not enough sample volume in the remaining dialysis bag to run all of the inorganics analyses. It was decided that samples would only be sent for analysis of total sulfide, mercury, and methylmercury for this sample.

Notes:

1. Totals were calculated using detected values only. If all analytes that make up a given total are nondetect, the total will be reported as the highest detection limit of the individual analytes and will be qualified with a "U" flag to indicate it is a non-detect.
2. Total PCB Congeners (209) = sum of 209 individual congener PCBs
3. Total Aroclor PCBs (Sum of 7 Aroclors) = sum of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260
4. Total Aroclor PCBs (Sum of 9 Aroclors) = sum of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260, Aroclor-1262, and Aroclor-1268
5. Total Alpha + Gamma Chlordane = sum of alpha-Chlordane and gamma-Chlordane
6. Total DDT (2,4) = sum of 2,4'-DDD, 2,4'-DDE, and 2,4'-DDT
7. Total DDT (4,4) = sum of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT
8. Total DDT (2,4 & 4,4) = sum of 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT
9. Total HMW PAHs = sum of fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene.
10. Total LMW PAHs = sum of naphthalene, 2-methylnaphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, and anthracene.
11. Total PAHs = sum of Total LMW PAHs and Total HMW PAHs.
12. C1-Naphthalenes = sum of 1-methylnaphthalene and 2-methylnaphthalene

DDD = dichlorodiphenyldichloroethane

DDE = dichlorodiphenyldichloroethylene

DDT = dichlorodiphenyltrichloroethane

HMW = high molecular weight

LMW = low molecular weight

PAH = polycyclic aromatic hydrocarbon

PCB = polychlorinated biphenyl

ng/L = nanograms per liter

pg/l = picograms per liter

**Appendix F
(on USB drive)**

Laboratory data reports will be provided electronically.

Appendix G
(on USB drive)

Data verification/validation reports will be provided electronically.

Appendix H

SEDIMENT QUALITY TRIAD AND POREWATER SAMPLING AND ANALYSIS

NEWARK BAY STUDY AREA DATA QUALITY USABILITY ASSESSMENT REPORT

Prepared for:

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Prepared by:

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JUNE 2017, REVISION 1

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1.0 INTRODUCTION

In 2015 the United States Environmental Protection Agency (USEPA) approved a Quality Assurance Project Plan (QAPP) prepared by Tierra Solutions, Inc. (Tierra) for the sampling and analysis of sediment quality triad (SQT) and porewater in the Newark Bay Study Area. The Sediment Quality Triad and Porewater Sampling and Analysis QAPP, Revision 2 (Tierra 2015) (hereafter referred to as the QAPP) outlined the SQT and porewater sampling and analyses to be conducted for the baseline human health and ecological risk assessment.

The SQT activities consisted of the collection and analysis of 30 porewater samples (plus two field duplicates), 43 sediment samples (plus three field duplicates), and 8 tissue samples (plus one field duplicate). According to Worksheet #37 of the QAPP (Tierra 2015), a Data Quality Usability Assessment Report (DQUAR) must be completed after the conclusion of validation tasks.

In accordance with requirements of the QAPP, the data quality usability assessment was conducted on both verified and validated data; this DQUAR provides a summary of the evaluation of data quality and usability for sample data collected during implementation of the SQT QAPP. The data verification and data validation processes are described respectively in Worksheets #34 and #35 of the QAPP.

Worksheet #37 of the QAPP provides a description of the components of the DQUAR. These components are described in detail in subsequent sections of this report.

2.0 DATA QUALITY PARAMETERS OVERVIEW

To assess whether the analytical data obtained were consistent with the objectives of the QAPP, seven data quality parameters were evaluated. In the event that the data verification/validation process identified an instance where any of the data quality parameters did not meet the objectives established in the QAPP, the affected sample results were evaluated in accordance with the data verification/validation protocols specified in Worksheets #34 and #35 of the QAPP and documented accordingly. A detailed narrative describing the verification/validation assessments and findings can be found within the data verification/validation data assessment narratives prepared for each data package.

The seven data quality parameters assessed included the following:

- precision;
- accuracy/bias contamination;
- overall accuracy/bias;
- sensitivity;
- representativeness;
- comparability; and
- completeness.

Each of these data quality parameters, as it relates to the QAPP, is discussed below.

2.1 PRECISION

Precision is the measure of variability between individual sample measurements of the same property under similar conditions. During the SQT program, precision was evaluated through the analysis of two types of duplicate samples. Field and laboratory duplicates were analyzed at regular, specified intervals throughout the SQT program.

Field duplicates consisted of samples that were collected in the field at the frequency specified in the QAPP in order to determine the precision of field sampling methods. For porewater samples, co-located samples were collected as two distinct samples, and submitted “blind” to the analytical laboratories for analysis (i.e., the sample identification did not reveal the sample with which its field duplicate was associated). For sediment samples, two aliquots of material were taken from the same composited and homogenized sediment material and shipped “blind” to the laboratory. For tissue samples, the tissue was exposed to the same composited and homogenized sediment material in separate test chambers and then submitted “blind” to the laboratory. Although the requirement for a tissue field duplicate was not included in Worksheet #12-3, a tissue field duplicate was included in Worksheet #20-4.

Relative percent differences (RPDs) between the field sample results and the field duplicate results provide an estimate of the overall sampling and analytical precision.

Laboratory duplicates are two portions of a single homogeneous sample that are analyzed for the same parameter in order to determine the precision of the analytical system. Two types of laboratory

duplicates were prepared. Laboratory duplicates without known analyte spikes added were analyzed to monitor laboratory precision for inorganics, while matrix spike (MS) and matrix spike duplicate (MSD) evaluations were performed to monitor laboratory precision for the remaining analysis types. Laboratory duplicates were analyzed at the frequency specified in QAPP. The RPD between results obtained for a given laboratory duplicate pair provides an estimate of analytical precision.

The precision assessment for field and laboratory duplicate analyses is expressed as the RPD:

$$\text{RPD} = \{(S-D)/(S+D)/2\} \times 100$$

Where:

S = original sample concentration
D = duplicate sample concentration

Acceptance criteria for field and laboratory duplicates are provided in Worksheets #12-2 through #12-4 of the QAPP. Conformance to laboratory duplicate frequency requirements, as well as acceptability of the resulting RPD values, were evaluated and considered during data validation.

Although laboratory duplicate analyses are used as indicators of relative precision of the analytical systems, the degree of homogeneity of the contaminants in the sample medium can also affect the reproducibility of a particular measurement. For example, pieces of decayed wood debris, chunks of asphalt, glass, free product, etc., can increase sample heterogeneity and therefore can reduce the laboratory technician's ability to create homogeneous duplicate samples with which to measure precision. Since the sample matrix characteristics can affect the way precision is measured, the sample matrix should be considered by the validator.

With respect to the results of the SQT data, there are no limitations on data usage based on precision quality acceptance criteria. The following table summarizes the precision quality evaluation by analytical group and sample type. The "x" designation indicates that an issue was identified; however, such an issue does not infer that the data are unusable. A more detailed discussion of this data quality parameter evaluation is provided in Section 3.1 of this report.

PRECISION			
Analytical Groups	Porewater	Sediment	Tissue
Semivolatile Organics	-	x	v
Volatile Organics	-	v	-
Aroclor PCBs	-	x	x
Butyltins	-	v	v
Organochlorine Pesticides	x	x	x
Saturated Hydrocarbons	-	x	-
Semivolatile Organics (SIM)	x	x	v
Metals (including SEM)	x	x	x
Titanium	x	v	v
Mercury	x	x	v
Methylmercury	x	x	v
Cyanide	-	x	-
Hexavalent Chromium	-	v	-
Sulfide	v	x	-
PCDDs/PCDFs	v	x	x
PCB Congeners	x	x	v
Chlorinated Herbicides	-	x	-
TOC/DOC	v	x	-
ORP	-	v	-
TEPH	-	v	-
Total Phosphorus	-	x	-
Acid Volatile Sulfide	-	x	-
Total Kjeldahl Nitrogen	-	v	-
Ammonia Nitrogen	v	v	-
pH	-	v	-
Grain Size	-	v	-

- = analysis was not performed for this analytical group
 x = data qualified due to precision during validation for this analytical group
 v = no data qualifications due to precision were made for this analytical group

2.2 ACCURACY/BIAS CONTAMINATION

Accuracy parameters were also assessed with respect to contamination through the use of field and laboratory blanks. Any contamination present in field or laboratory blanks reflects the potential for contamination in associated samples. Measurement performance criteria for accuracy/bias contamination are outlined in Worksheets #12-1 through #12-4 of the QAPP. Acceptability of quality control (QC) results for accuracy/bias contamination and conformance to field and laboratory QC sample frequency requirements were evaluated and considered during the data verification/validation.

