FINAL REPORT
Harbor Toxics TMDL/Bight 2013 Monitoring Program Los Angeles and Long Beach Harbors

Submitted to:
Port of Los Angeles
Environmental Management Division
425 South Palos Verdes Street
San Pedro, California 90731

and

Port of Long Beach
Environmental Planning
4801 Airport Plaza Drive
Long Beach, California 90802

Submitted by:
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February 2016

Port of Los Angeles
Agreement Number: 13-3141
ADP Number 970203-532 W
Project Directive Number: 17
AFW Project Number 1315102717

Port of Long Beach
Contract Number: HD-8101
Job Task 1308
AFW Project Number 1315100108

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ACRONYMS AND ABBREVIATIONS

%	percent
°C	degrees Celsius
µg/kg	micrograms per kilogram (parts per billion)
µm	micron
Amec Foster Wheeler	Amec Foster Wheeler Environment & Infrastructure, Inc.
ASTM	ASTM International (formerly the American Society for Testing and Materials)
Bight '13	Southern California Bight 2013 Regional Monitoring Survey
BRI	Benthic Response Index
CA LRM	California Data Logistic Regression Model
CLP	Contract Laboratory Program
cm	centimeters
COC	chain of custody
CSI	chemical score index
DCE	Dancing Coyote Environmental
DDE	dichlorodiphenyldichloroethylene
dGPS	differential global positioning system
EMAP	Environmental Monitoring and Assessment Program
Harbor Toxics TMDL	Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants Total Maximum Daily Load
HDPE	high-density polyethylene
IBI	Index of Biotic Integrity
LCS	laboratory control spike
LCSD	laboratory control spike duplicate
LOE	line of evidence
m	meters
m/sec	meters per second
m^2	square meters
Merkel	Merkel and Associates, Inc.
mg/kg	milligrams per kilogram (parts per billion)
MLOE	multiple lines of evidence
mm	millimeters

ACRONYMS AND ABBREVIATIONS (Cont.)

MS	matrix spike
MSD	matrix spike duplicate
N/A	not applicable
O/E ratio	ratio of the number of taxa in a test sample (O) to the number of taxa expected to be present (E) in a reference sample from a similar habitat
PAH	polycyclic aromatic hydrocarbon
PBDE	polybrominated diphenyl ether
PCB	polychlorinated biphenyl
Physis	Physis Analytical, Inc.
POLA	Port of Los Angeles
POLB	Port of Long Beach
Ports	Ports of Los Angeles and Long Beach
PQAPP	Project-specific Quality Assurance Project Plan
QA	quality assurance
QC	quality control
R/V	Research Vessel
RBI	relative benthic index
RIVPACS	River Invertebrate Prediction and Classification System
RPD	relative percent difference
SCAMIT	Southern California Association of Marine Taxonomists
SCCWRP	Southern California Coastal Water Research Project
SIM	Selected Ion Monitoring
SM	Standard Method
SOP	standard operating procedure
SQO	sediment quality objective
SRM	standard reference material
SWRCB	State Water Resources Control Board
TMDL	Total Maximum Daily Load
TOC	total organic carbon
USEPA	United States Environmental Protection Agency
WGS84	World Geodetic System 1984
Work Plan	Harbor Toxics TMDL Work Plan

1.0 INTRODUCTION

This sediment quality characterization project was designed and implemented to comply with the first year of monitoring required in support of the Dominguez Channel, Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants Total Maximum Daily Load (TMDL), State Water Resources Control Board (SWRCB) Resolution No. R11-008 (referred to as the "Harbor Toxics TMDL"). Monitoring requirements in support of the TMDL in 2013 were fulfilled jointly by the Ports of Los Angeles and Long Beach (Ports) through participation with the Southern California Bight 2013 Regional Monitoring Survey (Bight '13) monitoring efforts coordinated by the Southern California Coastal Water Research Project (SCCWRP). This report summarizes sample locations, methodology, results, quality control/assurance measures, and general conclusions related to this monitoring effort.

1.1 Project Location and Description

This project for the Ports of Los Angeles and Long Beach involved the collection of surficial sediment samples at 30 locations within the Ports (26 sites as part of the randomized draw for the Bight '13 program, and 4 targeted sampling locations to fulfill sampling location gaps in support of the TMDL). The Bight '13 program uses a probability-based sampling design developed by the Environmental Monitoring and Assessment Program (EMAP) that combines the strengths of systematic and random sampling. This Generalized Random Tessellated Stratified sampling design creates a spatially balanced random sampling scheme. Intensified sampling in certain areas can be achieved by increasing inclusion probabilities. Sampling locations were distributed across three designated Bight '13 strata: Bay, Port, and Marina, as summarized in Table 1-1 and shown graphically in Figure 1-1). Samples collected at each of the 30 stations were analyzed for chemistry, toxicity, and benthic infaunal community consistent with measures required for the State of California Sediment Quality Objective (SQO) assessment framework. Descriptions of each of these components are provided below.

Table 1-1.
Bight '13/TMDL Sediment Grab Sampling Locations and Strata Within the Ports of Los Angeles and Long Beach

Station ID	Port	Sample Coordinates WGS84		Bight '13 Strata
		Latitude	Longitude	
B13-8302	POLA	33.71242	-118.2579	Bay
B13-8304	POLA	33.71345	-118.24131	Bay
B13-8306	POLA	33.71475	-118.28269	Bay
B13-8308	POLA	33.71740	-118.24385	Port
B13-8309[a]	POLA	33.71730	-118.26800	Port
B13-8310	POLA	33.71791	-118.23298	Port
B13-8316	POLA	33.72387	-118.26270	Port
B13-8340	POLA	33.73549	-118.27676	Port
B13-8367	POLA	33.74853	-118.24890	Port
B13-8384	POLA	33.75686	-118.27742	Port

Table 1-1.
Bight '13/TMDL Sediment Sample Locations and Strata within the Ports of Los Angeles and Long Beach (Cont.)

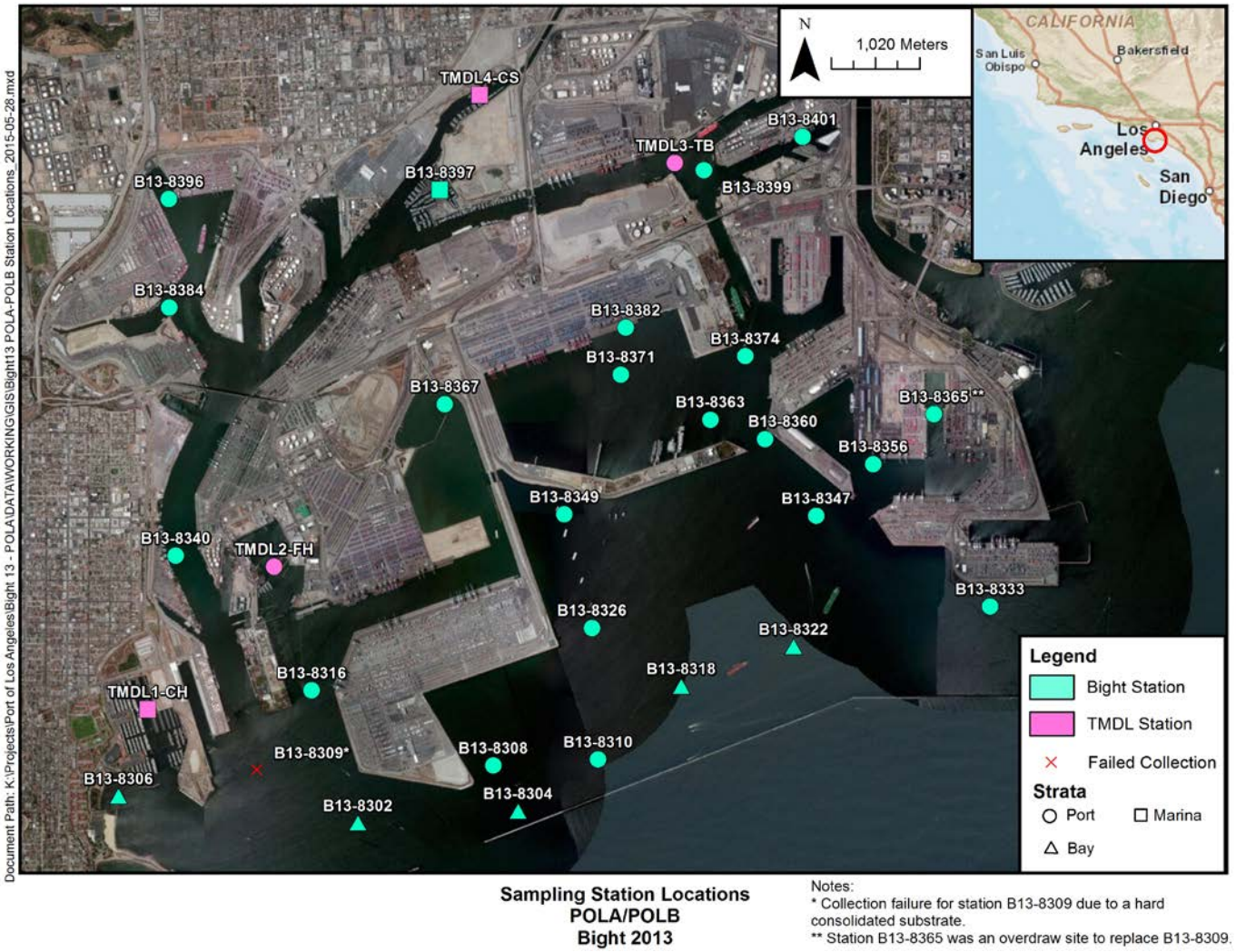
Station ID	Port	Sample Coordinates WGS84		Bight '13 Strata
		Latitude	Longitude	
B13-8396	POLA	33.76620	-118.27747	Port
B13-8397	POLA	33.76700	-118.24938	Marina
TMDL Station 2-FH[b]	POLA	33.73452	-118.26658	Port
TMDL Station 1-CH	POLA	33.72224	-118.27967	Marina
TMDL Station 4-CS	POLA	33.77517	-118.24528	Marina
B13-8318	POLB	33.72421	-118.22437	Bay
B13-8322	POLB	33.72762	-118.21274	Bay
B13-8326	POLB	33.72924	-118.23361	Port
B13-8333	POLB	33.73110	-118.19240	Port
B13-8347	POLB	33.73891	-118.21039	Port
B13-8349	POLB	33.73911	-118.23636	Port
B13-8356	POLB	33.74337	-118.20448	Port
B13-8360	POLB	33.74553	-118.21570	Port
B13-8363	POLB	33.74719	-118.22137	Port
B13-8365[c]	POLB	33.74767	-118.19819	Port
B13-8371	POLB	33.75109	-118.23063	Port
B13-8374	POLB	33.75269	-118.21776	Port
B13-8382	POLB	33.75512	-118.23012	Port
B13-8399	POLB	33.76871	-118.22204	Port
B13-8401	POLB	33.77158	-118.21180	Port
TMDL Station 3-TB[b]	POLB	33.76930	-118.22504	Port

Notes:
POLA = Port of Los Angeles – shaded blue boxes; POLB = Port of Long Beach – unshaded white boxes; TMDL = Total Maximum Daily Load; WGS84 = World Geodetic System 1984

a Collection was not successful at Station B13-8309 due to a hard consolidated substrate and was thus abandoned and replaced with a predesignated overdraw site per the Bight '13 sampling guidance (Station 8365).

b At two TMDL stations, duplicate sediment chemistry samples were collected and tested. TMDL Station 2-FH had a duplicate sample identified as TMDL Station 5-DT. TMDL Station 3-TB had a duplicate sample identified as TMDL Station 6-CP.

c Station B13-8365 was an overdraw site to replace the failed location B13-8309.



Sampling Station Locations
POLA/POLB
Bight 2013

Notes:
* Collection failure for station B13-8309 due to a hard consolidated substrate.
** Station B13-8365 was an overdraw site to replace B13-8309.

Figure 1-1. Overview of Bight '13/TMDL Sampling Locations and Defined Strata in the Ports of Los Angeles and Long Beach

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2.0 SAMPLE COLLECTION PROCEDURES

2.1 Sample Collection

Field sediment sampling methods followed specific guidelines as outlined in the Bight '13 Field Operations Manual (SCCWRP 2013a). The Field Operations Manual included detailed descriptions of collection procedures, criteria for acceptable samples, and conditions under which samples needed to be recollected. The Field Operations Manual also provided an overview of field teams, activities, and safety-related procedures; protocol calibration; navigation requirements; sampling schedule; station types; procedures for benthic sampling; procedures for packaging and shipping of samples; contingency plans; and procedures for managing information collected in the field.

A differential global positioning system (dGPS) was used to navigate to the sampling locations listed in Table 1-1. The target navigational accuracy was ±3 meters (m). The 42-foot research vessel (R/V) *Early Bird II* was used as a platform for all sample collections. A one- to three-point anchor system (depending on currents) was used to maintain position during sampling efforts. Once secured, the position was recorded in a field log, and the water depth was measured with a weighted fiberglass tape. All sediment samples were collected using a modified 0.1-square-meter (m^2) Van Veen grab sampler (Figure 2-1). The Van Veen was lowered at 2 meters per second (m/sec) until it was approximately 5 m above the bottom, and then lowered at 1 m/sec to minimize the effects of bow wave disturbance of the surface sediment. Once bottom contact was made (indicated by slack in the winch wire), the tension on the wire was increased to close the Van Veen and collect the grab sample. The Van Veen was then slowly retrieved. Once the sampler was onboard, the top doors of the Van Veen were opened to inspect the sample. Sample acceptability criteria were based on sample integrity and depth of penetration of the grab sample per specifications in the Field Operations Manual. An acceptable grab sample was characterized by an even surface with minimal disturbance, little or no leakage of overlying water, and a penetration depth of at least 5 centimeters (cm). Samples that did not meet these criteria were rejected, and another grab sample was attempted after moving the boat a few feet to ensure collection of an undisturbed sample. Three separate drops of the Van Veen were required at each sampling location (moving slightly between each) to capture sufficient sediment for all components in the following order: (1) benthic infauna; (2) sediment chemistry and grain size; and (3) sediment toxicity.

Sampling was successfully conducted at all planned locations except for Station B13-8309 within the Port of Los Angeles. Station B13-8309 was abandoned per Bight '13 protocol because of multiple sediment collection event failures due to a hard substrate surface, likely from heavy scouring at this busy location in the middle of the main channel in the Port of Los Angeles (POLA). Station B13-8309 was replaced with a pre-determined overdraw Station B13-8365 located in the Port of Long Beach (POLB) (see Figure 1-1 for both locations).

Figure 2-1. Sediment Sampling Using the Double Van Veen Grab Sampler on the R/V Early Bird II

2.2 Benthic Community Collection

Following collection of an acceptable sediment sample for benthic community, the sediment was released into a plastic bin placed below the Van Veen by gently opening the jaws and rinsing the inside with filtered seawater (Figure 2-2). The seawater was filtered onboard using a 20-micron (µm) filter cartridge to prevent the accidental introduction of surface-water organisms. The bulk sediment was then rinsed through an enclosed box with a 1.0-millimeter (mm) stainless-steel mesh screen, leaving behind benthic infaunal organisms and larger debris. Once rinsed, all materials retained on the screen were transferred into a sample container, with the exception of manually removed larger shells and debris. Infaunal samples were immediately treated with a relaxant solution for approximately 30 minutes, and then preserved with a 10 percent (%) formalin solution. Prior to reaching the next station, all sampling gear was thoroughly rinsed and decontaminated.

Figure 2-2. Benthic Infaunal Community Collections – Sieving Sediments and Capture of Organisms in the Field for Subsequent Identification

2.3 Sediment Chemistry

Sediment samples for physical characterization and chemistry were collected directly from an opening at the top of the intact sediment grab sample while the jaws of the Van Veen remained closed and after the overlying water was removed. Samples were collected from the top 5 cm of sediment using a stainless-steel scoop that was washed with alcanox and seawater, and rinsed with deionized water between sampling locations. Sediment that was in contact with or within 1 cm of the metal sides of the grab sampler was avoided to prevent potential contamination from the sides. Individual sampling containers and associated volumes and analyses for each are summarized in Table 2-1.

Table 2-1.
Sediment Grain Size and Chemistry Subsampling Containers and Volumes

Analysis Type	Container Type	Minimum Target Volume
Sediment Grain Size	1 Quart Ziplock Bag	100 g
Total Organic Carbon/Nitrogen	8-ounce Glass	200 g
Trace Metals	8-ounce Glass	200 g
Trace Organics including Pyrethroids	8-ounce Glass	200 g
Chlorinated Hydrocarbons	8-ounce Glass	200 g
Polybrominated Diphenyl Ethers (PBDEs)	8-ounce Glass	200 g

Notes:
g = grams

Following the Bight protocol, sediment samples were not homogenized in the, but rather were filled directly from the surface of the intact grab sample in the Van Veen using the stainless-steel scoop. The jars were filled sequentially in a manner where sediment volume from a given section of the grab sample was distributed equally among all pre-labeled sample jars until all were full. The method is intended to result in an equal and representative sample in each jar, but given small-scale variability often apparent in surface sediments, this can be challenging

and creates the potential for unintended variation among the different containers. Given this challenge, a strong recommendation has been made for future Bight programs to consider homogenizing sediments in the field from a given sampling location prior to distributing to both chemistry and toxicity containers.

Detailed field notes regarding the sampling location, visual sediment characteristics, and other observations of potential value at the site were recorded during sample collection. A photograph log of all sediments collected and associated field datasheets are provided in Appendices A and B, respectively. All samples were logged on a chain of custody (COC) form, and then placed in a cooler on ice. Samples were stored at 4 degrees Celsius (°C) in the dark and delivered to the appropriate laboratory for analysis within 48 hours of collection. Subsamples for sediment grain size were similarly handled; all samples were logged on a COC form and stored at 4°C in the dark, but were shipped as a single batch to SCCWRP at the end of field sampling efforts.

2.4 Sediment Toxicity

Sediment toxicity samples were collected by scooping the top 5 cm from the grab sample with a stainless-steel scoop and sediment within 1 cm of the metal sides of the grab sampler was avoided to prevent sample contamination. Similar to those for sediment chemistry, containers for toxicity testing were filled sequentially in a manner where sediment volume from a given section of the grab sample was distributed equally until all five pre-labeled high-density polyethylene (HDPE) containers were full. Unlike the sediment chemistry subsamples, the containers for toxicity testing were all emptied at the testing lab (Nautilus Environmental) and the sediment was homogenized before being redistributed for toxicity testing.

Detailed field notes were recorded during sample collection and all samples were logged on a COC form. These samples were stored on ice until delivered to Nautilus Environmental for analysis, within approximately 48 hours after collection.

3.0 SAMPLE ANALYSIS

All samples were analyzed as outlined in the Harbor Toxics TMDL Work Plan (Work Plan) (Anchor QEA 2013a) and the Project-specific Quality Assurance Project Plan (PQAPP) (Anchor QEA 2013b), and Bight '13 laboratory manuals (SCCWRP 2013b–2013e). Chemical analysis method detection limits and reporting limits have been compared for consistency between these two programs. Where differences were observed for a few analytes, the lower of the two limits were included in the project-specific Work Plan.

3.1 Chemical and Physical Analyses

Sediment chemical analyses were performed according to the United States Environmental Protection Agency (USEPA) or Standard Methods guidance for the constituents listed in Table 3-1. Grain-size analyses were performed at the City of San Diego Public Utilities Department Environmental Monitoring and Technical Services Division using the ASTM International (ASTM [formerly the American Society for Testing and Material]) D4464M laser method. Percent fines, sand, and gravel are reported to 0.1%, along with the corresponding millimeter and phi sizes. These results are currently considered qualified at this time because of concerns related to the percent clay fraction following discussions with staff at SCCWRP. The combined clay/silt fraction is not compromised because the missing clay fraction appears to be within that category based on historic comparison.

3.2 Toxicity Testing

Two solid-phase sediment toxicity tests were performed for each sample: a 10-day amphipod survival test using *Eohaustorius estuarius,* and a 48-hour sediment-water interface test using embryos of the mussel *Mytilus galloprovincialis*. The amphipod test was conducted in accordance with procedures outlined in the USEPA amphipod testing manual (USEPA 1994), the ASTM method E1367-03 (ASTM 2006), and the Bight '13 Toxicology Laboratory Manual (SCCWRP 2013d). The mussel embryo test was conducted in accordance with procedures outlined in Anderson et al. (1996), the ASTM method E724-98 (ASTM 1998), and the Bight '13 Toxicology Laboratory Manual (SCCWRP 2013d). Details of the sediment toxicity test setup are shown below in Figure 3-1.

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Table 3-1.
Physical Characterization and Sediment Chemistry Analyses

Analyte	Analysis Method	Sediment Target Reporting Limits[a, b]
Total Solids	160.3/SM 2540 B	0.1 %
Total Organic Carbon	9060	0.01 %
Grain Size	SM2560	0.1%
Aluminum	6020/6010B[d]	NA
Antimony	6020/6010B[d]	10 mg/kg
Arsenic	6020/6010B[d]	1.6 mg/kg
Barium	6020/6010B[d]	NA
Beryllium	6020/6010B[d]	0.2 mg/kg
Cadmium	6020/6010B[d]	0.01 mg/kg
Chromium	6020/6010B[d]	0.1 mg/kg
Copper	6020/6010B[d]	0.1 mg/kg
Iron	6020/6010B[d]	NA
Lead	6020/6010B[d]	0.1 mg/kg
Mercury	7471A[d]	0.02 mg/kg
Nickel	6020/6010B[d]	0.1 mg/kg
Selenium	6020/6010B[d]	0.1 mg/kg
Silver	6020/6010B[d]	0.1 mg/kg
Zinc	6020/6010B[d]	0.1 mg/kg
Total Nitrogen[i]	TKN / SM 4500-NO_3 E(M) / SM 4500-NO_2 B(M)	4.0 mg/kg
Total Phosphorus[i]	SM 4500-P B/E(M)	4.0 mg/kg
Ammonia	SM 4500-NH_3	0.2 mg/kg
Sulfide	USEPA 376.2	0.5 mg/kg
PAHs[e]	8270C/8270D-SIM	20 µg/kg
Chlorinated Pesticides[f]	8081A[d]	0.5 µg/kg
PCB Congeners[g]	8270C SIM PCB[d]	0.2-10 µg/kg
PBDEs[h,i]	8270 C NCI	0.1 µg/kg
Pyrethroid Pesticides[j]	EPA 8270 C NCI	0.5 µg/kg

Notes:

a Sediment minimum detection limits are on a dry-weight basis.

b Reporting limits provided by Physis Environmental Laboratories.

c Standard Methods for the Examination of Water and Wastewater, 19th Edition, American Public Health Association et al. 1995.

d USEPA 1986-1996. SW-846. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition.

e Includes Acenaphthene, Acenaphthylene, Anthracene, Benz[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[e]pyrene, Benzo[g,h,i]perylene, Benzo[k]fluoranthene, Biphenyl, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-c,d)pyrene, Naphthalene, Perylene, Phenanthrene, Pyrene, 2,6-Dimethylnaphthalene, 1-Methylnapthalene, 2-Methylnapthalene, 1-Methylphenanthrene, and 1,6,7-Trimethylnaphthalene.

f Includes cis-chlordane, trans-chlordane, o.p'-DDT, p,p'-DDT, o.p'-DDD, p,p'-DDD, o.p'-DDE, p.p'-DDE, p,p'-DDMU, cis-nonachlor, trans-nonachlor, oxychlordane, dieldrin, and toxaphene.

g Includes congeners: PCB-3, 5, 8, 15, 18, 27-29, 31, 33, 37, 44, 49, 52, 56, 60, 66, 70, 74, 77, 81, 87, 95, 97, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 137, 138, 141, 149, 151, 153, 156-158, 167-170, 174, 177, 180, 183, 187, 189, 194,195, 200, 201, 203, 206, and 209.

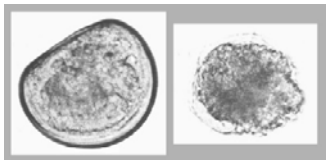
h Includes PBDE-17, 28, 47, 49, 66, 85, 99, 100, 138, 153, 154, 183, and 209.

i Not analyzed in TMDL samples

j Not analyzed in TMDL samples, with exception of TMDL Site 4-CS. Includes Pyrethroids: Allethrin, Bifenthrin, Cyfluthrin, Cypermethrin, Esfenvalerate, Fenvalerate, Fluvalinate, L-Cyhalothrin, cis-Permethrin, trans-Permethrin, Prallethrin, Resmethrin.

µg/kg = micrograms per kilogram (parts per billion); PBDE = polybrominated diphenyl ether; PCB = polychlorinated biphenyl; mg/kg = milligrams per kilogram (parts per million); N/A = not applicable; PAH = polycyclic aromatic hydrocarbon; SIM = Selected Ion Monitoring; SM = Standard Method; SOP = standard operating procedure; TOC = total organic carbon

Mytilus galloprovincialis



Mussel Embryo (*Mytilus*) sp.

Figure 3-1. Sediment Toxicity Test Setup

The solid-phase amphipod test using the amphipod *Eohaustorius estuarius* on the left, and the mussel embryo test showing normal versus abnormal embryos and the sediment water interface test chambers on the right. Embryos are inoculated into the inner chamber with a 20-µm screen near the sediment surface.

3.3 Macrobenthic Community Assessment

Benthic infaunal samples were analyzed according to procedures outlined in the Bight '13 Macrobenthic (Infaunal) Sample Analysis Laboratory Manual (SCCWRP 2013e). After receipt of samples from the field, laboratory analysis and reporting of infaunal samples involved the following main processes (in order): sample preservative transfer from formalin to ethanol, sample sorting to major taxonomic group, organism identification, enumeration, and preservation, quality assurance and quality control (QA/QC) validation, database reporting, and calculation of benthic community metrics. Sorting of the samples was conducted at Merkel and Associates Inc. (Merkel), and organism identifications were conducted by marine specialty taxonomists at Dancing Coyote Environmental (DCE). QA/QC steps included a resort and identification of infauna in 10% of the samples as well as the identification of blind split samples by multiple taxonomy groups.

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4.0 RESULTS

Consistent with the Bight '13 Program, the quality of surface sediment within the Port Harbors was assessed using the California SQO methodology (Bay et al. 2014 and SWRCB 2009). The SQO uses a multiple line-of-evidence (LOE) approach that evaluates both the severity of measured biological effects and the potential for chemically mediated effects. Three lines of evidence (sediment chemistry, sediment toxicity, and benthic infaunal community condition) are combined to provide a final integrated sediment quality assessment. Each of these LOEs is described in further detail below and SQO results tables are provided in Appendix C.

The LOE tools are used to assess the condition of benthic communities relative to the potential risk of exposure to toxic pollutants in sediments. The presence of toxic pollutants at elevated levels may result in some combination of a degraded benthic community, presence of toxicity, and/or harmful concentrations of pollutants in sediment. Each individual LOE has specific strengths and limitations; therefore, the SQO approach requires the integration of all three LOEs to provide a more robust assessment. Bay et al. also described two limitations of the SQO analysis: (1) it assesses only direct impacts to sediment biota and does not address the impacts to human health or wildlife through bioaccumulation and/or biomagnification of contaminants in fish and shellfish; and (2) the analysis does not identify specific chemicals causing impacts.

4.1 SQO Analysis for Sediment Chemistry

Results of the SQO chemistry analysis are provided in Appendix C-2. The chemistry LOE is based on a combination of two sediment chemistry indices that determine the magnitude of chemical exposure at a site. The two chemistry indices are: (1) a California Data Logistic Regression Model (CA LRM) (Bay et al. 2012); and (2) the Chemical Score Index (CSI) (Ritter et al. 2012).

The CA LRM was developed using a USEPA logistic regression modeling approach that estimates the probability of toxicity on the basis of the chemical concentration (Field et al. 2002; USEPA 2005). The CSI uses chemistry data to predict the occurrence and severity of benthic community disturbance. Index-specific response ranges are applied to each index to classify the result into one of four chemical exposure categories: Minimal, Low, Moderate, and High Exposure. The resulting exposure categories are assigned a score of 1 to 4 (e.g., Minimal Exposure = 1) and the average of the scores for each chemistry index is used to determine the overall chemistry LOE category.

Results of the metric calculations found elevated concentrations of copper and zinc to be the primary drivers of the CSI score among all harbor samples (Table 4-1) and elevated concentrations of zinc to be the primary driver of the CA LRM scores among most of the harbor samples (Table 4-2).

Using the two metrics, the integrated chemistry score categorized 1 station (3.3% of total sites) as having Minimal Exposure potential, 22 stations (73.3%) as having Low Exposure potential, 3 stations (10.0%) as having Moderate Exposure potential, and 4 stations (13.3%) as having High Exposure potential (Table 4-3 and Figure 4-1). The full sediment chemistry laboratory report and results are provided in Appendix D. A QA/QC validation report for analytical chemistry is provided in Appendix E.

Table 4-1.
Individual Chemical Drivers for the CSI Scores

Rank	Station/Constituent	
	Station B13-8302	All Remaining Stations (B13-8304 – TMDL4-CS)
1	Copper	Copper
2	Zinc	Zinc
3	Total DDEs	Lead

Notes:
DDE = dichlorodiphenyldichloroethylene

Table 4-2.
Individual Chemical Drivers for the CA LRM Scores

Number of Stations	Chemical
2	Cadmium
1	Copper
1	Mercury
1	Lead
25	Zinc
30	Total

Table 4-3.
Integrated Chemistry LOE Category Results

Integrated Chemistry LOE Impact Category	Percentage (%) of Stations
Minimal	3.3
Low	73
Moderate	10
High	13

Notes:
LOE = line of evidence

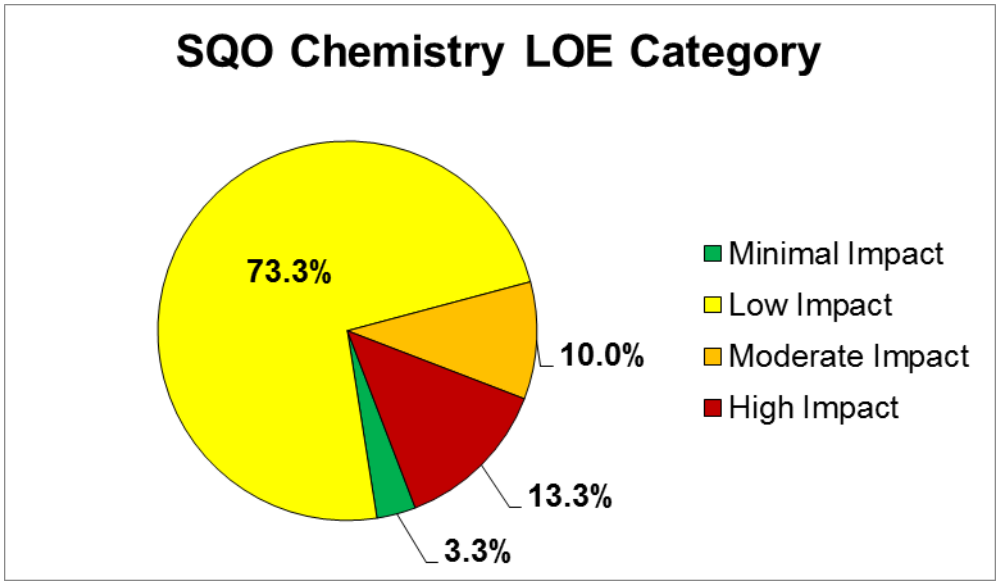

Figure 4-1. Percentage of POLA/POLB Bight '13 Stations in each SQO Integrated Chemistry LOE Category

4.2 Sediment Grain Size

Sediment grain size data are provided in Appendix F. The data are provided with a qualifier related to the clay fraction. The fraction of clay appears anonymously low following a review of region-wide data by SCCWRP. It appears however that the clay fraction is accounted for accordingly in the combined silt & clay fines category. Results were variable among sites with gravel fractions of 0% at all stations but with percent sand ranging from 6.3% to 87.0%, and percent fines (silt and clay) ranging from 12.3% to 92.8% among all samples. In general, those areas with finer grain size were located within the inner harbor locations.

4.3 SQO Analysis for Sediment Toxicity

Complete results of the SQO toxicity analysis are provided in Appendices C-3 and C-4. Sediment toxicity is a measure of the response of invertebrates exposed to surficial sediments under controlled laboratory conditions. The sediment toxicity LOE is used to assess both pollutant-related biological effects and exposure. Sediment toxicity tests are of relatively short duration and may not duplicate the long-term exposure conditions in natural systems. This LOE provides a measure of exposure to all pollutants present, including non-traditional or unmeasured chemicals. The toxicity LOE integrates results from both the amphipod and bivalve toxicity test procedures described in Section 3.2. The integrated toxicity assessment categorizes sites into one of four toxicity categories: Nontoxic, Low Toxicity, Moderate Toxicity, and High Toxicity.

Effects were minimal using both test species. The bivalve test identified 27 samples that were Nontoxic (Appendix C-3), while the amphipod test identified 19 samples that were Nontoxic. The integrated toxicity LOE categorized 17 stations (56.7%) as Nontoxic while 13 stations (43.3%) had Low Toxicity (Table 4-4). No stations sampled within the Port Harbors had Moderate

Toxicity or High Toxicity. The final Bight '13 toxicity report combined the nontoxic and low toxicity categories in their overall assessment considering both to represent nontoxic conditions due to the limited degree of response and level of uncertainty of the low toxicity category. Consequently, according to the Bight '13 toxicology report, all samples for both test species were considered nontoxic for this single line of evidence. A summary of results at sites that have been resampled over time during prior Bight programs is provided as an integrated map via the following link: http://www.sccwrp.org/data/SearchAndMapData.aspx. Results of the integrated sediment toxicity assessment are listed in Table 4-4 and graphically in Figure 4-2. A full toxicity laboratory report is provided in Appendix G.

Table 4-4.
Integrated Sediment Toxicity Category Results

Integrated Toxicity LOE Category	Percentage (%) of Sites
Nontoxic	57
Low Toxicity	43
Moderate Toxicity	0
High Toxicity	0

Notes:
LOE = line of evidence

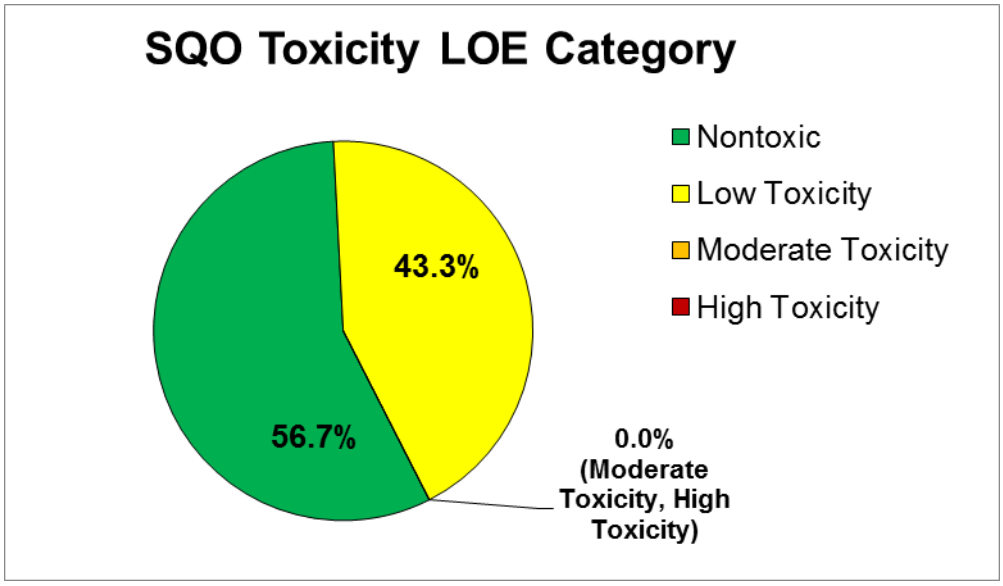

Figure 4-2. Percentage of POLA/POLB Bight '13 Stations in each SQO Integrated Toxicity LOE Category

4.4 Benthic Community Composition

The benthic community was assessed by individually quantifying benthic taxa statistics and benthic community individual metrics, and then combining these to determine an integrated score for each site.

The most common species identified in sediments from the Ports of Los Angeles and Long Beach combined are summarized in Table 4-5, with representative species photographs below in Figure 4-3. Seven of the top ten species were annelids, one was a mollusc, and two were arthropods. A full list of all species identified for each site is provided in Appendix H.

Table 4-5.
Most Common Benthic Community Species

Phyla	Family	Genus species	Total Abundance	Photo #
Annelida	Spionidae	*Pseudopolydora*	1379	2
Annelida	Cossuridae	*Cossura sp A*	1027	1
Annelida	*Oligochaeta*	*Oligochaeta*	698	4
Mollusca	Semelidae	*Theora lubrica*	403	5
Arthropoda	Corophiidae	*Sinocorophium heteroceratum*	336	3
Arthropoda	Aoridae	*Grandidierella japonica*	291	7
Annelida	Capitellidae	*Mediomastus sp**	236	NA
Annelida	Sabellidae	*Euchone limnicola*	203	6
Annelida	Cirratulidae	*Aphelochaeta monilaris*	185	9
Annelida	Terebellidae	*Pista wui*	170	8

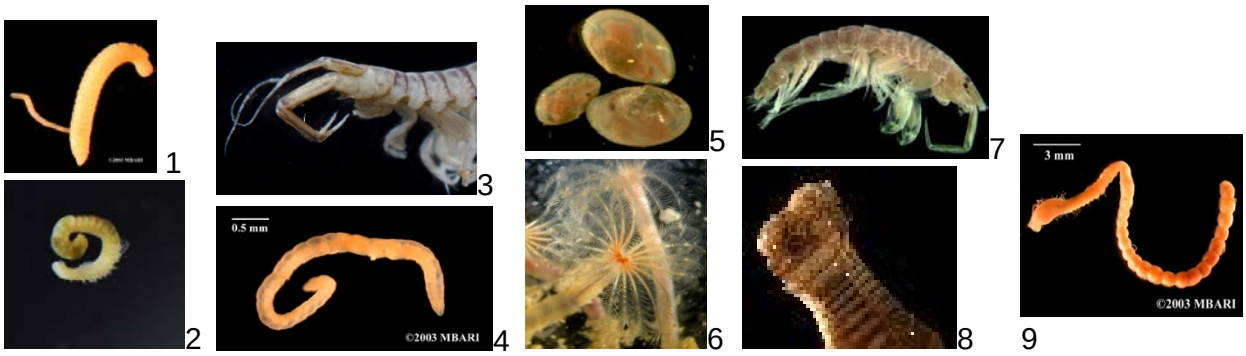

Figure 4-3. Representative Benthic Community Species Photographs

4.4.1 SQO Analysis for Benthic Community Condition

Results of the SQO analysis for benthic community condition LOE are provided in Appendices C-5, C-6, and C-7. Research in California embayments has shown that the use of a combination of benthic indices provides a more accurate description of benthic invertebrate community condition than does the use of a single index (Ranasinghe et al. 2009). An integrated benthic community assessment score is derived from four different benthic indices: (1) the Index of Biotic Integrity (IBI); (2) the Relative Benthic Index (RBI); (3) the Benthic Response Index (BRI); and (4) the River Invertebrate Prediction and Classification System (RIVPACS).

Each index categorizes benthic condition into one of four disturbance categories:

- **Reference**: A community that would occur at an undisturbed reference site for that habitat
- **Low Disturbance**: A community that may exhibit some indication of stress, but is within measurement variability of, or statistically similar to, reference condition
- **Moderate Disturbance**: A community that exhibits clear evidence of physical, chemical, natural, or anthropogenic stress
- **High Disturbance**: A community exhibiting a high magnitude of stress

Details about the history, background, and development of the indices and literature citations are provided in Ranasinghe (2012). A brief summary of the four indices follows:

- **IBI:** The IBI compares the values of four different metrics with the ranges expected under reference conditions. The metrics used to calculate the IBI are the total number of taxa, number of mollusc taxa, abundance of *Notomastus sp*. (a polychaete), and percentage of sensitive taxa.
- **RBI:** The RBI is the weighted sum of (1) four community metrics related to biodiversity (total number of taxa, number of crustacean taxa, abundance of crustacean individuals, and number of mollusc taxa); (2) abundance of three positive indicator taxa; and (3) presence of two negative indicator taxa. The data needed to calculate the RBI are total number of taxa, number of mollusc taxa, number of crustacean taxa, number of crustacean individuals, number of individuals of *Monocorophium insidiosum*, *Asthenothaerus diegensis*, and *Goniada littorea* (positive indicators), and presence of *Capitella capitata* complex and *Oligochaeta* (negative indicators).
- **BRI:** The BRI is the abundance-weighted pollution tolerance score of the organisms present in a benthic sample. The higher the BRI score, the more degraded the benthic community represented by the sample. Two types of data are needed to calculate the BRI: the abundance of each species and its pollution tolerance score, P.
- **RIVPACS:** The RIVPACS index is based on a predictive model and is a ratio of the number of reference taxa present in a test sample (observed or "O") to the number of taxa expected to be present ("E") in a reference sample from a similar habitat (the O/E ratio). Calculation of the RIVPACS score is a three-step process. The first step places the test sample habitat into one of 12 Southern California marine bay reference sample groups. This habitat determination is based on the test station's bottom depth, salinity, latitude, and longitude, using a linear discriminant function. The second step is to determine, for each test sample, the identity and number of taxa expected to occur, based on the probability of group membership per habitat (i.e., taxa with a ≥50% capture rate in the reference pool). In the final step, the reference taxa observed in the sample are counted, the O/E ratio is calculated, and this value is compared to published response ranges to determine the RIVPACS condition category. The closer to 1.0 of the O/E ratio, the closer to reference conditions exists.

The final benthic LOE is derived by integrating all four benthic index category scores. Integration is accomplished by averaging the two medians of the four indices. If the median falls between two adjacent categories, the value is rounded up to the higher disturbance category.

Resulting categorizations for each of the four benthic community indices are shown in Table 4-6. Of the four indices, the IBI resulted in the greatest proportion of sites (100%) classified as having Reference to Low Disturbance conditions, while RIVPACS, on the other extreme, resulted in the lowest proportion of sites classified as Reference to Low Disturbance conditions (23.3%). RIVPACS was also the only index to place sites in the High Disturbance category (36.7%). These differences reflect the varying approaches and focus comprising each of the four indices. Ultimately, the effect of scores at the two extremes is minimized because only the two median scores of the four indices are used for each site; therefore, the RIVPACS ratings of High Disturbance were not relevant to the integrated benthic condition ratings.

Following integration of the four indices, 1 station (3.3%) was considered to be in Reference condition, 20 stations (86.7%) were considered to have communities reflective of Low Disturbance, and 3 stations (10%) were considered to have communities reflective of Moderate Disturbance (Table 4-6 and Figure 4-4). Impaired benthic communities were generally limited to areas near river inputs and/or confined areas with limited flushing. A summary of results for all submetric and integrated metric benthic community SQO scores is provided in Appendix C.

Table 4-6.
Integrated Benthic Community Composition Category Results

Integrated SQO Disturbance Category	Percent of Stations				
	BRI (%)	IBI (%)	RBI (%)	RIVPACS (%)	Benthic Community Integrated Line of Evidence (%)
Reference	86.7	43.3	16.7	10.0	3.3
Low Disturbance	6.7	56.7	66.7	13.3	86.7
Moderate Disturbance	6.7	0	16.7	40.0	10.0
High Disturbance	0	0	0	36.7	0

Notes:
BRI = Benthic Response Index
IBI = Index of Biotic Integrity
RBI = Relative Benthic Index
RIVPACS = River Invertebrate Prediction and Classification System
SQO = Sediment Quality Objective

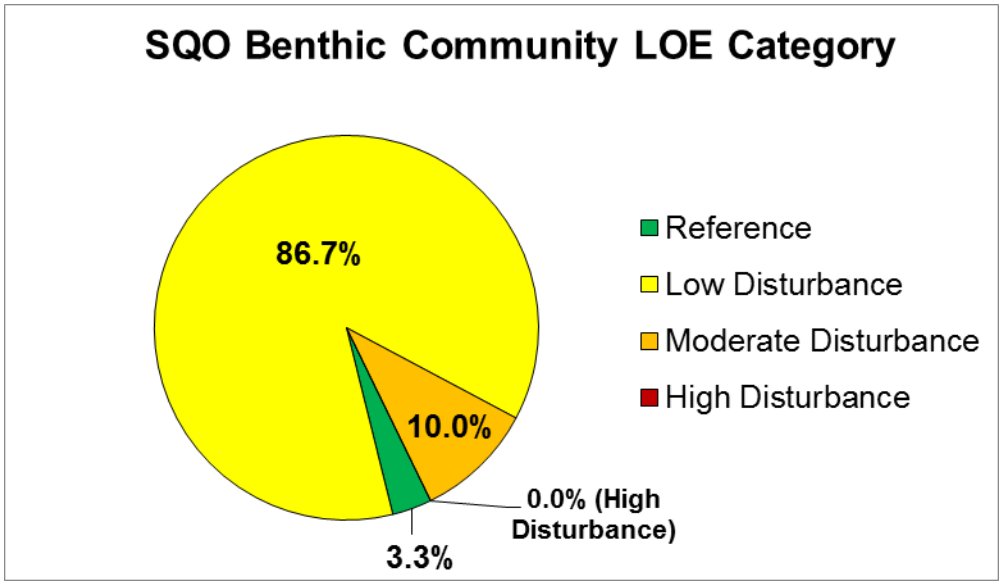

Figure 4-4. Percentage of POLA/POLB Bight '13 Stations in each SQO Integrated Benthic Community LOE Category

4.5 Integrated SQO Station Analysis

Results of the final integrated SQO station assessment of the 3 LOEs are provided in Appendix C-8, Figure 4-5, Figure 4-6, and Table 4-7. The three primary LOEs are integrated using a matrix that provides every combination of the four disturbance categories for each LOE (Bay et al. 2014). This represents 64 possible combinations to determine the final integrated station assessment.

Integrated station assessments are categorized into six potential condition categories:

- Unimpacted
- Likely Unimpacted
- Possibly Impacted
- Likely Impacted
- Clearly Impacted
- Inconclusive

Integration of the LOEs for sediment chemistry exposure, sediment toxicity, and benthic community disturbance showed that 13 of the 30 stations sampled (43.3% of stations) were categorized as Unimpacted, 11 stations (36.7%) were categorized as Likely Unimpacted, and 6 stations (20%) were categorized as Possibly Impacted (Figures 4-5, 4-6, and Table 4-7). No sampling locations were categorized as Likely Impacted or Clearly Impacted. In summary, 80% of the stations in 2013 were categorized as either Unimpacted or Likely Unimpacted. Consistent with prior monitoring efforts and overall expectations, greater disturbance to benthic

communities occurred in locations in the inner harbor areas that are generally characterized by limited circulation/flushing, or are in close proximity to major freshwater inputs.

SQO Integrated Assessment Scores - includes TMDL stations
POLA/POLB
Bight 2013

Figure 4-5. POLA/POLB Bight '13/TMDL Monitoring – Final Integrated SQO Station Assessment

Table 4-7.
POLA/POLB Bight '13/TMDL Monitoring –
Final Integrated SQO Station Assessment

Station	Port	Sediment Chemistry Exposure	Benthic Community Disturbance	Sediment Toxicity	Integrated Station Assessment
B13-8302	POLA	Low	Low	Low Toxicity	Likely Unimpacted
B13-8304	POLA	Low	Low	Nontoxic	Unimpacted
B13-8306	POLA	Low	Low	Low Toxicity	Likely Unimpacted
B13-8308	POLA	Low	Low	Low Toxicity	Likely Unimpacted
B13-8310	POLA	Low	Low	Nontoxic	Unimpacted
B13-8316	POLA	Low	Low	Nontoxic	Unimpacted
B13-8340	POLA	Low	Moderate	Low Toxicity	Possibly Impacted
B13-8367	POLA	Minimal	Low	Nontoxic	Unimpacted
B13-8384	POLA	Low	Moderate	Nontoxic	Likely Unimpacted
B13-8396	POLA	Low	Low	Nontoxic	Unimpacted
TMDL2-FH	POLA	High	Low	Low Toxicity	Possibly Impacted
TMDL1-CH	POLA	Moderate	Low	Low Toxicity	Possibly Impacted
TMDL4-CS	POLA	High	Low	Low Toxicity	Possibly Impacted
B13-8318	POLB	Low	Low	Nontoxic	Unimpacted
B13-8322	POLB	Low	Low	Low Toxicity	Likely Unimpacted
B13-8326	POLB	Low	Low	Nontoxic	Unimpacted
B13-8333	POLB	Low	Low	Nontoxic	Unimpacted
B13-8347	POLB	Low	Low	Low Toxicity	Likely Unimpacted
B13-8349	POLB	Moderate	Low	Low Toxicity	Possibly Impacted
B13-8356	POLB	Low	Low	Nontoxic	Unimpacted
B13-8360	POLB	Low	Low	Nontoxic	Unimpacted
B13-8363	POLB	Low	Reference	Nontoxic	Unimpacted
B13-8365	POLB	Low	Low	Low Toxicity	Likely Unimpacted
B13-8371	POLB	Low	Low	Nontoxic	Unimpacted
B13-8374	POLB	Low	Low	Low Toxicity	Likely Unimpacted
B13-8382	POLB	Low	Low	Nontoxic	Unimpacted
B13-8397	POLB	High	Low	Nontoxic	Likely Unimpacted
B13-8399	POLB	High	Low	Nontoxic	Likely Unimpacted
B13-8401	POLB	Moderate	Low	Low Toxicity	Possibly Impacted
TMDL3-TB	POLB	Low	Moderate	Nontoxic	Likely Unimpacted

Notes:
POLA = Port of Los Angeles – shaded blue boxes
POLB = Port of Long Beach – unshaded white boxes

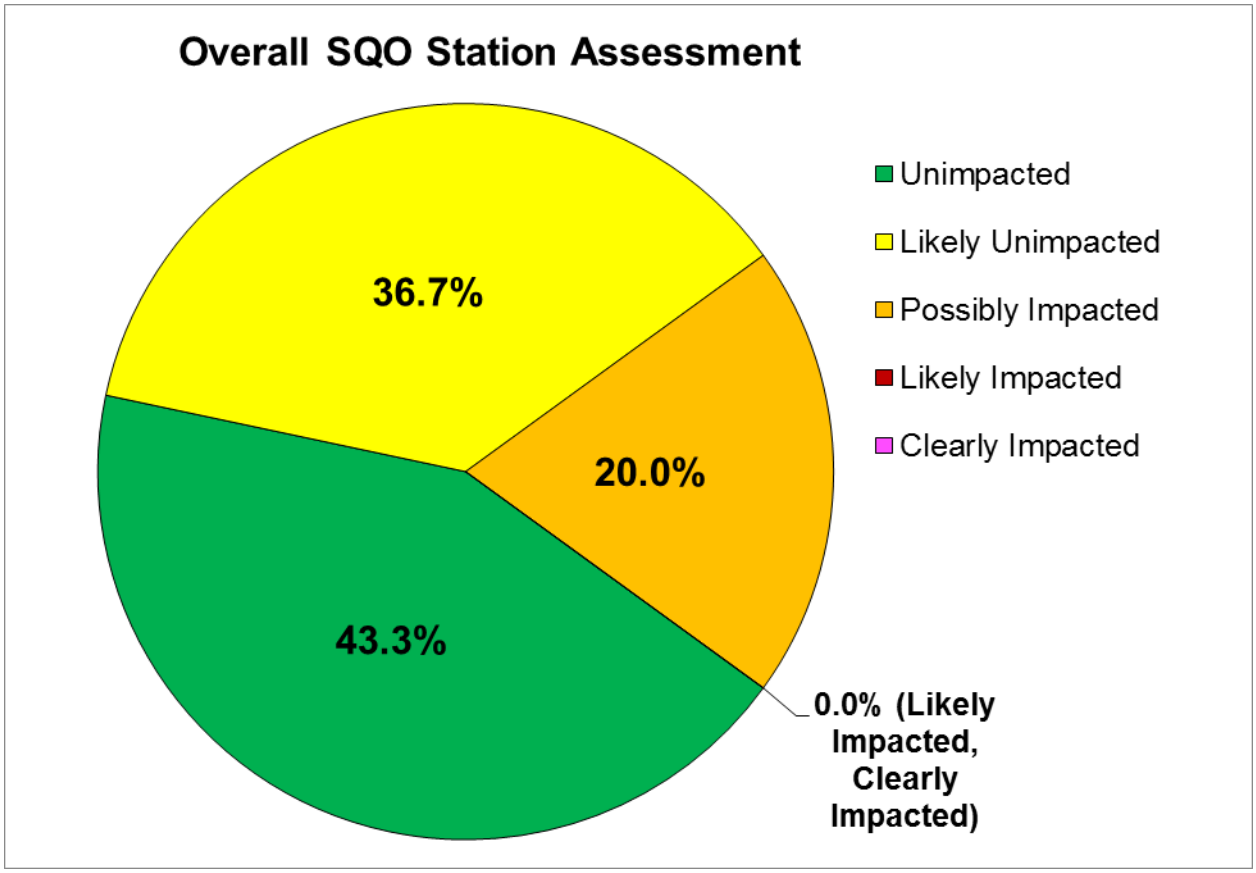

Figure 4-6. Percentage of POLA/POLB Bight '13 Stations in each Overall SQO Integrated Station Assessment Category

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5.0 DATA QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

5.1 Field Activities

Field activities were conducted in accordance with the Bight '13 Field Operations Manual (SCCWRP 2013a) and all QA/QC requirements and objectives were achieved.

5.2 Field QA/QC Samples

Field replicate samples were collected for this program, and submitted blindly to the laboratory. Procedures for collecting field replicates were the same as those used for collecting field samples.

5.3 Chemical and Physical Analyses

Analytical QA/QC for bulk sediment chemistry results were evaluated according to the Bight '13 Quality Assurance Manual (SCCWRP 2013c) and the PQAPP (Anchor QEA 2013b). QA/QC was maintained during the analytical portion of this study by using laboratory replicates, method blanks, blank spikes, and matrix spike and matrix spike duplicates as specified in the Bight '13 Quality Assurance Manual. Results for grain size data are pending at the time of this report, as described earlier.

5.3.1 Data Quality Objectives

Data quality objectives for specific analytes were compliant with Tables 5-3 through 5-6 in the Bight '13 Quality Assurance Manual, and Tables 6 and 10 in the PQAPP for the Harbor Toxics TMDL (Anchor QEA 2013b).

5.3.2 Measurement Quality Objectives

Measurement quality objectives were compliant with Table 2-1 in the Bight '13 Quality Assurance Manual and Table 11 in the PQAPP for the Harbor Toxics TMDL (Anchor QEA 2013b).

5.3.3 Chemistry QA/QC Summary

In summary, all data reported herein were considered acceptable for reporting purposes based on a thorough QA/QC review. Anchor QEA reviewed the chemistry data and produced a validation report, which is provided in Appendix E. The validation report found that, with a few exceptions, quantitation limits were acceptable as reported. Sediment TMDL targets for Dieldrin and toxaphene are currently below achievable laboratory reporting or detection limits. All non-detected data were reported using the method detection limits. Overall, the validation report found that the laboratory, Physis Environmental Laboratories, Inc. (Physis), followed the specified analytical methods and all requested sample analyses were completed. Note that the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Inorganic Data Review (USEPA 2004) and USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Data Review (USEPA 1999) are prescriptive in

nature and do not readily accommodate certain method modifications because they are based on dated objectives of the Contract Laboratory Program (CLP). Specifically, Physis routinely employs non-prescriptive "performance-based" chemistry practices to achieve lower level detections of target compounds in difficult matrices such as sediments. In addition, Physis's organic test methods are calibrated on a mass basis, making it difficult to assess data validation based on concentration derived calibration curves as prescribed in the referenced guidelines. However, the performance-based limits implemented and reported by the laboratory yielded both acceptable accuracy and precision. Accuracy was acceptable, as demonstrated by the laboratory control spike/laboratory control spike duplicate (LCS/LCSD), matrix spike/matrix spike duplicate (MS/MSD), Standard Reference Material (SRM) and surrogate recovery values with a few exceptions that were noted in the report. Precision was also acceptable as demonstrated by the LCS/LCSD, MS/MSD, and laboratory sample duplicate relative percent difference (RPD) values. All results are acceptable as reported or as qualified. No data were rejected; completeness goals were met. Additional QA/QC information for chemistry is included with the individual laboratory testing reports for chemistry provided in Appendix D.

The Bight '13 Chemistry Committee has completed a QA/QC review of all regional data and have considered all submitted data for those samples collected and tested for POLA/POLB as acceptable for reporting purposes. A draft report by the Bight chemistry subcommittee was submitted in February 2016, and a final report is expected in 2016.

5.4 Toxicity Testing

Standard QA/QC measures for toxicity testing included an assessment of concurrent laboratory control performance, replicate variability, and statistical power as described in the Bight '13 Toxicity Testing Manual (SCCWRP 2013d). An added QA measure for the amphipod test was the inclusion of a fine-grained sediment control with each batch of tests to assess whether fine material, common in bays and harbors, might have a negative impact on amphipod survival. Fine-grained material has been documented as an occasional confounding factor for *Eohaustorius,* which naturally occurs in medium- to coarse-grain-sized sediments. Reference toxicant tests were also performed with each test batch for both species to assess relative sensitivity of the test organisms to a single known chemical (ammonia) over time and between laboratories. Finally, as with sediment chemistry, a single blind duplicate sample was tested in each laboratory to assess comparability region-wide among laboratories.

All toxicity data presented herein passed all QA/QC criteria and are considered valid for reporting purposes with no qualifiers.

A final QA/QC assessment of the toxicity data has also been completed by the Bight '13 Toxicology Committee with a final report now available (Bay et al. 2015) by the Bight '13 Contaminant Impact Assessment Committee.

5.5 Benthic Community Assessment

Benthic community QA/QC included a resorting and species identification by a second party on 10% of the samples. Multiple (round-robin) blind duplicate samples were also submitted region-wide for identification among all participating laboratories to assess region-wide comparability among taxonomists. Furthermore, a series of specialized meetings were held by the Southern California Association of Marine Invertebrate Taxonomists (SCAMIT) to review any unidentified or challenging taxa collected as a part of the Bight '13 Program. These meetings have been completed for Bight '13-related samples at the time of this publication. Quality control was performed on the final taxa list and it was successfully run through the SCCWRP data checker; the taxa list passed all quality objectives, and the final dataset was uploaded on October 15, 2015.

All benthic community data presented herein passed all QA/QC criteria and are considered valid for reporting purposes with no qualifiers.

Although the SCAMIT meetings are complete, the Bight '13 Benthic Community Committee has yet to finalize a region-wide data summary report and QA/QC write-up. A final draft report is expected in August 2016.

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6.0 CONCLUSIONS

The Bight '13 monitoring program used a multiple lines of evidence (MLOE) approach that integrated sediment quality assessments with biological community monitoring to effectively assess the sediment quality of waters in the Ports of Los Angeles and Long Beach. The MLOE approach provides a comprehensive assessment of sediment quality that produces a categorical measure of site condition and aids predictive capabilities through an exposure assessment. This Phase I direct effect SQO approach is focused on short-term toxic effects and impairment to benthic communities; this approach does not address bioaccumulation via trophic exchange or human/wildlife health risk. Ongoing efforts in the Ports of Los Angeles and Long Beach are now addressing this (Phase II indirect effects SQOs) by evaluating these compounds throughout the local food web.

Results of the SQO Integrated Station Assessment approach in 2013 showed that 80% of the stations were in the condition categories described in Bay et al. as representing "the lowest estimated levels of impact to aquatic life in the sediment." Specifically, 43% of stations were deemed Unimpacted and 37% of stations were Likely Unimpacted. The remaining 20% of stations were Possibly Impacted and no stations were in the Likely Impacted or Clearly Impacted categories. Notably, stations categorized as Possibly Impacted were typically found in areas with conditions less suitable for healthy biota, including areas of poor tidal flushing, major watershed discharge points, high tug and industrial activities, and marinas.

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7.0 REFERENCES

American Public Health Association et al. 1995. Standard Methods for the Examination of Water and Wastewater, 19th Edition.

Anchor QEA, L.P. (Anchor QEA). 2013a. Coordinated Compliance Monitoring and Reporting Plan. Greater Los Angeles and Long Beach Harbor Waters. March 2013.

Anchor QEA. 2013b. Draft Programmatic Quality Assurance Project Plan Supporting Compliance Monitoring and Special Studies Related to the Harbor Toxics total Maximum Daily Load. April 2013.

Anderson B.S., Hunt J.W., Hester M., and Phillips B.M. 1996. Assessment of sediment toxicity at the sediment-water interface. pp. 609-624 in: G.K. Ostrander (ed.), Techniques in aquatic toxicology. CRC Press Inc. Boca Raton.

ASTM International (ASTM). 1967. Standard Methods for Grain-Size Analysis of Soils. ASTM Designation D422- 63, Part II.

ASTM. 1998. Standard Guide for Conducting Static Acute Toxicity Tests Starting with Embryos of Four Species of Saltwater Bivalve Molluscs. ASTM E724-98.

ASTM. 2006. Standard Test Method for Measuring the Toxicity of Sediment-Associated Contaminants with Estuarine and Marine Invertebrates. ASTM E1367-03 (2006).

Bay S.M., Ritter K.J., Vidal-Dorsch D.E., Field L.J. 2012. Comparison of national and regional sediment quality guidelines for classifying sediment toxicity in California. Integrated Environ. Assess. Manag. 8:597-609.

Bay S.M., Greenstein D.J., Ranasinghe J.A., Diehl D.W., and Fetscher A.E.. 2014. Sediment Quality Assessment Technical Support Manual. Southern California Coastal Water Research Project (SCCWRP), Technical Report 777, January 2014

Bay, S.M., L. Wiborg, D. Greenstein, N. Haring, C. Pottios, C. Stransky, and K.C. Schiff. 2015. Southern California Bight 2013 Regional Monitoring Program: I. Sediment Toxicity. Technical Report, February.

Dodder, N., Schiff K., Latker A., Tang C. 2016. Southern California Bight 2013 Regional Monitoring Program: II. Sediment Chemistry. Technical Report, January.Field L.J., MacDonald D.D., Norton S.B., Ingersoll C.G., Severn C.G., Smorong D., Lindskoog R. 2002. Predicting amphipod toxicity from sediment chemistry using logistic regression models. *Environ Toxicol Chem* 21:1993-2005.

Ranasinghe J.A., Weisberg S.B., Smith R.W., Montagne D.E., Thompson B., Oakden J.M., Huff D.D., Cadien D.B., Velarde R.G., Ritter K.J. 2009. Calibration and evaluation of five indicators of benthic community condition in two California bay and estuary habitats. Mar. Pollut. Bull. 59:5-13.

Ranasinghe J.A., Welch K.I., Slattery P.N., Montagne D.E., Huff D.D., Lee II H., Hyland J.L., Thompson B., Weisberg S.B., Oakden J.M., Cadien D.B., Velarde R.G. 2012. Habitat-related benthic macrofaunal assemblages of bays and estuaries of the western United States. Integrated Environ Assess Manag 8:638-648.

Ritter K.J., Bay S.M., Smith R.W., Vidal-Dorsch D.E., Field L.J. 2012. Development and evaluation of sediment quality guidelines based on benthic macrofauna responses. *Integrated Environ Assess Manag* 8:610-624.

Southern California Coastal Water Research Project (SCCWRP) 2013a. Contaminant Impact Assessment (CIA) Field Operations Manual. Southern California Bight 2013 Regional Marine Monitoring Survey. July 2013.

SCCWRP 2013b. Contaminant Impact Assessment (CIA) Workplan. Southern California Bight 2013 Regional Marine Monitoring Survey. June 2013.

SCCWRP 2013c. Quality Assurance (QA) Manual. Southern California Bight 2013 Regional Marine Monitoring Survey. June 2013.

SCCWRP 2013d. Bight'13 Toxicology Laboratory Manual. Southern California Bight 2013 Regional Marine Monitoring Survey. May 2013.

SCCWRP 2013e. Bight'13 Macrobenthic (Infaunal) Sample Analysis Laboratory Manual. Southern California Bight 2013 Regional Marine Monitoring Survey. June 2013.

State Waters Resources Control Board (SWRCB) – California Environmental Protection Agency (SWRCB-Cal/EPA). 2009. Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality. 25 August 2009.

United States Environmental Protection Agency (USEPA). 1994. Methods for assessing the toxicity of sediment-associated contaminants with estuarine and marine amphipods. EPA/600/R-94/025. Office of Research and Development, U.S. Environmental Protection Agency. Narragansett, RI.

USEPA. 1999. USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Data Review. USEPA 540-R-08-01.

USEPA. 2004. USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Data Review. USEPA 540-R-10-011.

USEPA. 2005. Predicting toxicity to amphipods from sediment chemistry (final report). EPA/600/R-04/030. USEPA Office of Research and Development. Washington, DC.

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APPENDIX A

SEDIMENT PHOTO LOGS

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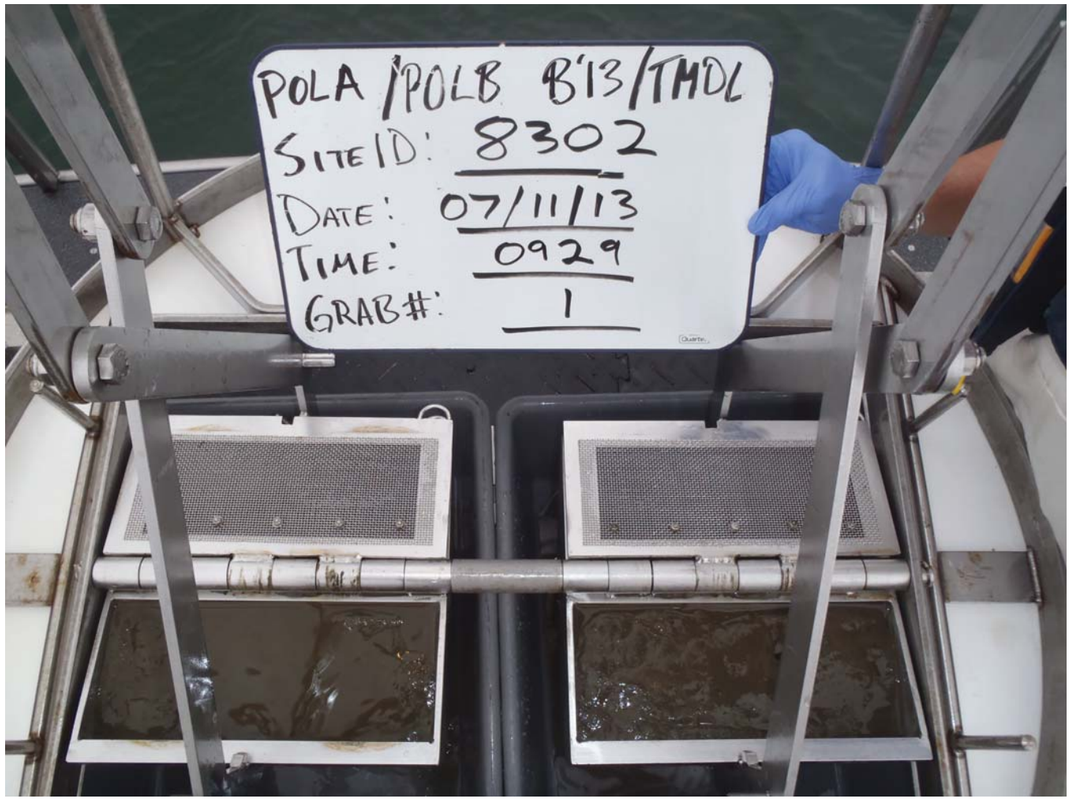

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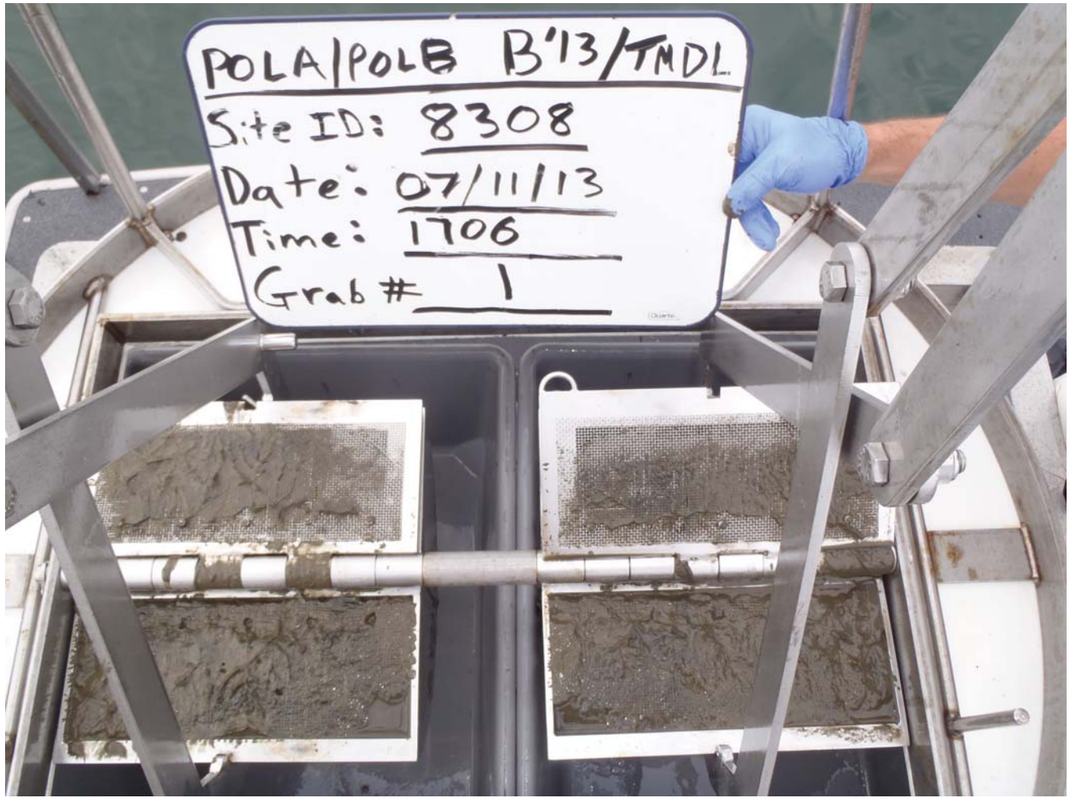

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Sample Date & Time: 07/11/2013 1805

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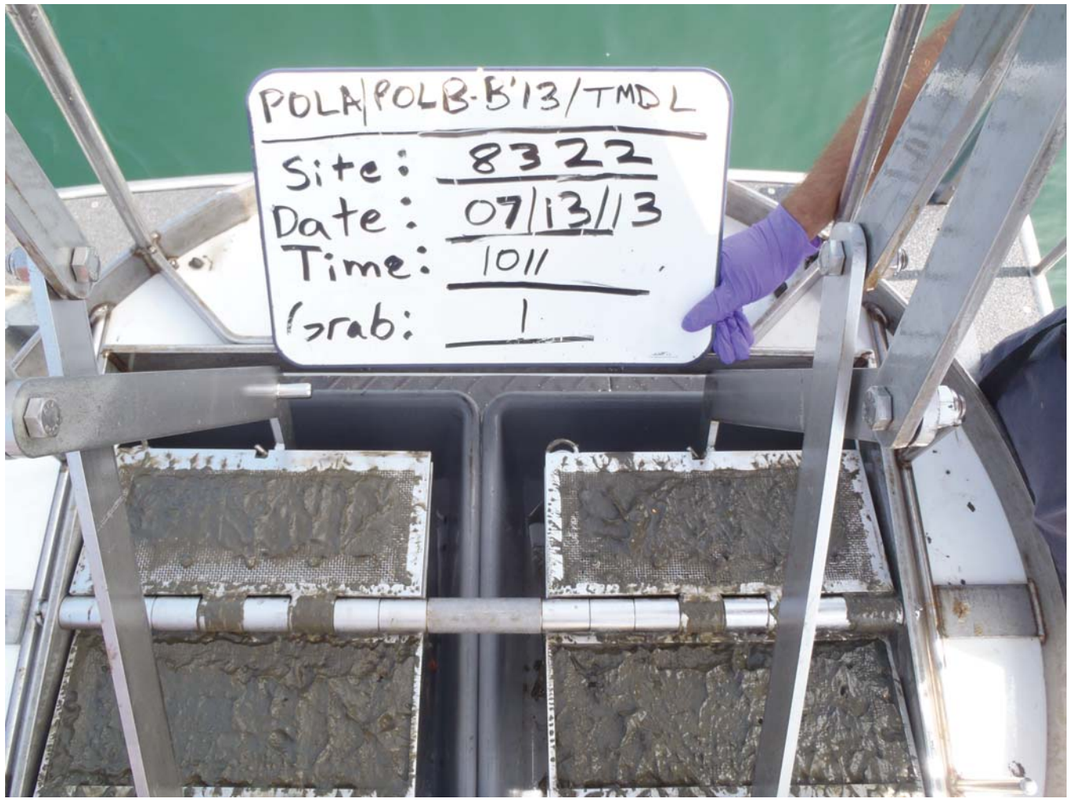
Sample ID: 8316
Grab #: 1
Sample Date & Time: 07/11/2013 1023

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8316
Grab #: 2
Sample Date & Time: 07/11/2013 1045

Port of Los Angeles/Port of Long Beach - Bight '13
AMEC Project No. 1315100108
July 2013

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8318
Grab #: 1
Sample Date & Time: 07/13/2013 1057

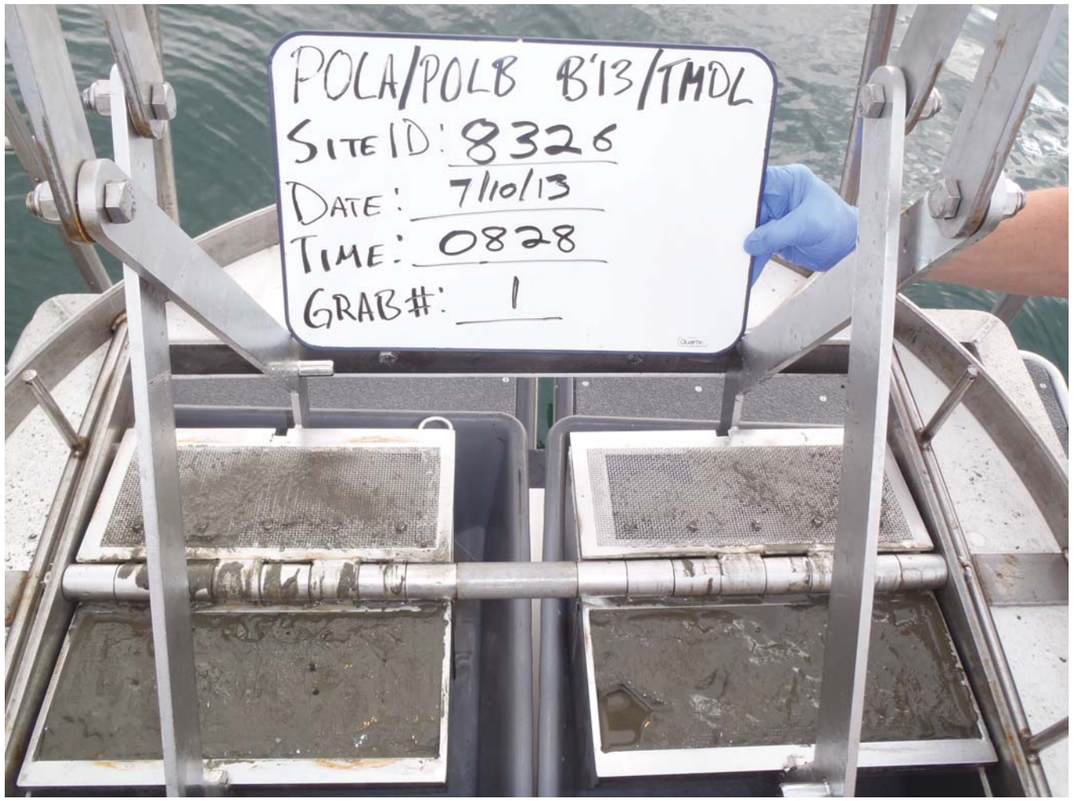
Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8318
Grab #: 2
Sample Date & Time: 07/13/2013 1110



Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8322
Grab #: 1
Sample Date & Time: 07/13/2013 1011

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8322
Grab #: 2
Sample Date & Time: 07/13/2013 1025

Port of Los Angeles/Port of Long Beach - Bight '13
AMEC Project No. 1315100108
July 2013



Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8326
Grab #: 1
Sample Date & Time: 07/10/2013 0828

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8326
Grab #: 2
Sample Date & Time: 07/10/2013 0856

Port of Los Angeles/Port of Long Beach - Bight '13
AMEC Project No. 1315100108
July 2013

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8333
Grab #: 1
Sample Date & Time: 07/13/2013 0743

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8333
Grab #: 2
Sample Date & Time: 07/13/2013 0758