With respect to the results of the SQT data, there are no limitations on the data usage based on accuracy/bias contamination acceptance criteria. The following table summarizes the accuracy/bias

contamination quality evaluation by analytical group and sample type. The “x” designation indicates that an issue was identified; however, such an issue does not infer that the data are unusable. A more detailed discussion of this data quality parameter evaluation is provided in Section 3.1 of this report.

Accuracy/Bias Contamination			
Analytical Groups	Porewater	Sediment	Tissue
Semivolatile Organics	-	x	v
Volatile Organics	-	v	-
Aroclor PCBs	-	v	v
Butyltins	-	v	v
Organochlorine Pesticides	x	x	x
Saturated Hydrocarbons	-	x	-
Semivolatile Organics (SIM)	v	v	v
Metals (including SEM)	x	x	x
Titanium	x	v	x
Mercury	v	v	v
Methylmercury	v	v	x
Cyanide	-	v	-
Hexavalent Chromium	-	v	-
Sulfide	v	v	-
PCDDs/PCDFs	x	x	v
PCB Congeners	v	x	x
Chlorinated Herbicides	-	v	-
TOC/DOC	x	v	-
ORP	-	v	-
TEPH	-	v	-
Total Phosphorus	-	v	-
Acid Volatile Sulfide	-	v	-
Total Kjeldahl Nitrogen	-	v	-
Ammonia Nitrogen	v	v	-
pH	-	v	-
Grain Size	-	v	-

- = analysis was not performed for this analytical group

x = data qualified due to accuracy/bias contamination during validation for this analytical group

v = no data qualifications due to accuracy/bias contamination were made for this analytical group

2.3 OVERALL ACCURACY/BIAS

Accuracy is a measure of the bias and precision in a system, and is defined as the agreement between a measurement and an accepted reference or true value. Pre-mobilization performance evaluation samples were analyzed prior to initiating field work. Documentation of successful analysis of the performance evaluation samples was provided to the USEPA by Tierra. Accuracy was monitored during the SQT program through the analysis of MSs, surrogate spikes, and laboratory control samples (LCSs) (performed at regular, specified intervals).

As outlined in the QAPP, the analysis of MS samples and LCSs provide laboratory results that may be compared to their associated known values to monitor potential bias. The MS and surrogate spike evaluations were used to assess bias by monitoring the actual recovery of a known quantity of a chemical, added to the native sample, versus the expected recovery. The LCS evaluations were used to assess bias by monitoring the actual recovery of a known quantity of a chemical, added to a blank, versus the expected recovery.

Acceptance criteria for each of the accuracy evaluations described above are provided in Worksheets #12-1 through #12-4 of the QAPP. Conformance to laboratory QC sample frequency requirements, as well as acceptability of QC results for accuracy, were evaluated and considered during data verification/validation.

Data for several analytical groups associated with multiple sample types were determined to be unusable due to severe accuracy/bias issues. The following table summarizes the overall accuracy/bias quality evaluation by analytical group and sample type. The “x” designation indicates that an issue was identified; however, such an issue does not infer that the data are unusable. A more detailed discussion of this data quality parameter evaluation is provided in Section 3.1 of this report.

Overall Accuracy/Bias			
Analytical Groups	Porewater	Sediment	Tissue
Semivolatile Organics	-	x	v
Volatile Organics	-	x	-
Aroclor PCBs	-	x	v
Butyltins	-	x	v
Organochlorine Pesticides	x	x	x
Saturated Hydrocarbons	-	x	-
Semivolatile Organics (SIM)	x	x	x
Metals (including SEM)	x	x	x
Titanium	x	x	v
Mercury	v	x	v
Methylmercury	v	x	v
Cyanide	-	x	-
Hexavalent Chromium	-	x	-
Sulfide	v	v	-
PCDDs/PCDFs	x	x	x
PCB Congeners	x	x	x
Chlorinated Herbicides	-	x	-
TOC/DOC	v	x	-
ORP	-	v	-
TEPH	-	x	-
Total Phosphorus	-	x	-
Acid Volatile Sulfide	-	x	-
Total Kjeldahl Nitrogen	-	x	-
Ammonia Nitrogen	v	v	-
pH	-	v	-
Grain Size	-	v	-

- = analysis was not performed for this analytical group
 x = data qualified due to overall accuracy/bias during validation for this analytical group
 v = no data qualifications due to overall accuracy/bias were made for this analytical group

2.4 SENSITIVITY

Sensitivity is related to the ability to compare analytical results with project quantitation limits (PQLs). Analytical detection limits should be at or below the PQLs to allow effective comparisons. The QAPP PQLs were set equal to the laboratory achievable quantitation limit, and any dilution or adjustment in initial extraction mass by the laboratory would cause the quantitation limit to be higher than the achievable quantitation limit. All sample analytical results reported during the SQT program were evaluated to determine if adequate sensitivity was achieved. The results for each analyte were cross-checked against the PQLs presented in Worksheets #15-1 to #15-4 of the QAPP. The tables in Section 2.4.1 below summarize the percent of sample results that did not meet the data quality objectives as defined by the QAPP. The percentages expressed in these tables indicate the fraction of the total number of results reported for each analytical group and sample type where reporting limits exceeded the PQLs.

With respect to the results of the SQT data, there are no limitations on the data usage based on sensitivity acceptance criteria. A more detailed discussion of this data quality parameter evaluation is provided in Section 2.4.1.

2.4.1 Achieved Analytical Sensitivity

The fact that data obtained for a particular sample type failed to meet established PQLs for specific analytical groups as indicated in the tables below, may have impacted the number of positive results identified in those samples, thereby potentially impacting the data evaluation process. Following each table is a discussion of the analytical groups for which failure to meet the PQLs may have impacted the data evaluation.

Porewater

**Table 2-1
 Sensitivity Quality Evaluation for Porewater Samples**

Analytical Group	Total Number of Results Reported	Non-detected Results with PQLs Greater than those Defined in the SQT QAPP	Detected Results Between the MDL (or EDL where appropriate) and Elevated PQL	Total Non-detect Results	Total Non-detect Results Greater than PQL / Total Results Reported
Organochlorine Pesticides	925	482	17	495	482/925
Semivolatile Organics (SIM)	1216	243	71	500	243/1216
Metals	682	246	99	375	246/682
Titanium	31	0	27	8	0/31
Mercury	32	1	0	1	1/32
Methylmercury	32	0	0	0	0/32
Sulfide	32	0	0	0	0/32
PCDDs/PCDFs	544	3	439	4	3/544
PCB Congeners	5376	605	329	605	605/5376
DOC	30	0	0	0	0/30
Ammonia Nitrogen	30	0	2	0	0/30

For the porewater results, PQLs identified in Table 2-1 above as greater than those defined in the QAPP were exceeded to varying degrees, mainly due to either sample dilution prior to analysis, or use of less than targeted sample volume for analysis.

Sediment

**Table 2-2
 Sensitivity Quality Evaluation for Sediment Samples**

Analytical Group	Total Number of Results Reported	Non-detected Results with PQLs Greater than those	Detected Results Between the MDL (or EDL where appropriate) and Elevated PQL	Total Non-detect Results	Total Non-detect Results Greater than PQL / Total Results Reported
Semivolatile Organics	2438	2291	82	2301	2291/2438
Volatile Organics	184	8	1	183	8/184
Aroclor PCBs	414	45	28	294	45/414
Butyltins	184	170	0	170	170/184
Organochlorine Pesticides	1334	186	61	609	186/1334
Saturated Hydrocarbons	1610	289	329	958	289/1610
Semivolatile Organics (SIM)	1748	21	104	124	21/1748
Metals (including SEM)	1288	0	58	45	0/1288
Titanium	46	0	0	0	0/46
Mercury	46	0	0	0	0/46
Methylmercury	46	0	4	0	0/46
Cyanide	46	0	4	42	0/46
Hexavalent Chromium	46	43	3	43	43/46
Sulfide	46	0	0	0	0/46
PCDDs/PCDFs	782	0	158	22	0/782
PCB Congeners	7728	168	470	1612	168/7728
TOC	46	0	0	0	0/46
TEPH	46	0	3	41	0/46
Total Phosphorus	46	0	0	0	0/46
Acid Volatile Sulfide	46	0	7	2	0/46
Total Kjeldahl Nitrogen	46	0	2	0	0/46
Chlorinated Herbicides	184	36	6	170	36/184
Ammonia Nitrogen	46	31	13	31	31/46

For the sediment results, PQLs identified in Table 2-2 above as greater than those defined in the QAPP were exceeded to varying degrees, mainly due to either sample dilution prior to analysis, or use of less than targeted sample volume for analysis.

Tissue

**Table 2-3
 Sensitivity Quality Evaluation for Tissue Samples**

Analytical Group	Total Number of Results Reported	Non-detected Results with PQLs Greater than those	Detected Results Between the MDL (or EDL where appropriate) and Elevated PQL	Total Non-detect Results	Total Non-detect Results Greater than PQL / Total Results Reported
Semivolatile Organics	477	476	1	476	476/477
Aroclor PCBs	81	0	3	62	0/81
Butyltins	36	0	0	36	0/36
Organochlorine Pesticides	1512	0	83	145	0/1512
Semivolatile Organics (SIM)	342	170	11	326	170/342
Metals	198	0	35	63	0/198
Titanium	9	0	7	0	0/9
Mercury	9	0	0	0	0/9
Methylmercury	9	0	0	0	0/9
PCDDs/PCDFs	153	0	118	6	0/153
PCB Congeners	261	12	16	218	12/261

For the tissue results, PQLs identified in Table 2-3 above as greater than those defined in the QAPP were exceeded to varying degrees, mainly due to either sample dilution prior to analysis, or use of less than targeted sample volume for analysis.

2.5 REPRESENTATIVENESS

Representativeness is the degree to which a dataset accurately represents the characteristics of a population, parameter conditions at a sample point, or an environmental condition. Data are representative when all sampling and analyses are performed in compliance with appropriate procedures. Performing sample analyses within the specified holding times and adhering to sample handling and storage requirements are also critical elements in obtaining representative sample data. These elements were evaluated and considered during data verification/validation. Acceptance criteria for sample handling, storage and holding times are provided in Worksheets #19-1 through #19-4 of the QAPP.

With respect to the results of the SQT data, there are no limitations on the data usage based on representativeness acceptance criteria. The following table summarizes the representativeness quality evaluation by analytical group and sample type. The “x” designation indicates that an issue was identified; however, such an issue does not infer that the data are unusable. Data were qualified for representativeness due to holding time violations. A more detailed discussion of this data quality parameter evaluation is provided in Section 3.1 of this report.

Holding Time Violations			
Analytical Groups	Porewater	Sediment	Tissue
Semivolatile Organics	-	x	v
Volatile Organics	-	v	-
Aroclor PCBs	-	v	v
Butyltins	-	v	v
Organochlorine Pesticides	x	x	v
Saturated Hydrocarbons	-	x	-
Semivolatile Organics (SIM)	v	v	v
Metals (including SEM)	v	v	v
Titanium	v	v	v
Mercury	v	x	v
Methylmercury	x	x	v
Cyanide	-	v	-
Hexavalent Chromium	-	v	-
Sulfide	v	v	-
PCDDs/PCDFs	v	x	v
PCB Congeners	v	x	v
Chlorinated Herbicides	-	v	-
TOC/DOC	x	x	-
ORP	-	x	-
TEPH	-	v	-
Total Phosphorus	-	v	-
Acid Volatile Sulfide	-	v	-
Total Kjeldahl Nitrogen	-	v	-
Ammonia Nitrogen	v	v	-
pH	-	v	-
Grain Size	-	v	-

- = analysis was not performed for this analytical group
 x = data qualified due to holding time violations during validation for this analytical group
 v = no data qualifications due to holding time violations were made for this analytical group

2.6 COMPARABILITY

Comparability expresses the confidence with which one set of data can be compared to another to measure the same property. Data can be compared to the degree that their accuracy, precision, and representativeness are known and documented. Data are comparable if QC measures such as collection techniques, measurement procedures, analytical methods, and reporting units are equivalent for the samples within a sample set. Data subject to established quality assurance/quality control (QA/QC) measures are deemed more reliable and, therefore, more comparable, than data generated without such measures.

Consistent application of prescribed procedures was monitored throughout the SQT program. Likewise, specific data verification/validation protocols were consistently applied to all data generated

under this program to understand and document accuracy/bias, accuracy/bias contamination, precision, sensitivity and representativeness, thereby establishing comparability as defined above.

During data validation activities, analytical data were evaluated using a defined set of guidelines and acceptance criteria. In addition, data validation qualifiers were consistently applied to the analytical data generated during the SQT program. The data validation process serves to increase the degree of data comparability achieved.

With respect to the results of the SQT data, there are no limitations on the data usage based on comparability acceptance criteria.

2.7 FIELD AND ANALYTICAL COMPLETENESS

There are two measures of completeness defined for the SQT program: field completeness and analytical completeness. Field completeness is defined as the ratio of the number of samples received in acceptable condition by the laboratories to the number of samples planned to be collected as specified in the QAPP. Analytical completeness is defined as the ratio of total analytical data results reported to the total number of analytical results requested on samples submitted for analysis. Rejected results are not included in the total valid analytical data. The formulas used to compute field and analytical completeness are presented below.

% Field Completeness = (Number of Samples [field samples and field duplicates] Received by Laboratories/Total Number of Samples [field samples and field duplicates] Planned to be Collected) x 100

% Analytical Completeness = (Total Valid Analytical Data/Analytical Data Obtained) x 100

The targeted field and analytical completeness goals were 90% for the SQT program; these goals were met, or exceeded, as summarized below.

SQT Completeness	Completeness Goal Established in SQT QAPP	SQT Completeness Achieved
Field Completeness (Overall)	90%	99.9%
Analytical Completeness (Overall)	90%	96.4%

SQT Field Completeness by Analysis and Sample Type

Analytical Group	Number of Samples Collected by Sample Type			Total Number of Samples Collected	Total Number of Samples Planned	Completeness Achieved (%)
	Porewater	Sediment	Tissue			
Semivolatile Organics	0	46	9	55	55	100
Volatile Organics	0	46	0	46	46	100
Aroclor PCBs	0	46	9	55	55	100
Butyltins	0	46	9	55	55	100
Organochlorine Pesticides	32	46	9	87	87	100
Saturated Hydrocarbons	0	46	0	46	46	100
Semivolatile Organics (SIM)	32	46	9	87	87	100
Metals (including SEM)	31	46	9	86	87	98.9
Titanium	31	46	9	86	87	98.9
Mercury	32	46	9	87	87	100
Methylmercury	32	46	9	87	87	100
Cyanide	0	46	0	46	46	100
Hexavalent Chromium	0	46	0	46	46	100
Sulfide	32	46	0	78	78	100
PCDDs/PCDFs	32	46	9	87	87	100
PCB Congeners	32	46	9	78	78	100
Chlorinated Herbicides	0	46	0	46	46	100
TOC/DOC ¹	30	46	0	76	76	100
ORP	0	46	0	46	46	100
TEPH	0	46	0	46	46	100
Total Phosphorus	0	46	0	46	46	100
Acid Volatile Sulfide	0	46	0	46	46	100
Total Kjeldahl Nitrogen	0	46	0	46	46	100
Ammonia Nitrogen	30	46	0	76	76	100
pH	0	46	0	46	46	100
Grain Size	0	46	0	46	46	100

1 – TOC and DOC analyses are mutually exclusive. Therefore, only one of the two analyses is performed per sample type.

SQT Analytical Completeness by Analysis	Completeness Achieved
Chemical Analyses	
Semivolatile Organics	86%
Volatile Organics	100%
Aroclor PCBs	100%
Butyltins	100%
Organochlorine Pesticides	96.2%
Saturated Hydrocarbons	97.9%
Semivolatile Organics (SIM)	100%
Metals (including SEM)	99.8%
Titanium	100%
Mercury	100%
Methylmercury	100%
Cyanide	100%
Hexavalent Chromium	93.5%
Sulfide	100%
PCDDs/PCDFs	100%
PCB Congeners	96%
Chlorinated Herbicides	98.9%
TOC/DOC	100%
ORP	100%
TEPH	100%
Total Phosphorus	100%
Acid Volatile Sulfide	100%
Total Kjeldahl Nitrogen	100%
Ammonia Nitrogen	100%
pH	100%
Grain Size	100%
Bioaccumulation Testing	100%

SQT Analytical Completeness by Analysis and Sample Type

Porewater

Analytical Group	Samples Analyzed	Analytes per Sample	Total Results	Rejected Results	Analytical Completeness Achieved
Organochlorine Pesticides	32	29	925*	10	98.9%
Semivolatile Organics (SIM)	32	38	1216	0	100%
Metals	31	22	682	0	100%
Titanium	31	1	31	0	100%
Mercury	32	1	32	0	100%
Methylmercury	32	1	32	0	100%
Sulfide	32	1	32	0	100%
PCDDs/PCDFs	32	17	544	0	100%
PCB Congeners	32	168	5376	83	98.5%
DOC	30	1	30	0	100%
Ammonia Nitrogen	30	1	30	0	100%

*- results endosulfan sulfate, methoxychlor, and mirex not reported in sample NB03SED-POR154 due to internal standards not detected.