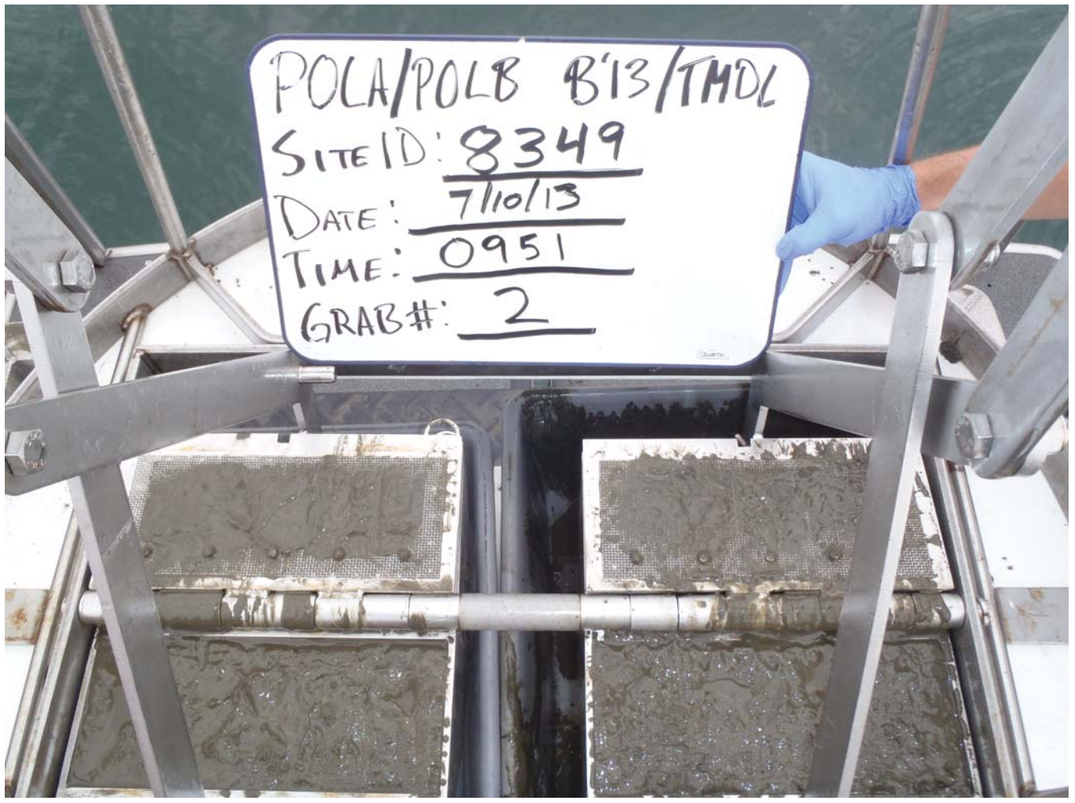
Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8340
Grab #: 1
Sample Date & Time: 07/12/2013 0819

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8340
Grab #: 2
Sample Date & Time: 07/12/2013 0836

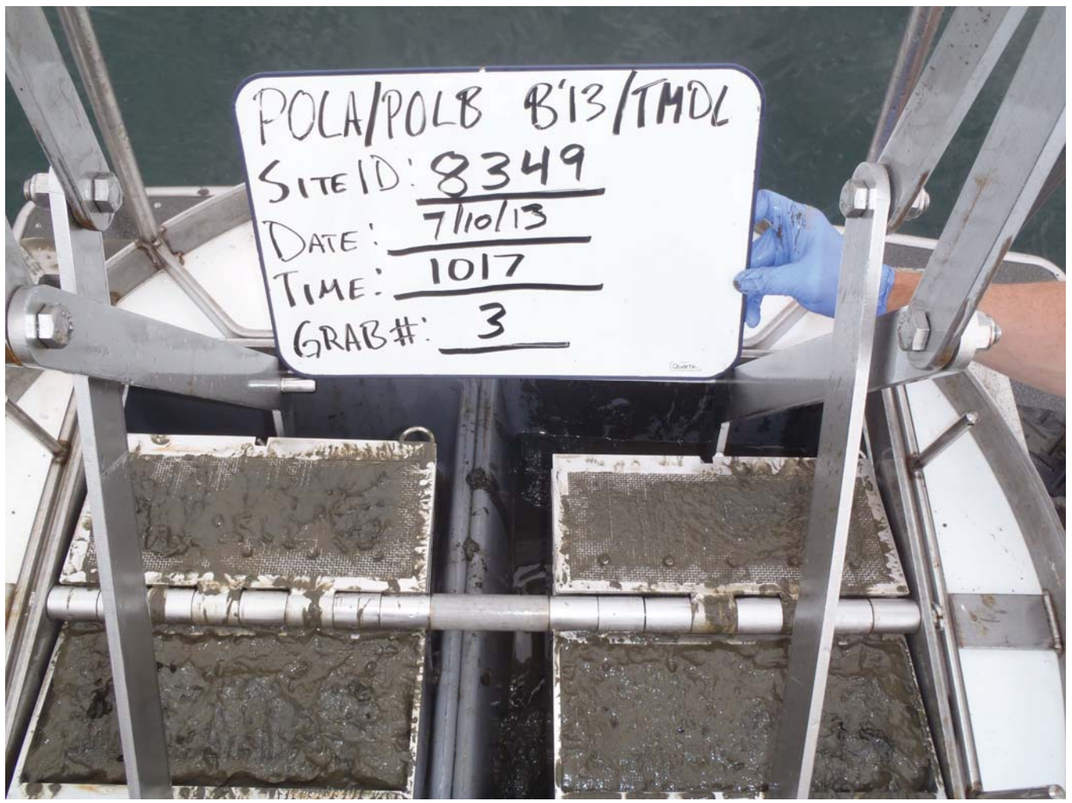
Port of Los Angeles/Port of Long Beach - Bight '13
AMEC Project No. 1315100108
July 2013

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8347
Grab #: 1
Sample Date & Time: 07/12/2013 1708

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8347
Grab #: 2
Sample Date & Time: 07/12/2013 1724



Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8349
Grab #: 2
Sample Date & Time: 07/10/2013 0951



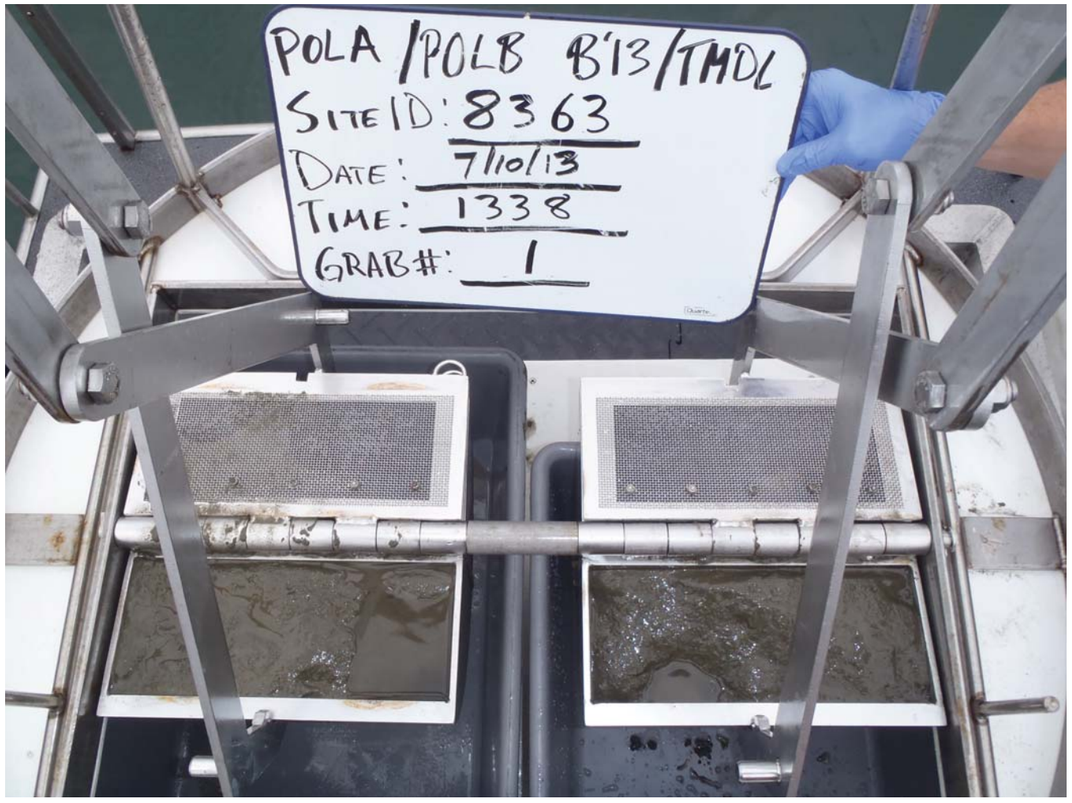
Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8349
Grab #: 3
Sample Date & Time: 07/10/2013 1017

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8356
Grab #: 1
Sample Date & Time: 07/13/2013 0922

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8356
Grab #: 2
Sample Date & Time: 07/13/2013 0937

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8360
Grab #: 1
Sample Date & Time: 07/10/2013 1530

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8360
Grab #: 2
Sample Date & Time: 07/10/2013 1559



Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8363
Grab #: 1
Sample Date & Time: 07/10/2013 1338

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8363
Grab #: 2
Sample Date & Time: 07/10/2013 1400

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8365
Grab #: 1
Sample Date & Time: 07/13/2013 0837

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8365
Grab #: 2
Sample Date & Time: 07/13/2013 0853

Port of Los Angeles/Port of Long Beach - Bight '13
AMEC Project No. 1315100108
July 2013

Graphics/AquaticSciences/POLA Bight13/GrabSampling_8365.ai

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8367
Grab #: 1
Sample Date & Time: 07/11/2013 1410

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8367
Grab #: 2
Sample Date & Time: 07/11/2013 1430

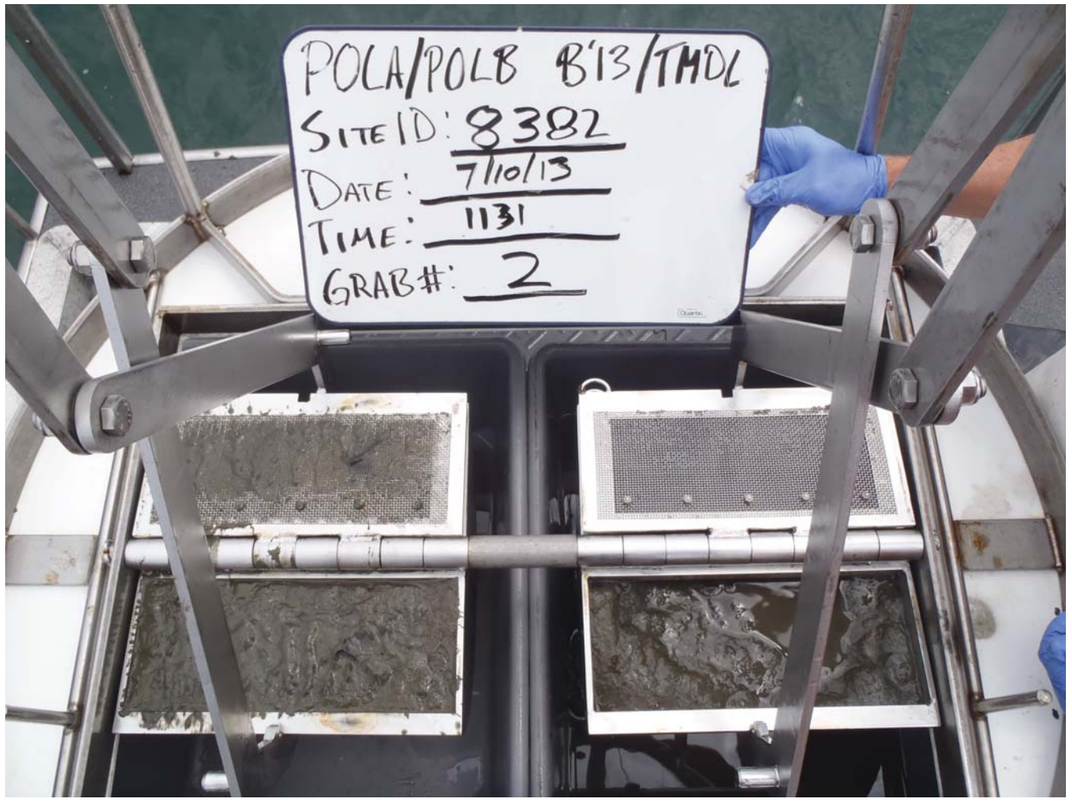
Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8371
Grab #: 1
Sample Date & Time: 07/10/2013 1203

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8371
Grab #: 2
Sample Date & Time: 07/10/2013 1230

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8374
Grab #: 1
Sample Date & Time: 07/10/2013 1428

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8374
Grab #: 2
Sample Date & Time: 07/10/2013 1453

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8382
Grab #: 1
Sample Date & Time: 07/10/2013 1104

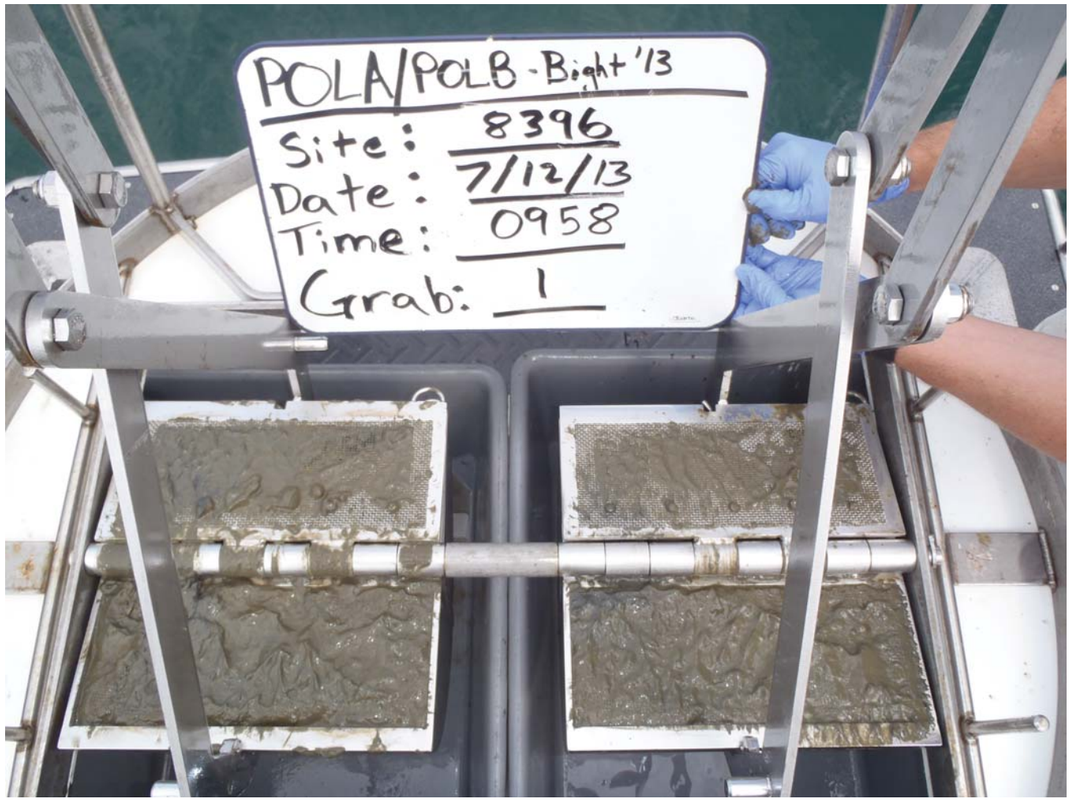


Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8382
Grab #: 2
Sample Date & Time: 07/10/2013 1131

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8384
Grab #: 1
Sample Date & Time: 07/12/2013 0913

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8384
Grab #: 2
Sample Date & Time: 07/12/2013 0929

Port of Los Angeles/Port of Long Beach - Bight '13
AMEC Project No. 1315100108
July 2013



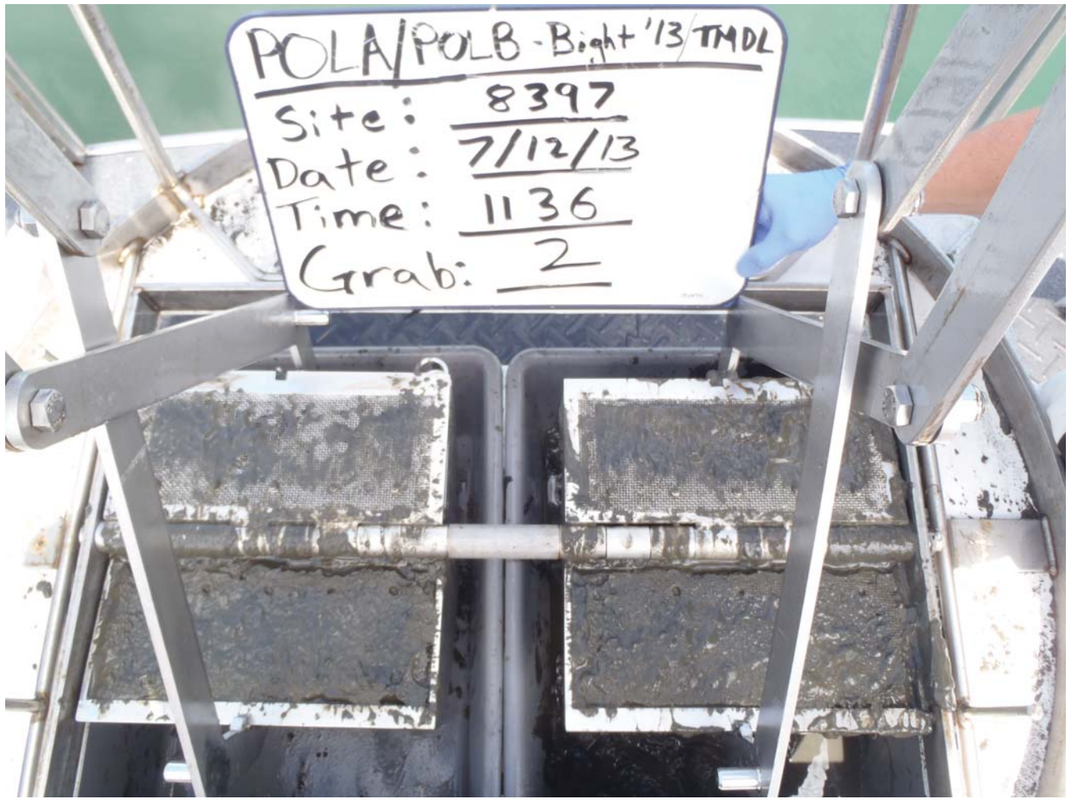
Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8396
Grab #: 1
Sample Date & Time: 07/12/2013 0958

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8396
Grab #: 2
Sample Date & Time: 07/12/2013 1010

Port of Los Angeles/Port of Long Beach - Bight '13
AMEC Project No. 1315100108
July 2013

Graphics/AquaticSciences/POLA Bight13/GrabSampling_8396.ai

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8397
Grab #: 1
Sample Date & Time: 07/12/2013 1120



Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8397
Grab #: 2
Sample Date & Time: 07/12/2013 1136

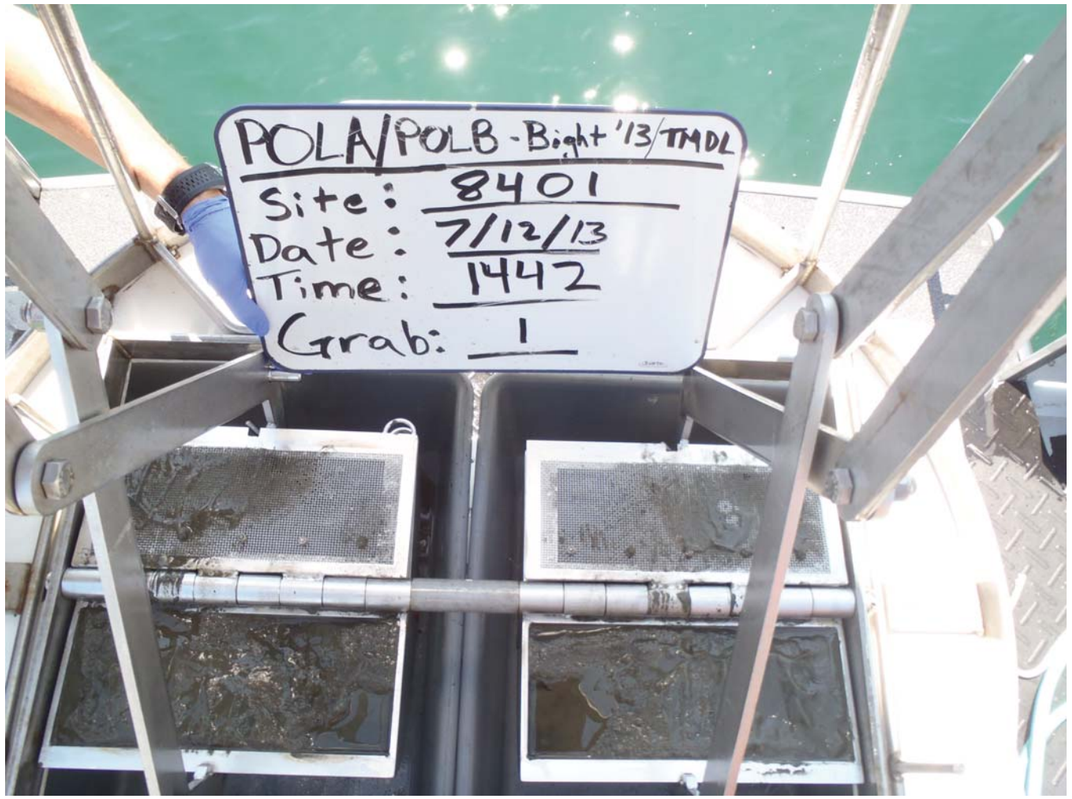
Port of Los Angeles/Port of Long Beach - Bight '13
AMEC Project No. 1315100108
July 2013

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8399
Grab #: 1
Sample Date & Time: 07/12/2013 1355

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8399
Grab #: 2
Sample Date & Time: 07/12/2013 1407

Port of Los Angeles/Port of Long Beach - Bight '13
AMEC Project No. 1315100108
July 2013

Graphics/AquaticSciences/POLA Bight13/GrabSampling_8399.ai



Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8401
Grab #: 1
Sample Date & Time: 07/12/2013 1422

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: 8401
Grab #: 2
Sample Date & Time: 07/12/2013 1458

Port of Los Angeles/Port of Long Beach - Bight '13
AMEC Project No. 1315100108
July 2013

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: TMDL1-CH
Grab #: 1
Sample Date & Time: 07/11/2013 1207

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: TMDL1-CH
Grab #: 2
Sample Date & Time: 07/11/2013 1224

Port of Los Angeles/Port of Long Beach - Bight '13
AMEC Project No. 1315100108
July 2013

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: TMDL2-FH
Grab #: 1
Sample Date & Time: 07/11/2013 1515

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: TMDL2-FH
Grab #: 2
Sample Date & Time: 07/11/2013 1525

Port of Los Angeles/Port of Long Beach - Bight '13
AMEC Project No. 1315100108
July 2013

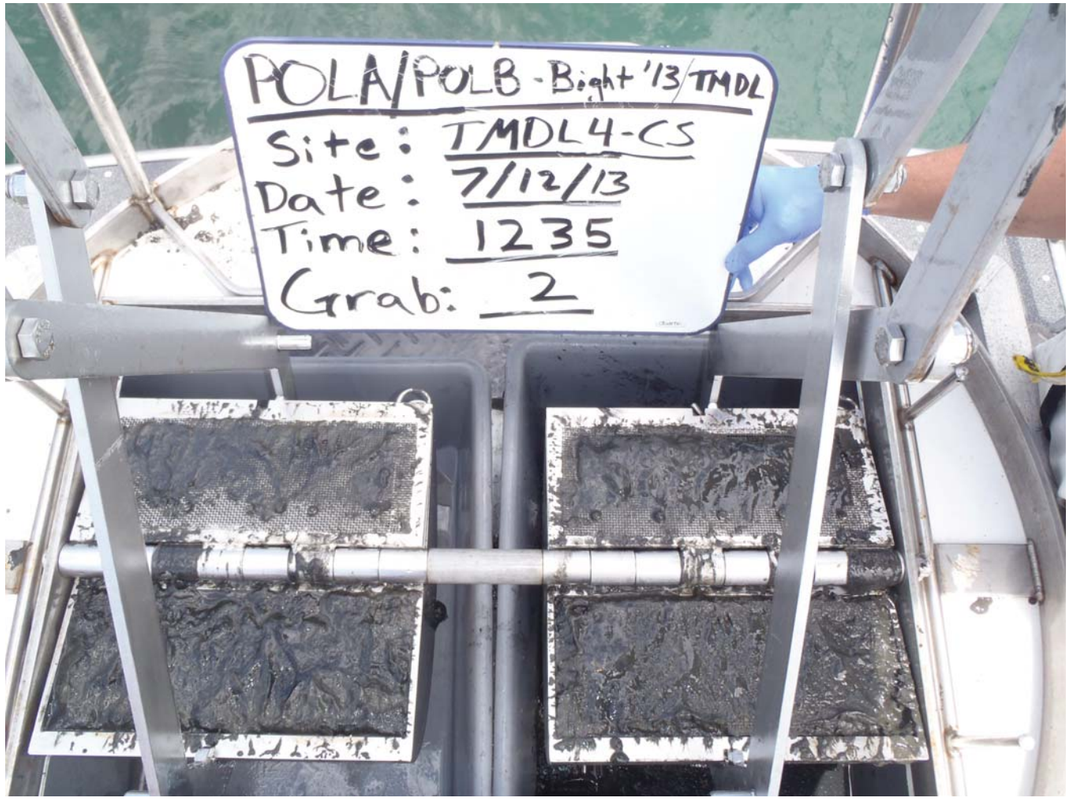
Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: TMDL2-FH
Grab #: 3
Sample Date & Time: 07/11/2013 1544

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: TMDL3-TB
Grab #: 1
Sample Date & Time: 07/12/2013 1533

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: TMDL3-TB
Grab #: 2
Sample Date & Time: 07/12/2013 1541

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: TMDL3-TB
Grab #: 3
Sample Date & Time: 07/12/2013 1555

Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: TMDL4-CS
Grab #: 1
Sample Date & Time: 07/12/2013 1220



Location: Port of Los Angeles/Port of Long Beach - Bight '13
Sample ID: TMDL4-CS
Grab #: 2
Sample Date & Time: 07/12/2013 1235

amec foster wheeler

APPENDIX B

FIELD DATA SHEETS

amec foster wheeler

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BIGHT'13 SAMPLE TRACKING FORM

AGENCY: POLA/POLB

DATE: 7/13/13

COMPLETED BY: JR

		GS	Chem	Arch	Tox	Trash
Station	Sample Time	# of 4.5 oz Jars	# of 8 oz Jars	# of 16 oz Jars	# of 1 L Jars	# of 1 Gal Ziplocs
B13-8333	0743/0758	1	5	1	5	0
B13-8365	0837/0853	1	5	1	5	1
B13-8356	0922/0937	1	5	1	5	0
B13-8322	1011/1025	1	5	1	5	0
B13-8318	1057/1110	1	5	1	5	0

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8318 **Arrival Date/Time:** 7/13/13 1056

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/13/13 1125

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1056

Weather

Clear	X	Rain	
Overcast		Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): (At estuary Sites only)

Station ID: D13-8318

Date: 7/13/13

Abandoned site? Y or N (If Y explain in comments):

Station Fail Code:

Wind

Speed (kts): 4.9

Direction (4): SE

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1057	33.72421	-118.22437	18.1	35	None	16	Silt	N	Olive	N	X	X	X		N	0924-0925
	Grab Event Comments:																
	1110	33.72418	-118.22432	18.2	29	None	16	Silt	N	Olive	N				X	N	0926-0928
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8322 **Arrival Date/Time:** 7/18/13 1008

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: [signature] **Date/Time:** 7/13/13 1047

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1008

Weather

Clear	X	Rain	
Overcast		Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): (At estuary Sites only)

Station ID: BIG-8322

Date: 7/13/13

Abandoned site? Y or N (If Y explain in comments):

Station Fail Code:

Wind

Speed (kts): 2.1

Direction (4): SE

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1011	33.72762	-118.21274	20.9	24	None	16	Silt	N	Olive	N	X	X	X		N	0919-0920
	Grab Event Comments:																
	1025	33.72757	-118.21271	20.5	27	None	16	Silt	N	Olive	N				X	N	0921-0923
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8356 **Arrival Date/Time:** 7/13/13 0920

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: [signature] **Date/Time:** 7/13/13 0926

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLO

Vessel Name: Early Bird

Arrival Time (hh:mm): 0920

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): (At estuary Sites only)

Station ID: B13-8356

Date: 7/13/13

Abandoned site? Y or N (If Y explain in comments):

Station Fail Code:

Wind

Speed (kts): 3.8

Direction (4): SE

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	0922	33.74337	-118.20448	18.9	48	None	16	Silt	N	Olive	N	X	X	X		N	0914-0915
	Grab Event Comments:																
	0937	33.74346	-118.20447	19.0	52	None	16	Silt	N	Olive	N				X	N	0916-0918
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8360 **Arrival Date/Time:** 7/13/13 0833

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: [signature] **Date/Time:** 7/13/13 0914

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 0833

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): At estuary Sites only

Station ID: BI13-8365

Date: 7/13/13

Abandoned site? Y or N (If Y explain in comments):

Station Fail Code:

Wind

Speed (kts): 3.0

Direction (4): SE

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	0837	33.74767	-118.19819	15.5	19	None	16	Silt	N	Olive	N	X	X	X		N	0910-0911
	Grab Event Comments:																
	0853	33.74776	-118.19804	15.3	18	None	16	Silt	N	Olive	N				X	Y	0912-0917
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8333 **Arrival Date/Time:** 7/13/13 0730

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: [signature] **Date/Time:** 7/13/13 0825

Print Name/Company: John Rudolph

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 0730

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): (At estuary Sites only)

Station ID: D13-8333

Date: 7/13/13

Abandoned site? Y or N (If Y explain in comments):

Station Fail Code:

Wind

Speed (kts): 1.7

Direction (4): SE

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	0743	33.73110	-118.19240	15.3	39	None	14	Silty Sand	N	Gray	N	X	X	X		N	0906-0907
	Grab Event Comments:																
	0758	33.73128	-118.19239	15.4	37	None	11	Silty Sand	N	Gray	N				X	N	0908-0909
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

BIGHT'13 SAMPLE TRACKING FORM

AGENCY: POLA/POLB

DATE: 7/12/13

COMPLETED BY: JR

			GS	Chem	Arch	Tox	Trash
	Station	Sample Time	# of 4.5 oz Jars	# of 8 oz Jars	# of 16 oz Jars	# of 1 L Jars	# of 1 Gal Ziplocs
	B13-8340	0819	1	5	1	5	1
	B13-8384	0913	1	5	1	5	0
	B13-8396	0958	1	5	1	5	0
	B13-8397	1120	1	5	1	5	1
	TMDL4-CS	1220	1	4	1	5	1
	B13-8399	1355	1	5	1	5	1
	B13-8401	1442	1	5	1	5	1
	TMDL3-TB	1541	1	3	1	5	0
Dup →	TMDL6-CP	1541	1	3	1	0	0
	B13-8347	1708	1	5	1	5	0

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8347 **Arrival Date/Time:** 7/12/13 1700

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: [signature] **Date/Time:** 7/12/13 1740

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1700

Weather

Clear	X	Rain	
Overcast		Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): At estuary Sites only

Station ID: BIG-8347

Date: 7/12/13

Abandoned site? (Y or N (If Y explain in comments)):

Station Fail Code:

Wind

Speed (kts): 8

Direction (4): S

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1708	33,73891	-118.21039	26.7	36	None	16	Silt	HU	Olive	N	X	X	X		N	0902-0903
	Grab Event Comments:																
	1724	33.73888	-118.21033	26.7	31	None	16	Silt	HU	Olive	N				X	N	0904-0905
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: TMDL3-TB TMDL6-CP **Arrival Date/Time:** 7/12/13

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	Y

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/12/13 1620

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1529

Weather

Clear	X	Rain	
Overcast		Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): _____ (At estuary Sites only)

Station ID: TMDL2-TD; TMDL 6-CP

Date: 7/12/13

Abandoned site? (Y or N (If Y explain in comments)): _____

Station Fail Code: _____

Wind

Speed (kts): 4.5

Direction (4): 5

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

Duplicate Collected for Chem TMDL6-CP

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1533	33. 46.1582	-118 13.5028	20.2	0	None	14	Silty Sand	N	Grey	N	X				N	0895-0896
	Grab Event Comments: Benthics Only																
	1541	33 46.1483	-118 13.5017	19.9	2	None	14	Sandy Clay	N	Gray	N		X	X		N	0897-0898
	Grab Event Comments: Chem Only																
	1555	33 46.1573	-118 13.5100	20.1	2	None	13	Sandy Clay	N	Gray	N				X	N	0899-0900
	Grab Event Comments: Tox Only																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8401 **Arrival Date/Time:** 7/12/13

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/12/13 1518

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/PoLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1435

Weather

Clear	X	Rain	
Overcast		Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): _____ (At estuary Sites only)

Station ID: BJ-8401

Date: 7/12/13

Abandoned site? (Y or N (If Y explain in comments)): _____

Station Fail Code: _____

Wind

Speed (kts): 4.1

Direction (4): SE

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1442	33.77158	-118.21180	13.9	0	None	16	Silt	N	Olive	N	X	X	X		N	0890-0892
	Grab Event Comments:																
	1458	33.77163	-118.21180	13.9	0	None	16	Silt	N	Olive	N				X	Y	0893 - 0894
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8399 **Arrival Date/Time:** 7/12/13 1350

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/12/13 1424

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: PoLA/PoLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1350

Weather

Clear	X	Rain	
Overcast		Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): _____ (At estuary Sites only)

Station ID: B13-8399

Date: 7/12/13

Abandoned site? (Y or N (If Y explain in comments)): _____

Station Fail Code: _____

Wind

Speed (kts): 4.4

Direction (4): SE

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1355	33.76871	-118.22204	18.8	23	None	15	Sandy Silt	N	Olive	N	X	X	X		N	0886-0887
	Grab Event Comments:																
	1407	33.76865	-118.22205	18.8	17	None	16	Sandy Silt	N	Olive	N				X	Y	0888-0889
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed

2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)

3 Sediment Color: Brown, Gray, Black, Olive green, Red

4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm

5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: TMDL 4-CS **Arrival Date/Time:** 7/12/13 1218

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion _____

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/12/13 1258

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLD

Vessel Name: Early Bird

Arrival Time (hh:mm): 1218

Weather

Clear	X	Rain	
Overcast		Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): _____ (At estuary Sites only)

Station ID: TMDL4-CS

Date: 7/12/13

Abandoned site? (Y or N (If Y explain in comments)): _____

Station Fail Code: _____

Wind

Speed (kts): 4.0

Direction (4): SE

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

pyrethroids collected

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1220	33. 46.5106	-118. 14.7169	7.7	0	None	16	Silt	HS	Blk	N	X	X	X		Y	0880-0883
	Grab Event Comments:																
	1235	33 46.5101	-118 14.7124	7.9	2	None	16	Silt	HS	Blk	N				X	Y	0884-0885
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8397 **Arrival Date/Time:** 7/12/13

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion _____

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/12/13 1154

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1115

Weather

Clear	X	Rain	
Overcast		Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): (At estuary Sites only)

Station ID: DD-8397

Date: 7/12/13

Abandoned site? (Y or N (If Y explain in comments)):

Station Fail Code:

Wind

Speed (kts): 4

Direction (4): SE

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

0 = Slight, very faint HS

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1120	33.76700	-118.24938	4.2	42	None	16	Silt	0	Olive	N	X	X	X		Y	0875-0876
	Grab Event Comments:																
	1136	33.76696	-118.24929	4.5	32	None	16	Silt	N	Olive	N				X	Y	0877-0879
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed

2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)

3 Sediment Color: Brown, Gray, Black, Olive green, Red

4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm

5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8396 **Arrival Date/Time:** 7/12/13 0955

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/12/13 1040

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 0955

Weather

Clear		Rain	
Overcast		Thunderstorm	
Partly cloudy	X	Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): At estuary Sites only

Station ID: B13-8596

Date: 7/12/13

Abandoned site? Y or N (If Y explain in comments):

Station Fail Code:

Wind

Speed (kts): 3.8

Direction (4): SE

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	0958	33.76620	-118.27747	14.8	43	None	16	Sandy Silt	N	Olive	N	X	X	X		N	0871-0872
	Grab Event Comments:																
	1010	33.76619	-118.27759	14.7	36	None	16	Sandy Silt	N	Olive	N				X	N	0873-0874
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed

2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)

3 Sediment Color: Brown, Gray, Black, Olive green, Red

4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm

5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8384 **Arrival Date/Time:** 7/12/13 0905

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion _____

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/12/13 0945

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/PWD

Vessel Name: Early Bird

Arrival Time (hh:mm): 0905

Weather

Clear		Rain	
Overcast		Thunderstorm	
Partly cloudy	X	Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): At estuary Sites only

Station ID: 013-8384

Date: 7/12/13

Abandoned site? (Y or N (If Y explain in comments)):

Station Fail Code:

Wind

Speed (kts): 3.6

Direction (4): SE

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments:

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	0913	33.75686	-118.27742	17.5	49	None	16	Silt	N	Olive	N	X	X	X		N	0867-0868
	Grab Event Comments:																
	0929	33.75694	-118.27732	17.6	48	None	16	Silt	N	Olive	N				X	N	0869-0870
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8340 **Arrival Date/Time:** 7/12/13 0818

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	N
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

float

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/12/13 0850

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Eco Bird

Arrival Time (hh:mm): 0818

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): (At estuary Sites only)

Station ID: B13-8340

Date: 7/12/13

Abandoned site? (Y or N (if Y explain in comments)):

Station Fail Code:

Wind

Speed (kts): 0

Direction (4): —

Swell

Period (s): 0

Height (ft): 3

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	0819	33.73549	-118.27676	18.2	22	None	16	Silt	N	Olive	N	X	X	X		N	0863-0864
	Grab Event Comments:																
	0836	33.73538	-118.27677	18.2	21	None	16	Silt	N	Olive	N				X	4	
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

BIGHT'13 SAMPLE TRACKING FORM

AGENCY: POLA/POLB

DATE: 7/11/13

COMPLETED BY: JR

			6S	Chem	Arch	Tox	Trash
	Station	Sample Time	# of 4.5 oz Jars	# of 8 oz Jars	# of 16 oz Jars	# of 1 L Jars	# of 1 Gal Ziplocs
*	B13-8309	0821	—	—	—	—	—
	B13-8302	0929	1	5	1	5	0
	B13-8316	1023	1	5	1	5	0
	TMDL1-CH	1207	1	3	1	5	0
	B13-8306	1300	1	5	1	5	0
	B13-8367	1410	1	5	1	5	0
	TMDL2-FH	1525	1	3	1	5	0
Dup-	TMDL5-DT	1525	1	3	1	0	0
	B13-8304	1624	1	5	1	5	0
	B13-8308	1706	1	5	1	5	0
	B13-8310	1751	1	5	1	5	0

* Site abandoned after 9 attempts

All Sample times for chem only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8310 **Arrival Date/Time:** 7/11/13

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/11/13 1816

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1749

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): (At estuary Sites only)

Station ID: BB-8310

Date: 7/11/13

Abandoned site? Y or N (If Y explain in comments):

Station Fail Code:

Wind

Speed (kts): 0

Direction (4): —

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1751	33.71791	-118.23298	14.2	12	None	16	Silt	N	Olive	N	X	X	X		N	0859-0860
	Grab Event Comments:																
	1805	33.71787	-118.23287	14.1	14	None	16	Silt	N	Olive	N				X	N	0861-0862
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed

2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)

3 Sediment Color: Brown, Gray, Black, Olive green, Red

4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm

5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8308 **Arrival Date/Time:** 7/11/13 1700

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion _____

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/11/13 1737

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1700

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): (At estuary Sites only)

Station ID: BIB-8308

Date: 7/11/13

Abandoned site? (Y or N (If Y explain in comments)):

Station Fail Code:

Wind

Speed (kts): 21

Direction (4): 5

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1706	33.71746	-118.24385	23.3	36	None	16	Silt	N	Olive	N	X	X	X		N	0854 0855
	Grab Event Comments:																
	1725	33.71732	-118.24384	22.9	29	None	16	Silt	N	Olive	N				X	N	0857 - 0858
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8304 **Arrival Date/Time:** 7/11/13

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	N float
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/11/13 1658

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1622

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): (At estuary Sites only)

Station ID: 813-8304

Date: 7/11/13

Abandoned site? Y or N (If Y explain in comments):

Station Fail Code:

Wind

Speed (kts): 2.0

Direction (4): 5

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1624	33.71345	-118.24131	24.3	64	None	16	Silt	N	Olive	N	X	X	X		N	0848 0850
	Grab Event Comments:																
	1643	33.71350	-118.24187	24.5	12	None	16	Silt	N	Olive	N				X	N	0851 0852
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed

2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)

3 Sediment Color: Brown, Gray, Black, Olive green, Red

4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm

5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: TMDL2-FH, TMDL5-DT **Arrival Date/Time:** 7/11/13 NAS

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	Y

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/11/13 1557

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1505

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): (At estuary Sites only)

Station ID: TMDLZ-FH / TMDLS-DT

Date: 7/11/13

Abandoned site? Y or N (If Y explain in comments):

Station Fail Code:

Wind

Speed (kts): 2.3

Direction (4): 5

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

- Dup Sample collected
- 0-slight H2S odor grab 1+2
- lots of dead mussel shells

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1515	33 44.0716	-118 15.9950	4.9	0	None	16	Sandy Silt	0	Gray/Blk	N	X				N	0840-0841
	Grab Event Comments: Benthics Only																
	1525	33 44.0716	-118 15.9950	4.8	0	None	16	Sandy Silt	0	Gray/Blk	N		X	X		N	0842-0845
	Grab Event Comments: Chem Only																
	1544	33 44.0716	-118 15.9950	4.8	0	None	16	Sandy Silt	0	Gray/Blk	N				X	N	0846-0847
	Grab Event Comments: Tox Only																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8367 **Arrival Date/Time:** 7/11/13

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/11/13 1445

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1407

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle	X		

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): At estuary Sites only

Station ID: BI3-8367

Date: 7/11/13

Abandoned site? Y or N (If Y explain in comments):

Station Fail Code:

Wind

Speed (kts): 3.4

Direction (4): SE

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1410	33.74853	-118.24890	3.8	27	None	6.5	Fine Sand	None	Olive	N	X	X	X		N	0835-0836
	Grab Event Comments:																
	1430	33.74855	-118.24886	3.5	31	None	10.5	Fine Sand	None	Olive	N				X	N	0837-0839
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8306 **Arrival Date/Time:** 7/11/13

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion V

Additional Notes:

Signature of QA/QC Personnel: [signature] **Date/Time:** 7/11/13 1327

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1300

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): (At estuary Sites only)

Station ID: B13-8306

Date: 7/11/13

Abandoned site? Y or N (If Y explain in comments):

Station Fail Code:

Wind

Speed (kts): 3.8

Direction (4): 5

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1300	33.71475	-118.28269	3.4	8	None	16	Silt	None	olive	N	X	X	X		N	0831-0832
	Grab Event Comments:																
	1318	33.71479	-118.28268	3.5	8	None	16	Silt	None	Olive	N				X	N	0833-0834
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: TMDL1-CH **Arrival Date/Time:** 7/11/13 1204

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion _____

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/11/13 1238

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLD

Vessel Name: Early Bird

Arrival Time (hh:mm): 1204

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): (At estuary Sites only)

Station ID: TMDL1-CH

Date: 7/11/13

Abandoned site? Y or N (If Y explain in comments):

Station Fail Code:

Wind

Speed (kts): 1.2

Direction (4): SE

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments:

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1207	33.43.3347	-118.16.7804	10.8	0	None	16	Silt	None	BRN	N	X	X	X		N	0827-0828
	Grab Event Comments:																
	1224	33.43.3347	-118 16.7804	10.9	0	None	16	Silt	None	Gray	N				X	N	
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: D13-8316 **Arrival Date/Time:** 7/11/13 1015

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	N float
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/11/13 1100

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1015

Weather: Clear [ ] Overcast [X] Partly cloudy [ ] Drizzle [ ] Rain [ ] Thunderstorm [ ] Fog [ ]

Sea State: Calm [X] Choppy [ ] Rough [ ]

Salinity (ppt): ____ (At estuary Sites only)

Station ID: BI3-8016

Date: 7/11/13

Abandoned site? Y or N (If Y explain in comments): [ ]

Station Fail Code: ____

Wind: Speed (kts) MS 1.7; Direction (4) SE

Swell: Period (s) 0; Height (ft) 0; Direction (4) 0

Nav Type: DGPS [X] GPS [ ]

Equipment Type: Van Veen [ ] Tandem Van Veen [X]

Station Comments:

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1023	33.72387	-118.26270	27.1	28	None	16	Silt	None	Olive	N	X	X	X		N	0813-0814
	Grab Event Comments:																
	1045	33.72395	-118.26262	27.1	35	None	16	Silt	None	Olive	N				X	N	0824-0825
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8302 **Arrival Date/Time:** 0800

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	NA
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

float

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/11/13 10:00

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code POLA/POLB

Vessel Name Ecn Bird

Arrival Time (hh:mm) 0855

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt) _____ At estuary Sites only

Station ID DIJ-8302

Date 7/11/13

Abandoned site? Y or N (If Y explain in comments) _____

Station Fail Code _____

Wind

Speed ~~(kts)~~ MJ 1.5

Direction (4) SE

Swell

Period (s) 0

Height (ft) 0

Direction (4) 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

poor closure - grab did not fire, grab 1,2

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	0909	33.71219	-118.25779	18.2	28	Poor closure											
	Grab Event Comments:																
	0917	33.71246	-118.25808	24.6	51	"											
	Grab Event Comments:																
	0929	33.71242	-118.25790	25.0	48	none	16	Silt	None	Olive	N	X	X	X		N	0809-0810
	Grab Event Comments:																
	0955	33.71255	-118.25823	25.1	65	none	16	Silt	None	Olive	N				X	N	0811-0812
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8305 **Arrival Date/Time:** 7/11/13 0804

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Site abandoned after 9 attempts

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	N float
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	
Record grab disposition / characteristic information	
Samples collected in the following order: infaunal, chemistry, toxicity	
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	
Sediment evenly distributed among containers	
Stainless steel scoop used to distribute sediment	
Staff avoided contaminating samples at all times	
COC seals have been placed over individual sample bottles	
Site replicate (i.e., duplicate) collected (if applicable)	

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	

4. Sample Storage:

Toxicity samples properly stored on wet ice	
Chemistry samples properly stored on dry ice	
Infaunal samples properly relaxed and preserved with formalin	
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion _____

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** _____

Print Name/Company: _____

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 0804

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle	X		

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): ____ (At estuary Sites only)

Station ID: BIG-8309

Date: 7/11/13

Abandoned site? (Y or N (if Y explain in comments)): ____

Station Fail Code: ____

Wind

Speed ~~(kts)~~ MS: 1.5

Direction (4): SE

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

Grab 1 - hard packed clay failed grab
2
3
4

Abandoned Site

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	0821	33.71737	-118.26788	18.2	22	other											
	Grab Event Comments:																
	0836	33.71687	-118.26826	18.0	44	other											
	Grab Event Comments:																
	0844	33.71694	-118.26823	17.5	36	other											
	Grab Event Comments:																
	0850	33.71738	-118.26844	17.8	45	other											
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

BIGHT'13 SAMPLE TRACKING FORM

AGENCY: POLA/POLB

DATE: 7/10/13

COMPLETED BY: JR

		GS	Chem	Arch	Tox	Trash
Station	Sample Time	# of 4.5 oz Jars	# of 8 oz Jars	# of 16 oz Jars	# of 1 L Jars	# of 1 Gal Ziplocs
B13-8326	0828	1	✓	1	✓	0
B13-8349	0951	1	✓	1	✓	0
B13-8382	1104	1	✓	1	✓	0
B13-8371	1203	1	✓	1	✓	0
B13-8363	1338	1	✓	1	✓	0
B13-8374	1428	1	✓	1	✓	0
B13-8360	~~1530~~ (1530)	1	✓	1	✓	0

All sample times for Chem only

33.75269 1428
-118.21776

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8360 **Arrival Date/Time:** 7/10/13 1530

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	N
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

Float

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion _____

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** _____

Print Name/Company: _____

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1530

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): At estuary Sites only

Station ID: BIT-8360

Date: 7/10/13

Abandoned site? Y or N (If Y explain in comments):

Station Fail Code:

Wind

Speed (kts): 0

Direction (4): -

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments:

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1530	33.74553	-118.21570	20.2	29	None	15	Silt	N	Olive	N	X	X	X		N	0801-0802
	Grab Event Comments:																
	1559	33.74564	-118.21571	20.4	27	None	15	Silt	N	Olive	N				X	N	
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8374 **Arrival Date/Time:** 7/10/13 1428

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	N
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

float

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	
Site replicate (i.e., duplicate) collected (if applicable)	–

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/10/13 1509

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1428

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): (At estuary Sites only)

Station ID: B13-8374

Date: 7/10/13

Abandoned site? (Y or N (If Y explain in comments)):

Station Fail Code:

Wind

Speed (kts): 0

Direction (4): -

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1428	33.75269	-118.21776	18.2	22	None	16	Silt	N	Olive	N	X	X	X		N	0795+ 0797
	Grab Event Comments:																
	1453	33.75266	-118.21775	24.1	23	None	16	Silt	N	Olive	N				X	N	0799 - 0800
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8363 **Arrival Date/Time:** 7/10/13 1329

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion _____

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** _____

Print Name/Company:_____

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1329

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): _____ (At estuary Sites only)

Station ID: 013-8363

Date: 7/10/13

Abandoned site? (Y or N (If Y explain in comments)): _____

Station Fail Code: _____

Wind

Speed (kts): 0

Direction (4): —

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1338	33.74719	-118.22137	15.2	36	None	16	Silt	N	BRN	N	X	X	X		N	0791-0792
	Grab Event Comments:																
	1400	33.74747	-118.22159	15.2	57	None	16	Silt	N	BRN	N				X	N	0793-0794
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8371 **Arrival Date/Time:** 7/10/13 1155

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/10/13 1243

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: PoLA/PoLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1155

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): (At estuary Sites only)

Station ID: BI3-8371

Date: 7/10/13

Abandoned site? Y or N (If Y explain in comments):

Station Fail Code:

Wind

Speed (kts): 0

Direction (4): —

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments:

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1203	33.75109	-118.23063	17.2	47	None	16	Silt	None	Olive	N	X	X	X		N	0786-0788
	Grab Event Comments:																
	1230	33.7508	-118.2305	17.0	47*	None	16	Silt	None	Olive	N				X	N	0789-0790
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8382 **Arrival Date/Time:** 7/10/13 1059

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	N float
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	Y
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** _____

Print Name/Company: _____

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 1059

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): ____ (At estuary Sites only)

Station ID: D13-8382

Date: 7/10/13

Abandoned site? Y or N (If Y explain in comments): ____

Station Fail Code: ____

Wind

Speed (kts): 0

Direction (4): —

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	1104	33.45.3073	118 13.8866	18.1	6	None	16	Silt	N	Olive	N	X	X	X		N	0780–0783
	Grab Event Comments:																
	1131	33.77511	118.23012	18.3	24	None	15	Silt	N	Olive	N				X	N	0784–0785
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8349 **Arrival Date/Time:** 7/10/13 0920

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	—
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	Y
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: _____ **Date/Time:** 7/10/13 1030

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: P&A/PAS

Vessel Name: Early Bird

Arrival Time (hh:mm): 0925

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): (At estuary Sites only)

Station ID: B13-8349

Date: 7/10/13

Abandoned site? (Y or N (If Y explain in comments)):

Station Fail Code:

Wind

Speed (kts): 0

Direction (4): —

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

Grab1 - blowout top of grab

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	0943	33.44.3464	118 14.1845	13.7	36	~~other~~	16+	Silt	None	Olive	N	X	X	X		N	—
	Grab Event Comments:																
	0951	33 44.3436	118 14.1907	13.7	43	None	16	Silt	None	Olive	N	X	X	X		N	0775-0777
	Grab Event Comments:																
	1017	33 44.3456	118 14.1896	13.6	43	None	16	Silt	None	Olive	N				X	N	0778-0779
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

FIELD SAMPLING QA CHECKLIST

Station Location: B13-8326 **Arrival Date/Time:** 7/10/13 0800

Site Acceptable for Sampling: (Y) or N **If No, reason:** _____

Mark each box with Y, N, or NA

Field Procedures

1. Upon arriving at the sampling location, the following site observations are recorded:

Is site accessible?	Y
Depth and benthic salinity recorded. Within limits? (>3m embayments; ≥25pt salinity)	Y
Vessel has been anchored (or tied off)	Y
Station DGPS coordinates (± 3 m) recorded	Y
Station occupation form completed	Y

2. Sampling procedures:

Field staff wearing fresh, powder free nitrile gloves	Y
Equipment washed/rinsed from previous station	Y
Vessel engine has been shut off for 5 minutes prior to sampling	Y
Sampling instrument washed with Alconox	Y
Sampling instrument given site water rinse prior to deployment	Y
Sample bottles correctly labeled (minimum: station id, date, agency, parameter)	Y
Sample bottles are lab certified, contaminant free	Y
Samples containers are the correct type in accordance with Table 5-2 in the Bight'13 QAM	Y
Sample condition meets acceptability criteria (e.g. no surface disturbance, leakage, canting, or washing)	Y
Sample penetration meets acceptability criteria (e.g. minimum 5cm for chem/tox; 7cm for infauna)	Y
Record grab disposition / characteristic information	Y
Samples collected in the following order: infaunal, chemistry, toxicity	Y
Chem/Tox samples collected from top 5cm, and 1cm from sides of grab	Y
Sediment evenly distributed among containers	Y
Stainless steel scoop used to distribute sediment	Y
Staff avoided contaminating samples at all times	Y
COC seals have been placed over individual sample bottles	Y
Site replicate (i.e., duplicate) collected (if applicable)	—

FIELD SAMPLING QA CHECKLIST

3. Data Recording:

Photo of sample grab(s) taken	Y
Samples properly logged on COC form	
Proper persons have signed the COC	
Field notes have been recorded for site before moving to the next	Y

4. Sample Storage:

Toxicity samples properly stored on wet ice	Y
Chemistry samples properly stored on dry ice	Y
Infaunal samples properly relaxed and preserved with formalin	Y
Cooler is taped shut for transport to lab	
Completed COC is included in plastic bag in cooler	

5. PPE properly removed and disposed of upon station completion Y

Additional Notes:

Signature of QA/QC Personnel: [signature] **Date/Time:** 7/20/13 0924

Print Name/Company: John Rudolph AMEC

STATION OCCUPATION

BIGHT'13

Agency Code: POLA/POLB

Vessel Name: Early Bird

Arrival Time (hh:mm): 0800

Weather

Clear		Rain	
Overcast	X	Thunderstorm	
Partly cloudy		Fog	
Drizzle			

Sea State

Calm	X
Choppy	
Rough	

Salinity (ppt): — (At estuary Sites only)

Station ID: B13-8326

Date: 7/10/13

Abandoned site? (Y or N (If Y explain in comments)):

Station Fail Code:

Wind

Speed (kts): 0

Direction (4): —

Swell

Period (s): 0

Height (ft): 0

Direction (4): 0

Nav Type

DGPS	X
GPS	

Equipment Type

Van Veen	
Tandem Van Veen	X

Station Comments

GRAB EVENTS

Sample types (Chk all that apply)

#	Time (hh:mm)	Latitude (DD°MM.mmmm)	Longitude (DD°MM.mmmm)	Depth (m)	Distance to target (m)	Grab Fail Code (6)	Penetration (cm)	Composition (1)	Odor (2)	Color (3)	Shell Hash (Y/N)	Infauna	Sed Chem	Grain Size	Sed Tox	Debris (Y/N)	Photos
	0828	33 43.7545	118 14.0165	10.6	42	None	17	Silt	N	Olive	N	X	X	X		N	0766-0767
	Grab Event Comments:																
	0856	33 43.7567	118 14.0208	10.8	35	None	14	Silt	N	Olive	N				X	N	0768-0770
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																
	Grab Event Comments:																

1 Sediment Composition: Coarse sand, Fine sand, Silt/clay, Gravel, Cobble, Mixed
2 Sediment Odor: None (N), Petroleum (P), Hydrogen sulfide (HS), Humic (HU), Other (O, describe in comments)
3 Sediment Color: Brown, Gray, Black, Olive green, Red
4 Directions: N, NE, E, SE, S, SW, W, NW, or XX for calm
5 Station Fail codes: None, Temporary - sea conditions (comment req.), Temporary - atmosphere (comment req.), Temporary - mechanical (comment req.), Pre-abandoned (comment req.), Site On Land (comment req.), Vessel safety (comment req.), No Access Allowed (comment req.), Prolonged rough seas, Bottom salinity <25psu, Too Shallow (comment req.), Too many Event Failures (comment req.), Anthropogenic obstruction (comment req.), Natural hard bottom obstructions (comment req.), Not sampleable - other (comment req.)

Grab Fail codes: None, Outside Radius Limit, Outside Target Depth, Premature closure, Flipped, Rocks/gravel, Dead shell, Live animal (comment req.), Debris (comment req.), Poor closure - other (comment req.), Heavily Canted, Large Humping, Washed, Disturbed Surface, < 5 cm Penetration, <= 7 cm Penetration - biology only

amec foster wheeler

APPENDIX C

SQO SUMMARY TABLES

amec foster wheeler

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Appendix C-1: POLA/POLB Bight '13 Sediment Quality Objectives (SQO) Assessment Sample Locations and Analyses

Station	Collection Depth (m)	Collection Device	Actual Collection Coordinates		Analysis Type			Field Duplicate
			Latitude	Longitude	Chemistry	Toxicity	Benthic Infauna	
Port of Long Beach								
B13-8318	18	Van Veen	33.724	-118.224	X	X	X	
B13-8322	22	Van Veen	33.728	-118.213	X	X	X	
B13-8326	14	Van Veen	33.729	-118.234	X	X	X	
B13-8333	15	Van Veen	33.731	-118.192	X	X	X	
B13-8347	27	Van Veen	33.739	-118.210	X	X	X	
B13-8349	14	Van Veen	33.739	-118.237	X	X	X	
B13-8356	19	Van Veen	33.743	-118.204	X	X	X	
B13-8360	20	Van Veen	33.746	-118.216	X	X	X	
B13-8363	15	Van Veen	33.747	-118.221	X	X	X	
B13-8365	16	Van Veen	33.748	-118.198	X	X	X	
B13-8371	17	Van Veen	33.751	-118.231	X	X	X	
B13-8374	18	Van Veen	33.753	-118.218	X	X	X	
B13-8382	18	Van Veen	33.755	-118.230	X	X	X	
B13-8399	19	Van Veen	33.769	-118.222	X	X	X	
B13-8401	14	Van Veen	33.772	-118.212	X	X	X	
TMDL3-TB	20	Van Veen	33.769	-118.225	X	X	X	
Port of Los Angeles								
B13-8302	25	Van Veen	33.712	-118.258	X	X	X	
B13-8304	25	Van Veen	33.713	-118.241	X	X	X	
B13-8306	3	Van Veen	33.715	-118.283	X	X	X	
B13-8308	23	Van Veen	33.717	-118.244	X	X	X	
B13-8310	14	Van Veen	33.718	-118.233	X	X	X	
B13-8316	27	Van Veen	33.724	-118.263	X	X	X	
B13-8340	18	Van Veen	33.735	-118.277	X	X	X	
B13-8367	4	Van Veen	33.749	-118.249	X	X	X	
B13-8384	18	Van Veen	33.757	-118.277	X	X	X	
B13-8396	15	Van Veen	33.766	-118.277	X	X	X	
B13-8397	5	Van Veen	33.767	-118.249	X	X	X	
TMDL1-CH	11	Van Veen	33.722	-118.280	X	X	X	
TMDL2-FH	5	Van Veen	33.735	-118.267	X	X	X	X
TMDL4-CS	8	Van Veen	33.775	-118.245	X	X	X	X

Appendix C-2: POLA/POLB Bight '13 Sediment Quality Objectives (SQO) Assessment
Sediment Chemistry Lines of Evidence (LOE) and Integrated Station Assessment

Station	Chemical Score Index (CSI)				CA Logistic Regression Model (CA LRM)			Integrated Chemistry LOE Station Score	Integrated Chemistry LOE Station Assessment
	CSI Sum	WEIGHT Sum	CSI Value	CSI Category Score	Compound Driver (greatest Pmax*)	CA LRM Value	CA LRM Category Score		
Port of Long Beach									
B13-8318	857	598	1.43	1	Zinc	0.51	3	2	Low
B13-8322	945	598	1.58	1	Zinc	0.52	3	2	Low
B13-8326	659	598	1.10	1	Zinc	0.43	2	2	Low
B13-8333	629	598	1.05	1	Zinc	0.35	2	2	Low
B13-8347	945	598	1.58	1	Zinc	0.52	3	2	Low
B13-8349	1045	598	1.75	2	Zinc	0.57	3	3	Moderate
B13-8356	659	598	1.10	1	Zinc	0.45	2	2	Low
B13-8360	659	598	1.10	1	Zinc	0.37	2	2	Low
B13-8363	826	598	1.38	1	Zinc	0.49	2	2	Low
B13-8365	826	598	1.38	1	Zinc	0.48	2	2	Low
B13-8371	659	598	1.10	1	Zinc	0.41	2	2	Low
B13-8374	945	598	1.58	1	Zinc	0.53	3	2	Low
B13-8382	975	598	1.63	1	Zinc	0.54	3	2	Low
B13-8399	1422	598	2.38	3	Mercury	0.90	4	4	High
B13-8401	1328	598	2.22	2	Zinc	0.75	4	3	Moderate
TMDL3-TB	628	598	1.05	1	Zinc	0.38	2	2	Low
Port of Los Angeles									
B13-8302	888	598	1.48	1	Cadmium and Zinc	0.52	3	2	Low
B13-8304	757	598	1.27	1	Zinc	0.48	2	2	Low
B13-8306	857	598	1.43	1	Cadmium	0.62	3	2	Low
B13-8308	757	598	1.27	1	Zinc	0.48	2	2	Low
B13-8310	757	598	1.27	1	Zinc	0.46	2	2	Low
B13-8316	857	598	1.43	1	Zinc	0.52	3	2	Low
B13-8340	945	598	1.58	1	Zinc	0.54	3	2	Low
B13-8367	629	598	1.05	1	Zinc	0.28	1	1	Minimal
B13-8384	945	598	1.58	1	Zinc	0.56	3	2	Low
B13-8396	945	598	1.58	1	Zinc	0.52	3	2	Low
B13-8397	1513	598	2.53	3	Lead	0.80	4	4	High
TMDL1-CH	1173	598	1.96	2	Cadmium	0.69	4	3	Moderate
TMDL2-FH	1443	598	2.41	3	Copper	0.86	4	4	High
TMDL4-CS	1754	598	2.93	3	Zinc	0.86	4	4	High

* Pmax=Maximum probability of toxicity

Appendix C-3: POLA/POLB Bight '13 Sediment Quality Objectives (SQO) Assessment
Toxicity Results/Statistical Summary and SQO Lines of Evidence (LOE) Assessment

Station	Test Species	Toxicity Batch	% Survival	% Control Adjusted	p-value	Statistical Significance?	Test Response Category	Integrated Toxicity LOE Station Assessment
Port of Long Beach								
B13-8318	*M. galloprovincialis*	1307-S092 to S099	70.5	100.0%	0.238	No	Nontoxic	Nontoxic
	E. estuarius	1307-S077 to S084	93.0	93.9%	0.030	Yes	Nontoxic	
B13-8322	*M. galloprovincialis*	1307-S092 to S099	65.0	92.0%	0.091	No	Nontoxic	Low Toxicity
	E. estuarius	1307-S077 to S084	89.0	89.9%	0.010	Yes	Low toxicity	
B13-8326	*M. galloprovincialis*	1307-S092 to S099	67.0	95.0%	0.071	No	Nontoxic	Nontoxic
	E. estuarius	1307-S077 to S084	96.0	97.0%	0.033	Yes	Nontoxic	
B13-8333	*M. galloprovincialis*	1307-S092 to S099	69.1	98.0%	0.170	No	Nontoxic	Nontoxic
	E. estuarius	1307-S077 to S084	98.0	99.0%	0.272	No	Nontoxic	
B13-8347	*M. galloprovincialis*	1307-S085 to S091	58.1	82.0%	0.058	No	Nontoxic	Low Toxicity
	E. estuarius	1307-S070 to S076	85.0	86.7%	0.015	Yes	Low toxicity	
B13-8349	*M. galloprovincialis*	1307-S092 to S099	62.7	89.0%	0.000	Yes	Low toxicity	Low Toxicity
	E. estuarius	1307-S077 to S084	91.0	91.9%	0.016	Yes	Nontoxic	
B13-8356	*M. galloprovincialis*	1307-S085 to S091	66.9	95.0%	0.399	No	Nontoxic	Nontoxic
	E. estuarius	1307-S070 to S076	95.0	96.9%	0.137	No	Nontoxic	
B13-8360	*M. galloprovincialis*	1307-S085 to S091	67.8	96.0%	0.470	No	Nontoxic	Nontoxic
	E. estuarius	1307-S070 to S076	98.0	100%	0.500	No	Nontoxic	
B13-8363	*M. galloprovincialis*	1307-S085 to S091	72.8	103%	0.102	No	Nontoxic	Nontoxic
	E. estuarius	1307-S070 to S076	94.0	95.9%	0.121	No	Nontoxic	
B13-8365	*M. galloprovincialis*	1307-S181 to S188	95.4	128%	0.042	Yes	Nontoxic	Low Toxicity
	E. estuarius	1307-S166 to S173	87.0	87.9%	0.000	Yes	Low toxicity	
B13-8371	*M. galloprovincialis*	1307-S085 to S091	58.1	82.0%	0.089	No	Nontoxic	Nontoxic
	E. estuarius	1307-S070 to S076	96.0	98.0%	0.121	No	Nontoxic	
B13-8374	*M. galloprovincialis*	1307-S085 to S091	60.6	86.0%	0.033	Yes	Low toxicity	Low Toxicity
	E. estuarius	1307-S070 to S076	88.0	89.8%	0.048	Yes	Low toxicity	
B13-8382	*M. galloprovincialis*	1307-S085 to S091	62.9	89.0%	0.193	No	Nontoxic	Nontoxic
	E. estuarius	1307-S070 to S076	97.0	99.0%	0.290	No	Nontoxic	
B13-8399	*M. galloprovincialis*	1307-S174 to S180	79.1	105.0%	0.205	No	Nontoxic	Nontoxic
	E. estuarius	1307-S159 to S165	97.0	99.0%	0.366	No	Nontoxic	
B13-8401	*M. galloprovincialis*	1307-S174 to S180	60.3	80.0%	0.124	No	Nontoxic	Low Toxicity
	E. estuarius	1307-S159 to S165	86.0	87.8%	0.007	Yes	Low toxicity	
B13-TMDL-3TB	*M. galloprovincialis*	1307-S174 to S180	70.3	93.7%	0.271	No	Nontoxic	Nontoxic
	E. estuarius	1307-S159 to S165	94.0	95.9%	0.056	No	Nontoxic	

Appendix C-3: POLA/POLB Bight '13 Sediment Quality Objectives (SQO) Assessment
Toxicity Results/Statistical Summary and SQO Lines of Evidence (LOE) Assessment

Station	Test Species	Toxicity Batch	% Survival	% Control Adjusted	p-value	Statistical Significance?	Test Response Category	Integrated Toxicity LOE Station Assessment
Port of Los Angeles								
B13-8302	*M. galloprovincialis*	1307-S181 to S188	82.8	111%	0.219	No	Nontoxic	Low Toxicity
	E. estuarius	1307-S166 to S173	84.0	84.8%	0.000	Yes	Low toxicity	
B13-8304	*M. galloprovincialis*	1307-S092 to S099	60.2	85.0%	0.106	No	Nontoxic	Nontoxic
	E. estuarius	1307-S077 to S084	92.0	92.9%	0.007	Yes	Nontoxic	
B13-8306	*M. galloprovincialis*	1307-S181 to S188	68.1	91.0%	0.383	No	Nontoxic	Low Toxicity
	E. estuarius	1307-S166 to S173	89.0	89.9%	0.003	Yes	Low toxicity	
B13-8308	*M. galloprovincialis*	1307-S092 to S099	59.5	84.0%	0.002	Yes	Low toxicity	Low Toxicity
	E. estuarius	1307-S077 to S084	93.0	93.9%	0.003	Yes	Nontoxic	
B13-8310	*M. galloprovincialis*	1307-S092 to S099	63.6	90.0%	0.053	No	Nontoxic	Nontoxic
	E. estuarius	1307-S077 to S084	92.0	92.9%	0.029	Yes	Nontoxic	
B13-8316	*M. galloprovincialis*	1307-S181 to S188	76.5	102.0%	0.400	No	Nontoxic	Nontoxic
	E. estuarius	1307-S166 to S173	94.0	94.9%	0.113	No	Nontoxic	
B13-8340	*M. galloprovincialis*	1307-S181 to S188	72.5	97.0%	0.496	No	Nontoxic	Low Toxicity
	E. estuarius	1307-S166 to S173	87.0	87.9%	0.000	Yes	Low toxicity	
B13-8367	*M. galloprovincialis*	1307-S181 to S188	84.0	112%	0.194	No	Nontoxic	Nontoxic
	E. estuarius	1307-S166 to S173	97.0	98.0%	0.199	No	Nontoxic	
B13-8384	*M. galloprovincialis*	1307-S174 to S180	84.7	113%	0.044	Yes	Nontoxic	Nontoxic
	E. estuarius	1307-S159 to S165	96.0	98.0%	0.243	No	Nontoxic	
B13-8396	*M. galloprovincialis*	1307-S174 to S180	75.2	100%	0.400	No	Nontoxic	Nontoxic
	E. estuarius	1307-S159 to S165	91.0	92.9%	0.042	Yes	Nontoxic	
B13-8397	*M. galloprovincialis*	1307-S174 to S180	82.8	110%	0.078	No	Nontoxic	Nontoxic
	E. estuarius	1307-S159 to S165	91.0	92.9%	0.042	Yes	Nontoxic	
B13-TMDL-1CH	*M. galloprovincialis*	1307-S181 to S188	67.4	90.2%	0.263	No	Nontoxic	Low Toxicity
	E. estuarius	1307-S166 to S173	77.0	77.8%	0.000	Yes	Moderate Toxicity	
B13-TMDL-2FH	*M. galloprovincialis*	1307-S181 to S188	88.5	118%	0.110	No	Nontoxic	Low Toxicity
	E. estuarius	1307-S166 to S173	89.0	89.9%	0.006	Yes	Low toxicity	
B13-TMDL-4CS	*M. galloprovincialis*	1307-S174 to S180	90.2	120%	0.016	Yes	Nontoxic	Low Toxicity
	E. estuarius	1307-S159 to S165	83.0	84.7%	0.001	Yes	Low toxicity	

Appendix C-4: POLA/POLB Bight '13 Sediment Quality Objectives (SQO) Assessment Toxicity Lines of Evidence (LOE) and Integrated Station Assessment

Station	Amphipod Test (E. estuarius)		Bivalve Larvae Test (M. galloprovincialis)		Integrated Assessment	
	Statistically Significant	Test Response Category	Statistically Significant	Test Response Category	Station Score	Integrated Toxicity LOE Station Assessment
Port of Long Beach						
B13-8318	Yes	Nontoxic	No	Nontoxic	1	Nontoxic
B13-8322	Yes	Low Toxicity	No	Nontoxic	2	Low Toxicity
B13-8326	Yes	Nontoxic	No	Nontoxic	1	Nontoxic
B13-8333	No	Nontoxic	No	Nontoxic	1	Nontoxic
B13-8347	Yes	Low Toxicity	No	Nontoxic	2	Low Toxicity
B13-8349	Yes	Nontoxic	Yes	Low Toxicity	2	Low Toxicity
B13-8356	No	Nontoxic	No	Nontoxic	1	Nontoxic
B13-8360	No	Nontoxic	No	Nontoxic	1	Nontoxic
B13-8363	No	Nontoxic	No	Nontoxic	1	Nontoxic
B13-8365	Yes	Low Toxicity	No	Nontoxic	2	Low Toxicity
B13-8371	No	Nontoxic	No	Nontoxic	1	Nontoxic
B13-8374	Yes	Low Toxicity	Yes	Low Toxicity	2	Low Toxicity
B13-8382	No	Nontoxic	No	Nontoxic	1	Nontoxic
B13-8399	No	Nontoxic	No	Nontoxic	1	Nontoxic
B13-8401	Yes	Low Toxicity	No	Nontoxic	2	Low Toxicity
TMDL3-TB	No	Nontoxic	No	Nontoxic	1	Nontoxic
Port of Los Angeles						
B13-8302	Yes	Low Toxicity	No	Nontoxic	2	Low Toxicity
B13-8304	Yes	Nontoxic	No	Nontoxic	1	Nontoxic
B13-8306	Yes	Low Toxicity	No	Nontoxic	2	Low Toxicity
B13-8308	Yes	Nontoxic	Yes	Low Toxicity	2	Low Toxicity
B13-8310	Yes	Nontoxic	No	Nontoxic	1	Nontoxic
B13-8316	No	Nontoxic	No	Nontoxic	1	Nontoxic
B13-8340	Yes	Low Toxicity	No	Nontoxic	2	Low Toxicity
B13-8367	No	Nontoxic	No	Nontoxic	1	Nontoxic
B13-8384	No	Nontoxic	No	Nontoxic	1	Nontoxic
B13-8396	Yes	Nontoxic	No	Nontoxic	1	Nontoxic
B13-8397	Yes	Nontoxic	No	Nontoxic	1	Nontoxic
TMDL1-CH	Yes	Moderate Toxicity	No	Nontoxic	2	Low Toxicity
TMDL2-FH	Yes	Low Toxicity	No	Nontoxic	2	Low Toxicity
TMDL4-CS	Yes	Low Toxicity	No	Nontoxic	2	Low Toxicity

Appendix C-5: POLA/POLB Bight '13 Sediment Quality Objectives (SQO) Assessment
Benthic Community LOE Selected Metrics

Station	B13-8302	B13-8304	B13-8306	B13-8308	B13-8310	B13-8316	B13-8318	B13-8322	B13-8326	B13-8333
Total # of taxa	48	51	41	43	48	51	40	40	41	41
Number of Mollusk taxa	15	11	11	7	10	9	9	9	7	11
Number of Crustacean taxa	4	5	14	8	7	7	6	6	10	6
Percentage of sensitive taxa	12.5	15.7	41.5	20.9	16.7	23.5	27.5	12.5	29.3	24.4
Station	**B13-8340**	**B13-8347**	**B13-8349**	**B13-8356**	**B13-8360**	**B13-8363**	**B13-8365**	**B13-8367**	**B13-8371**	**B13-8374**
Total # of taxa	30	48	31	51	81	55	50	35	47	38
Number of Mollusk taxa	7	11	8	12	27	11	16	5	16	10
Number of Crustacean taxa	4	5	8	5	11	11	5	14	11	6
Percentage of sensitive taxa	16.7	20.8	19.4	7.8	23.5	21.8	20.0	37.1	17.0	18.4
Station	**B13-8382**	**B13-8384**	**B13-8396**	**B13-8397**	**B13-8399**	**B13-8401**	**TMDL1-CH**	**TMDL2-FH**	**TMDL3-TB**	**TMDL4-CS**
Total # of taxa	57	31	46	31	33	41	33	36	32	30
Number of Mollusk taxa	15	7	9	2	7	5	6	6	4	1
Number of Crustacean taxa	11	5	9	9	3	7	6	10	3	11
Percentage of sensitive taxa	17.5	16.1	8.7	19.4	27.3	14.6	6.1	11.1	6.3	23.3

Appendix C-6: POLA/POLB Bight '13 Sediment Quality Objectives (SQO) Assessment Benthic Community Lines of Evidence (LOE) Scoring Criteria

Benthic Response Indices	Reference	Low Disturbance	Moderate Disturbance	High Disturbance
Index of Biotic Integrity (IBI)	0	1	2	3 or 4
Relative Benthic Index (RBI)	>0.27	>0.16 to ≤0.27	>0.08 to ≤0.16	0 to 0.08
Benthic Response Index (BRI)	<39.96	39.96 to <49.15	49.15 to <73.26	73.26 and higher
RIVPACS	>0.90 - <1.10	>0.74 - ≤0.90 or ≥1.10 - <1.26	>0.32 - ≤0.74 or ≥1.26	≤0.32

Appendix C-7: POLA/POLB Bight '13 Sediment Quality Objectives (SQO) Assessment
Benthic Community Lines of Evidence (LOE) and Integrated Station Assessment