Sediment

Analytical Group	Samples Analyzed	Analytes per Sample	Total Results	Rejected Results	Analytical Completeness Achieved
Semivolatile Organics	46	53	2438	407	83.3%
Volatile Organics	46	4	184	0	100%
Aroclor PCBs	46	9	414	0	100%
Butyltins	46	4	184	0	100%
Organochlorine Pesticides	46	29	1334	68	94.9%
Saturated Hydrocarbons	46	35	1610	34	97.9%
Semivolatile Organics (SIM)	46	38	1748	0	100%
Metals (including SEM)	46	28	1288	5	99.6%
Titanium	46	1	46	0	100%
Mercury	46	1	46	0	100%
Methylmercury	46	1	46	0	100%
Cyanide	46	1	46	0	100%
Hexavalent Chromium	46	1	46	3	93.5%
Sulfide	46	1	46	0	100%
PCDDs/PCDFs	46	17	782	0	100%
PCB Congeners	46	168	7728	435	94.4%
Chlorinated Herbicides	46	4	184	2	98.9%
TOC	46	1	46	0	100%
ORP	46	1	46	0	100%
TEPH	46	1	46	0	100%
Total Phosphorus	46	1	46	0	100%
Acid Volatile Sulfide	46	1	46	0	100%
Ammonia Nitrogen	46	1	46	0	100%
pH	46	1	46	0	100%
Grain Size	46	17	782	0	100%

Tissue

Analytical Group	Samples Analyzed	Analytes per Sample	Total Results	Rejected Results	Analytical Completeness Achieved
Semivolatile Organics	9	53	477	0	100%
Aroclor PCBs	9	9	81	0	100%
Butyltins	9	4	36	0	100%
Organochlorine Pesticides	9	29	261	17	93.5%
Semivolatile Organics (SIM)	9	38	342	0	100%
Metals	9	22	198	0	100%
Titanium	9	1	9	0	100%
Mercury	9	1	9	0	100%
Methylmercury	9	1	9	0	100%
PCDDs/PCDFs	9	17	153	0	100%
PCB Congeners	9	168	1512	62	95.9%
Bioaccumulation Testing	9	1	9	0	100%

Metals and titanium were unable to be analyzed for NB03SED-POR155 due to an insufficient sample volume. While removing the dialysis bags from the sediment in the 5-gallon bucket in the laboratory for Location 155, one of the dialysis bags broke and the contents were lost. As such, there was not enough volume in the remaining dialysis bag to run all of the inorganics analyses.

The total analytical completeness was obtained using the total sample results for porewater, sediment, and tissue minus the total amount of rejected results. The laboratory completed all analyses but some data were rejected, causing the overall analytical completeness to be 96.4%. The analytical completeness achieved for porewater samples was 99.0%. The analytical completeness achieved for sediment samples was 95.1%. The analytical completeness for tissue samples was 97.5%. The total analytical completeness for all matrices analyzed is 96.4%.

3.0 SQT DATA VERIFICATION/VALIDATION

SQT analytical results were provided by the laboratories both electronically and in hard copy format. Upon receipt from the laboratory, results for specific analytical groups described below were verified or validated by Field and Technical Services, LLC. (FTS) using the following procedures:

Semivolatile Organics	USEPA Region 2 SOP HW-22, Revision 3, 10/06
Volatile Organics	USEPA Region 2 SOP HW-24, Revision 1, 6/99
Aroclor PCBs	USEPA Region 2 SOP HW-37, Revision 1, 8/07
Butyltins	EDS SOP: Organotins Prep. 8/05
Organochlorine Pesticides	EDS SOP: Organochlorine Pesticides by HRGC/HRMS USEPA 1699, Rev. 0, 7/10
Saturated Hydrocarbons	EDS SOP: TEPH-01 Rev. 3, 7/07
Semivolatile Organics (SIM)	USEPA Region 2 SOP HW-35, Revision 2, 3/13
Metals (including SEM)	USEPA Region 2 SOP HW-2b, Rev. 15, 12/12
Titanium	USEPA Region 2 SOP HW-2a, Rev. 15, 12/12
Mercury	EDS SOP: Mercury by CVAFS USEPA 1631, Rev. 1, 5/14
Methylmercury	EDS SOP: Methyl Mercury by CVAFS USEPA 1630, Rev. 1, 5/14
Cyanide	USEPA Region 2 SOP HW-2c, Revision 15, 12/12
Hexavalent Chromium	NJDEP SOP for Analytical Data Validation of Hexavalent Chromium, 5.A.10, Rev. 2, 8/05
Sulfide	EDS SOP: V-12 Rev. 0, 1/09
PCDDs/PCDFs	USEPA Region 2 SOP HW-25, Revision 3, 12/10
PCB Congeners	EDS SOP: Congener PCB, Rev. 3, 7/10
Chlorinated Herbicides	USEPA Region 2 SOP HW-17, Revision 3, 7/08
TOC/DOC	EDS SOP: TOC-01 Rev. 2, 7/10
Oxidation Reduction Potential	EDS SOP: ORP, Rev. 0, 7/14
TEPH	EDS SOP: TEPH-01 Rev. 3, 7/07
Total Phosphorus	USEPA Inorganic Data Review, OSWER 9240.1-51 EPA-540-R-10-011, 1/10
Acid Volatile Sulfide	USEPA Inorganic Data Review, OSWER 9240.1-51 EPA-540-R-10-011, 1/10
Total Kjeldahl Nitrogen	USEPA Inorganic Data Review, OSWER 9240.1-51 EPA-540-R-10-011, 1/10
Ammonia Nitrogen	USEPA Inorganic Data Review, OSWER 9240.1-51 EPA-540-R-10-011, 1/10
pH	USEPA Inorganic Data Review, OSWER 9240.1-51 EPA-540-R-10-011, 1/10
Grain Size	EDS SOP-14, Revision 2 – Verification/Validation Geotechnical Data, 2/10

The verification/validation standard operating procedures (SOPs), as referenced above, are provided in Appendix E of the QAPP. The data verification/validation process is detailed in Worksheets #34, #35, and #36 of the QAPP.

3.1 DATA QUALITY ISSUES

Two types of data quality issues are discussed in this section; systematic data quality issues and random data quality issues. Systematic data quality issues are those that are identified as having a consistent impact on the quality of results reported (i.e., data quality of all samples and/or analytical groups are affected by a single data quality issue), due to a common circumstance or procedural application. Systematic data quality issues are described in Section 3.1.1 as well as incorporated into Section 3.1.2. Random data quality issues are those that do not have a consistent impact on the quality of results (i.e., data quality for a specific sample(s) and/or analyte(s) are affected by the data quality issue). Random data quality issues are presented in Sections 3.1.2.

Section 3.1.2 summarizes the data validation findings related to systematic and random data quality issues for each analytical group. These validation findings have been separated into two distinct categories, major data quality issues and minor data quality issues. Major data quality issues are those that result in the qualification of the analytical value reported as “R”, or rejected. This occurs due to the presence of significant QA/QC problems that render the analysis invalid and the results unusable. Minor data quality issues include all other QA/QC problems identified during the data validation process that require sample results to be qualified, indicating some level of uncertainty associated with the reported result.

Conclusions based on the information presented in these summaries can be found in Section 4 of this report.

3.1.1 Porewater, Sediment, and Tissue Samples Systematic Data Quality Issues

Three systematic data quality issues were identified during the SQT porewater, sediment, and tissue sample validation task. These systematic data quality issues are summarized below:

- All organochlorine pesticide porewater hold times were exceeded and all porewater pesticides results were qualified as estimated.
- All mercury sediment hold times were exceeded and all sediment mercury results were qualified as estimated.
- All methylmercury porewater hold times were exceeded and all porewater methylmercury results were qualified as estimated.