Station	BRI Score	BRI Disturbance Category	IBI Score	IBI Disturbance Category	RBI Score	RBI Disturbance Category	RIVPACS Score	RIVPACS Disturbance Category	Integrated Benthic LOE Assessment Score	Integrated Benthic LOE Station Assessment
Port of Long Beach										
B13-8318	8.41	Reference	0	Reference	0.19	Low	0.15	High	2	Low
B13-8322	2.78	Reference	1	Low	0.19	Low	0.15	High	2	Low
B13-8326	9.63	Reference	0	Reference	0.21	Low	0.23	High	2	Low
B13-8333	8.38	Reference	0	Reference	0.21	Low	0.29	High	2	Low
B13-8347	12.84	Reference	0	Reference	0.22	Low	0.29	High	2	Low
B13-8349	8.63	Reference	0	Reference	0.18	Low	0.45	Moderate	2	Low
B13-8356	9.25	Reference	1	Low	0.23	Low	0.58	Moderate	2	Low
B13-8360	7.22	Reference	1	Low	0.46	Reference	0.59	Moderate	2	Low
B13-8363	14.97	Reference	0	Reference	0.28	Reference	0.00	High	1	Reference
B13-8365	14.85	Reference	0	Reference	0.26	Low	0.25	High	2	Low
B13-8371	10.73	Reference	1	Low	0.30	Reference	0.51	Moderate	2	Low
B13-8374	6.77	Reference	1	Low	0.20	Low	0.00	High	2	Low
B13-8382	21.52	Reference	1	Low	0.29	Reference	0.59	Moderate	2	Low
B13-8399	18.42	Reference	0	Reference	0.14	Moderate	0.51	Moderate	2	Low
B13-8401	37.11	Reference	1	Low	0.17	Low	0.51	Moderate	2	Low
TMDL3-TB	23.13	Reference	1	Low	0.12	Moderate	0.29	High	3	Moderate
Port of Los Angeles										
B13-8302	10.57	Reference	1	Low	0.24	Low	0.17	High	2	Low
B13-8304	8.55	Reference	1	Low	0.23	Low	0.17	High	2	Low
B13-8306	26.32	Reference	0	Reference	0.26	Low	0.59	Moderate	2	Low
B13-8308	5.93	Reference	0	Reference	0.20	Low	0.68	Moderate	2	Low
B13-8310	14.25	Reference	1	Low	0.23	Low	0.90	Low	2	Low
B13-8316	8.03	Reference	0	Reference	0.23	Low	0.81	Low	2	Low
B13-8340	26.47	Reference	1	Low	0.14	Moderate	0.40	Moderate	3	Moderate
B13-8367	42.99	Low	0	Reference	0.43	Reference	1.14	Low	2	Low
B13-8384	18.38	Reference	1	Low	0.15	Moderate	0.45	Moderate	3	Moderate
B13-8396	24.15	Reference	1	Low	0.21	Low	0.45	Moderate	2	Low
B13-8397	56.35	Moderate	0	Reference	0.24	Low	1.03	Reference	2	Low
TMDL1-CH	27.51	Reference	1	Low	0.16	Moderate	1.00	Reference	2	Low
TMDL2-FH	48.54	Low	1	Low	0.17	Low	1.01	Reference	2	Low
TMDL4-CS	50.94	Moderate	1	Low	0.20	Low	1.19	Low	2	Low

Appendix C-8: POLA/POLB Bight '13 Sediment Quality Objectives (SQO) Assessment Individual Lines of Evidence (LOE) and Integrated SQO Station Assessment

Station	Sediment Chemistry Exposure Category	Sediment Toxicity Category	Benthic Community Disturbance Category	Integrated SQO Station Assessment
Port of Long Beach				
B13-8318	Low	Nontoxic	Low	Unimpacted
B13-8322	Low	Low Toxicity	Low	Likely unimpacted
B13-8326	Low	Nontoxic	Low	Unimpacted
B13-8333	Low	Nontoxic	Low	Unimpacted
B13-8347	Low	Low Toxicity	Low	Likely unimpacted
B13-8349	Moderate	Low Toxicity	Low	Possibly impacted
B13-8356	Low	Nontoxic	Low	Unimpacted
B13-8360	Low	Nontoxic	Low	Unimpacted
B13-8363	Low	Nontoxic	Reference	Unimpacted
B13-8365	Low	Low Toxicity	Low	Likely unimpacted
B13-8371	Low	Nontoxic	Low	Unimpacted
B13-8374	Low	Low Toxicity	Low	Likely unimpacted
B13-8382	Low	Nontoxic	Low	Unimpacted
B13-8399	High	Nontoxic	Low	Likely unimpacted
B13-8401	Moderate	Low Toxicity	Low	Possibly impacted
TMDL3-TB	Low	Nontoxic	Moderate	Likely unimpacted
Port of Los Angeles				
B13-8302	Low	Low Toxicity	Low	Likely unimpacted
B13-8304	Low	Nontoxic	Low	Unimpacted
B13-8306	Low	Low Toxicity	Low	Likely unimpacted
B13-8308	Low	Low Toxicity	Low	Likely unimpacted
B13-8310	Low	Nontoxic	Low	Unimpacted
B13-8316	Low	Nontoxic	Low	Unimpacted
B13-8340	Low	Low Toxicity	Moderate	Possibly impacted
B13-8367	Minimal	Nontoxic	Low	Unimpacted
B13-8384	Low	Nontoxic	Moderate	Likely unimpacted
B13-8396	Low	Nontoxic	Low	Unimpacted
B13-8397	High	Nontoxic	Low	Likely unimpacted
TMDL1-CH	Moderate	Low Toxicity	Low	Possibly impacted
TMDL2-FH	High	Low Toxicity	Low	Possibly impacted
TMDL4-CS	High	Low Toxicity	Low	Possibly impacted

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APPENDIX D

ANALYTICAL CHEMISTRY REPORTS (PHYSIS)

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Appendix Table D-1. POLA/POLB Sediment Chemistry Summary Table [1]

Type	Analyte	Stations																	
		8302	8304	8306	8308	8310	8316	8318	8322	8326	8333	8340	8347	8349	8356	8360	8363	8365	8367
Metals (mg/kg)	Cadmium	0.855	0.7311	1.14	0.729	0.600	0.592	0.487 J	0.461 J	0.304	0.234	0.550 J	0.467 J	0.573	0.273	0.190	0.274	0.282 J	0.0933
	Chromium	79.7 J	69.9 J	59.9 J	67.2 J	57.7 J	76.6 J	68.8 J	73.0 J	42.8 J	34.9 J	71.2 J	71.6 J	78.9 J	46.4 J	34.1 J	50.3 J	55.2 J	21.0 J
	Copper	62.3	49.4	80.4	50.5	44.6	65.1	58.3	55.3	34.9	19.7	81.8	54.3	96.6	49.2	29.0	55.4	52.9	12.4
	Lead	22.4	19.4	22.4	18.2	20.3	22.0	26.1	30.8	16.0	15.1	30.1	29.6	36.4	21.6	15.3	23.6	19.1	4.63
	Mercury	0.227	0.181	0.324	0.167	0.196	0.219	0.232	0.223	0.157	0.0830	0.335	0.196	0.414	0.142	0.157	0.242	0.143	0.0340
	Zinc	142	125	194	124	115	142	138 J	145 J	101	71.9	153 J	141 J	172	109	79.4	127	122 J	53.8
PCB Congeners (µg/kg)	PCB-008	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-018	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-028	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-044	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-052	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-066	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-101	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-105	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.10	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-110	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.20	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-118	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-128	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-138	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.50	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-153	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.10	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-180	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-187	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-195	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Pesticides (µg/kg)	2,4'-DDD	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	4,4'-DDD	0.05 U	0.05 U	0.05 U	0.05 U	0.20	0.20	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	2,4'-DDE	0.90	0.60	0.50	0.50	0.30	0.40	0.05 U	0.05 U	0.20	0.20	0.05 U	0.05 U	0.40	0.20	0.05 U	0.05 U	0.05 U	0.05 U
	4,4'-DDE	4.0	2.8	1.7	2.5	2.0	2.4	0.6	1.2	0.90	1.3	1.4	1.1	1.1	1.1	0.80	0.50	0.05 U	0.90
	2,4'-DDT	0.05 U	0.05 U	0.05 U	0 U	0 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	4,4'-DDT	0.05 U	0.05 U	0.05 U	0 U	0 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	alpha-Chlordane	0.05 U	0.05 U	0.05 U	0.05 U	0 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	gamma-Chlordane	0.05 U	0.05 U	0.05 U	0.05 U	0 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	Dieldrin	0.05 U	0.05 U	0.05 U	0.05 U	0 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	trans-Nonachlor	0.05 U	0.05 U	0.05 U	0.05 U	0 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Low Molecular Weight PAHs (µg/kg)	1-Methylnaphthalene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.9 J	1.0 U	1.0 U	1.0 U	1.0 U
	1-Methylphenanthrene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2 J	1.1 J	1.0 U	1.2 J	1.0 U	1.1 J	1.9 J	1.0 U	1.0 U	1.0 U	1.5 J
	2,6-Dimethylnaphthalene	1.0 U	1.0 U	1.0 U	1.1 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 J	1.0 U	1.0 U	2.4 J	1.0 U	1.0 U	1.0 U	1.0 U
	2-Methylnaphthalene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.9 J	1.0 U	1.0 U	1.0 U	1.0 U
	Acenaphthene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.1 J	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U
	Anthracene	2.1 J	1.3 J	2.0 J	1.3 J	1.3 J	1.1 J	1.9 J	1.5 J	4.0 J	3.1 J	8.7	3.5 J	2.1 J	6.6	2.1 J	2.9 J	1.5 J	4.8 J
	Biphenyl (1,1'-Biphenyl)	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	Fluorene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	Naphthalene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.3 J	1.0 U	1.0 U	2.8 J	1.0 U	1.0 U	1.0 U	1.8 J
	Phenanthrene	1.6 J	1.1 J	1.3 J	1.3 J	1.1 J	1.5 J	1.4 J	1.5 J	1.3 J	1.9 J	3.4 J	1.8 J	1.8 J	5.2	1.0 U	1.2 J	1.0 U	1.8 J
High Molecular Weight PAHs (µg/kg)	Benzo(a)anthracene	1.7 J	2.7 J	2.5 J	2.4 J	6.0	2.1 J	3.1 J	2.2 J	5.6	6.3	11	7.0	3.3 J	16 J	1.8 J	4.6 J	1.7 J	24
	Benzo(a)pyrene	5.7	9.0	7.1	6.5	5.5	2.5 J	7.4	6.1	9.2	5.1	21	18	9.0	21 J	6.8	8.1	6.0	52
	Benzo(e)pyrene	2.5 J	3.2 J	3.5 J	2.5 J	2.5 J	1.6 J	2.6 J	1.9 J	3.1 J	2.3 J	9.2	6.7	3.2 J	16 J	2.5 J	3.7 J	2.5 J	19
	Chrysene	2.8 J	4.0 J	3.8 J	3.1 J	5.1	2.8 J	4.1 J	3.1 J	7.9	5.1	17	9.9	4.2 J	21 J	3.0 J	6.0	3.5 J	24
	Dibenz(a,h)anthracene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.1 J	1.0 U	2.9 J	1.1 J	5.0	7.0	3.1 J	8.1	1.0 U	1.0 U	2.8 J	10
	Fluoranthene	3.7 J	4.6 J	5.7	3.1 J	7.3	3.8 J	4.6 J	3.0 J	2.6 J	12.6	18	2.9 J	4.8 J	5.9	2.2 J	3.2 J	1.5 J	17
	Perylene	11	10	30	15	6.7	3.5 J	7.2	3.7 J	6.9	3.2 J	12	10	7.6	3.0 J	3.6 J	3.4 J	2.7 J	19
	Pyrene	3.4 J	4.2 J	4.6 J	3.3 J	9.2	3.4 J	5.1	3.8 J	2.2 J	15.4	14	3.5 J	4.5 J	13 J	2.1 J	2.5 J	1.8 J	23

Notes:

[1] Sediment chemistry constituents consistent with SQO protocols are presented herein.

For the full suite of chemicals analyzed, please see the laboratory chemistry reports presented in Appendix D and in the EDD on CD.

All values reported in dry weight

µg/kg = micrograms per dry kilogram

mg/kg = milligrams per dry kilogram

SQO = Sediment Quality Objective

PAH = Polycyclic Aromatic Hydrocarbons

PCB = Polychlorinated Biphenyl

DDD = Dichlorodiphenyldichloroethane

DDE = Dichlorodiphenyldichloroethylene

DDT = Dichlorodiphenyltrichloroethane

U = Data reported to the method detection limit

J = estimated result, below the reporting limit, but above the MDL

Appendix Table D-1. POLA/POLB Sediment Chemistry Summary Table [1]

Type	Analyte	Stations													
		8371	8374	8382	8384	8396	8397	8399	8401	TMDL1-CH	TMDL2-FH	TMDL3-TB	TMDL4-CS	TMDL5-DT	TMDL6-CP
Metals (mg/kg)	Cadmium	0.205	0.460	0.427	0.414	0.292 J	0.528 J	3.08	0.570	1.44	1.27	0.280 J	2.19 J	1.16	0.367 J
	Chromium	36.0 J	62.3 J	56.4 J	71.9 J	64.9 J	158 J	78.6 J	86.8 J	111 J	125 J	31.6 J	125 J	122 J	36.7 J
	Copper	40.4	62.7	74.0	92.6	71.7	259	144	208	169	726	33.5	243	708	42.2
	Lead	15.5	35.8	27.7	33.8	32.8	144	111	82.6	50.4	129	21.0	150	125	27.7
	Mercury	0.182	0.258	0.462	0.403	0.293	0.909	7.19	0.923	0.613	2.434	0.348	0.454	2.75	0.475
	Zinc	95	151	156	168	145 J	364 J	401	377	244	628	82 J	746 J	550	103 J
PCB Congeners (µg/kg)	PCB-008	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-018	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-028	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-044	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.30	0.90	0.05 U	0.05 U	0.70	0.05 U	0.80	0.05 U	0.05 U
	PCB-052	0.40	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	1.4	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-066	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.70 J	0.90	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-101	1.0	0.05 U	0.05 U	0.05 U	0.40	1.4	2.9	0.05 U	0.20	0.60	0.05 U	1.1	2.2	0.05 U
	PCB-105	0.30	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	1.1	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.40	0.05 U
	PCB-110	0.80	0.05 U	0.05 U	0.10	0.30	0.8	2.8	0.20	0.20	0.50	0.05 U	0.80	1.7	0.05 U
	PCB-118	0.70	0.05 U	0.05 U	0.20	0.40	0.7	3.1	0.20	0.20	0.70	0.05 U	0.05 U	1.5	0.05 U
	PCB-128	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.50	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	PCB-138	0.90	0.05 U	0.05 U	0.50	0.40	1.8	6.3	1.0	1.2	2.0	0.05 U	1.0	5.1	0.05 U
	PCB-153	0.80	0.05 U	0.05 U	0.20	0.40	2.3 J	2.8	0.30	0.90	0.70	0.05 U	1.6	2.6	0.05 U
	PCB-180	0.80	0.05 U	0.05 U	0.30	0.20	1.5 J	5.3	0.40	2.3	1.3	0.05 U	1.4	2.2	0.05 U
	PCB-187	0.30	0.05 U	0.05 U	0.05 U	0.05 U	1.0 J	0.80	0.05 U	0.50	0.30	0.05 U	1.2	0.30	0.05 U
	PCB-195	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Pesticides (µg/kg)	2,4'-DDD	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.20	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	4,4'-DDD	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	3.0	0.05 U	0.80	0.05 U	0.05 U	0.05 U	5.6	0.05 U	0.05 U
	2,4'-DDE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.8	0.05 U	0.05 U	0.4	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	4,4'-DDE	0.90	0.60	1.0	1.1	1.5	10	2.4	1.6	2.7	4.9	0.05 U	10	5.9	0.60
	2,4'-DDT	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	4,4'-DDT	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	alpha-Chlordane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	1.9	0.05 U	0.05 U
	gamma-Chlordane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.8 J	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	2.1	0.05 U	0.05 U
	Dieldrin	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	trans-Nonachlor	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.7 J	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	1.5	0.05 U	0.05 U
Low Molecular Weight PAHs (µg/kg)	1-Methylnaphthalene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 J	1.6 J	1.0 U	1.0 U	1.4 J	1.0 U	3.0 J	1.7 J	1.0 U
	1-Methylphenanthrene	2.0 J	1.0 J	1.3 J	1.0 U	1.8 J	4.0 J	16	4.8 J	1.3 J	21	1.0 U	9.8	23	1.0 U
	2,6-Dimethylnaphthalene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.3 J	2.1 J	1.0 J	1.2 J	1.3 J	1.0 U	5.0	1.6 J	1.0 U
	2-Methylnaphthalene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.9 J	4.2 J	1.0 U	1.0 J	2.1 J	1.0 U	6.6	2.3 J	1.0 U
	Acenaphthene	1.0 U	1.0 U	1.0 J	1.0 UJ	1.1 J	1.8 J	32 J	1.1 J	1.0 UJ	2.2 J	1.0 U	5.0	2.1 J	1.0 U
	Anthracene	13	5.5	7.8	8.3	15	28	91	58	13	71	1.0 J	54	58	7.1
	Biphenyl (1,1'-Biphenyl)	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 J	1.7 J	1.0 U	1.0 U	1.0 U	1.0 U	1.5 J	1.0 U	1.0 U
	Fluorene	1.4 J	1.1 J	1.0 U	1.0 U	1.1 J	2.0 J	8.8	4.5 J	1.0 J	5.5	1.0 U	5.8	6.3	1.0 U
	Naphthalene	1.0 U	1.1 J	1.0 J	1.0 U	1.3 J	4.2 J	23	1.7 J	1.4 J	3.2 J	1.0 U	7.8	5.6	1.0 U
	Phenanthrene	11	5.8	3.3 J	2.7 J	5.5	18	14	28	7.0	55	1.0 U	71	70	1.1 J
High Molecular Weight PAHs (µg/kg)	Benzo(a)anthracene	19	7.6	13	7.9	21	44 J	54	72	18	133	1.0 U	108	120	2.6 J
	Benzo(a)pyrene	49	17	36	9.6	43	118 J	64	105	28	149	1.0 U	150	155	9.7
	Benzo(e)pyrene	22	6.2	18	5.9	19	78 J	30	53	16	74	1.0 U	121	74	2.8 J
	Chrysene	37	11	20	13	36	76 J	45	124	27	156	1.2 J	173	118	4.7 J
	Dibenz(a,h)anthracene	12	1.0 U	9.1	3.2 J	9.6	28	18	19	7.5	29	1.0 U	58	32	3.3 J
	Fluoranthene	18	12	8.5	8.7	14	53 J	356	48	20	186	1.0 U	217	189	2.4 J
	Perylene	12	5.2	12	8.1	14	32	23	24	41	47	1.0 U	59	53	3.7 J
	Pyrene	17	8.5	9.9	6.7	12	62 J	235	40	18	210	1.0 U	229	236	3.7 J

Notes:

[1] Sediment chemistry constituents consistent with SQO protocols are presented herein.

For the full suite of chemicals analyzed, please see the laboratory chemistry reports presented in Appendix D and in the EDD on CD.

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µg/kg = micrograms per dry kilogram

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J = estimated result, below the reporting limit, but above the MDL

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

November 01, 2013

Chris Stransky
AMEC
9210 Sky Park Court
Suite 200
San Diego, CA 92123-

Project Name: POLA/POLB Harbor Toxics TMDL and Bight '13
Physis Project ID: 1307001-001

Dear Chris,

Enclosed are the analytical results for samples submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 7/13/2013. A total of 32 samples were received for analysis in accordance with the attached chain of custody (COC). Per the COC, the samples were analyzed for:

Conventionals
Total Sulfides by Plumb, 1981/TERL
Percent Solids by SM 2540B
Ammonia as N by SM 4500-NH3 D
Elements
Trace Metals by EPA 6020
Trace Mercury by EPA 245.7
Total Phosphorus by EPA 6020
Organics
Toxaphene w/ OCPs by EPA 8270C-NCI
Synthetic Pyrethroid Pesticides by EPA 8270C-NCI
Polynuclear Aromatic Hydrocarbons by EPA 8270C
PBDE Congeners by EPA 8270C-NCI
Organochlorine Pesticides & PCB Congeners/Aroclors by EPA 8270C
Fipronil & Degradates by EPA 8270C-NCI
Subcontract
Total Organic Carbon by SM 5310 B
Total Nitrogen by SM 4500-N

Analytical results in this report apply only to samples submitted to PHYSIS in accordance with the COC and are intended to be considered in their entirety.

Please feel free to contact me at any time with any questions. PHYSIS appreciates the opportunity

to provide you with our analytical and support services.

Regards,

Misty Mercier
Extension 202
714-335-5918 cell
mistymercier@physislabs.com

ABBREVIATIONS and ACRONYMS

QM	Quality Manual
QA	Quality Assurance
QC	Quality Control
MDL	method detection limit
RL	reporting limit
R1	project sample
R2	project sample replicate
MS1	matrix spike
MS2	matrix spike replicate
B1	procedural blank
B2	procedural blank replicate
BS1	blank spike
BS2	blank spike replicate
LCS1	laboratory control spike
LCS2	laboratory control spike replicate
LCM1	laboratory control material
LCM2	laboratory control material replicate
CRM1	certified reference material
CRM2	certified reference material replicate
RPD	relative percent difference
LMW	low molecular weight
HMW	high molecular weight

QUALITY ASSURANCE SUMMARY

LABORATORY BATCH: Physis' QM defines a laboratory batch as a group of 20 or fewer project samples of similar matrix, processed together under the same conditions and with the same reagents. QC samples are associated with each batch and are used to assess the validity of the sample analyses.

PROCEDURAL BLANK: Laboratory contamination introduced during method use was assessed through the analysis of procedural blanks at a minimum frequency of one per batch. Physis' QM requires that all procedural blanks be below 10 times the MDL and all detectable constituents in the procedural blanks be flagged in the project sample results with a B qualifier.

ACCURACY: Accuracy of analytical measurements is the degree of closeness based on percent recovery calculations between measured values and the actual or true value and includes a combination of reproducibility error and systematic bias due to sampling and analytical operations. Accuracy of the project data was indicated by analysis of MS, BS, LCS, LCM, CRM, and/or surrogate spikes on a minimum frequency of one per batch. Physis' QM requires that 95% of the target compounds greater than 10 times the MDL be within the specified acceptance limits.

PRECISION: Precision is the agreement among a set of replicate measurements without assumption of knowledge of the true value and is based on RPD calculations between repeated values. Precision of the project data was determined by analysis of replicate MS1/MS2, BS1/BS2, LCS1/LCS2, LCM1/LCM2, CRM1/CRM2, surrogate spikes and/or replicate project sample analysis (R1/R2) on a minimum frequency of one per batch. Physis' QM requires that for 95% of the compounds greater than 10 times the MDL, the percent RPD should be within the specified acceptance range.

MATRIX SPIKES: MS samples were employed to assess the effect a particular project sample matrix has on the accuracy of a measurement. It is prepared by adding a known amount of the target analyte(s) to an aliquot of the project sample. Matrix spikes indicate the bias of analytical measurements due to chemical interferences inherent in the sample matrix. If the matrix spike recovery does not fall within the specified acceptance limits, it may be an indication of sample matrix interference in the specific project sample used for the MS. Intrinsic target analyte concentration in the specific project sample can also significantly impact MS recovery.

BLANK SPIKES: BS demonstrates performance of the preparation and analytical methods on a clean matrix void of potential matrix related interferences. The BS is performed in laboratory deionized water, making these recoveries a better indicator of the efficiency of the laboratory method per se.

CERTIFIED REFERENCE MATERIALS: CRMs are pre-homogenized materials of various matrices for which analytical information has been determined and certified by a recognized authority. These are used to provide a quantitative assessment of the accuracy of a preparation and analytical method. CRMs are analyzed to provide evidence that the laboratory method produces results that are comparable to those obtained by an independent organization.

SURROGATES: Where CRMs are unavailable, target analyte recovery can be assessed by monitoring added surrogate compounds/elements. A surrogate is a pure analyte unlikely to be found in any project sample and most often used with organic analytical procedures. Percent recovery is calculated for each surrogate and is used to monitor method performance within each discrete sample and is indicative of the procedure's ability to recover the actual analytes of interest.

HOLDING TIME: Method recommended holding times are the length of time a project sample can be stored

under specific conditions after collection and prior to analysis without significantly affecting the analyte's concentration. Holding times can be extended if preservation techniques are employed to reduce biodegradation, volatilization, oxidation, sorption, precipitation, and other physical and chemical processes. Physis' QM requires that all samples analyzed beyond the method recommended holding time be flagged in the sample results with an H qualifier.

TOTAL/DISSOLVED FRACTION: In some instances, the results for the dissolved fraction may be higher than the total fraction for a particular analyte (e.g. trace metals). This is typically caused by the analytical variation for each result and indicates that the target analyte is primarily in the dissolved phase, within the sample.

PHYSIS QUALIFIER CODES

CODE	*DEFINITION*
*	see Case Narrative
ND	analyte not detected at or above the MDL
B	analyte was detected in the procedural blank greater than 10 times the MDL
E	analyte concentration exceeds the upper limit of the linear calibration range, reported value is estimated
H	sample received and/or analyzed past the recommended holding time
J	analyte was detected at a concentration below the RL and above the MDL, reported value is estimated
N	insufficient sample, analysis could not be performed
M	analyte was outside the specified recovery and/or RPD acceptance limits due to matrix interference. The associated B/BS were within limits, therefore the sample data was reported without further clarification
SH	analyte concentration in the project sample exceeded the spike concentration, therefore MS recovery and/or RPD acceptance limits do not apply
SL	analyte results for R1 and/or R2 were lower than 10 times the MDL, therefore RPD acceptance limits do not apply
NH	project sample was heterogeneous and sample homogeneity could not be readily achieved using routine laboratory practices, therefore MS recovery and/or RPD were outside the specified acceptance limits
R	Physis' QM allows for 5% of the target compounds greater than 10 times the MDL to be outside the specified acceptance limits for precision and/or accuracy. This is often due to random error and does not indicate any significant problems with the analysis of these project samples

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CASE NARRATIVE

QUALIFIER NOTES

In addition to the use of analyte specific Physis Qualifier Codes where applicable, the following were also noted.

PAHS SRM: One LMW PAH (Naphthalene) was below the specified acceptance limits in one or more SRM 1944 as a result of excessive vacuum of the rotovap during sample concentration prior to analysis.

ELEMENTS CRM: Five elements, Aluminum (Al), Antimony (Sb), Beryllium (Be), Chromium (Cr) and Iron (Fe) were above the specified acceptance limits in one or more CRM - RTC 016-050 and/or CRM - ERA 540. This occurred as a result of a more rigorous digestion employed by Physis, which causes a higher yield for some lithogenous elements. These values are in agreement with past internal results for CRM - RTC 016-050 and CRM - ERA 540.

ANALYTICAL REPORT

PHYSIS
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Innovative Solutions for Nature

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Aroclor PCBs ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21733-R1	**B13-8382**	**Matrix: Sediment**	**Sampled: 10-Jul-13**	**11:04**	**Received: 13-Jul-13**	
	Method: EPA 8270C	Batch ID: O-6001	Prepared: 09-Aug-13		Analyzed: 30-Aug-13	
Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	
Sample ID: 21734-R1	**B13-8374**	**Matrix: Sediment**	**Sampled: 10-Jul-13**	**14:28**	**Received: 13-Jul-13**	
	Method: EPA 8270C	Batch ID: O-6001	Prepared: 09-Aug-13		Analyzed: 30-Aug-13	
Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	
Sample ID: 21735-R1	**B13-8371**	**Matrix: Sediment**	**Sampled: 10-Jul-13**	**12:03**	**Received: 13-Jul-13**	
	Method: EPA 8270C	Batch ID: O-6001	Prepared: 09-Aug-13		Analyzed: 30-Aug-13	
Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	
Sample ID: 21736-R1	**B13-8363**	**Matrix: Sediment**	**Sampled: 10-Jul-13**	**13:38**	**Received: 13-Jul-13**	
	Method: EPA 8270C	Batch ID: O-6001	Prepared: 09-Aug-13		Analyzed: 30-Aug-13	
Aroclor 1016	NA	ND	10	20	ng/dry g	

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Aroclor PCBs ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

Sample ID: 21737-R1 **B13-8360** **Matrix: Sediment** **Sampled: 10-Jul-13** **15:30** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

Sample ID: 21738-R1 **B13-8349** **Matrix: Sediment** **Sampled: 10-Jul-13** **9:51** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

Sample ID: 21739-R1 **B13-8326** **Matrix: Sediment** **Sampled: 10-Jul-13** **8:28** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	

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Aroclor PCBs ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

Sample ID: 21740-R1 **B13-8367** **Matrix: Sediment** **Sampled: 11-Jul-13** **14:10** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

Sample ID: 21741-R1 **B13-8302** **Matrix: Sediment** **Sampled: 11-Jul-13** **9:29** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

Sample ID: 21742-R1 **B13-8304** **Matrix: Sediment** **Sampled: 11-Jul-13** **16:24** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

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Aroclor PCBs ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21743-R1	**B13-8306**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**13:00**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 30-Aug-13
Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	
Sample ID: 21744-R1	**B13-8308**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**17:06**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 30-Aug-13
Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	
Sample ID: 21745-R1	**B13-8310**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**17:51**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	
Sample ID: 21746-R1	**B13-8316**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**10:23**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
Aroclor 1016	NA	ND	10	20	ng/dry g	

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Aroclor PCBs ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

Sample ID: 21747-R1 **TMDL2-FH** **Matrix: Sediment** **Sampled: 11-Jul-13** **15:25** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

Sample ID: 21748-R1 **TMDL1-CH** **Matrix: Sediment** **Sampled: 11-Jul-13** **12:07** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

Sample ID: 21749-R1 **TMDL5-DT** **Matrix: Sediment** **Sampled: 11-Jul-13** **15:25** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	

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Aroclor PCBs ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	14	10	20	ng/dry g	J
Aroclor 1260	NA	ND	10	20	ng/dry g	

Sample ID: 21750-R1 **B13-8401** **Matrix: Sediment** **Sampled: 12-Jul-13** **14:42** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

Sample ID: 21751-R1 **B13-8399** **Matrix: Sediment** **Sampled: 12-Jul-13** **13:55** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	23	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

Sample ID: 21752-R1 **B13-8384** **Matrix: Sediment** **Sampled: 12-Jul-13** **9:13** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

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Aroclor PCBs ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21753-R1	**B13-8397** Method: EPA 8270C	**Matrix: Sediment** Batch ID: O-6001	**Sampled: 12-Jul-13** Prepared: 09-Aug-13	**11:20**	**Received: 13-Jul-13** Analyzed: 30-Aug-13	
Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	
Sample ID: 21754-R1	**B13-8396** Method: EPA 8270C	**Matrix: Sediment** Batch ID: O-6003	**Sampled: 12-Jul-13** Prepared: 15-Aug-13	**9:58**	**Received: 13-Jul-13** Analyzed: 30-Aug-13	
Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	
Sample ID: 21755-R1	**B13-8340** Method: EPA 8270C	**Matrix: Sediment** Batch ID: O-6003	**Sampled: 12-Jul-13** Prepared: 15-Aug-13	**8:19**	**Received: 13-Jul-13** Analyzed: 30-Aug-13	
Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	
Sample ID: 21756-R1	**B13-8347** Method: EPA 8270C	**Matrix: Sediment** Batch ID: O-6003	**Sampled: 12-Jul-13** Prepared: 15-Aug-13	**15:41**	**Received: 13-Jul-13** Analyzed: 30-Aug-13	
Aroclor 1016	NA	ND	10	20	ng/dry g	

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Aroclor PCBs ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

Sample ID: 21757-R1 **TMDL6-CP** **Matrix: Sediment** **Sampled: 12-Jul-13** **15:41** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

Sample ID: 21758-R1 **TMDL4-CS** **Matrix: Sediment** **Sampled: 12-Jul-13** **12:20** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

Sample ID: 21759-R1 **TMDL3-TB** **Matrix: Sediment** **Sampled: 12-Jul-13** **15:41** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	

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Aroclor PCBs — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

Sample ID: 21760-R1 **B13-8365** **Matrix: Sediment** **Sampled: 13-Jul-13** **8:37** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

Sample ID: 21761-R1 **B13-8318** **Matrix: Sediment** **Sampled: 13-Jul-13** **10:57** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

Sample ID: 21762-R1 **B13-8322** **Matrix: Sediment** **Sampled: 13-Jul-13** **10:11** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

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Aroclor PCBs ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21763-R1	**B13-8333**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**7:43**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	
Sample ID: 21764-R1	**B13-8356**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**9:22**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
Aroclor 1016	NA	ND	10	20	ng/dry g	
Aroclor 1221	NA	ND	10	20	ng/dry g	
Aroclor 1232	NA	ND	10	20	ng/dry g	
Aroclor 1242	NA	ND	10	20	ng/dry g	
Aroclor 1248	NA	ND	10	20	ng/dry g	
Aroclor 1254	NA	ND	10	20	ng/dry g	
Aroclor 1260	NA	ND	10	20	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21733-R1	**B13-8382**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**11:04**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(PCB030)	NA	93			% Recovery	
(PCB112)	NA	102			% Recovery	
(PCB198)	NA	94			% Recovery	
(TCMX)	NA	90			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	1	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21734-R1 **B13-8374** **Matrix: Sediment** **Sampled: 10-Jul-13 14:28** **Received: 13-Jul-13**

	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(PCB030)	NA	93			% Recovery	
(PCB112)	NA	97			% Recovery	
(PCB198)	NA	98			% Recovery	
(TCMX)	NA	85			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	0.6	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21735-R1 **B13-8371** **Matrix: Sediment** **Sampled: 10-Jul-13** **12:03** **Received: 13-Jul-13**

	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(PCB030)	NA	86			% Recovery	
(PCB112)	NA	98			% Recovery	
(PCB198)	NA	103			% Recovery	
(TCMX)	NA	84			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	0.9	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21736-R1 **B13-8363** **Matrix: Sediment** **Sampled: 10-Jul-13 13:38** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

(PCB030)	NA	93			% Recovery	
(PCB112)	NA	99			% Recovery	
(PCB198)	NA	97			% Recovery	
(TCMX)	NA	85			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	0.5	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21737-R1	**B13-8360**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**15:30**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(PCB030)	NA	92			% Recovery	
(PCB112)	NA	100			% Recovery	
(PCB198)	NA	98			% Recovery	
(TCMX)	NA	89			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	0.8	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21738-R1 **B13-8349** **Matrix: Sediment** **Sampled: 10-Jul-13 9:51** **Received: 13-Jul-13**

	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(PCB030)	NA	92			% Recovery	
(PCB112)	NA	100			% Recovery	
(PCB198)	NA	102			% Recovery	
(TCMX)	NA	86			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	0.4	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	1.1	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21739-R1 **B13-8326** **Matrix: Sediment** **Sampled: 10-Jul-13** **8:28** **Received: 13-Jul-13**

	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(PCB030)	NA	99			% Recovery	
(PCB112)	NA	101			% Recovery	
(PCB198)	NA	99			% Recovery	
(TCMX)	NA	95			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	0.2	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	0.9	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21740-R1 **B13-8367** **Matrix: Sediment** **Sampled: 11-Jul-13 14:10** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

(PCB030)	NA	79			% Recovery	
(PCB112)	NA	89			% Recovery	
(PCB198)	NA	101			% Recovery	
(TCMX)	NA	85			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	0.9	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21741-R1	**B13-8302**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**9:29**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(PCB030)	NA	94			% Recovery	
(PCB112)	NA	97			% Recovery	
(PCB198)	NA	100			% Recovery	
(TCMX)	NA	93			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	0.9	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	4	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21742-R1 **B13-8304** **Matrix: Sediment** **Sampled: 11-Jul-13** **16:24** **Received: 13-Jul-13**

	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(PCB030)	NA	94			% Recovery	
(PCB112)	NA	101			% Recovery	
(PCB198)	NA	98			% Recovery	
(TCMX)	NA	92			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	0.6	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	2.8	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21743-R1 **B13-8306** **Matrix: Sediment** **Sampled: 11-Jul-13** **13:00** **Received: 13-Jul-13**

	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 30-Aug-13
(PCB030)	NA	98			% Recovery	
(PCB112)	NA	104			% Recovery	
(PCB198)	NA	94			% Recovery	
(TCMX)	NA	100			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	0.5	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	1.7	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 26-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21744-R1 **B13-8308** **Matrix: Sediment** **Sampled: 11-Jul-13** **17:06** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

(PCB030)	NA	103			% Recovery
(PCB112)	NA	108			% Recovery
(PCB198)	NA	97			% Recovery
(TCMX)	NA	101			% Recovery
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g
2,4'-DDE	NA	0.5	0.05	0.1	ng/dry g

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	2.5	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 26-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21745-R1	**B13-8310**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**17:51**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
(PCB030)	NA	86			% Recovery	
(PCB112)	NA	96			% Recovery	
(PCB198)	NA	107			% Recovery	
(TCMX)	NA	80			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	0.3	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	0.2	0.05	0.1	ng/dry g	
4,4'-DDE	NA	2	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	0.5	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	
Sample ID: 21746-R1	**B13-8316**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**10:23**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
(PCB030)	NA	84			% Recovery	
(PCB112)	NA	100			% Recovery	
(PCB198)	NA	99			% Recovery	
(TCMX)	NA	78			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	0.4	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	0.2	0.05	0.1	ng/dry g	
4,4'-DDE	NA	2.4	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	0.7	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21747-R1 **TMDL2-FH** **Matrix: Sediment** **Sampled: 11-Jul-13** **15:25** **Received: 13-Jul-13**

	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
(PCB030)	NA	88			% Recovery	
(PCB112)	NA	103			% Recovery	
(PCB198)	NA	108			% Recovery	
(TCMX)	NA	81			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	4.9	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21748-R1 **TMDL1-CH** **Matrix: Sediment** **Sampled: 11-Jul-13 12:07** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

(PCB030)	NA	96			% Recovery	
(PCB112)	NA	107			% Recovery	
(PCB198)	NA	98			% Recovery	
(TCMX)	NA	91			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	0.4	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	2.7	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	1.1	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21749-R1	**TMDL5-DT**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**15:25**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
(PCB030)	NA	89			% Recovery	
(PCB112)	NA	103			% Recovery	
(PCB198)	NA	98			% Recovery	
(TCMX)	NA	83			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	5.9	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21750-R1 **B13-8401** **Matrix: Sediment** **Sampled: 12-Jul-13 14:42** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

(PCB030)	NA	88			% Recovery	
(PCB112)	NA	99			% Recovery	
(PCB198)	NA	100			% Recovery	
(TCMX)	NA	81			% Recovery	
2,4'-DDD	NA	0.2	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	0.8	0.05	0.1	ng/dry g	
4,4'-DDE	NA	1.6	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21751-R1 **B13-8399** **Matrix: Sediment** **Sampled: 12-Jul-13** **13:55** **Received: 13-Jul-13**