3.1.2 Porewater, Sediment, and Tissue Samples Data Quality Issues by Analytical Group

Semivolatile Organic Compounds (SVOCs)

The SQT sediment sample SVOC dataset is comprised of 46 samples with 2438 associated results and tissue sample SVOC dataset is comprised of 9 samples with 477 associated results. A total of 407 sediment sample results from the SVOC analyses were rejected due to holding times.

One major data quality issue was identified during validation of the SQT SVOC analyses. The identified major data quality issue is described in the table below.

Five minor data quality issues were identified in the SQT SVOC dataset. The identified minor data quality issues are described in the table below.

Major Data Quality Issues					
Semivolatile Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of SVOC Results Affected
Non-compliant holding time	Representativeness	2438	8	407	16.7

Minor Data Quality Issues					
Semivolatile Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of SVOC Results Affected
Non-compliant field duplicate relative percent difference	Precision	2438	6	8	0.33
Laboratory blank contamination	Accuracy/Bias Contamination	2438	8	12	0.49
Field blank contamination	Accuracy/Bias Contamination	2438	1	1	0.04
Non-compliant percent moisture	Overall Accuracy/Bias	2438	15	795	32.6
Non-compliant holding time	Representativeness	2438	7	17	0.70

As shown in the table above for major data quality issues, 407 SVOC results were rejected due to holding time. Holding times that resulted in major data quality issues (rejected) were extracted or analyzed 2X outside of the holding time.

Volatile Organic Compounds (VOCs)

The SQT sediment VOC dataset is comprised of 46 samples with 184 associated results.

No major data quality issues were identified during validation of the SQT VOC analyses.

Three minor data quality issues were identified during validation of the SQT VOC analyses. The identified minor data quality issues are described in the table below.

Minor Data Quality Issues					
VOC Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of VOC Results Affected
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	184	3	3	1.63
Non-compliant internal standard recovery	Overall Accuracy/Bias	184	2	8	4.35
Non-compliant percent moisture	Overall Accuracy/Bias	184	11	44	23.9

Aroclor Polychlorinated Biphenyls (PCBs)

The SQT sediment Aroclor PCB dataset is comprised of 46 samples with 414 associated results and tissue Aroclor PCB dataset is comprised of 9 samples with 81 associated results.

No major data quality issues were identified during validation of the SQT Aroclor PCB analyses.

Two minor data quality issues were identified during validation of the SQT Aroclor PCB analyses. The identified minor data quality issues are described in the tables below.

Minor Data Quality Issues					
Aroclor PCBs Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Aroclor PCB Results Affected
Non-compliant aroclor identification percent difference	Precision	414	10	20	4.83
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	414	1	1	0.24

Minor Data Quality Issues					
Aroclor PCBs Tissue	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Aroclor PCB Results Affected
Non-compliant aroclor identification percent difference	Precision	81	7	8	9.88

Butyltins

The SQT sediment Butyltins dataset is comprised of 46 samples with 184 associated results and tissue Butyltins dataset is comprised of 9 samples with 36 associated results.

No major data quality issues were identified during validation of the SQT Butyltins analyses.

Two minor data quality issues were identified in the SQT sediment Butyltins dataset. The identified minor data quality issues are described in the table below.

Minor Data Quality Issues					
Butyltins Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Butyltins Results Affected
Non-compliant initial calibration regression coefficient	Overall Accuracy/Bias	184	3	3	1.63
Non-compliant percent moisture	Overall Accuracy/Bias	184	25	100	54.3

Organochlorine Pesticides

The SQT porewater Organochlorine Pesticide dataset is comprised of 32 samples with 925 associated results, sediment Organochlorine Pesticide dataset is comprised of 46 samples with 1334 associated results, and tissue Organochlorine Pesticide dataset is comprised of 9 samples with 261 associated results. A total of ten porewater sample results from the Organochlorine Pesticide analyses were

rejected due to surrogate recoveries. A total of 68 sediment sample results from the Organochlorine Pesticide analyses were rejected due to surrogate recoveries. A total of 17 tissue sample results from the Organochlorine Pesticide analyses were rejected due to surrogate recoveries.

One major data quality issue was identified during validation of the SQT Organochlorine Pesticide analyses. The identified major data quality issue is described in the tables below.

Ten minor data quality issues were identified in the SQT Organochlorine Pesticide dataset. The identified minor data quality issues are described in the tables below.

Major Data Quality Issues					
Organochlorine Pesticide Porewater	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Organochlorine Pesticide Results Affected
Non-compliant project specific surrogate recovery, as specified by USEPA Region 2	Overall Accuracy/Bias	925	6	10	1.08

Major Data Quality Issues					
Organochlorine Pesticide Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Organochlorine Pesticide Results Affected
Non-compliant project specific surrogate recovery, as specified by USEPA Region 2	Overall Accuracy/Bias	1334	33	68	5.10

Major Data Quality Issues					
Organochlorine Pesticide Tissue	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Organochlorine Pesticide Results Affected
Non-compliant project specific surrogate recovery, as specified by USEPA Region 2	Overall Accuracy/Bias	261	8	17	6.51

Minor Data Quality Issues					
Organochlorine Pesticide Porewater	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Organochlorine Pesticide Results Affected
Non-compliant field duplicate relative percent difference	Precision	925	2	2	0.22
Non-compliant matrix spike/matrix spike duplicate relative percent difference	Precision	925	2	10	1.08

Field blank contamination	Accuracy/Bias Contamination	925	16	17	1.84
Non-compliant identification relative abundance criteria	Overall Accuracy/Bias	925	13	13	1.41
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	925	2	9	0.97
Non-compliant project specific surrogate recovery, as specified by USEPA Region 2	Overall Accuracy/Bias	925	16	22	2.38
Non-compliant holding time	Representativeness	925	925	32	100

Minor Data Quality Issues					
Organochlorine Pesticide Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Organochlorine Pesticide Results Affected
Non-compliant matrix spike/matrix spike duplicate relative percent difference	Precision	1334	3	20	1.50
Non-compliant field duplicate relative percent difference	Precision	1334	6	14	1.05
Field blank contamination	Accuracy/Bias Contamination	1334	22	48	3.60
Non-compliant identification relative abundance criteria	Overall Accuracy/Bias	1334	23	23	1.72
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	1334	3	25	1.87
Non-compliant internal standard recovery	Overall Accuracy/Bias	1334	5	7	0.52
Non-compliant signal to noise ratio	Overall Accuracy/Bias /Bias	1334	2	2	0.15
Non-compliant project specific surrogate recovery, as specified by USEPA Region 2	Overall Accuracy/Bias	1334	23	49	3.67
Non-compliant holding time	Representativeness	1334	18	522	39.1

Minor Data Quality Issues					
Organochlorine Pesticide Tissue	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Organochlorine Pesticide Results Affected
Non-compliant matrix spike/matrix spike duplicate relative percent difference	Precision	261	1	1	0.38
Laboratory blank	Accuracy/Bias	261	2	2	0.77

contamination	Contamination				
Non-compliant identification relative abundance criteria	Overall Accuracy/Bias	261	4	4	1.53
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	261	1	2	0.77
Non-compliant internal standard recovery	Overall Accuracy/Bias	261	2	2	0.77
Non-compliant project specific surrogate recovery, as specified by USEPA Region 2	Overall Accuracy/Bias	261	4	7	2.68

As shown in the tables above for major data quality issues, 95 Organochlorine Pesticide results were rejected due to surrogate recovery. Surrogate recoveries that resulted in major data quality issues (rejected) fell below 10% recovery. Surrogate recoveries that also resulted in major data quality issues (rejected) were surrogate recoveries below 25% with the associated result not detected.

Saturated Hydrocarbons

The SQT sediment Saturated Hydrocarbons dataset is comprised of 46 samples with 1610 associated results. A total of 34 sediment samples results from the Saturated Hydrocarbon analyses were rejected due to holding times.

One major data quality issue was identified during validation of the SQT Saturated Hydrocarbons analyses. The identified major data quality issue is described in the table below.

Seven minor data quality issues were identified in the SQT sediment Saturated Hydrocarbons dataset. The identified minor data quality issues are described in the table below.

Major Data Quality Issues					
Saturated Hydrocarbons Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Saturated Hydrocarbon Results Affected
Non-compliant holding time	Representativeness	1610	1	34	2.11

Minor Data Quality Issues					
Saturated Hydrocarbons Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Saturated Hydrocarbon Results Affected
Non-compliant field duplicate relative percent difference	Precision	1610	6	28	1.74
Laboratory blank contamination	Accuracy/Bias Contamination	1610	7	7	0.43
Non-compliant continuing calibration percent difference	Overall Accuracy/Bias	1610	17	17	1.06
Non-compliant laboratory control standard recovery	Overall Accuracy/Bias	1610	46	414	25.7
Non-compliant percent moisture	Overall Accuracy/Bias	1610	15	525	32.6
Non-compliant project specific surrogate recovery, as specified by USEPA Region 2	Overall Accuracy/Bias	1610	15	451	28.0
Non-compliant holding time	Representativeness	1610	35	1226	76.1

As shown in the table above for major data quality issues, 34 Saturated Hydrocarbon results were rejected due to holding time. Holding times that resulted in major data quality issues (rejected) were extracted or analyzed 2X outside of the holding time.

Semivolatile Organic Compounds - Selective Ion Monitoring (SIM)

The SQT porewater SVOC SIM dataset is comprised of 32 samples with 1216 associated results, sediment SVOC SIM dataset is comprised of 46 samples with 1748 associated results, and tissue SVOC SIM dataset is comprised of 9 samples with 342 associated results.

No major data quality issues were identified during validation of the SQT SVOC SIM analyses.

Four minor data quality issues were identified during validation of the SQT SVOC SIM analyses. The identified minor data quality issues are described in the tables below.

Minor Data Quality Issues					
Semivolatile SIM Porewater	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of SVOC SIM Results Affected
Non-compliant field duplicate relative percent difference	Precision	1216	4	22	1.81
Non-compliant matrix spike/matrix spike duplicate relative percent difference	Precision	1216	1	12	0.99
Non-compliant project specific surrogate recovery, as specified by USEPA Region 2	Overall Accuracy/Bias	1216	20	212	17.4
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	1216	1	7	0.58

Minor Data Quality Issues					
Semivolatile SIM Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of SVOC SIM Results Affected
Non-compliant field duplicate relative percent difference	Precision	1748	6	108	6.18
Non-compliant matrix spike/matrix spike duplicate relative percent difference	Precision	1748	3	29	1.66
Non-compliant project specific surrogate recovery, as specified by USEPA Region 2	Overall Accuracy/Bias	1748	28	360	20.6
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	1748	3	64	3.66

Minor Data Quality Issues					
Semivolatile SIM Tissue	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of SVOC SIM Results Affected
Non-compliant project specific surrogate recovery, as specified by USEPA Region 2	Overall Accuracy/Bias	342	2	24	7.02

Metals (including SEM)

The SQT porewater Metals dataset is comprised of 31 samples with 682 associated results, sediment Metals dataset is comprised of 46 samples with 1288 associated results, and tissue Metals dataset is comprised of 9 samples with 198 associated results. A total of five sediment sample results

from the Metals analyses were rejected due to laboratory duplicate relative percent difference, serial dilution, and matrix spike/matrix spike duplicate recovery.

Three major data quality issues were identified during validation of the SQT Metals analyses. The identified major data quality issues are described in the table below.

Nine minor data quality issues were identified during validation of the SQT Metals analyses. The identified minor data quality issues are described in the tables below.

Major Data Quality Issues					
Metals Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Metals Results Affected
Non-compliant laboratory duplicate relative percent difference	Precision	1288	1	1	0.08
Non-compliant serial dilution	Overall Accuracy/Bias	1288	1	1	0.08
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	1288	3	3	0.23

Minor Data Quality Issues					
Metals Porewater	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Metals Results Affected
Non-compliant laboratory duplicate relative percent difference	Precision	682	2	4	0.59
Non-compliant field duplicate relative percent difference	Precision	682	4	22	3.23
Field blank contamination	Accuracy/Bias Contamination	682	1	1	0.15
Continuing calibration blank contamination	Accuracy/Bias Contamination	682	25	28	4.11
Non-compliant serial dilution	Overall Accuracy/Bias	682	2	4	0.59
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	682	2	6	0.88

Minor Data Quality Issues					
Metals Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Metals Results Affected
Non-compliant laboratory duplicate relative percent difference	Precision	1288	4	8	0.62
Non-compliant field duplicate relative percent difference	Precision	1288	4	8	0.62
Non-compliant matrix spike/matrix spike duplicate relative percent difference	Precision	1288	5	9	0.70
Continuing calibration blank contamination	Accuracy/Bias Contamination	1288	2	2	0.16
Non-compliant percent moisture	Overall Accuracy/Bias	1288	27	594	46.1
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	1288	5	21	1.63
Non-compliant serial dilution	Overall Accuracy/Bias	1288	5	31	2.41
Non-compliant laboratory control sample	Overall Accuracy/Bias	1288	36	36	2.80

Minor Data Quality Issues					
Metals Tissue	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Metals Results Affected
Non-compliant laboratory duplicate relative percent difference	Precision	198	1	1	0.51
Non-compliant field duplicate relative percent difference	Precision	198	2	4	2.02
Continuing calibration blank contamination	Accuracy/Bias Contamination	198	9	12	6.06
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	198	1	3	1.52

As shown in the table above for major data quality issues, five Metals results were rejected due to laboratory duplicate relative percent difference, serial dilution, and matrix spike/matrix spike duplicate recovery. Laboratory duplicate relative percent difference that resulted in major data quality issues (rejected) were recoveries greater than 120% recovery. Serial dilutions that also resulted in major data quality issues (rejected) were recoveries greater than 120% recovery. Matrix spike/matrix spike duplicates that also resulted in major data quality issues (rejected) were recoveries below 30% with the associated result not detected.

Titanium

The SQT porewater Titanium dataset is comprised of 31 samples with 31 associated results, sediment Titanium dataset is comprised of 46 samples with 46 associated results, and tissue Titanium dataset is comprised of 9 samples with 9 associated results.

No major data quality issues were identified during validation of the SQT Titanium analyses.

Six minor data quality issues were identified during validation of the SQT Titanium analyses. The identified minor data quality issues are described in the tables below.

Minor Data Quality Issues					
Titanium Porewater	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Titanium Results Affected
Non-compliant field duplicate relative percent difference	Precision	31	2	2	6.45
Non-compliant laboratory duplicate relative percent difference	Precision	31	1	1	3.23
Continuing calibration blank contamination	Accuracy/Bias Contamination	31	8	8	25.8
Non-compliant serial dilution	Overall Accuracy/Bias	31	2	2	6.45

Minor Data Quality Issues					
Titanium Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Titanium Results Affected
Non-compliant percent moisture	Overall Accuracy/Bias	46	25	25	54.3
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	46	4	4	8.70

Minor Data Quality Issues					
Titanium Tissue	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Titanium Results Affected
Continuing calibration blank contamination	Accuracy/Bias Contamination	9	4	4	44.4

Mercury

The SQT porewater mercury dataset is comprised of 32 samples with 32 associated results, sediment mercury dataset is comprised of 46 samples with 46 associated results, and tissue mercury dataset is comprised of 9 samples with 9 associated results.

No major data quality issues were identified during validation of the SQT mercury analyses.

Three minor data quality issues were identified during validation of the SQT mercury analyses. The identified minor data quality issues are described in the tables below.

Minor Data Quality Issues					
Mercury Porewater	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Mercury Results Affected
Non-compliant field duplicate relative percent difference	Precision	32	4	4	12.5

Minor Data Quality Issues					
Mercury Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Mercury Results Affected
Non-compliant matrix spike/matrix spike duplicate relative percent difference	Precision	46	1	1	2.17
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/ Bias	46	2	2	4.35
Non-compliant holding time	Representativeness	46	46	46	100

Methylmercury

The SQT porewater methylmercury dataset is comprised of 32 samples with 32 associated results, sediment methylmercury dataset is comprised of 46 samples with 46 associated results, and tissue methylmercury dataset is comprised of 9 samples with 9 associated results.

No major data quality issues were identified during validation of the SQT methylmercury analyses.

Five minor data quality issues were identified during validation of the SQT methylmercury analyses. The identified minor data quality issues are described in the tables below.