	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
(PCB030)	NA	96			% Recovery	
(PCB112)	NA	104			% Recovery	
(PCB198)	NA	84			% Recovery	
(TCMX)	NA	89			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	2.4	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21752-R1 **B13-8384** **Matrix: Sediment** **Sampled: 12-Jul-13 9:13** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

(PCB030)	NA	94			% Recovery	
(PCB112)	NA	104			% Recovery	
(PCB198)	NA	92			% Recovery	
(TCMX)	NA	88			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	1.1	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21753-R1	**B13-8397**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**11:20**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(PCB030)	NA	104			% Recovery	
(PCB112)	NA	108			% Recovery	
(PCB198)	NA	101			% Recovery	
(TCMX)	NA	104			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	0.8	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	3	0.05	0.1	ng/dry g	
4,4'-DDE	NA	10.4	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	0.8	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	0.5	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	0.7	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	
Sample ID: 21754-R1	**B13-8396**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**9:58**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 30-Aug-13
(PCB030)	NA	98			% Recovery	
(PCB112)	NA	100			% Recovery	
(PCB198)	NA	103			% Recovery	
(TCMX)	NA	96			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	1.5	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 26-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21755-R1 **B13-8340** **Matrix: Sediment** **Sampled: 12-Jul-13 8:19** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

(PCB030)	NA	99			% Recovery	
(PCB112)	NA	101			% Recovery	
(PCB198)	NA	95			% Recovery	
(TCMX)	NA	96			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	1.4	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 26-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21756-R1 **B13-8347** **Matrix: Sediment** **Sampled: 12-Jul-13 15:41** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

(PCB030)	NA	94			% Recovery	
(PCB112)	NA	99			% Recovery	
(PCB198)	NA	102			% Recovery	
(TCMX)	NA	88			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	1.1	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 26-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21757-R1	**TMDL6-CP**		**Matrix: Sediment**		**Sampled: 12-Jul-13 15:41**	**Received: 13-Jul-13**
	Method: EPA 8270C		Batch ID: O-6003		Prepared: 15-Aug-13	Analyzed: 30-Aug-13
(PCB030)	NA	99			% Recovery	
(PCB112)	NA	102			% Recovery	
(PCB198)	NA	101			% Recovery	
(TCMX)	NA	99			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	0.6	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 26-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	
Sample ID: 21758-R1	**TMDL4-CS**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**12:20**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 30-Aug-13
(PCB030)	NA	92			% Recovery	
(PCB112)	NA	103			% Recovery	
(PCB198)	NA	83			% Recovery	
(TCMX)	NA	88			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	5.6	0.05	0.1	ng/dry g	
4,4'-DDE	NA	10.1	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	1.9	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	2.1	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	0.7	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	1.5	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 26-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21759-R1 **TMDL3-TB** **Matrix: Sediment** **Sampled: 12-Jul-13 15:41** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

(PCB030)	NA	99			% Recovery	
(PCB112)	NA	101			% Recovery	
(PCB198)	NA	100			% Recovery	
(TCMX)	NA	101			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 26-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21760-R1 **B13-8365** **Matrix: Sediment** **Sampled: 13-Jul-13 8:37** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

(PCB030)	NA	91			% Recovery	
(PCB112)	NA	96			% Recovery	
(PCB198)	NA	98			% Recovery	
(TCMX)	NA	87			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI		Batch ID: O-6003	Prepared: 15-Aug-13		Analyzed: 26-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21761-R1	**B13-8318**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**10:57**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 30-Aug-13
(PCB030)	NA	99			% Recovery	
(PCB112)	NA	99			% Recovery	
(PCB198)	NA	98			% Recovery	
(TCMX)	NA	93			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	0.6	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 26-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	
Sample ID: 21762-R1	**B13-8322**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**10:11**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 30-Aug-13
(PCB030)	NA	100			% Recovery	
(PCB112)	NA	97			% Recovery	
(PCB198)	NA	101			% Recovery	
(TCMX)	NA	100			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	1.2	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 26-Aug-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21763-R1 **B13-8333** **Matrix: Sediment** **Sampled: 13-Jul-13 7:43** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

(PCB030)	NA	93			% Recovery	
(PCB112)	NA	103			% Recovery	
(PCB198)	NA	92			% Recovery	
(TCMX)	NA	90			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	0.2	0.05	0.1	ng/dry g	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	1.3	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	0.5	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

Sample ID: 21764-R1 **B13-8356** **Matrix: Sediment** **Sampled: 13-Jul-13 9:22** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

(PCB030)	NA	89			% Recovery	
(PCB112)	NA	98			% Recovery	
(PCB198)	NA	105			% Recovery	
(TCMX)	NA	87			% Recovery	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
2,4'-DDE	NA	0.2	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g	
4,4'-DDE	NA	1.1	0.05	0.1	ng/dry g	
4,4'-DDMU	NA	0.5	0.05	0.1	ng/dry g	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g	
Aldrin	NA	ND	0.05	0.1	ng/dry g	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g	
BHC-beta	NA	ND	0.05	0.1	ng/dry g	
BHC-delta	NA	ND	0.05	0.1	ng/dry g	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g	
Dicofol	NA	ND	0.05	0.1	ng/dry g	
Dieldrin	NA	ND	0.05	0.1	ng/dry g	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g	
Endrin	NA	ND	0.05	0.1	ng/dry g	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g	
Heptachlor	NA	ND	0.05	0.1	ng/dry g	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g	
Mirex	NA	ND	0.05	0.1	ng/dry g	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g	
Perthane	NA	ND	0.05	0.1	ng/dry g	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g	
	Method: EPA 8270C-NCI	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
Toxaphene	NA	ND	0.1	0.2	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Conventionals ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21733-R1	**B13-8382**	**Matrix: Sediment**		**Sampled: 10-Jul-13 11:04**		**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	14.33	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	5.4	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	60.8	0.1	0.1	% Dry Weight	
Sample ID: 21734-R1	**B13-8374**	**Matrix: Sediment**		**Sampled: 10-Jul-13 14:28**		**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	8.04	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	6.4	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	50.7	0.1	0.1	% Dry Weight	
Sample ID: 21735-R1	**B13-8371**	**Matrix: Sediment**		**Sampled: 10-Jul-13 12:03**		**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	6.83	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	5.4	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	66	0.1	0.1	% Dry Weight	
Sample ID: 21736-R1	**B13-8363**	**Matrix: Sediment**		**Sampled: 10-Jul-13 13:38**		**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	8.84	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	5	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	62.9	0.1	0.1	% Dry Weight	
Sample ID: 21737-R1	**B13-8360**	**Matrix: Sediment**		**Sampled: 10-Jul-13 15:30**		**Received: 13-Jul-13**

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Conventionals ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	6.06	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	2	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	70.5	0.1	0.1	% Dry Weight	
Sample ID: 21738-R1	**B13-8349**	**Matrix: Sediment**		**Sampled: 10-Jul-13 9:51**		**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	20.16	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	8.7	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	45.4	0.1	0.1	% Dry Weight	
Sample ID: 21739-R1	**B13-8326**	**Matrix: Sediment**		**Sampled: 10-Jul-13 8:28**		**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	5.43	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	4.6	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	61.3	0.1	0.1	% Dry Weight	
Sample ID: 21740-R1	**B13-8367**	**Matrix: Sediment**		**Sampled: 11-Jul-13 14:10**		**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	6.04	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	2.5	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	67.2	0.1	0.1	% Dry Weight	
Sample ID: 21741-R1	**B13-8302**	**Matrix: Sediment**		**Sampled: 11-Jul-13 9:29**		**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	22.47	0.02	0.03	mg/dry kg	

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	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	64.9	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	44.6	0.1	0.1	% Dry Weight	
Sample ID: 21742-R1	**B13-8304**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**16:24**	**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	16.85	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	29.4	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	50	0.1	0.1	% Dry Weight	
Sample ID: 21743-R1	**B13-8306**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**13:00**	**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	14.52	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	7	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	53.3	0.1	0.1	% Dry Weight	
Sample ID: 21744-R1	**B13-8308**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**17:06**	**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	12.47	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	5.6	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	54	0.1	0.1	% Dry Weight	
Sample ID: 21745-R1	**B13-8310**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**17:51**	**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	7.54	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	5.8	0.2	0.4	mg/dry kg	

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	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	57.4	0.1	0.1	% Dry Weight	
Sample ID: 21746-R1	**B13-8316**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**10:23**	**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	12.65	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	4.2	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	46.5	0.1	0.1	% Dry Weight	
Sample ID: 21747-R1	**TMDL2-FH**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**15:25**	**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	26.91	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	18.9	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	42.3	0.1	0.1	% Dry Weight	
Sample ID: 21748-R1	**TMDL1-CH**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**12:07**	**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	17.95	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	13.9	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	36.8	0.1	0.1	% Dry Weight	
Sample ID: 21749-R1	**TMDL5-DT**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**15:25**	**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	26.04	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	589.5	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	33.3	0.1	0.1	% Dry Weight	

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21750-R1	**B13-8401**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**14:42**	**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	15.38	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	21.2	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	43.9	0.1	0.1	% Dry Weight	
Sample ID: 21751-R1	**B13-8399**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**13:55**	**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	15.95	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	19.3	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	45.2	0.1	0.1	% Dry Weight	
Sample ID: 21752-R1	**B13-8384**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**9:13**	**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13136		Prepared: 05-Sep-13		Analyzed: 05-Sep-13
Ammonia as N	NA	13.64	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13145		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	9.5	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	50.3	0.1	0.1	% Dry Weight	
Sample ID: 21753-R1	**B13-8397**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**11:20**	**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13138		Prepared: 06-Sep-13		Analyzed: 06-Sep-13
Ammonia as N	NA	34.87	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13147		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	46.8	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	35.9	0.1	0.1	% Dry Weight	
Sample ID: 21754-R1	**B13-8396**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**9:58**	**Received: 13-Jul-13**

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	Method: SM 4500-NH3 D	Batch ID: C-13138		Prepared: 06-Sep-13		Analyzed: 06-Sep-13
Ammonia as N	NA	10.87	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13147		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	9.3	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	53.5	0.1	0.1	% Dry Weight	
Sample ID: 21755-R1	**B13-8340**	**Matrix: Sediment**		**Sampled: 12-Jul-13 8:19**		**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13138		Prepared: 06-Sep-13		Analyzed: 06-Sep-13
Ammonia as N	NA	10.11	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13147		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	3	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	51.2	0.1	0.1	% Dry Weight	
Sample ID: 21756-R1	**B13-8347**	**Matrix: Sediment**		**Sampled: 12-Jul-13 15:41**		**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13138		Prepared: 06-Sep-13		Analyzed: 06-Sep-13
Ammonia as N	NA	10.63	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13147		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	17.7	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	49.2	0.1	0.1	% Dry Weight	
Sample ID: 21757-R1	**TMDL6-CP**	**Matrix: Sediment**		**Sampled: 12-Jul-13 15:41**		**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13138		Prepared: 06-Sep-13		Analyzed: 06-Sep-13
Ammonia as N	NA	4.77	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13147		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	8	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	64.5	0.1	0.1	% Dry Weight	
Sample ID: 21758-R1	**TMDL4-CS**	**Matrix: Sediment**		**Sampled: 12-Jul-13 12:20**		**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13138		Prepared: 06-Sep-13		Analyzed: 06-Sep-13
Ammonia as N	NA	45.04	0.02	0.03	mg/dry kg	

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	Method: Plumb, 1981/TERL	Batch ID: C-13147		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	836.9	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	37.6	0.1	0.1	% Dry Weight	
Sample ID: 21759-R1	**TMDL3-TB**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**15:41**	**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13138		Prepared: 06-Sep-13		Analyzed: 06-Sep-13
Ammonia as N	NA	2.65	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13147		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	2.8	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	71.8	0.1	0.1	% Dry Weight	
Sample ID: 21760-R1	**B13-8365**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**8:37**	**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13138		Prepared: 06-Sep-13		Analyzed: 06-Sep-13
Ammonia as N	NA	12.47	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13147		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	3.3	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	57	0.1	0.1	% Dry Weight	
Sample ID: 21761-R1	**B13-8318**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**10:57**	**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13138		Prepared: 06-Sep-13		Analyzed: 06-Sep-13
Ammonia as N	NA	12.59	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13147		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	3.6	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	51.7	0.1	0.1	% Dry Weight	
Sample ID: 21762-R1	**B13-8322**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**10:11**	**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13138		Prepared: 06-Sep-13		Analyzed: 06-Sep-13
Ammonia as N	NA	11.89	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13147		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	3.9	0.2	0.4	mg/dry kg	

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	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	49.2	0.1	0.1	% Dry Weight	
Sample ID: 21763-R1	**B13-8333**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**7:43**	**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13138		Prepared: 06-Sep-13		Analyzed: 06-Sep-13
Ammonia as N	NA	8.67	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13147		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	6.1	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	68.7	0.1	0.1	% Dry Weight	
Sample ID: 21764-R1	**B13-8356**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**9:22**	**Received: 13-Jul-13**
	Method: SM 4500-NH3 D	Batch ID: C-13138		Prepared: 06-Sep-13		Analyzed: 06-Sep-13
Ammonia as N	NA	18.41	0.02	0.03	mg/dry kg	
	Method: Plumb, 1981/TERL	Batch ID: C-13147		Prepared: 09-Sep-13		Analyzed: 09-Sep-13
Total Sulfides	NA	10.5	0.2	0.4	mg/dry kg	
	Method: SM 2540B	Batch ID: E-5121		Prepared: 02-Aug-13		Analyzed: 02-Aug-13
Percent Solids	NA	55.2	0.1	0.1	% Dry Weight	

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Elements ANALYTICAL REPORT

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Sample ID: 21733-R1	**B13-8382**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**11:04**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5124		Prepared: 09-Aug-13		Analyzed: 16-Aug-13
Aluminum (Al)	NA	24214.2	1	5	µg/dry g	
Antimony (Sb)	NA	1.115	0.025	0.05	µg/dry g	
Arsenic (As)	NA	12.352	0.025	0.05	µg/dry g	
Barium (Ba)	NA	169.899	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.847	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.4273	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	56.3947	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	74.0468	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	33905.8	1	5	µg/dry g	
Lead (Pb)	NA	27.7253	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	31.64	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.362	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.26	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1592.452	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	155.997	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.462	0.00001	0.00002	µg/dry g	
Sample ID: 21734-R1	**B13-8374**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**14:28**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5124		Prepared: 09-Aug-13		Analyzed: 16-Aug-13
Aluminum (Al)	NA	29727.6	1	5	µg/dry g	
Antimony (Sb)	NA	0.985	0.025	0.05	µg/dry g	
Arsenic (As)	NA	14.622	0.025	0.05	µg/dry g	
Barium (Ba)	NA	189.082	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	1.015	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.4603	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	62.3257	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	62.7272	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	38675.1	1	5	µg/dry g	
Lead (Pb)	NA	35.824	0.0025	0.005	µg/dry g	

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Nickel (Ni)	NA	34.98	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.518	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.45	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1413.339	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	150.874	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.258	0.00001	0.00002	µg/dry g	
Sample ID: 21735-R1	**B13-8371**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**12:03**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5124		Prepared: 09-Aug-13		Analyzed: 16-Aug-13
Aluminum (Al)	NA	17560.5	1	5	µg/dry g	
Antimony (Sb)	NA	0.889	0.025	0.05	µg/dry g	
Arsenic (As)	NA	8.542	0.025	0.05	µg/dry g	
Barium (Ba)	NA	117.045	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.572	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.2053	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	35.9925	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	40.4138	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	25518.9	1	5	µg/dry g	
Lead (Pb)	NA	15.5131	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	20.84	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.178	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.13	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1327.443	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	94.579	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.182	0.00001	0.00002	µg/dry g	
Sample ID: 21736-R1	**B13-8363**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**13:38**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5124		Prepared: 09-Aug-13		Analyzed: 16-Aug-13
Aluminum (Al)	NA	23554.7	1	5	µg/dry g	
Antimony (Sb)	NA	0.768	0.025	0.05	µg/dry g	
Arsenic (As)	NA	11.859	0.025	0.05	µg/dry g	

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Barium (Ba)	NA	161.643	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.799	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.2737	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	50.3089	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	55.4303	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	33366.2	1	5	µg/dry g	
Lead (Pb)	NA	23.6258	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	28.95	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.323	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.22	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1481.449	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	127.363	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.242	0.00001	0.00002	µg/dry g	

Sample ID: 21737-R1 **B13-8360** **Matrix: Sediment** **Sampled: 10-Jul-13** **15:30** **Received: 13-Jul-13**

	Method: EPA 6020	Batch ID: E-5124		Prepared: 09-Aug-13		Analyzed: 16-Aug-13
Aluminum (Al)	NA	16210.3	1	5	µg/dry g	
Antimony (Sb)	NA	0.496	0.025	0.05	µg/dry g	
Arsenic (As)	NA	7.388	0.025	0.05	µg/dry g	
Barium (Ba)	NA	118.567	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.537	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.1897	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	34.1239	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	28.9895	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	23082.2	1	5	µg/dry g	
Lead (Pb)	NA	15.2715	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	19.22	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.222	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.13	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1011.656	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	79.427	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Mercury (Hg)	NA	0.157	0.00001	0.00002	µg/dry g	
Sample ID: 21738-R1	**B13-8349**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**9:51**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5124		Prepared: 09-Aug-13		Analyzed: 16-Aug-13
Aluminum (Al)	NA	32456.3	1	5	µg/dry g	
Antimony (Sb)	NA	0.85	0.025	0.05	µg/dry g	
Arsenic (As)	NA	14.979	0.025	0.05	µg/dry g	
Barium (Ba)	NA	209.138	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	1.061	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.5726	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	78.8586	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	96.6367	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	40542.4	1	5	µg/dry g	
Lead (Pb)	NA	36.3562	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	39.86	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.993	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.38	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1527.983	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	172.337	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.414	0.00001	0.00002	µg/dry g	
Sample ID: 21739-R1	**B13-8326**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**8:28**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5124		Prepared: 09-Aug-13		Analyzed: 16-Aug-13
Aluminum (Al)	NA	18569.2	1	5	µg/dry g	
Antimony (Sb)	NA	0.55	0.025	0.05	µg/dry g	
Arsenic (As)	NA	9.204	0.025	0.05	µg/dry g	
Barium (Ba)	NA	157.487	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.622	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.3038	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	42.7947	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	34.9184	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	26065.7	1	5	µg/dry g	

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Lead (Pb)	NA	16.0473	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	23.53	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.356	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.17	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1553.599	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	100.776	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.157	0.00001	0.00002	µg/dry g	
Sample ID: 21740-R1	**B13-8367**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**14:10**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5124		Prepared: 09-Aug-13		Analyzed: 16-Aug-13
Aluminum (Al)	NA	9875.5	1	5	µg/dry g	
Antimony (Sb)	NA	0.245	0.025	0.05	µg/dry g	
Arsenic (As)	NA	5.07	0.025	0.05	µg/dry g	
Barium (Ba)	NA	88.035	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.33	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.0933	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	20.9726	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	12.411	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	16087.4	1	5	µg/dry g	
Lead (Pb)	NA	4.6314	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	13.15	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.095	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.04	0.01	0.02	µg/dry g	
Total Phosphorus	NA	886.716	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	53.811	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.034	0.00001	0.00002	µg/dry g	
Sample ID: 21741-R1	**B13-8302**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**9:29**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5124		Prepared: 09-Aug-13		Analyzed: 16-Aug-13
Aluminum (Al)	NA	27981.5	1	5	µg/dry g	
Antimony (Sb)	NA	0.792	0.025	0.05	µg/dry g	

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Arsenic (As)	NA	14.266	0.025	0.05	µg/dry g	
Barium (Ba)	NA	309.926	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.893	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.855	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	79.7206	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	62.2823	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	36213.1	1	5	µg/dry g	
Lead (Pb)	NA	22.4146	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	40.22	0.01	0.02	µg/dry g	
Selenium (Se)	NA	1.545	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.37	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1558.588	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	142.353	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.227	0.00001	0.00002	µg/dry g	
Sample ID: 21742-R1	**B13-8304**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**16:24**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5124		Prepared: 09-Aug-13		Analyzed: 16-Aug-13
Aluminum (Al)	NA	25962.5	1	5	µg/dry g	
Antimony (Sb)	NA	0.73	0.025	0.05	µg/dry g	
Arsenic (As)	NA	13.101	0.025	0.05	µg/dry g	
Barium (Ba)	NA	276.559	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.81	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.7311	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	69.9317	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	49.3627	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	32704.3	1	5	µg/dry g	
Lead (Pb)	NA	19.4068	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	35.74	0.01	0.02	µg/dry g	
Selenium (Se)	NA	1.354	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.31	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1514.843	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	124.608	0.025	0.05	µg/dry g	

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.181	0.00001	0.00002	µg/dry g	
Sample ID: 21743-R1	**B13-8306**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**13:00**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5125		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	18447.2	1	5	µg/dry g	
Antimony (Sb)	NA	0.524	0.025	0.05	µg/dry g	
Arsenic (As)	NA	14.085	0.025	0.05	µg/dry g	
Barium (Ba)	NA	579.043	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.608	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	1.1438	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	59.9136	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	80.3998	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	25431.1	1	5	µg/dry g	
Lead (Pb)	NA	22.3743	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	28.92	0.01	0.02	µg/dry g	
Selenium (Se)	NA	1.513	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.36	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1811.78	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	194.228	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.324	0.00001	0.00002	µg/dry g	
Sample ID: 21744-R1	**B13-8308**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**17:06**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5125		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	26131.5	1	5	µg/dry g	
Antimony (Sb)	NA	0.715	0.025	0.05	µg/dry g	
Arsenic (As)	NA	13.112	0.025	0.05	µg/dry g	
Barium (Ba)	NA	262.635	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.802	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.7291	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	67.2113	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	50.5427	0.0025	0.005	µg/dry g	

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Iron (Fe)	NA	33445	1	5	µg/dry g	
Lead (Pb)	NA	18.1888	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	35.92	0.01	0.02	µg/dry g	
Selenium (Se)	NA	1.451	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.3	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1434.749	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	123.695	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.167	0.00001	0.00002	µg/dry g	
Sample ID: 21745-R1	**B13-8310**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**17:51**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5125		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	20495.4	1	5	µg/dry g	
Antimony (Sb)	NA	0.644	0.025	0.05	µg/dry g	
Arsenic (As)	NA	11.196	0.025	0.05	µg/dry g	
Barium (Ba)	NA	240.84	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.688	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.5996	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	57.6502	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	44.6095	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	27136.5	1	5	µg/dry g	
Lead (Pb)	NA	20.3211	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	29.53	0.01	0.02	µg/dry g	
Selenium (Se)	NA	1.11	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.3	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1433.254	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	114.566	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.196	0.00001	0.00002	µg/dry g	
Sample ID: 21746-R1	**B13-8316**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**10:23**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5125		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	29263.9	1	5	µg/dry g	

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Antimony (Sb)	NA	0.801	0.025	0.05	µg/dry g	
Arsenic (As)	NA	16.134	0.025	0.05	µg/dry g	
Barium (Ba)	NA	276.268	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.86	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.5916	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	76.5559	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	65.1326	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	38333	1	5	µg/dry g	
Lead (Pb)	NA	22.0339	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	40.01	0.01	0.02	µg/dry g	
Selenium (Se)	NA	1.474	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.33	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1439.185	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	141.947	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.219	0.00001	0.00002	µg/dry g	

Sample ID: 21747-R1 **TMDL2-FH** **Matrix: Sediment** **Sampled: 11-Jul-13** **15:25** **Received: 13-Jul-13**

	Method: EPA 6020	Batch ID: E-5125		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	40047.5	1	5	µg/dry g	
Antimony (Sb)	NA	1.983	0.025	0.05	µg/dry g	
Arsenic (As)	NA	22.644	0.025	0.05	µg/dry g	
Barium (Ba)	NA	254.028	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	1.226	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	1.2724	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	124.7339	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	725.847	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	46869.1	1	5	µg/dry g	
Lead (Pb)	NA	129.3635	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	47.02	0.01	0.02	µg/dry g	
Selenium (Se)	NA	1.638	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.73	0.01	0.02	µg/dry g	
Zinc (Zn)	NA	627.912	0.025	0.05	µg/dry g	

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Elements ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	2.434	0.00001	0.00002	µg/dry g	
Sample ID: 21748-R1	**TMDL1-CH**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**12:07**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5125		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	36386.1	1	5	µg/dry g	
Antimony (Sb)	NA	1.468	0.025	0.05	µg/dry g	
Arsenic (As)	NA	21.921	0.025	0.05	µg/dry g	
Barium (Ba)	NA	420.659	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.998	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	1.44	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	110.8384	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	169.4832	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	39900.7	1	5	µg/dry g	
Lead (Pb)	NA	50.4456	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	57.45	0.01	0.02	µg/dry g	
Selenium (Se)	NA	4.3	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.68	0.01	0.02	µg/dry g	
Zinc (Zn)	NA	243.657	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.613	0.00001	0.00002	µg/dry g	
Sample ID: 21749-R1	**TMDL5-DT**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**15:25**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5125		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	41404	1	5	µg/dry g	
Antimony (Sb)	NA	1.913	0.025	0.05	µg/dry g	
Arsenic (As)	NA	22.327	0.025	0.05	µg/dry g	
Barium (Ba)	NA	252.391	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	1.193	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	1.1552	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	121.5435	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	707.7034	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	49306.4	1	5	µg/dry g	

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Lead (Pb)	NA	124.9361	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	46.54	0.01	0.02	µg/dry g	
Selenium (Se)	NA	1.722	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.74	0.01	0.02	µg/dry g	
Zinc (Zn)	NA	549.736	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	2.75	0.00001	0.00002	µg/dry g	
Sample ID: 21750-R1	**B13-8401**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**14:42**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5125		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	34188.6	1	5	µg/dry g	
Antimony (Sb)	NA	1.292	0.025	0.05	µg/dry g	
Arsenic (As)	NA	22.521	0.025	0.05	µg/dry g	
Barium (Ba)	NA	503.271	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	1.021	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.5698	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	86.831	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	207.8391	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	45980.4	1	5	µg/dry g	
Lead (Pb)	NA	82.6262	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	41.53	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.827	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.5	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1446.025	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	377.09	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.923	0.00001	0.00002	µg/dry g	
Sample ID: 21751-R1	**B13-8399**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**13:55**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5125		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	28660.6	1	5	µg/dry g	
Antimony (Sb)	NA	1.682	0.025	0.05	µg/dry g	
Arsenic (As)	NA	24.757	0.025	0.05	µg/dry g	

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Barium (Ba)	NA	434.836	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.873	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	3.0755	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	78.5955	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	144.0878	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	36447.8	1	5	µg/dry g	
Lead (Pb)	NA	110.712	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	38.61	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.765	0.025	0.05	µg/dry g	
Silver (Ag)	NA	3.37	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1520.818	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	401.264	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	7.191	0.00001	0.00002	µg/dry g	

Sample ID: 21752-R1 **B13-8384** **Matrix: Sediment** **Sampled: 12-Jul-13 9:13** **Received: 13-Jul-13**

	Method: EPA 6020	Batch ID: E-5125		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	25680.2	1	5	µg/dry g	
Antimony (Sb)	NA	0.952	0.025	0.05	µg/dry g	
Arsenic (As)	NA	17.798	0.025	0.05	µg/dry g	
Barium (Ba)	NA	213.717	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.825	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.4137	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	71.947	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	92.5509	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	36753.1	1	5	µg/dry g	
Lead (Pb)	NA	33.8248	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	40.56	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.774	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.25	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1329.44	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	168.002	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13

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Elements ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Mercury (Hg)	NA	0.403	0.00001	0.00002	µg/dry g	
Sample ID: 21753-R1	**B13-8397**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**11:20**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5126		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	39513.4	1	5	µg/dry g	
Antimony (Sb)	NA	1.622	0.025	0.05	µg/dry g	
Arsenic (As)	NA	19.969	0.025	0.05	µg/dry g	
Barium (Ba)	NA	366.405	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	1.128	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.5284	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	157.5345	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	259.1059	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	43895.5	1	5	µg/dry g	
Lead (Pb)	NA	143.8331	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	41.82	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.808	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.84	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1353.171	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	364.474	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.909	0.00001	0.00002	µg/dry g	
Sample ID: 21754-R1	**B13-8396**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**9:58**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5126		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	23592.3	1	5	µg/dry g	
Antimony (Sb)	NA	0.879	0.025	0.05	µg/dry g	
Arsenic (As)	NA	15.033	0.025	0.05	µg/dry g	
Barium (Ba)	NA	166.796	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.725	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.2924	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	64.8808	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	71.6617	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	29470.3	1	5	µg/dry g	

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Lead (Pb)	NA	32.7904	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	33.2	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.532	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.19	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1075.516	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	144.918	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.293	0.00001	0.00002	µg/dry g	
Sample ID: 21755-R1	**B13-8340**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**8:19**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5126		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	27322.5	1	5	µg/dry g	
Antimony (Sb)	NA	0.859	0.025	0.05	µg/dry g	
Arsenic (As)	NA	15.842	0.025	0.05	µg/dry g	
Barium (Ba)	NA	263.406	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.777	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.5499	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	71.213	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	81.7582	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	35235	1	5	µg/dry g	
Lead (Pb)	NA	30.1108	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	36.93	0.01	0.02	µg/dry g	
Selenium (Se)	NA	1.299	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.33	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1455.868	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	152.75	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.335	0.00001	0.00002	µg/dry g	
Sample ID: 21756-R1	**B13-8347**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**15:41**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5126		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	35405.9	1	5	µg/dry g	
Antimony (Sb)	NA	0.868	0.025	0.05	µg/dry g	

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Arsenic (As)	NA	12.177	0.025	0.05	µg/dry g	
Barium (Ba)	NA	205.847	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.98	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.467	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	71.6157	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	54.2716	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	40120.6	1	5	µg/dry g	
Lead (Pb)	NA	29.6427	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	36.41	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.637	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.31	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1225.147	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	141.423	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.196	0.00001	0.00002	µg/dry g	

Sample ID: 21757-R1 **TMDL6-CP** **Matrix: Sediment** **Sampled: 12-Jul-13** **15:41** **Received: 13-Jul-13**

	Method: EPA 6020	Batch ID: E-5126		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	20375.2	1	5	µg/dry g	
Antimony (Sb)	NA	0.748	0.025	0.05	µg/dry g	
Arsenic (As)	NA	9.666	0.025	0.05	µg/dry g	
Barium (Ba)	NA	136.003	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.578	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.3673	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	36.6778	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	42.2443	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	27097.7	1	5	µg/dry g	
Lead (Pb)	NA	27.6689	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	21.68	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.282	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.57	0.01	0.02	µg/dry g	
Zinc (Zn)	NA	102.72	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Mercury (Hg)	NA	0.475	0.00001	0.00002	µg/dry g	
Sample ID: 21758-R1	**TMDL4-CS**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**12:20**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5126		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	32749.1	1	5	µg/dry g	
Antimony (Sb)	NA	3.747	0.025	0.05	µg/dry g	
Arsenic (As)	NA	16.896	0.025	0.05	µg/dry g	
Barium (Ba)	NA	228.622	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.892	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	2.1904	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	125.2457	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	242.6753	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	35842.9	1	5	µg/dry g	
Lead (Pb)	NA	150.2348	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	43.6	0.01	0.02	µg/dry g	
Selenium (Se)	NA	1.121	0.025	0.05	µg/dry g	
Silver (Ag)	NA	1.05	0.01	0.02	µg/dry g	
Zinc (Zn)	NA	745.634	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.454	0.00001	0.00002	µg/dry g	
Sample ID: 21759-R1	**TMDL3-TB**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**15:41**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5126		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	17134.6	1	5	µg/dry g	
Antimony (Sb)	NA	0.674	0.025	0.05	µg/dry g	
Arsenic (As)	NA	7.907	0.025	0.05	µg/dry g	
Barium (Ba)	NA	110.415	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.496	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.2798	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	31.5549	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	33.4632	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	21927.3	1	5	µg/dry g	
Lead (Pb)	NA	21.0388	0.0025	0.005	µg/dry g	

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Nickel (Ni)	NA	18.18	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.263	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.4	0.01	0.02	µg/dry g	
Zinc (Zn)	NA	82.07	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.348	0.00001	0.00002	µg/dry g	
Sample ID: 21760-R1	**B13-8365**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**8:37**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5126		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	29306.3	1	5	µg/dry g	
Antimony (Sb)	NA	0.868	0.025	0.05	µg/dry g	
Arsenic (As)	NA	14.063	0.025	0.05	µg/dry g	
Barium (Ba)	NA	204.486	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.838	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.2819	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	55.2212	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	52.9106	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	36730	1	5	µg/dry g	
Lead (Pb)	NA	19.0713	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	32.36	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.427	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.18	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1204.621	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	122.107	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.143	0.00001	0.00002	µg/dry g	
Sample ID: 21761-R1	**B13-8318**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**10:57**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5126		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	32329.8	1	5	µg/dry g	
Antimony (Sb)	NA	0.799	0.025	0.05	µg/dry g	
Arsenic (As)	NA	13.58	0.025	0.05	µg/dry g	
Barium (Ba)	NA	214.136	0.025	0.05	µg/dry g	

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Elements ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Beryllium (Be)	NA	0.843	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.4872	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	68.7606	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	58.3436	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	38571.2	1	5	µg/dry g	
Lead (Pb)	NA	26.0625	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	34.87	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.874	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.32	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1279.988	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	137.542	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.232	0.00001	0.00002	µg/dry g	

Sample ID: 21762-R1 **B13-8322** **Matrix: Sediment** **Sampled: 13-Jul-13** **10:11** **Received: 13-Jul-13**

	Method: EPA 6020	Batch ID: E-5126		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	34080.6	1	5	µg/dry g	
Antimony (Sb)	NA	0.767	0.025	0.05	µg/dry g	
Arsenic (As)	NA	12.981	0.025	0.05	µg/dry g	
Barium (Ba)	NA	222.781	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.914	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.4607	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	73.0123	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	55.2988	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	39830.9	1	5	µg/dry g	
Lead (Pb)	NA	30.8342	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	35	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.717	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.34	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1319.251	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	145.192	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.223	0.00001	0.00002	µg/dry g	

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Elements ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21763-R1	**B13-8333**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**7:43**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5127		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	17955.6	1	5	µg/dry g	
Antimony (Sb)	NA	0.446	0.025	0.05	µg/dry g	
Arsenic (As)	NA	7.4	0.025	0.05	µg/dry g	
Barium (Ba)	NA	136.238	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.466	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.2342	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	34.8592	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	19.7102	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	23626.9	1	5	µg/dry g	
Lead (Pb)	NA	15.1371	0.0025	0.005	µg/dry g	
Nickel (Ni)	NA	17.84	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.231	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.1	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1255.624	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	71.853	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.083	0.00001	0.00002	µg/dry g	
Sample ID: 21764-R1	**B13-8356**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**9:22**	**Received: 13-Jul-13**
	Method: EPA 6020	Batch ID: E-5127		Prepared: 09-Aug-13		Analyzed: 17-Aug-13
Aluminum (Al)	NA	22000.3	1	5	µg/dry g	
Antimony (Sb)	NA	0.724	0.025	0.05	µg/dry g	
Arsenic (As)	NA	10.314	0.025	0.05	µg/dry g	
Barium (Ba)	NA	147.309	0.025	0.05	µg/dry g	
Beryllium (Be)	NA	0.648	0.025	0.05	µg/dry g	
Cadmium (Cd)	NA	0.2731	0.0025	0.005	µg/dry g	
Chromium (Cr)	NA	46.4096	0.0025	0.005	µg/dry g	
Copper (Cu)	NA	49.22	0.0025	0.005	µg/dry g	
Iron (Fe)	NA	30695.8	1	5	µg/dry g	
Lead (Pb)	NA	21.6035	0.0025	0.005	µg/dry g	

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Elements

ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Nickel (Ni)	NA	27.62	0.01	0.02	µg/dry g	
Selenium (Se)	NA	0.348	0.025	0.05	µg/dry g	
Silver (Ag)	NA	0.19	0.01	0.02	µg/dry g	
Total Phosphorus	NA	1139.706	0.016	0.05	µg/dry g	
Zinc (Zn)	NA	108.773	0.025	0.05	µg/dry g	
	Method: EPA 245.7	Batch ID: E-6013		Prepared: 27-Aug-13		Analyzed: 27-Aug-13
Mercury (Hg)	NA	0.142	0.00001	0.00002	µg/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21733-R1	**B13-8382**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**11:04**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21734-R1 **B13-8374** **Matrix: Sediment** **Sampled: 10-Jul-13 14:28** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21735-R1 **B13-8371** **Matrix: Sediment** **Sampled: 10-Jul-13** **12:03** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	0.2	0.05	0.1	ng/dry g	
PCB052	NA	0.4	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	0.3	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	0.4	0.05	0.1	ng/dry g	
PCB095	NA	0.6	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	0.4	0.05	0.1	ng/dry g	
PCB101	NA	1	0.05	0.1	ng/dry g	
PCB105	NA	0.3	0.05	0.1	ng/dry g	
PCB110	NA	0.8	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	0.7	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	0.9	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB149	NA	0.6	0.05	0.1	ng/dry g	
PCB151	NA	0.2	0.05	0.1	ng/dry g	
PCB153	NA	0.8	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	0.3	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	0.4	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	0.8	0.05	0.1	ng/dry g	
PCB183	NA	0.2	0.05	0.1	ng/dry g	
PCB187	NA	0.3	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21736-R1 **B13-8363** **Matrix: Sediment** **Sampled: 10-Jul-13** **13:38** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21737-R1 **B13-8360** Method: EPA 8270C | **Matrix: Sediment** Batch ID: O-6001 | **Sampled: 10-Jul-13** **15:30** Prepared: 09-Aug-13 | **Received: 13-Jul-13** Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21738-R1 **B13-8349** Method: EPA 8270C **Matrix: Sediment** Batch ID: O-6001 **Sampled: 10-Jul-13 9:51** Prepared: 09-Aug-13 **Received: 13-Jul-13** Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21739-R1 **B13-8326** **Matrix: Sediment** **Sampled: 10-Jul-13** **8:28** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21740-R1 **B13-8367** **Matrix: Sediment** **Sampled: 11-Jul-13** **14:10** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21741-R1 **B13-8302** **Matrix: Sediment** **Sampled: 11-Jul-13** **9:29** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21742-R1 **B13-8304** **Matrix: Sediment** **Sampled: 11-Jul-13** **16:24** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21743-R1 **B13-8306** **Matrix: Sediment** **Sampled: 11-Jul-13** **13:00** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21744-R1 B13-8308 **Matrix: Sediment** **Sampled: 11-Jul-13 17:06** **Received: 13-Jul-13**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 30-Aug-13
PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21745-R1 **B13-8310** Method: EPA 8270C | **Matrix: Sediment** Batch ID: O-6005 | **Sampled: 11-Jul-13** **17:51** Prepared: 24-Aug-13 | **Received: 13-Jul-13** Analyzed: 06-Sep-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21746-R1 **B13-8316** **Matrix: Sediment** **Sampled: 11-Jul-13** **10:23** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners

ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	0.3	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	2	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	0.2	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	0.2	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21747-R1 **TMDL2-FH** **Matrix: Sediment** **Sampled: 11-Jul-13** **15:25** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners

ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	0.7	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	0.2	0.05	0.1	ng/dry g	
PCB095	NA	0.3	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	0.3	0.05	0.1	ng/dry g	
PCB101	NA	0.6	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	0.5	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	0.7	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	2	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	0.5	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	0.7	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	0.3	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	1.3	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	0.3	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21748-R1 **TMDL1-CH** **Matrix: Sediment** **Sampled: 11-Jul-13** **12:07** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	0.2	0.05	0.1	ng/dry g	
PCB095	NA	0.2	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	0.2	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	0.2	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	0.2	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	1.2	0.05	0.1	ng/dry g	
PCB141	NA	0.4	0.05	0.1	ng/dry g	
PCB149	NA	0.4	0.05	0.1	ng/dry g	
PCB151	NA	0.1	0.05	0.1	ng/dry g	
PCB153	NA	0.9	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	0.1	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB168+132	NA	0.3	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	1.7	0.05	0.1	ng/dry g	
PCB174	NA	0.9	0.05	0.1	ng/dry g	
PCB177	NA	0.4	0.05	0.1	ng/dry g	
PCB180	NA	2.3	0.05	0.1	ng/dry g	
PCB183	NA	0.2	0.05	0.1	ng/dry g	
PCB187	NA	0.5	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21749-R1 **TMDL5-DT** Method: EPA 8270C **Matrix: Sediment** Batch ID: O-6005 **Sampled: 11-Jul-13** **15:25** Prepared: 24-Aug-13 **Received: 13-Jul-13** Analyzed: 06-Sep-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	0.4	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	0.6	0.05	0.1	ng/dry g	
PCB095	NA	1.2	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	0.9	0.05	0.1	ng/dry g	
PCB101	NA	2.2	0.05	0.1	ng/dry g	
PCB105	NA	0.4	0.05	0.1	ng/dry g	
PCB110	NA	1.7	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	1.5	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	0.5	0.05	0.1	ng/dry g	
PCB138	NA	5.1	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	1.6	0.05	0.1	ng/dry g	
PCB151	NA	0.5	0.05	0.1	ng/dry g	
PCB153	NA	2.6	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	0.5	0.05	0.1	ng/dry g	
PCB167	NA	1	0.05	0.1	ng/dry g	
PCB168+132	NA	1.1	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB174	NA	1	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	2.2	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	0.3	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21750-R1 **B13-8401** **Matrix: Sediment** **Sampled: 12-Jul-13** **14:42** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	0.1	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	0.2	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	0.2	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	1	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	0.2	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	0.3	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	0.3	0.05	0.1	ng/dry g	
PCB167	NA	0.3	0.05	0.1	ng/dry g	
PCB168+132	NA	0.1	0.1	0.2	ng/dry g	J
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	0.4	0.05	0.1	ng/dry g	

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PCB Congeners — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21751-R1 **B13-8399** **Matrix: Sediment** **Sampled: 12-Jul-13** **13:55** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	0.9	0.05	0.1	ng/dry g	
PCB049	NA	0.6	0.05	0.1	ng/dry g	
PCB052	NA	1.4	0.05	0.1	ng/dry g	
PCB056(060)	NA	0.7	0.1	0.2	ng/dry g	
PCB066	NA	0.9	0.05	0.1	ng/dry g	
PCB070	NA	1.3	0.05	0.1	ng/dry g	
PCB074	NA	0.6	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB087	NA	1.3	0.05	0.1	ng/dry g	
PCB095	NA	1.5	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	1.4	0.05	0.1	ng/dry g	
PCB101	NA	2.9	0.05	0.1	ng/dry g	
PCB105	NA	1.1	0.05	0.1	ng/dry g	
PCB110	NA	2.8	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	3.1	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	0.5	0.05	0.1	ng/dry g	
PCB137	NA	0.6	0.05	0.1	ng/dry g	
PCB138	NA	6.3	0.05	0.1	ng/dry g	
PCB141	NA	0.6	0.05	0.1	ng/dry g	
PCB149	NA	1.8	0.05	0.1	ng/dry g	
PCB151	NA	0.4	0.05	0.1	ng/dry g	
PCB153	NA	2.8	0.05	0.1	ng/dry g	
PCB156	NA	2.5	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	0.4	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	0.9	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	1.5	0.05	0.1	ng/dry g	
PCB177	NA	1	0.05	0.1	ng/dry g	
PCB180	NA	5.3	0.05	0.1	ng/dry g	
PCB183	NA	0.4	0.05	0.1	ng/dry g	
PCB187	NA	0.8	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21752-R1 **B13-8384** **Matrix: Sediment** **Sampled: 12-Jul-13** **9:13** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	0.1	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	0.2	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	0.5	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	0.1	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	0.2	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	0.2	0.05	0.1	ng/dry g	
PCB167	NA	0.2	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	2.6	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	0.3	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21753-R1 **B13-8397** **Matrix: Sediment** **Sampled: 12-Jul-13** **11:20** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	0.3	0.05	0.1	ng/dry g	
PCB049	NA	1.1	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	0.7	0.05	0.1	ng/dry g	
PCB070	NA	0.3	0.05	0.1	ng/dry g	
PCB074	NA	0.3	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	0.3	0.05	0.1	ng/dry g	
PCB095	NA	0.8	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	0.8	0.05	0.1	ng/dry g	
PCB101	NA	1.4	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB110	NA	0.8	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	0.7	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	1.8	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	1.4	0.05	0.1	ng/dry g	
PCB151	NA	0.4	0.05	0.1	ng/dry g	
PCB153	NA	2.3	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	0.8	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	1.5	0.05	0.1	ng/dry g	
PCB183	NA	0.5	0.05	0.1	ng/dry g	
PCB187	NA	1	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21754-R1 **B13-8396** **Matrix: Sediment** **Sampled: 12-Jul-13** **9:58** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	0.2	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	0.2	0.05	0.1	ng/dry g	
PCB101	NA	0.4	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	0.3	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	0.4	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	0.4	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	0.3	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	0.4	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	0.2	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21755-R1 **B13-8340** **Matrix: Sediment** **Sampled: 12-Jul-13 8:19** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21756-R1 **B13-8347** **Matrix: Sediment** **Sampled: 12-Jul-13** **15:41** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21757-R1 **TMDL6-CP** **Matrix: Sediment** **Sampled: 12-Jul-13** **15:41** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21758-R1 **TMDL4-CS** **Matrix: Sediment** **Sampled: 12-Jul-13** **12:20** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	0.8	0.05	0.1	ng/dry g	
PCB049	NA	1.3	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	0.4	0.05	0.1	ng/dry g	
PCB095	NA	0.8	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	0.6	0.05	0.1	ng/dry g	
PCB101	NA	1.1	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	0.8	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	1	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	1.5	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	1.6	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners

ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	0.7	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	1.4	0.05	0.1	ng/dry g	
PCB183	NA	0.6	0.05	0.1	ng/dry g	
PCB187	NA	1.2	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21759-R1 **TMDL3-TB** **Matrix: Sediment** **Sampled: 12-Jul-13** **15:41** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21760-R1 **B13-8365** **Matrix: Sediment** **Sampled: 13-Jul-13** **8:37** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21761-R1 **B13-8318** **Matrix: Sediment** **Sampled: 13-Jul-13** **10:57** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners

ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21762-R1 **B13-8322** **Matrix: Sediment** **Sampled: 13-Jul-13** **10:11** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	ND	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	ND	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21763-R1 **B13-8333** Method: EPA 8270C **Matrix: Sediment** Batch ID: O-6005 **Sampled: 13-Jul-13** **7:43** Prepared: 24-Aug-13 **Received: 13-Jul-13** Analyzed: 06-Sep-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners

ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	ND	0.05	0.1	ng/dry g	
PCB110	NA	ND	0.05	0.1	ng/dry g	
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	0.7	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	ND	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	ND	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	ND	0.05	0.1	ng/dry g	
PCB167	NA	0.2	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	

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PCB Congeners ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21764-R1 **B13-8356** **Matrix: Sediment** **Sampled: 13-Jul-13** **9:22** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

PCB003	NA	ND	0.05	0.1	ng/dry g	
PCB005	NA	ND	0.05	0.1	ng/dry g	
PCB008	NA	ND	0.05	0.1	ng/dry g	
PCB015	NA	ND	0.05	0.1	ng/dry g	
PCB018	NA	ND	0.05	0.1	ng/dry g	
PCB027	NA	ND	0.05	0.1	ng/dry g	
PCB028	NA	ND	0.05	0.1	ng/dry g	
PCB029	NA	ND	0.05	0.1	ng/dry g	
PCB031	NA	ND	0.05	0.1	ng/dry g	
PCB033	NA	ND	0.05	0.1	ng/dry g	
PCB037	NA	ND	0.05	0.1	ng/dry g	
PCB044	NA	ND	0.05	0.1	ng/dry g	
PCB049	NA	ND	0.05	0.1	ng/dry g	
PCB052	NA	ND	0.05	0.1	ng/dry g	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g	
PCB066	NA	ND	0.05	0.1	ng/dry g	
PCB070	NA	ND	0.05	0.1	ng/dry g	
PCB074	NA	ND	0.05	0.1	ng/dry g	
PCB077	NA	ND	0.05	0.1	ng/dry g	
PCB081	NA	ND	0.05	0.1	ng/dry g	
PCB087	NA	ND	0.05	0.1	ng/dry g	
PCB095	NA	ND	0.05	0.1	ng/dry g	
PCB097	NA	ND	0.05	0.1	ng/dry g	
PCB099	NA	ND	0.05	0.1	ng/dry g	
PCB101	NA	ND	0.05	0.1	ng/dry g	
PCB105	NA	0.1	0.05	0.1	ng/dry g	
PCB110	NA	0.2	0.05	0.1	ng/dry g	

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PCB Congeners

ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PCB114	NA	ND	0.05	0.1	ng/dry g	
PCB118	NA	ND	0.05	0.1	ng/dry g	
PCB119	NA	ND	0.05	0.1	ng/dry g	
PCB123	NA	ND	0.05	0.1	ng/dry g	
PCB126	NA	1.2	0.05	0.1	ng/dry g	
PCB128	NA	ND	0.05	0.1	ng/dry g	
PCB137	NA	ND	0.05	0.1	ng/dry g	
PCB138	NA	0.5	0.05	0.1	ng/dry g	
PCB141	NA	ND	0.05	0.1	ng/dry g	
PCB149	NA	ND	0.05	0.1	ng/dry g	
PCB151	NA	ND	0.05	0.1	ng/dry g	
PCB153	NA	0.1	0.05	0.1	ng/dry g	
PCB156	NA	ND	0.05	0.1	ng/dry g	
PCB157	NA	ND	0.05	0.1	ng/dry g	
PCB158	NA	0.1	0.05	0.1	ng/dry g	
PCB167	NA	0.2	0.05	0.1	ng/dry g	
PCB168+132	NA	ND	0.1	0.2	ng/dry g	
PCB169	NA	ND	0.05	0.1	ng/dry g	
PCB170	NA	ND	0.05	0.1	ng/dry g	
PCB174	NA	ND	0.05	0.1	ng/dry g	
PCB177	NA	ND	0.05	0.1	ng/dry g	
PCB180	NA	ND	0.05	0.1	ng/dry g	
PCB183	NA	ND	0.05	0.1	ng/dry g	
PCB187	NA	ND	0.05	0.1	ng/dry g	
PCB189	NA	ND	0.05	0.1	ng/dry g	
PCB194	NA	ND	0.05	0.1	ng/dry g	
PCB195	NA	ND	0.05	0.1	ng/dry g	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g	
PCB201	NA	ND	0.05	0.1	ng/dry g	
PCB203	NA	ND	0.05	0.1	ng/dry g	
PCB206	NA	ND	0.05	0.1	ng/dry g	
PCB209	NA	ND	0.05	0.1	ng/dry g	

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PolyBrominated Diphenyl Ethers ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21733-R1	**B13-8382**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**11:04**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
(DFPBDE)	NA	104			% Recovery	
(FTBDE)	NA	113			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	
Sample ID: 21734-R1	**B13-8374**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**14:28**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
(DFPBDE)	NA	99			% Recovery	
(FTBDE)	NA	110			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	

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PolyBrominated Diphenyl Ethers ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	
Sample ID: 21735-R1	**B13-8371**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**12:03**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
(DFPBDE)	NA	101			% Recovery	
(FTBDE)	NA	111			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	
Sample ID: 21736-R1	**B13-8363**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**13:38**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
(DFPBDE)	NA	102			% Recovery	
(FTBDE)	NA	112			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	

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PolyBrominated Diphenyl Ethers ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21737-R1 **B13-8360** **Matrix: Sediment** **Sampled: 10-Jul-13 15:30** **Received: 13-Jul-13**

Method: EPA 8270C-NCI Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 24-Aug-13

(DFPBDE)	NA	107			% Recovery	
(FTBDE)	NA	110			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PolyBrominated Diphenyl Ethers ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PBDE209	NA	ND	0.05	0.1	ng/dry g	
Sample ID: 21738-R1	**B13-8349**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**9:51**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
(DFPBDE)	NA	92			% Recovery	
(FTBDE)	NA	111			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	
Sample ID: 21739-R1	**B13-8326**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**8:28**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
(DFPBDE)	NA	89			% Recovery	
(FTBDE)	NA	104			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	

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PolyBrominated Diphenyl Ethers ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	
Sample ID: 21740-R1	**B13-8367**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**14:10**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
(DFPBDE)	NA	94			% Recovery	
(FTBDE)	NA	95			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	
Sample ID: 21741-R1	**B13-8302**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**9:29**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 24-Aug-13
(DFPBDE)	NA	88			% Recovery	
(FTBDE)	NA	104			% Recovery	

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PolyBrominated Diphenyl Ethers ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21742-R1 **B13-8304** **Matrix: Sediment** **Sampled: 11-Jul-13 16:24** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 24-Aug-13

(DFPBDE)	NA	89			% Recovery	
(FTBDE)	NA	103			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PolyBrominated Diphenyl Ethers ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	
Sample ID: 21743-R1	**B13-8306**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**13:00**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 26-Aug-13
(DFPBDE)	NA	80			% Recovery	
(FTBDE)	NA	107			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	
Sample ID: 21744-R1	**B13-8308**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**17:06**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 26-Aug-13
(DFPBDE)	NA	94			% Recovery	
(FTBDE)	NA	107			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	

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PolyBrominated Diphenyl Ethers ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	
Sample ID: 21745-R1	**B13-8310**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**17:51**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
(DFPBDE)	NA	107			% Recovery	
(FTBDE)	NA	110			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	
Sample ID: 21746-R1	**B13-8316**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**10:23**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
(DFPBDE)	NA	122			% Recovery	

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PolyBrominated Diphenyl Ethers — ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
(FTBDE)	NA	113			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	0.1	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21750-R1 **B13-8401** Method: EPA 8270C-NCI | **Matrix: Sediment** Batch ID: O-6005 | **Sampled: 12-Jul-13 14:42** Prepared: 24-Aug-13 | **Received: 13-Jul-13** Analyzed: 06-Sep-13

(DFPBDE)	NA	113			% Recovery	
(FTBDE)	NA	109			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	0.1	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	0.3	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	

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PolyBrominated Diphenyl Ethers ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PBDE183	NA	0.4	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21751-R1 **B13-8399** **Matrix: Sediment** **Sampled: 12-Jul-13 13:55** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

(DFPBDE)	NA	107			% Recovery	
(FTBDE)	NA	106			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	0.3	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21752-R1 **B13-8384** **Matrix: Sediment** **Sampled: 12-Jul-13 9:13** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

(DFPBDE)	NA	133			% Recovery	
(FTBDE)	NA	112			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	

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PolyBrominated Diphenyl Ethers ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	0.1	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21753-R1 **B13-8397** **Matrix: Sediment** **Sampled: 12-Jul-13 11:20** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 24-Aug-13

(DFPBDE)	NA	93			% Recovery	
(FTBDE)	NA	125			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	1	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21754-R1 **B13-8396** **Matrix: Sediment** **Sampled: 12-Jul-13 9:58** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 26-Aug-13

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PolyBrominated Diphenyl Ethers ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
(DFPBDE)	NA	97			% Recovery	
(FTBDE)	NA	111			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21755-R1 **B13-8340** **Matrix: Sediment** **Sampled: 12-Jul-13 8:19** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 26-Aug-13

(DFPBDE)	NA	100			% Recovery	
(FTBDE)	NA	112			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PolyBrominated Diphenyl Ethers ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	
Sample ID: 21756-R1	**B13-8347**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**15:41**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 26-Aug-13
(DFPBDE)	NA	93			% Recovery	
(FTBDE)	NA	108			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	
Sample ID: 21760-R1	**B13-8365**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**8:37**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 26-Aug-13
(DFPBDE)	NA	86			% Recovery	
(FTBDE)	NA	108			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	

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PolyBrominated Diphenyl Ethers ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21761-R1 **B13-8318** **Matrix: Sediment** **Sampled: 13-Jul-13** **10:57** **Received: 13-Jul-13**

Method: EPA 8270C-NCI Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 26-Aug-13

(DFPBDE)	NA	124			% Recovery	
(FTBDE)	NA	109			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21762-R1 **B13-8322** **Matrix: Sediment** **Sampled: 13-Jul-13** **10:11** **Received: 13-Jul-13**

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PolyBrominated Diphenyl Ethers ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
	Method: EPA 8270C-NCI	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 26-Aug-13
(DFPBDE)	NA	83			% Recovery	
(FTBDE)	NA	111			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	
Sample ID: 21763-R1	**B13-8333**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**7:43**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
(DFPBDE)	NA	103			% Recovery	
(FTBDE)	NA	106			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	0.1	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	0.6	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PolyBrominated Diphenyl Ethers ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	

Sample ID: 21764-R1 **B13-8356** **Matrix: Sediment** **Sampled: 13-Jul-13 9:22** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

(DFPBDE)	NA	111			% Recovery	
(FTBDE)	NA	119			% Recovery	
PBDE017	NA	ND	0.05	0.1	ng/dry g	
PBDE028	NA	ND	0.05	0.1	ng/dry g	
PBDE047	NA	ND	0.05	0.1	ng/dry g	
PBDE049	NA	ND	0.05	0.1	ng/dry g	
PBDE066	NA	ND	0.05	0.1	ng/dry g	
PBDE071	NA	ND	0.05	0.1	ng/dry g	
PBDE085	NA	ND	0.05	0.1	ng/dry g	
PBDE099	NA	ND	0.05	0.1	ng/dry g	
PBDE100	NA	ND	0.05	0.1	ng/dry g	
PBDE138	NA	ND	0.05	0.1	ng/dry g	
PBDE153	NA	ND	0.05	0.1	ng/dry g	
PBDE154	NA	ND	0.05	0.1	ng/dry g	
PBDE183	NA	ND	0.05	0.1	ng/dry g	
PBDE190	NA	ND	0.05	0.1	ng/dry g	
PBDE209	NA	ND	0.05	0.1	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21733-R1	**B13-8382**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**11:04**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(d10-Acenaphthene)	NA	77			% Recovery	
(d10-Phenanthrene)	NA	90			% Recovery	
(d12-Chrysene)	NA	121			% Recovery	
(d8-Naphthalene)	NA	56			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	1.3	1	5	ng/dry g	J
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	1	1	5	ng/dry g	J
Acenaphthylene	NA	1.8	1	5	ng/dry g	J
Anthracene	NA	7.8	1	5	ng/dry g	
Benz[a]anthracene	NA	13.3	1	5	ng/dry g	
Benzo[a]pyrene	NA	36.4	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	32.6	1	5	ng/dry g	
Benzo[e]pyrene	NA	17.9	1	5	ng/dry g	
Benzo[g,h,i]perylene	NA	15.6	1	5	ng/dry g	
Benzo[k]fluoranthene	NA	23	1	5	ng/dry g	
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	19.9	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	9.1	1	5	ng/dry g	
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	8.5	1	5	ng/dry g	
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	25	1	5	ng/dry g	
Naphthalene	NA	1	1	5	ng/dry g	J
Perylene	NA	11.6	1	5	ng/dry g	
Phenanthrene	NA	3.3	1	5	ng/dry g	J
Pyrene	NA	9.9	1	5	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21734-R1	**B13-8374**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**14:28**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(d10-Acenaphthene)	NA	71			% Recovery	
(d10-Phenanthrene)	NA	87			% Recovery	
(d12-Chrysene)	NA	114			% Recovery	
(d8-Naphthalene)	NA	51			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	1	1	5	ng/dry g	J
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	1.2	1	5	ng/dry g	J
Anthracene	NA	5.5	1	5	ng/dry g	
Benz[a]anthracene	NA	7.6	1	5	ng/dry g	
Benzo[a]pyrene	NA	17.4	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	13.8	1	5	ng/dry g	
Benzo[e]pyrene	NA	6.2	1	5	ng/dry g	
Benzo[g,h,i]perylene	NA	5.2	1	5	ng/dry g	
Benzo[k]fluoranthene	NA	7.6	1	5	ng/dry g	
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	11.4	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	ND	1	5	ng/dry g	
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	11.6	1	5	ng/dry g	
Fluorene	NA	1.1	1	5	ng/dry g	J
Indeno[1,2,3-c,d]pyrene	NA	8.9	1	5	ng/dry g	
Naphthalene	NA	1.1	1	5	ng/dry g	J
Perylene	NA	5.2	1	5	ng/dry g	
Phenanthrene	NA	5.8	1	5	ng/dry g	
Pyrene	NA	8.5	1	5	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21735-R1	**B13-8371**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**12:03**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(d10-Acenaphthene)	NA	63			% Recovery	
(d10-Phenanthrene)	NA	76			% Recovery	
(d12-Chrysene)	NA	127			% Recovery	
(d8-Naphthalene)	NA	53			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	2	1	5	ng/dry g	J
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	2.1	1	5	ng/dry g	J
Anthracene	NA	12.8	1	5	ng/dry g	
Benz[a]anthracene	NA	18.5	1	5	ng/dry g	
Benzo[a]pyrene	NA	49.1	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	41.1	1	5	ng/dry g	
Benzo[e]pyrene	NA	21.8	1	5	ng/dry g	
Benzo[g,h,i]perylene	NA	22.3	1	5	ng/dry g	
Benzo[k]fluoranthene	NA	26.2	1	5	ng/dry g	
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	36.7	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	11.6	1	5	ng/dry g	
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	17.7	1	5	ng/dry g	
Fluorene	NA	1.4	1	5	ng/dry g	J
Indeno[1,2,3-c,d]pyrene	NA	31.8	1	5	ng/dry g	
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	12.4	1	5	ng/dry g	
Phenanthrene	NA	10.6	1	5	ng/dry g	
Pyrene	NA	16.6	1	5	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21736-R1	**B13-8363**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**13:38**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(d10-Acenaphthene)	NA	67			% Recovery	
(d10-Phenanthrene)	NA	84			% Recovery	
(d12-Chrysene)	NA	118			% Recovery	
(d8-Naphthalene)	NA	39			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	ND	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	ND	1	5	ng/dry g	
Anthracene	NA	2.9	1	5	ng/dry g	J
Benz[a]anthracene	NA	4.6	1	5	ng/dry g	J
Benzo[a]pyrene	NA	8.1	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	9.2	1	5	ng/dry g	
Benzo[e]pyrene	NA	3.7	1	5	ng/dry g	J
Benzo[g,h,i]perylene	NA	3.1	1	5	ng/dry g	J
Benzo[k]fluoranthene	NA	4.4	1	5	ng/dry g	J
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	6	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	ND	1	5	ng/dry g	
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	3.2	1	5	ng/dry g	J
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	4.5	1	5	ng/dry g	J
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	3.4	1	5	ng/dry g	J
Phenanthrene	NA	1.2	1	5	ng/dry g	J
Pyrene	NA	2.5	1	5	ng/dry g	J

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21737-R1	**B13-8360**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**15:30**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(d10-Acenaphthene)	NA	70			% Recovery	
(d10-Phenanthrene)	NA	86			% Recovery	
(d12-Chrysene)	NA	116			% Recovery	
(d8-Naphthalene)	NA	52			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	ND	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	ND	1	5	ng/dry g	
Anthracene	NA	2.1	1	5	ng/dry g	J
Benz[a]anthracene	NA	1.8	1	5	ng/dry g	J
Benzo[a]pyrene	NA	6.8	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	4.8	1	5	ng/dry g	J
Benzo[e]pyrene	NA	2.5	1	5	ng/dry g	J
Benzo[g,h,i]perylene	NA	1.8	1	5	ng/dry g	J
Benzo[k]fluoranthene	NA	2.1	1	5	ng/dry g	J
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	3	1	5	ng/dry g	J
Dibenz[a,h]anthracene	NA	ND	1	5	ng/dry g	
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	2.2	1	5	ng/dry g	J
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	3.2	1	5	ng/dry g	J
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	3.6	1	5	ng/dry g	J
Phenanthrene	NA	ND	1	5	ng/dry g	
Pyrene	NA	2.1	1	5	ng/dry g	J

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21738-R1	**B13-8349**	**Matrix: Sediment**		**Sampled: 10-Jul-13 9:51**		**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(d10-Acenaphthene)	NA	63			% Recovery	
(d10-Phenanthrene)	NA	83			% Recovery	
(d12-Chrysene)	NA	109			% Recovery	
(d8-Naphthalene)	NA	40			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	1.1	1	5	ng/dry g	J
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	ND	1	5	ng/dry g	
Anthracene	NA	2.1	1	5	ng/dry g	J
Benz[a]anthracene	NA	3.3	1	5	ng/dry g	J
Benzo[a]pyrene	NA	9	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	6.6	1	5	ng/dry g	
Benzo[e]pyrene	NA	3.2	1	5	ng/dry g	J
Benzo[g,h,i]perylene	NA	3.8	1	5	ng/dry g	J
Benzo[k]fluoranthene	NA	3.3	1	5	ng/dry g	J
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	4.2	1	5	ng/dry g	J
Dibenz[a,h]anthracene	NA	3.1	1	5	ng/dry g	J
Dibenzothiophene	NA	1.1	1	5	ng/dry g	J
Fluoranthene	NA	4.8	1	5	ng/dry g	J
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	7.7	1	5	ng/dry g	
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	7.6	1	5	ng/dry g	
Phenanthrene	NA	1.8	1	5	ng/dry g	J
Pyrene	NA	4.5	1	5	ng/dry g	J

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21739-R1	**B13-8326**	**Matrix: Sediment**		**Sampled: 10-Jul-13 8:28**		**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(d10-Acenaphthene)	NA	76			% Recovery	
(d10-Phenanthrene)	NA	90			% Recovery	
(d12-Chrysene)	NA	116			% Recovery	
(d8-Naphthalene)	NA	59			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	1.1	1	5	ng/dry g	J
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	ND	1	5	ng/dry g	
Anthracene	NA	4	1	5	ng/dry g	J
Benz[a]anthracene	NA	5.6	1	5	ng/dry g	
Benzo[a]pyrene	NA	9.2	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	7.3	1	5	ng/dry g	
Benzo[e]pyrene	NA	3.1	1	5	ng/dry g	J
Benzo[g,h,i]perylene	NA	3.6	1	5	ng/dry g	J
Benzo[k]fluoranthene	NA	4.1	1	5	ng/dry g	J
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	7.9	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	2.9	1	5	ng/dry g	J
Dibenzothiophene	NA	1	1	5	ng/dry g	J
Fluoranthene	NA	2.6	1	5	ng/dry g	J
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	4.8	1	5	ng/dry g	J
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	6.9	1	5	ng/dry g	
Phenanthrene	NA	1.3	1	5	ng/dry g	J
Pyrene	NA	2.2	1	5	ng/dry g	J

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21740-R1	**B13-8367**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**14:10**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(d10-Acenaphthene)	NA	67			% Recovery	
(d10-Phenanthrene)	NA	70			% Recovery	
(d12-Chrysene)	NA	115			% Recovery	
(d8-Naphthalene)	NA	58			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	1.5	1	5	ng/dry g	J
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	2.2	1	5	ng/dry g	J
Anthracene	NA	4.8	1	5	ng/dry g	J
Benz[a]anthracene	NA	24.4	1	5	ng/dry g	
Benzo[a]pyrene	NA	51.5	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	30.6	1	5	ng/dry g	
Benzo[e]pyrene	NA	19.3	1	5	ng/dry g	
Benzo[g,h,i]perylene	NA	21.7	1	5	ng/dry g	
Benzo[k]fluoranthene	NA	21.6	1	5	ng/dry g	
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	24.2	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	10	1	5	ng/dry g	
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	16.8	1	5	ng/dry g	
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	34.6	1	5	ng/dry g	
Naphthalene	NA	1.8	1	5	ng/dry g	J
Perylene	NA	18.5	1	5	ng/dry g	
Phenanthrene	NA	1.8	1	5	ng/dry g	J
Pyrene	NA	22.9	1	5	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21741-R1	**B13-8302**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**9:29**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(d10-Acenaphthene)	NA	76			% Recovery	
(d10-Phenanthrene)	NA	89			% Recovery	
(d12-Chrysene)	NA	111			% Recovery	
(d8-Naphthalene)	NA	58			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	ND	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	ND	1	5	ng/dry g	
Anthracene	NA	2.1	1	5	ng/dry g	J
Benz[a]anthracene	NA	1.7	1	5	ng/dry g	J
Benzo[a]pyrene	NA	5.7	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	4.4	1	5	ng/dry g	J
Benzo[e]pyrene	NA	2.5	1	5	ng/dry g	J
Benzo[g,h,i]perylene	NA	2.8	1	5	ng/dry g	J
Benzo[k]fluoranthene	NA	1.4	1	5	ng/dry g	J
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	2.8	1	5	ng/dry g	J
Dibenz[a,h]anthracene	NA	ND	1	5	ng/dry g	
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	3.7	1	5	ng/dry g	J
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	5	1	5	ng/dry g	
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	11.4	1	5	ng/dry g	
Phenanthrene	NA	1.6	1	5	ng/dry g	J
Pyrene	NA	3.4	1	5	ng/dry g	J

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21742-R1	**B13-8304**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**16:24**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(d10-Acenaphthene)	NA	73			% Recovery	
(d10-Phenanthrene)	NA	88			% Recovery	
(d12-Chrysene)	NA	128			% Recovery	
(d8-Naphthalene)	NA	50			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	ND	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	ND	1	5	ng/dry g	
Anthracene	NA	1.3	1	5	ng/dry g	J
Benz[a]anthracene	NA	2.7	1	5	ng/dry g	J
Benzo[a]pyrene	NA	9	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	5.9	1	5	ng/dry g	
Benzo[e]pyrene	NA	3.2	1	5	ng/dry g	J
Benzo[g,h,i]perylene	NA	2.9	1	5	ng/dry g	J
Benzo[k]fluoranthene	NA	2.5	1	5	ng/dry g	J
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	4	1	5	ng/dry g	J
Dibenz[a,h]anthracene	NA	ND	1	5	ng/dry g	
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	4.6	1	5	ng/dry g	J
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	4.5	1	5	ng/dry g	J
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	10.3	1	5	ng/dry g	
Phenanthrene	NA	1.1	1	5	ng/dry g	J
Pyrene	NA	4.2	1	5	ng/dry g	J

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21743-R1	**B13-8306**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**13:00**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 09-Sep-13
(d10-Acenaphthene)	NA	76			% Recovery	
(d10-Phenanthrene)	NA	88			% Recovery	
(d12-Chrysene)	NA	108			% Recovery	
(d8-Naphthalene)	NA	58			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	ND	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	ND	1	5	ng/dry g	
Anthracene	NA	2	1	5	ng/dry g	J
Benz[a]anthracene	NA	2.5	1	5	ng/dry g	J
Benzo[a]pyrene	NA	7.1	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	6.4	1	5	ng/dry g	
Benzo[e]pyrene	NA	3.5	1	5	ng/dry g	J
Benzo[g,h,i]perylene	NA	4.1	1	5	ng/dry g	J
Benzo[k]fluoranthene	NA	2.6	1	5	ng/dry g	J
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	3.8	1	5	ng/dry g	J
Dibenz[a,h]anthracene	NA	ND	1	5	ng/dry g	
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	5.7	1	5	ng/dry g	
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	6.4	1	5	ng/dry g	
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	30.4	1	5	ng/dry g	
Phenanthrene	NA	1.3	1	5	ng/dry g	J
Pyrene	NA	4.6	1	5	ng/dry g	J

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21744-R1	**B13-8308**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**17:06**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 09-Sep-13
(d10-Acenaphthene)	NA	85			% Recovery	
(d10-Phenanthrene)	NA	90			% Recovery	
(d12-Chrysene)	NA	111			% Recovery	
(d8-Naphthalene)	NA	64			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	ND	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	1.1	1	5	ng/dry g	J
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	ND	1	5	ng/dry g	
Anthracene	NA	1.3	1	5	ng/dry g	J
Benz[a]anthracene	NA	2.4	1	5	ng/dry g	J
Benzo[a]pyrene	NA	6.5	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	3.8	1	5	ng/dry g	J
Benzo[e]pyrene	NA	2.5	1	5	ng/dry g	J
Benzo[g,h,i]perylene	NA	3.4	1	5	ng/dry g	J
Benzo[k]fluoranthene	NA	2.9	1	5	ng/dry g	J
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	3.1	1	5	ng/dry g	J
Dibenz[a,h]anthracene	NA	ND	1	5	ng/dry g	
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	3.1	1	5	ng/dry g	J
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	4.6	1	5	ng/dry g	J
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	14.8	1	5	ng/dry g	
Phenanthrene	NA	1.3	1	5	ng/dry g	J
Pyrene	NA	3.3	1	5	ng/dry g	J

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21745-R1	**B13-8310**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**17:51**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
(d10-Acenaphthene)	NA	75			% Recovery	
(d10-Phenanthrene)	NA	88			% Recovery	
(d12-Chrysene)	NA	103			% Recovery	
(d8-Naphthalene)	NA	52			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	ND	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	1.3	1	5	ng/dry g	J
Anthracene	NA	1.3	1	5	ng/dry g	J
Benz[a]anthracene	NA	6	1	5	ng/dry g	
Benzo[a]pyrene	NA	5.5	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	2.7	1	5	ng/dry g	J
Benzo[e]pyrene	NA	2.5	1	5	ng/dry g	J
Benzo[g,h,i]perylene	NA	2.3	1	5	ng/dry g	J
Benzo[k]fluoranthene	NA	1.8	1	5	ng/dry g	J
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	5.1	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	ND	1	5	ng/dry g	
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	7.3	1	5	ng/dry g	
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	3.1	1	5	ng/dry g	J
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	6.7	1	5	ng/dry g	
Phenanthrene	NA	1.1	1	5	ng/dry g	J
Pyrene	NA	9.2	1	5	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21746-R1	**B13-8316**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**10:23**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
(d10-Acenaphthene)	NA	56			% Recovery	
(d10-Phenanthrene)	NA	73			% Recovery	
(d12-Chrysene)	NA	78			% Recovery	
(d8-Naphthalene)	NA	41			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	ND	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	ND	1	5	ng/dry g	
Anthracene	NA	1.1	1	5	ng/dry g	J
Benz[a]anthracene	NA	2.1	1	5	ng/dry g	J
Benzo[a]pyrene	NA	2.5	1	5	ng/dry g	J
Benzo[b]fluoranthene	NA	1.9	1	5	ng/dry g	J
Benzo[e]pyrene	NA	1.6	1	5	ng/dry g	J
Benzo[g,h,i]perylene	NA	2	1	5	ng/dry g	J
Benzo[k]fluoranthene	NA	1	1	5	ng/dry g	J
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	2.8	1	5	ng/dry g	J
Dibenz[a,h]anthracene	NA	ND	1	5	ng/dry g	
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	3.8	1	5	ng/dry g	J
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	2.4	1	5	ng/dry g	J
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	3.5	1	5	ng/dry g	J
Phenanthrene	NA	1.5	1	5	ng/dry g	J
Pyrene	NA	3.4	1	5	ng/dry g	J