Minor Data Quality Issues					
Methylmercury Porewater	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Methyl mercury Results Affected
Non-compliant field duplicate relative percent difference	Precision	32	2	2	6.25
Non-compliant holding time	Representativeness	32	32	32	100

Minor Data Quality Issues					
Methylmercury Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Methylmercury Results Affected
Non-compliant matrix spike/matrix spike duplicate relative percent difference	Precision	46	1	1	2.17
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	46	1	1	2.17
Non-compliant holding time	Representativeness	46	43	43	93.5

Minor Data Quality Issues					
Methylmercury Tissue	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Methylmercury Results Affected
Laboratory blank contamination	Accuracy/Bias Contamination	9	8	8	88.9

Cyanide

The SQT sediment Cyanide dataset is comprised of 46 samples with 46 associated results.

No major data quality issues were identified during validation of the SQT Cyanide analyses.

Three minor data quality issues were identified in the SQT sediment Cyanide dataset. The identified minor data quality issues are described in the table below.

Minor Data Quality Issues					
Cyanide Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Cyanide Results Affected
Non-compliant laboratory duplicate relative percent difference	Precision	46	1	1	2.17
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	46	1	1	2.17
Non-compliant percent moisture	Overall Accuracy/Bias	46	27	27	56.3

Hexavalent Chromium

The SQT sediment Hexavalent Chromium dataset is comprised of 46 samples with 46 associated results. A total of three sediment sample results from the Hexavalent Chromium analyses were rejected due to matrix spike/matrix spike duplicate recoveries.

One major data quality issue was identified during validation of the SQT Hexavalent Chromium analyses. The identified major data quality issue is described in the table below.

No minor data quality issues were identified in the SQT sediment Hexavalent Chromium dataset.

Major Data Quality Issues					
Hexavalent Chromium Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Hexavalent Chromium Results Affected
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	46	3	3	6.52

As shown in the table above for major data quality issues, three Hexavalent Chromium results were rejected due to matrix spike/matrix spike duplicate recoveries. Matrix spike/matrix spike duplicate recoveries that resulted in major data quality issues (rejected) were recoveries below 50% recovery.

Sulfide

The SQT porewater Sulfide dataset is comprised of 32 samples with 32 associated results and sediment Sulfide dataset is comprised of 46 samples with 46 associated results.

No major data quality issues were identified during validation of the SQT Sulfide analyses.

One minor data quality issue was identified in the SQT sediment Sulfide dataset. The identified minor data quality issue is described in the table below.

Minor Data Quality Issues					
Sulfide Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Sulfide Results Affected
Non-compliant field duplicate relative percent difference	Precision	46	2	2	4.35

Polychlorinated Dibenzo-p-dioxins/Polychlorinated Dibenzofurans (PCDDs/PCDFs)

The SQT porewater PCDDs/PCDFs dataset is comprised of 32 samples with 544 associated results, sediment PCDDs/PCDFs dataset is comprised of 46 samples with 782 associated results, and tissue PCDDs/PCDFs dataset is comprised of 9 samples with 153 associated results.

No major data quality issues were identified during validation of the SQT PCDD/PCDF analyses.

Seven minor data quality issues were identified in the SQT PCDD/PCDF datasets. The identified minor data quality issues are described in the tables below.

Minor Data Quality Issues					
PCDDs/PCDFs Porewater	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of PCDD/PCDF Results Affected
Method blank contamination	Accuracy/Bias Contamination	544	1	1	0.18
Non-compliant sample ion ratio	Overall Accuracy/Bias	544	13	14	2.57

Minor Data Quality Issues					
PCDDs/PCDFs Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of PCDD/PCDF Results Affected
Non-compliant field duplicate relative percent difference	Precision	782	4	4	0.51
Field blank contamination	Accuracy/Bias Contamination	782	3	5	0.64
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	782	3	8	1.02
Non-compliant sample ion ratio	Overall Accuracy/Bias	782	3	3	0.38
Non-compliant percent moisture	Overall Accuracy/Bias	782	27	459	58.7
Non-compliant holding time	Representativeness	782	28	476	60.9

Minor Data Quality Issues					
PCDDs/PCDFs Tissue	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of PCDD/PCDF Results Affected
Non-compliant field duplicate relative percent difference	Precision	153	2	5	3.27
Non-compliant sample ion ratio	Overall Accuracy/Bias	153	1	1	0.65

Polychlorinated Biphenyl Congeners

The SQT porewater PCB Congener dataset is comprised of 32 samples with 5376 associated results, sediment PCB Congener dataset is comprised of 46 samples with 7728 associated results, and tissue PCB Congener dataset is comprised of 9 samples with 1512 associated results. A total of 83 porewater

sample results from the PCB Congener analyses were rejected due to continuing calibration retention times. A total of 435 sediment sample results from the PCB Congener analyses were rejected due to continuing calibration retention times and ion abundance ratios. A total of 62 tissue sample results from the PCB Congener analyses were rejected due to continuing calibration retention times.

Two major data quality issues were identified during validation of the SQT PCB Congener analyses. The identified major quality issues are described in the tables below.

Eight minor data quality issues were identified during validation of the SQT PCB Congener analyses. The identified minor data quality issues are described in the tables below.

Major Data Quality Issues					
PCB Congeners Porewater	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of PCB Congener Results Affected
Non-compliant continuing calibration relative retention times	Overall Accuracy/Bias	5376	14	83	1.54

Major Data Quality Issues					
PCB Congeners Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of PCB Congener Results Affected
Non-compliant continuing calibration relative retention times	Overall Accuracy/Bias	7728	44	426	5.51
Non-compliant initial calibration ion abundance ratio	Overall Accuracy/Bias	7728	9	9	0.12

Major Data Quality Issues					
PCB Congeners Tissue	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of PCB Congener Results Affected
Non-compliant continuing calibration relative retention times	Overall Accuracy/Bias	1512	9	62	4.10

Minor Data Quality Issues					
PCB Congeners Porewater	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of PCB Congener Results Affected
Non-compliant field duplicate relative percent difference	Precision	5376	4	174	3.24

Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	5376	2	102	1.90
Non-compliant project specific labeled analog recovery, as specified by USEPA Region 2	Overall Accuracy/Bias	5376	1	1	0.02

Minor Data Quality Issues					
PCB Congeners Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of PCB Congener Results Affected
Non-compliant field duplicate relative percent difference	Precision	7728	6	234	3.03
Non-compliant matrix spike/matrix spike duplicate relative percent difference	Precision	7728	3	23	0.30
Laboratory blank contamination	Accuracy/Bias Contamination	7728	18	36	0.47
Non-compliant percent moisture	Overall Accuracy/Bias	7728	26	4368	56.5
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	7728	3	292	3.78
Non-compliant project specific labeled analog recovery, as specified by USEPA Region 2	Overall Accuracy/Bias	7728	7	12	0.16
Non-compliant holding time	Representativeness	7728	28	4704	60.9

Minor Data Quality Issues					
PCB Congeners Tissue	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of PCB Congener Results Affected
Laboratory blank contamination	Accuracy/Bias Contamination	1512	2	3	0.20
Non-compliant sample ion abundance ratio	Overall Accuracy/Bias	1512	2	2	0.13
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	1512	1	10	0.66

Chlorinated Herbicides

The SQT sediment Chlorinated Herbicide dataset is comprised of 46 samples with 184 associated results. A total of two sediment sample results from the Chlorinated Herbicide analyses were rejected due to herbicide identification percent difference.

One major data quality issue was identified during validation of the SQT Chlorinated Herbicide analyses. The identified major data quality issue is described in the table below.

Three minor data quality issues were identified in the SQT sediment Chlorinated Herbicide dataset. The identified minor data quality issues are described in the table below.

Major Data Quality Issues					
Chlorinated Herbicide Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Chlorinated Herbicide Results Affected
Non-compliant Herbicide identification analysis percent difference	Precision	184	2	2	1.09

Minor Data Quality Issues					
Chlorinated Herbicide Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Chlorinated Herbicide Results Affected
Non-compliant Herbicide identification analysis percent difference	Precision	184	8	8	4.35
Non-compliant project specific surrogate recovery, as specified by USEPA Region 2	Overall Accuracy/Bias	184	3	12	6.52
Non-compliant percent moisture	Overall Accuracy/Bias	184	27	108	58.7

As shown in the table above for major data quality issues, two Chlorinated Herbicide results were rejected due to herbicide identification percent difference. Herbicide identification percent difference that resulted in major data quality issues (rejected) were percent differences greater than 90%.

Dissolved Organic Carbon (DOC)/Total Organic Carbon (TOC)

The SQT porewater DOC dataset is comprised of 30 samples with 30 associated results and sediment TOC dataset is comprised of 46 samples with 46 associated results.

No major data quality issues were identified during validation of the SQT DOC/TOC analyses.

Four minor data quality issues were identified in the SQT DOC/TOC dataset. The identified minor data quality issues are described in the tables below.

Minor Data Quality Issues					
DOC Porewater	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of DOC Results Affected
Field blank contamination	Accuracy/Bias Contamination	30	9	9	30.0
Non-compliant holding time	Representativeness	30	12	12	40.0

Minor Data Quality Issues					
TOC Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of TOC Results Affected
Non-compliant field duplicate relative percent difference	Precision	46	4	4	8.70
Non-compliant laboratory control sample	Overall Accuracy/Bias	46	21	21	45.7
Non-compliant holding time	Representativeness	46	9	9	19.6

Oxidation Reduction Potential (ORP)

The SQT sediment ORP dataset is comprised of 46 samples with 46 associated results.

No major data quality issues were identified during validation of the SQT ORP analyses.

One minor data quality issue was identified in the SQT sediment ORP dataset. The identified minor data quality issue is described in the table below.

Minor Data Quality Issues					
ORP Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of ORP Results Affected
Non-compliant holding time	Representativeness	46	4	4	8.70

Total Extractable Petroleum Hydrocarbon (TEPH)

The SQT sediment TEPH dataset is comprised of 46 samples with 46 associated results.

No major data quality issues were identified during validation of the SQT TEPH analyses.

One minor data quality issue was identified in the SQT sediment TEPH dataset. The identified minor data quality issue is described in the table below.

Minor Data Quality Issues					
TEPH Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of TEPH Results Affected
Non-compliant project specific surrogate recovery, as specified by USEPA Region 2	Overall Accuracy/Bias	46	2	2	4.35

Total Phosphorus

The SQT sediment Total Phosphorus dataset is comprised of 46 samples with 46 associated results.

No major data quality issues were identified during validation of the SQT Total Phosphorus analyses.

Three minor data quality issues were identified in the SQT sediment Total Phosphorus dataset. The identified minor data quality issues are described in the table below.

Minor Data Quality Issues					
Total Phosphorus Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of Total Phosphorus Results Affected
Non-compliant laboratory duplicate relative percent difference	Precision	46	1	1	2.17
Non-compliant matrix spike/matrix spike duplicate relative percent difference	Precision	46	1	1	2.17
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	46	3	3	6.52

Acid Volatile Sulfide (AVS)

The SQT sediment AVS dataset is comprised of 46 samples with 46 associated results.

No major data quality issues were identified during validation of the SQT AVS analyses.

Three minor data quality issues were identified in the SQT sediment AVS dataset. The identified minor data quality issues are described in the table below.

Minor Data Quality Issues					
AVS Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of AVS Results Affected
Non-compliant laboratory duplicate relative percent difference	Precision	46	1	1	2.17
Non-compliant matrix spike/matrix spike duplicate relative percent difference	Precision	46	3	3	6.52
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	46	1	1	2.17

Total Kjeldahl Nitrogen (TKN)

The SQT sediment TKN dataset is comprised of 46 samples with 46 associated results.

No major data quality issues were identified during validation of the SQT TKN analyses.

One minor data quality issue was identified in the SQT sediment TKN dataset. The identified minor data quality issue is described in the table below.

Minor Data Quality Issues					
TKN Sediment	Data Quality Parameter Affected	Total Number of Results Reported	Number of Samples Affected	Number of Results Affected	% of TKN Results Affected
Non-compliant matrix spike/matrix spike duplicate recovery	Overall Accuracy/Bias	46	1	1	2.17

Ammonia Nitrogen

The SQT porewater Ammonia Nitrogen dataset is comprised of 30 samples with 30 associated results and sediment Ammonia Nitrogen dataset is comprised of 46 samples with 46 associated results.

No major or minor data quality issues were identified during validation of the SQT Ammonia Nitrogen analyses.

pH

The SQT sediment pH dataset is comprised of 46 samples with 46 associated results.

No major or minor data quality issues were identified during validation of the SQT pH analyses.

Geotechnical

The SQT sediment grain size dataset is comprised of 46 samples with 782 associated results.

No major or minor data quality issues were identified during the verification of the SQT grain size analyses.

Bioaccumulation Testing

The SQT tissue data set is comprised of 9 samples (8 samples plus one duplicate sample) with 9 associated results.

Data verification was performed on the bioaccumulation testing and no data quality issues were identified. For bioaccumulation testing results, refer to the report in Appendix A, including the discussion on precision.

Percent Lipid

The SQT tissue percent lipid dataset is comprised of 9 samples with 9 associated results.

No major or minor data quality issues were identified during the verification of the SQT percent lipid analyses.

Percent Moisture

The SQT sediment percent moisture dataset is comprised of 46 samples with 46 associated results and tissue percent moisture dataset is comprised of 9 samples with 9 associated results.

No major or minor data quality issues were identified during the verification of the SQT percent moisture analyses.

4.0 CONCLUSIONS

The data usability evaluations outlined in this report provide details regarding the relationship of data quality issues to associated samples and sample results. Ninety-six percent (96%) of the data validated and reported are suitable for their intended use. A total of 407 sample results for the SVOC analyses were rejected due to holding time violations. A total of 95 sample results for the organochlorine pesticide analyses were rejected due to surrogate recoveries. A total of 34 sample results for the saturated hydrocarbon analyses were rejected due to holding time violations. A total of five sample results for the metals analyses were rejected due to spike sample recoveries, serial dilution, and laboratory duplicate sample relative percent difference. A total of three sample results for the hexavalent chromium analyses were rejected due to spike sample recoveries. A total of 580 sample results for the PCB congener analyses were rejected due to continuing calibration relative retention times and initial calibration ion abundance ratios. A total of two samples results for the chlorinated herbicides analyses were rejected due to identification analysis percent difference. Sample results that were rejected are not suitable for project use. Sample results that are qualified as estimated due to multiple minor data quality issues as detailed in this report are suitable for project use. The achievement of the completeness goals for number of samples collected and the number of samples accepted for use provides sufficient quality data to support project decisions.

5.0 REFERENCES

Tierra. 2015. Sediment Quality Triad and Porewater Sampling and Analysis Quality Assurance Project Plan, Revision 2, August.

Appendix I

Threshold values for each metric are based on the NY/NJ B-IBI presented in Weisberg et al. (1998).

Table 6. Thresholds used to score each metric of the NY-NJ Harbor B-IBI

	Scoring Criteria		
	5	3	1
Number of Species			
Polyhaline Sand	> 20	15 - 20	< 15
Polyhaline Mud	> 20	15 - 20	< 15
Euhaline Sand	> 25	15 - 25	< 15
Euhaline Mud	> 25	15 - 25	< 15
Abundance (#/m²)			
Polyhaline Sand	2,500 - 10,000	1,000 - 2,500	< 1,000
		or 10,000 - 25,000	or > 25,000
Polyhaline Mud	3,000 - 10,000	1,500 - 3,000	< 1,500
		or 10,000 - 20,000	or > 20,000
Euhaline Sand	3,000 - 10,000	1,500 - 3,000	< 1,500
		or 10,000 - 50,000	or > 30,000
Euhaline Mud	3,500 - 10,000	2,000 - 3,500	< 2,000
		or 10,000 - 25,000	or > 25,000
Biomass			
Polyhaline Sand	2 - 8	0.8 - 2 or > 8	< 0.8
Polyhaline Mud	3 - 10	1 - 3 or > 10	< 1
Euhaline Sand	2 - 10	0.8 - 2 or > 10	< 0.8
Euhaline Mud	4 - 10	1 - 4 or > 10	< 1
Abundance of Pollution-Indicative Taxa (%)			
Polyhaline Sand	< 10	10 - 40	> 40
Polyhaline Mud	< 10	10 - 40	> 40
Euhaline Sand	< 10	10 - 40	> 40
Euhaline Mud	< 10	10 - 40	> 40

Table 6. Continued

	Scoring Criteria		
	5	3	1
Abundance of Pollution-Sensitive Taxa (%)			
Polyhaline Sand	> 15	3 - 15	< 3
Polyhaline Mud	> 15	3 - 15	< 3
Euhaline Sand	> 15	3 - 15	< 3
Euhaline Mud	> 10	2 - 10	< 2
Abundance of Carnivores/Omnivores (%)			
Polyhaline Sand	> 15	3 - 15	< 3
Polyhaline Mud	> 15	4 - 15	< 4
Euhaline Sand	> 10	2 - 10	< 2
Euhaline Mud	> 10	3 - 10	< 3