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21747-R1	**TMDL2-FH**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**15:25**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
(d10-Acenaphthene)	NA	54			% Recovery	
(d10-Phenanthrene)	NA	76			% Recovery	
(d12-Chrysene)	NA	77			% Recovery	
(d8-Naphthalene)	NA	35			% Recovery	
1-Methylnaphthalene	NA	1.4	1	5	ng/dry g	J
1-Methylphenanthrene	NA	21.3	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	1.3	1	5	ng/dry g	J
2,6-Dimethylnaphthalene	NA	1.3	1	5	ng/dry g	J
2-Methylnaphthalene	NA	2.1	1	5	ng/dry g	J
Acenaphthene	NA	2.2	1	5	ng/dry g	J
Acenaphthylene	NA	16.3	1	5	ng/dry g	
Anthracene	NA	71.1	1	5	ng/dry g	
Benz[a]anthracene	NA	132.7	1	5	ng/dry g	
Benzo[a]pyrene	NA	148.6	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	109.1	1	5	ng/dry g	
Benzo[e]pyrene	NA	74.4	1	5	ng/dry g	
Benzo[g,h,i]perylene	NA	67	1	5	ng/dry g	
Benzo[k]fluoranthene	NA	66.7	1	5	ng/dry g	
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	156	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	29.4	1	5	ng/dry g	
Dibenzothiophene	NA	3.6	1	5	ng/dry g	J
Fluoranthene	NA	185.5	1	5	ng/dry g	
Fluorene	NA	5.5	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	118.8	1	5	ng/dry g	
Naphthalene	NA	3.2	1	5	ng/dry g	J
Perylene	NA	46.6	1	5	ng/dry g	
Phenanthrene	NA	55.1	1	5	ng/dry g	
Pyrene	NA	209.5	1	5	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21748-R1	**TMDL1-CH**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**12:07**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
(d10-Acenaphthene)	NA	67			% Recovery	
(d10-Phenanthrene)	NA	79			% Recovery	
(d12-Chrysene)	NA	68			% Recovery	
(d8-Naphthalene)	NA	50			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	1.3	1	5	ng/dry g	J
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	1.2	1	5	ng/dry g	J
2-Methylnaphthalene	NA	1	1	5	ng/dry g	J
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	2.5	1	5	ng/dry g	J
Anthracene	NA	12.7	1	5	ng/dry g	
Benz[a]anthracene	NA	17.6	1	5	ng/dry g	
Benzo[a]pyrene	NA	27.6	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	23.7	1	5	ng/dry g	
Benzo[e]pyrene	NA	15.6	1	5	ng/dry g	
Benzo[g,h,i]perylene	NA	18.2	1	5	ng/dry g	
Benzo[k]fluoranthene	NA	14.6	1	5	ng/dry g	
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	27.2	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	7.5	1	5	ng/dry g	
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	19.6	1	5	ng/dry g	
Fluorene	NA	1	1	5	ng/dry g	J
Indeno[1,2,3-c,d]pyrene	NA	29.5	1	5	ng/dry g	
Naphthalene	NA	1.4	1	5	ng/dry g	J
Perylene	NA	40.5	1	5	ng/dry g	
Phenanthrene	NA	7	1	5	ng/dry g	
Pyrene	NA	17.9	1	5	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21749-R1	**TMDL5-DT**	**Matrix: Sediment**		**Sampled: 11-Jul-13**	**15:25**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
(d10-Acenaphthene)	NA	55			% Recovery	
(d10-Phenanthrene)	NA	74			% Recovery	
(d12-Chrysene)	NA	73			% Recovery	
(d8-Naphthalene)	NA	39			% Recovery	
1-Methylnaphthalene	NA	1.7	1	5	ng/dry g	J
1-Methylphenanthrene	NA	22.7	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	2.2	1	5	ng/dry g	J
2,6-Dimethylnaphthalene	NA	1.6	1	5	ng/dry g	J
2-Methylnaphthalene	NA	2.3	1	5	ng/dry g	J
Acenaphthene	NA	2.1	1	5	ng/dry g	J
Acenaphthylene	NA	17.1	1	5	ng/dry g	
Anthracene	NA	57.5	1	5	ng/dry g	
Benz[a]anthracene	NA	120.1	1	5	ng/dry g	
Benzo[a]pyrene	NA	155.4	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	100.8	1	5	ng/dry g	
Benzo[e]pyrene	NA	74.3	1	5	ng/dry g	
Benzo[g,h,i]perylene	NA	76.3	1	5	ng/dry g	
Benzo[k]fluoranthene	NA	63.3	1	5	ng/dry g	
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	117.7	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	32.1	1	5	ng/dry g	
Dibenzothiophene	NA	4.1	1	5	ng/dry g	J
Fluoranthene	NA	188.5	1	5	ng/dry g	
Fluorene	NA	6.3	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	133.2	1	5	ng/dry g	
Naphthalene	NA	5.6	1	5	ng/dry g	
Perylene	NA	52.6	1	5	ng/dry g	
Phenanthrene	NA	70.4	1	5	ng/dry g	
Pyrene	NA	235.9	1	5	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21750-R1	**B13-8401**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**14:42**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
(d10-Acenaphthene)	NA	61			% Recovery	
(d10-Phenanthrene)	NA	79			% Recovery	
(d12-Chrysene)	NA	87			% Recovery	
(d8-Naphthalene)	NA	39			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	4.8	1	5	ng/dry g	J
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	1	1	5	ng/dry g	J
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	1.1	1	5	ng/dry g	J
Acenaphthylene	NA	9.8	1	5	ng/dry g	
Anthracene	NA	57.5	1	5	ng/dry g	
Benz[a]anthracene	NA	72.2	1	5	ng/dry g	
Benzo[a]pyrene	NA	105.4	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	82.4	1	5	ng/dry g	
Benzo[e]pyrene	NA	52.5	1	5	ng/dry g	
Benzo[g,h,i]perylene	NA	34.7	1	5	ng/dry g	
Benzo[k]fluoranthene	NA	53.6	1	5	ng/dry g	
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	123.9	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	18.8	1	5	ng/dry g	
Dibenzothiophene	NA	1	1	5	ng/dry g	J
Fluoranthene	NA	47.7	1	5	ng/dry g	
Fluorene	NA	4.5	1	5	ng/dry g	J
Indeno[1,2,3-c,d]pyrene	NA	63.8	1	5	ng/dry g	
Naphthalene	NA	1.7	1	5	ng/dry g	J
Perylene	NA	24	1	5	ng/dry g	
Phenanthrene	NA	27.5	1	5	ng/dry g	
Pyrene	NA	40	1	5	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21751-R1	**B13-8399**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**13:55**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
(d10-Acenaphthene)	NA	68			% Recovery	
(d10-Phenanthrene)	NA	80			% Recovery	
(d12-Chrysene)	NA	69			% Recovery	
(d8-Naphthalene)	NA	45			% Recovery	
1-Methylnaphthalene	NA	1.6	1	5	ng/dry g	J
1-Methylphenanthrene	NA	16.1	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	2.1	1	5	ng/dry g	J
2-Methylnaphthalene	NA	4.2	1	5	ng/dry g	J
Acenaphthene	NA	32.2	1	5	ng/dry g	
Acenaphthylene	NA	3.1	1	5	ng/dry g	J
Anthracene	NA	91	1	5	ng/dry g	
Benz[a]anthracene	NA	53.6	1	5	ng/dry g	
Benzo[a]pyrene	NA	63.9	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	43.5	1	5	ng/dry g	
Benzo[e]pyrene	NA	30.1	1	5	ng/dry g	
Benzo[g,h,i]perylene	NA	36.2	1	5	ng/dry g	
Benzo[k]fluoranthene	NA	26.8	1	5	ng/dry g	
Biphenyl	NA	1.7	1	5	ng/dry g	J
Chrysene	NA	45	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	17.6	1	5	ng/dry g	
Dibenzothiophene	NA	6	1	5	ng/dry g	
Fluoranthene	NA	356.1	1	5	ng/dry g	
Fluorene	NA	8.8	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	62.1	1	5	ng/dry g	
Naphthalene	NA	22.6	1	5	ng/dry g	
Perylene	NA	22.6	1	5	ng/dry g	
Phenanthrene	NA	13.7	1	5	ng/dry g	
Pyrene	NA	234.6	1	5	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21752-R1	**B13-8384**	**Matrix: Sediment**		**Sampled: 12-Jul-13 9:13**		**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
(d10-Acenaphthene)	NA	56			% Recovery	
(d10-Phenanthrene)	NA	77			% Recovery	
(d12-Chrysene)	NA	76			% Recovery	
(d8-Naphthalene)	NA	41			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	ND	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	1.7	1	5	ng/dry g	J
Anthracene	NA	8.3	1	5	ng/dry g	
Benz[a]anthracene	NA	7.9	1	5	ng/dry g	
Benzo[a]pyrene	NA	9.6	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	9	1	5	ng/dry g	
Benzo[e]pyrene	NA	5.9	1	5	ng/dry g	
Benzo[g,h,i]perylene	NA	7.5	1	5	ng/dry g	
Benzo[k]fluoranthene	NA	5.2	1	5	ng/dry g	
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	12.9	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	3.2	1	5	ng/dry g	J
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	8.7	1	5	ng/dry g	
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	12.7	1	5	ng/dry g	
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	8.1	1	5	ng/dry g	
Phenanthrene	NA	2.7	1	5	ng/dry g	J
Pyrene	NA	6.7	1	5	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21753-R1	**B13-8397**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**11:20**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 30-Aug-13
(d10-Acenaphthene)	NA	69			% Recovery	
(d10-Phenanthrene)	NA	91			% Recovery	
(d12-Chrysene)	NA	148			% Recovery	
(d8-Naphthalene)	NA	47			% Recovery	
1-Methylnaphthalene	NA	2	1	5	ng/dry g	J
1-Methylphenanthrene	NA	4	1	5	ng/dry g	J
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	2.3	1	5	ng/dry g	J
2-Methylnaphthalene	NA	3.9	1	5	ng/dry g	J
Acenaphthene	NA	1.8	1	5	ng/dry g	J
Acenaphthylene	NA	7.6	1	5	ng/dry g	
Anthracene	NA	27.7	1	5	ng/dry g	
Benz[a]anthracene	NA	44.3	1	5	ng/dry g	
Benzo[a]pyrene	NA	117.5	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	107.9	1	5	ng/dry g	
Benzo[e]pyrene	NA	77.5	1	5	ng/dry g	
Benzo[g,h,i]perylene	NA	56.9	1	5	ng/dry g	
Benzo[k]fluoranthene	NA	63.4	1	5	ng/dry g	
Biphenyl	NA	1	1	5	ng/dry g	J
Chrysene	NA	76.3	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	27.9	1	5	ng/dry g	
Dibenzothiophene	NA	2.1	1	5	ng/dry g	J
Fluoranthene	NA	53.4	1	5	ng/dry g	
Fluorene	NA	2	1	5	ng/dry g	J
Indeno[1,2,3-c,d]pyrene	NA	74.8	1	5	ng/dry g	
Naphthalene	NA	4.2	1	5	ng/dry g	J
Perylene	NA	31.9	1	5	ng/dry g	
Phenanthrene	NA	18	1	5	ng/dry g	
Pyrene	NA	61.5	1	5	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21754-R1	**B13-8396**	**Matrix: Sediment**		**Sampled: 12-Jul-13 9:58**		**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 09-Sep-13
(d10-Acenaphthene)	NA	72			% Recovery	
(d10-Phenanthrene)	NA	89			% Recovery	
(d12-Chrysene)	NA	120			% Recovery	
(d8-Naphthalene)	NA	52			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	1.8	1	5	ng/dry g	J
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	1.1	1	5	ng/dry g	J
Acenaphthylene	NA	2.9	1	5	ng/dry g	J
Anthracene	NA	15.3	1	5	ng/dry g	
Benz[a]anthracene	NA	20.5	1	5	ng/dry g	
Benzo[a]pyrene	NA	42.6	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	40.8	1	5	ng/dry g	
Benzo[e]pyrene	NA	19.3	1	5	ng/dry g	
Benzo[g,h,i]perylene	NA	15.5	1	5	ng/dry g	
Benzo[k]fluoranthene	NA	21.8	1	5	ng/dry g	
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	35.5	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	9.6	1	5	ng/dry g	
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	13.8	1	5	ng/dry g	
Fluorene	NA	1.1	1	5	ng/dry g	J
Indeno[1,2,3-c,d]pyrene	NA	27.9	1	5	ng/dry g	
Naphthalene	NA	1.3	1	5	ng/dry g	J
Perylene	NA	14.2	1	5	ng/dry g	
Phenanthrene	NA	5.5	1	5	ng/dry g	
Pyrene	NA	12.4	1	5	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21755-R1	**B13-8340**	**Matrix: Sediment**		**Sampled: 12-Jul-13 8:19**		**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 09-Sep-13
(d10-Acenaphthene)	NA	81			% Recovery	
(d10-Phenanthrene)	NA	92			% Recovery	
(d12-Chrysene)	NA	114			% Recovery	
(d8-Naphthalene)	NA	59			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	1.2	1	5	ng/dry g	J
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	1	1	5	ng/dry g	J
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	2.1	1	5	ng/dry g	J
Anthracene	NA	8.7	1	5	ng/dry g	
Benz[a]anthracene	NA	10.7	1	5	ng/dry g	
Benzo[a]pyrene	NA	20.7	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	18.7	1	5	ng/dry g	
Benzo[e]pyrene	NA	9.2	1	5	ng/dry g	
Benzo[g,h,i]perylene	NA	8.9	1	5	ng/dry g	
Benzo[k]fluoranthene	NA	9.3	1	5	ng/dry g	
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	16.8	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	5	1	5	ng/dry g	
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	17.9	1	5	ng/dry g	
Fluorene	NA	1	1	5	ng/dry g	J
Indeno[1,2,3-c,d]pyrene	NA	12.9	1	5	ng/dry g	
Naphthalene	NA	1.3	1	5	ng/dry g	J
Perylene	NA	12.4	1	5	ng/dry g	
Phenanthrene	NA	3.4	1	5	ng/dry g	J
Pyrene	NA	14.2	1	5	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21756-R1	**B13-8347**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**15:41**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 09-Sep-13
(d10-Acenaphthene)	NA	75			% Recovery	
(d10-Phenanthrene)	NA	91			% Recovery	
(d12-Chrysene)	NA	108			% Recovery	
(d8-Naphthalene)	NA	54			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	ND	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	ND	1	5	ng/dry g	
Anthracene	NA	3.5	1	5	ng/dry g	J
Benz[a]anthracene	NA	7	1	5	ng/dry g	
Benzo[a]pyrene	NA	18.3	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	16.1	1	5	ng/dry g	
Benzo[e]pyrene	NA	6.7	1	5	ng/dry g	
Benzo[g,h,i]perylene	NA	7.6	1	5	ng/dry g	
Benzo[k]fluoranthene	NA	7.4	1	5	ng/dry g	
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	9.9	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	7	1	5	ng/dry g	
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	2.9	1	5	ng/dry g	J
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	14.6	1	5	ng/dry g	
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	10.3	1	5	ng/dry g	
Phenanthrene	NA	1.8	1	5	ng/dry g	J
Pyrene	NA	3.5	1	5	ng/dry g	J

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21757-R1	**TMDL6-CP**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**15:41**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 09-Sep-13
(d10-Acenaphthene)	NA	77			% Recovery	
(d10-Phenanthrene)	NA	91			% Recovery	
(d12-Chrysene)	NA	120			% Recovery	
(d8-Naphthalene)	NA	59			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	ND	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	ND	1	5	ng/dry g	
Anthracene	NA	7.1	1	5	ng/dry g	
Benz[a]anthracene	NA	2.6	1	5	ng/dry g	J
Benzo[a]pyrene	NA	9.7	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	6.3	1	5	ng/dry g	
Benzo[e]pyrene	NA	2.8	1	5	ng/dry g	J
Benzo[g,h,i]perylene	NA	3.8	1	5	ng/dry g	J
Benzo[k]fluoranthene	NA	3	1	5	ng/dry g	J
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	4.7	1	5	ng/dry g	J
Dibenz[a,h]anthracene	NA	3.3	1	5	ng/dry g	J
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	2.4	1	5	ng/dry g	J
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	6.7	1	5	ng/dry g	
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	3.7	1	5	ng/dry g	J
Phenanthrene	NA	1.1	1	5	ng/dry g	J
Pyrene	NA	3.7	1	5	ng/dry g	J

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21758-R1	**TMDL4-CS**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**12:20**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 09-Sep-13
(d10-Acenaphthene)	NA	78			% Recovery	
(d10-Phenanthrene)	NA	90			% Recovery	
(d12-Chrysene)	NA	116			% Recovery	
(d8-Naphthalene)	NA	53			% Recovery	
1-Methylnaphthalene	NA	3	1	5	ng/dry g	J
1-Methylphenanthrene	NA	9.8	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	2.6	1	5	ng/dry g	J
2,6-Dimethylnaphthalene	NA	5	1	5	ng/dry g	
2-Methylnaphthalene	NA	6.6	1	5	ng/dry g	
Acenaphthene	NA	5	1	5	ng/dry g	
Acenaphthylene	NA	5.7	1	5	ng/dry g	
Anthracene	NA	54.1	1	5	ng/dry g	
Benz[a]anthracene	NA	107.9	1	5	ng/dry g	
Benzo[a]pyrene	NA	150.3	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	135.3	1	5	ng/dry g	
Benzo[e]pyrene	NA	120.7	1	5	ng/dry g	
Benzo[g,h,i]perylene	NA	112.8	1	5	ng/dry g	
Benzo[k]fluoranthene	NA	81.4	1	5	ng/dry g	
Biphenyl	NA	1.5	1	5	ng/dry g	J
Chrysene	NA	172.6	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	57.8	1	5	ng/dry g	
Dibenzothiophene	NA	6.1	1	5	ng/dry g	
Fluoranthene	NA	217.4	1	5	ng/dry g	
Fluorene	NA	5.8	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	110.6	1	5	ng/dry g	
Naphthalene	NA	7.8	1	5	ng/dry g	
Perylene	NA	58.9	1	5	ng/dry g	
Phenanthrene	NA	70.8	1	5	ng/dry g	
Pyrene	NA	229.2	1	5	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21759-R1	**TMDL3-TB**	**Matrix: Sediment**		**Sampled: 12-Jul-13**	**15:41**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 09-Sep-13
(d10-Acenaphthene)	NA	82			% Recovery	
(d10-Phenanthrene)	NA	92			% Recovery	
(d12-Chrysene)	NA	117			% Recovery	
(d8-Naphthalene)	NA	66			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	ND	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	ND	1	5	ng/dry g	
Anthracene	NA	1	1	5	ng/dry g	J
Benz[a]anthracene	NA	ND	1	5	ng/dry g	
Benzo[a]pyrene	NA	ND	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	1.8	1	5	ng/dry g	J
Benzo[e]pyrene	NA	ND	1	5	ng/dry g	
Benzo[g,h,i]perylene	NA	1.6	1	5	ng/dry g	J
Benzo[k]fluoranthene	NA	ND	1	5	ng/dry g	
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	1.2	1	5	ng/dry g	J
Dibenz[a,h]anthracene	NA	ND	1	5	ng/dry g	
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	ND	1	5	ng/dry g	
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	1.8	1	5	ng/dry g	J
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	ND	1	5	ng/dry g	
Phenanthrene	NA	ND	1	5	ng/dry g	
Pyrene	NA	ND	1	5	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21760-R1	**B13-8365**	**Matrix: Sediment**		**Sampled: 13-Jul-13 8:37**		**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 09-Sep-13
(d10-Acenaphthene)	NA	80			% Recovery	
(d10-Phenanthrene)	NA	92			% Recovery	
(d12-Chrysene)	NA	112			% Recovery	
(d8-Naphthalene)	NA	57			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	ND	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	ND	1	5	ng/dry g	
Anthracene	NA	1.5	1	5	ng/dry g	J
Benz[a]anthracene	NA	1.7	1	5	ng/dry g	J
Benzo[a]pyrene	NA	6	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	3.7	1	5	ng/dry g	J
Benzo[e]pyrene	NA	2.5	1	5	ng/dry g	J
Benzo[g,h,i]perylene	NA	3.4	1	5	ng/dry g	J
Benzo[k]fluoranthene	NA	2.2	1	5	ng/dry g	J
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	3.5	1	5	ng/dry g	J
Dibenz[a,h]anthracene	NA	2.8	1	5	ng/dry g	J
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	1.5	1	5	ng/dry g	J
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	5.4	1	5	ng/dry g	
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	2.7	1	5	ng/dry g	J
Phenanthrene	NA	ND	1	5	ng/dry g	
Pyrene	NA	1.8	1	5	ng/dry g	J

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21761-R1	**B13-8318**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**10:57**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 09-Sep-13
(d10-Acenaphthene)	NA	72			% Recovery	
(d10-Phenanthrene)	NA	88			% Recovery	
(d12-Chrysene)	NA	113			% Recovery	
(d8-Naphthalene)	NA	48			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	ND	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	ND	1	5	ng/dry g	
Anthracene	NA	1.9	1	5	ng/dry g	J
Benz[a]anthracene	NA	3.1	1	5	ng/dry g	J
Benzo[a]pyrene	NA	7.4	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	4.2	1	5	ng/dry g	J
Benzo[e]pyrene	NA	2.6	1	5	ng/dry g	J
Benzo[g,h,i]perylene	NA	3.3	1	5	ng/dry g	J
Benzo[k]fluoranthene	NA	1.9	1	5	ng/dry g	J
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	4.1	1	5	ng/dry g	J
Dibenz[a,h]anthracene	NA	3.1	1	5	ng/dry g	J
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	4.6	1	5	ng/dry g	J
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	5.8	1	5	ng/dry g	
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	7.2	1	5	ng/dry g	
Phenanthrene	NA	1.4	1	5	ng/dry g	J
Pyrene	NA	5.1	1	5	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21762-R1	**B13-8322**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**10:11**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 09-Sep-13
(d10-Acenaphthene)	NA	78			% Recovery	
(d10-Phenanthrene)	NA	94			% Recovery	
(d12-Chrysene)	NA	123			% Recovery	
(d8-Naphthalene)	NA	54			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	1.2	1	5	ng/dry g	J
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	1.1	1	5	ng/dry g	J
Acenaphthylene	NA	1	1	5	ng/dry g	J
Anthracene	NA	1.5	1	5	ng/dry g	J
Benz[a]anthracene	NA	2.2	1	5	ng/dry g	J
Benzo[a]pyrene	NA	6.1	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	3.8	1	5	ng/dry g	J
Benzo[e]pyrene	NA	1.9	1	5	ng/dry g	J
Benzo[g,h,i]perylene	NA	3	1	5	ng/dry g	J
Benzo[k]fluoranthene	NA	1.9	1	5	ng/dry g	J
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	3.1	1	5	ng/dry g	J
Dibenz[a,h]anthracene	NA	ND	1	5	ng/dry g	
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	3	1	5	ng/dry g	J
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	4.8	1	5	ng/dry g	J
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	3.7	1	5	ng/dry g	J
Phenanthrene	NA	1.5	1	5	ng/dry g	J
Pyrene	NA	3.8	1	5	ng/dry g	J

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21763-R1	**B13-8333**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**7:43**	**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
(d10-Acenaphthene)	NA	83			% Recovery	
(d10-Phenanthrene)	NA	81			% Recovery	
(d12-Chrysene)	NA	74			% Recovery	
(d8-Naphthalene)	NA	64			% Recovery	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g	
1-Methylphenanthrene	NA	ND	1	5	ng/dry g	
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g	
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	1.8	1	5	ng/dry g	J
Anthracene	NA	3.1	1	5	ng/dry g	J
Benz[a]anthracene	NA	6.3	1	5	ng/dry g	
Benzo[a]pyrene	NA	5.1	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	2.4	1	5	ng/dry g	J
Benzo[e]pyrene	NA	2.3	1	5	ng/dry g	J
Benzo[g,h,i]perylene	NA	4.5	1	5	ng/dry g	J
Benzo[k]fluoranthene	NA	1.6	1	5	ng/dry g	J
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	5.1	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	1.1	1	5	ng/dry g	J
Dibenzothiophene	NA	ND	1	5	ng/dry g	
Fluoranthene	NA	12.6	1	5	ng/dry g	
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	5.6	1	5	ng/dry g	
Naphthalene	NA	ND	1	5	ng/dry g	
Perylene	NA	3.2	1	5	ng/dry g	J
Phenanthrene	NA	1.9	1	5	ng/dry g	J
Pyrene	NA	15.4	1	5	ng/dry g	

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Polynuclear Aromatic Hydrocarbons ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21764-R1	**B13-8356**	**Matrix: Sediment**		**Sampled: 13-Jul-13 9:22**		**Received: 13-Jul-13**
	Method: EPA 8270C	Batch ID: O-6005		Prepared: 24-Aug-13		Analyzed: 06-Sep-13
(d10-Acenaphthene)	NA	77			% Recovery	
(d10-Phenanthrene)	NA	84			% Recovery	
(d12-Chrysene)	NA	91			% Recovery	
(d8-Naphthalene)	NA	57			% Recovery	
1-Methylnaphthalene	NA	1.9	1	5	ng/dry g	J
1-Methylphenanthrene	NA	1.9	1	5	ng/dry g	J
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g	
2,6-Dimethylnaphthalene	NA	2.4	1	5	ng/dry g	J
2-Methylnaphthalene	NA	3.9	1	5	ng/dry g	J
Acenaphthene	NA	ND	1	5	ng/dry g	
Acenaphthylene	NA	ND	1	5	ng/dry g	
Anthracene	NA	6.6	1	5	ng/dry g	
Benz[a]anthracene	NA	15.7	1	5	ng/dry g	
Benzo[a]pyrene	NA	21.4	1	5	ng/dry g	
Benzo[b]fluoranthene	NA	9	1	5	ng/dry g	
Benzo[e]pyrene	NA	16	1	5	ng/dry g	
Benzo[g,h,i]perylene	NA	13.1	1	5	ng/dry g	
Benzo[k]fluoranthene	NA	4	1	5	ng/dry g	J
Biphenyl	NA	ND	1	5	ng/dry g	
Chrysene	NA	20.9	1	5	ng/dry g	
Dibenz[a,h]anthracene	NA	8.1	1	5	ng/dry g	
Dibenzothiophene	NA	1.6	1	5	ng/dry g	J
Fluoranthene	NA	5.9	1	5	ng/dry g	
Fluorene	NA	ND	1	5	ng/dry g	
Indeno[1,2,3-c,d]pyrene	NA	6.7	1	5	ng/dry g	
Naphthalene	NA	2.8	1	5	ng/dry g	J
Perylene	NA	3	1	5	ng/dry g	J
Phenanthrene	NA	5.2	1	5	ng/dry g	
Pyrene	NA	12.9	1	5	ng/dry g	

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Pyrethroids ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21733-R1	**B13-8382**		**Matrix: Sediment**	**Sampled: 10-Jul-13**	**11:04**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI		Batch ID: O-6001	Prepared: 09-Aug-13		Analyzed: 23-Aug-13
Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	
Sample ID: 21734-R1	**B13-8374**		**Matrix: Sediment**	**Sampled: 10-Jul-13**	**14:28**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI		Batch ID: O-6001	Prepared: 09-Aug-13		Analyzed: 23-Aug-13
Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	
Sample ID: 21735-R1	**B13-8371**		**Matrix: Sediment**	**Sampled: 10-Jul-13**	**12:03**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI		Batch ID: O-6001	Prepared: 09-Aug-13		Analyzed: 23-Aug-13

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Pyrethroids ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	
Sample ID: 21736-R1	**B13-8363**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**13:38**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 23-Aug-13
Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	
Sample ID: 21737-R1	**B13-8360**	**Matrix: Sediment**		**Sampled: 10-Jul-13**	**15:30**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6001		Prepared: 09-Aug-13		Analyzed: 23-Aug-13
Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	

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Pyrethroids ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

Sample ID: 21738-R1 **B13-8349** **Matrix: Sediment** **Sampled: 10-Jul-13** **9:51** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 23-Aug-13

Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

Sample ID: 21739-R1 **B13-8326** **Matrix: Sediment** **Sampled: 10-Jul-13** **8:28** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 23-Aug-13

Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	

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Pyrethroids ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

Sample ID: 21740-R1 **B13-8367** **Matrix: Sediment** **Sampled: 11-Jul-13** **14:10** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 23-Aug-13

Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

Sample ID: 21741-R1 **B13-8302** **Matrix: Sediment** **Sampled: 11-Jul-13** **9:29** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 23-Aug-13

Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	

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Pyrethroids ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

Sample ID: 21742-R1 **B13-8304** **Matrix: Sediment** **Sampled: 11-Jul-13** **16:24** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 23-Aug-13

Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

Sample ID: 21743-R1 **B13-8306** **Matrix: Sediment** **Sampled: 11-Jul-13** **13:00** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 25-Aug-13

Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

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Pyrethroids ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21744-R1	**B13-8308**		**Matrix: Sediment**	**Sampled: 11-Jul-13**	**17:06**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI		Batch ID: O-6003	Prepared: 15-Aug-13		Analyzed: 25-Aug-13
Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	
Sample ID: 21745-R1	**B13-8310**		**Matrix: Sediment**	**Sampled: 11-Jul-13**	**17:51**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI		Batch ID: O-6005	Prepared: 24-Aug-13		Analyzed: 06-Sep-13
Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	
Sample ID: 21746-R1	**B13-8316**		**Matrix: Sediment**	**Sampled: 11-Jul-13**	**10:23**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI		Batch ID: O-6005	Prepared: 24-Aug-13		Analyzed: 06-Sep-13

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Pyrethroids ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

Sample ID: 21750-R1 **B13-8401** **Matrix: Sediment** **Sampled: 12-Jul-13** **14:42** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

Sample ID: 21751-R1 **B13-8399** **Matrix: Sediment** **Sampled: 12-Jul-13** **13:55** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	

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Pyrethroids ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

Sample ID: 21752-R1 **B13-8384** **Matrix: Sediment** **Sampled: 12-Jul-13** **9:13** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

Sample ID: 21753-R1 **B13-8397** **Matrix: Sediment** **Sampled: 12-Jul-13** **11:20** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 23-Aug-13

Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	

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Pyrethroids ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

Sample ID: 21754-R1 **B13-8396** **Matrix: Sediment** **Sampled: 12-Jul-13** **9:58** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 25-Aug-13

Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

Sample ID: 21755-R1 **B13-8340** **Matrix: Sediment** **Sampled: 12-Jul-13** **8:19** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 25-Aug-13

Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	

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Pyrethroids ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

Sample ID: 21756-R1 **B13-8347** **Matrix: Sediment** **Sampled: 12-Jul-13** **15:41** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 25-Aug-13

Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

Sample ID: 21758-R1 **TMDL4-CS** **Matrix: Sediment** **Sampled: 12-Jul-13** **12:20** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 25-Aug-13

Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

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Pyrethroids ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Sample ID: 21760-R1	**B13-8365**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**8:37**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 25-Aug-13
Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	
Sample ID: 21761-R1	**B13-8318**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**10:57**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 25-Aug-13
Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	
Sample ID: 21762-R1	**B13-8322**	**Matrix: Sediment**		**Sampled: 13-Jul-13**	**10:11**	**Received: 13-Jul-13**
	Method: EPA 8270C-NCI	Batch ID: O-6003		Prepared: 15-Aug-13		Analyzed: 25-Aug-13

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Pyrethroids ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

Sample ID: 21763-R1 **B13-8333** **Matrix: Sediment** **Sampled: 13-Jul-13** **7:43** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

Sample ID: 21764-R1 **B13-8356** **Matrix: Sediment** **Sampled: 13-Jul-13** **9:22** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

Allethrin	NA	ND	0.25	0.5	ng/dry g	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g	

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Pyrethroids ANALYTICAL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	QA CODE
Cypermethrin	NA	ND	0.25	0.5	ng/dry g	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g	
Prallethrin	NA	ND	0.25	0.5	ng/dry g	
Resmethrin	NA	ND	0.25	0.5	ng/dry g	

QUALITY CONTROL REPORT

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Conventionals QUALITY CONTROL REPORT

SAMPLE ID		BATCH ID	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
Ammonia as N			**Method: SM 4500-NH3 D**			**Fraction: NA**			**Prepared: 05-Sep-13**			**Analyzed: 05-Sep-13**	
21731-B1	QAQC Procedural Blank	C-13136	ND	0.02	0.03	mg/dry kg							
21731-BS1	QAQC Procedural Blank	C-13136	4.36	0.02	0.03	mg/dry kg	4.45	0	98	70 - 130% PASS			
21731-BS2	QAQC Procedural Blank	C-13136	4.01	0.02	0.03	mg/dry kg	4.45	0	90	70 - 130% PASS	9	25 PASS	
21733-MS1	B13-8382	C-13136	52.75	0.02	0.03	mg/dry kg	41.73	13.72	94	70 - 130% PASS			
21733-MS2	B13-8382	C-13136	48.04	0.02	0.03	mg/dry kg	36.62	13.72	94	70 - 130% PASS	0	25 PASS	
21733-R2	B13-8382	C-13136	13.1	0.02	0.03	mg/dry kg					9	25 PASS	
21732-B1	QAQC Procedural Blank	C-13138	ND	0.02	0.03	mg/dry kg							
21732-BS1	QAQC Procedural Blank	C-13138	5.01	0.02	0.03	mg/dry kg	4.51	0	111	70 - 130% PASS			
21732-BS2	QAQC Procedural Blank	C-13138	4.44	0.02	0.03	mg/dry kg	4.51	0	98	70 - 130% PASS	12	25 PASS	
21753-MS1	B13-8397	C-13138	66.89	0.02	0.03	mg/dry kg	32.41	34.81	99	70 - 130% PASS			
21753-MS2	B13-8397	C-13138	66.12	0.02	0.03	mg/dry kg	32.41	34.81	97	70 - 130% PASS	2	25 PASS	
21753-R2	B13-8397	C-13138	34.74	0.02	0.03	mg/dry kg					0	25 PASS	
Percent Solids			**Method: SM 2540B**			**Fraction: NA**			**Prepared: 02-Aug-13**			**Analyzed: 02-Aug-13**	
21731-B1	QAQC Procedural Blank	E-5121	ND	0.1	0.1	% Dry Weight							
21732-B1	QAQC Procedural Blank	E-5121	ND	0.1	0.1	% Dry Weight							
21733-R2	B13-8382	E-5121	60.9	0.1	0.1	% Dry Weight					0	25 PASS	
21748-R2	TMDL1-CH	E-5121	36.6	0.1	0.1	% Dry Weight					1	25 PASS	
Total Sulfides			**Method: Plumb, 1981/TERL**			**Fraction: NA**			**Prepared: 09-Sep-13**			**Analyzed: 09-Sep-13**	
21731-B1	QAQC Procedural Blank	C-13145	ND	0.2	0.4	mg/dry kg							
21731-BS1	QAQC Procedural Blank	C-13145	10.8	0.2	0.4	mg/dry kg	12.6	0	86	50 - 130% PASS			
21731-BS2	QAQC Procedural Blank	C-13145	11.4	0.2	0.4	mg/dry kg	12.6	0	90	50 - 130% PASS	5	25 PASS	
21733-MS1	B13-8382	C-13145	122.1	0.2	0.4	mg/dry kg	120.9	5.9	96	50 - 130% PASS			
21733-MS2	B13-8382	C-13145	129.7	0.2	0.4	mg/dry kg	152.2	5.9	81	50 - 130% PASS	17	25 PASS	
21733-R2	B13-8382	C-13145	6.4	0.2	0.4	mg/dry kg					17	25 PASS	
21732-B1	QAQC Procedural Blank	C-13147	ND	0.2	0.4	mg/dry kg							
21732-BS1	QAQC Procedural Blank	C-13147	12.1	0.2	0.4	mg/dry kg	13.7	0	88	50 - 130% PASS			
21732-BS2	QAQC Procedural Blank	C-13147	12.5	0.2	0.4	mg/dry kg	13.7	0	91	50 - 130% PASS	3	25 PASS	
21754-MS1	B13-8396	C-13147	92.9	0.2	0.4	mg/dry kg	72.8	9.4	115	50 - 130% PASS			

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Conventionals

QUALITY CONTROL REPORT

SAMPLE ID		BATCH ID	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
21754-MS2	B13-8396	C-13147	90.7	0.2	0.4	mg/dry kg	72.8	9.4	112	50 - 130%	PASS	3	25	PASS	
21754-R2	B13-8396	C-13147	9.5	0.2	0.4	mg/dry kg						2	25	PASS	

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Aroclor PCBs — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
Sample ID: 21731-B1	**QAQC Procedural Blank**				**Matrix: DI Water**		**Sampled:**			**Received:**		
	Method: EPA 8270C				Batch ID: O-6001		Prepared: 09-Aug-13			Analyzed: 30-Aug-13		
Aroclor 1016	NA	ND	10	20	ng/dry g							
Aroclor 1221	NA	ND	10	20	ng/dry g							
Aroclor 1232	NA	ND	10	20	ng/dry g							
Aroclor 1242	NA	ND	10	20	ng/dry g							
Aroclor 1248	NA	ND	10	20	ng/dry g							
Aroclor 1254	NA	ND	10	20	ng/dry g							
Aroclor 1260	NA	ND	10	20	ng/dry g							
Sample ID: 21732-B1	**QAQC Procedural Blank**				**Matrix: DI Water**		**Sampled:**			**Received:**		
	Method: EPA 8270C				Batch ID: O-6005		Prepared: 24-Aug-13			Analyzed: 06-Sep-13		
Aroclor 1016	NA	ND	10	20	ng/dry g							
Aroclor 1221	NA	ND	10	20	ng/dry g							
Aroclor 1232	NA	ND	10	20	ng/dry g							
Aroclor 1242	NA	ND	10	20	ng/dry g							
Aroclor 1248	NA	ND	10	20	ng/dry g							
Aroclor 1254	NA	ND	10	20	ng/dry g							
Aroclor 1260	NA	ND	10	20	ng/dry g							
Sample ID: 21733-B1	**B13-8382**				**Matrix: Sediment**		**Sampled: 10-Jul-13 11:04**			**Received: 13-Jul-13**		
	Method: EPA 8270C				Batch ID: O-6003		Prepared: 15-Aug-13			Analyzed: 30-Aug-13		
Aroclor 1016	NA	ND	10	20	ng/dry g							
Aroclor 1221	NA	ND	10	20	ng/dry g							
Aroclor 1232	NA	ND	10	20	ng/dry g							
Aroclor 1242	NA	ND	10	20	ng/dry g							
Aroclor 1248	NA	ND	10	20	ng/dry g							
Aroclor 1254	NA	ND	10	20	ng/dry g							
Aroclor 1260	NA	ND	10	20	ng/dry g							
Sample ID: 21744-R2	**B13-8308**				**Matrix: Sediment**		**Sampled: 11-Jul-13 17:06**			**Received: 13-Jul-13**		
	Method: EPA 8270C				Batch ID: O-6003		Prepared: 15-Aug-13			Analyzed: 30-Aug-13		

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Aroclor PCBs — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS		QA CODE
Aroclor 1016	NA	ND	10	20	ng/dry g					0	25	PASS	
Aroclor 1221	NA	ND	10	20	ng/dry g					0	25	PASS	
Aroclor 1232	NA	ND	10	20	ng/dry g					0	25	PASS	
Aroclor 1242	NA	ND	10	20	ng/dry g					0	25	PASS	
Aroclor 1248	NA	ND	10	20	ng/dry g					0	25	PASS	
Aroclor 1254	NA	ND	10	20	ng/dry g					0	25	PASS	
Aroclor 1260	NA	ND	10	20	ng/dry g					0	25	PASS	

Sample ID: 21753-R2 **B13-8397** **Matrix: Sediment** **Sampled: 12-Jul-13** **11:20** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

Aroclor 1016	NA	ND	10	20	ng/dry g					0	25	PASS	
Aroclor 1221	NA	ND	10	20	ng/dry g					0	25	PASS	
Aroclor 1232	NA	ND	10	20	ng/dry g					0	25	PASS	
Aroclor 1242	NA	ND	10	20	ng/dry g					0	25	PASS	
Aroclor 1248	NA	ND	10	20	ng/dry g					0	25	PASS	
Aroclor 1254	NA	ND	10	20	ng/dry g					0	25	PASS	
Aroclor 1260	NA	ND	10	20	ng/dry g					0	25	PASS	

Sample ID: 21764-R2 **B13-8356** **Matrix: Sediment** **Sampled: 13-Jul-13** **9:22** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

Aroclor 1016	NA	ND	10	20	ng/dry g					0	25	PASS	SL
Aroclor 1221	NA	ND	10	20	ng/dry g					0	25	PASS	
Aroclor 1232	NA	ND	10	20	ng/dry g					0	25	PASS	
Aroclor 1242	NA	ND	10	20	ng/dry g					0	25	PASS	
Aroclor 1248	NA	ND	10	20	ng/dry g					0	25	PASS	
Aroclor 1254	NA	ND	10	20	ng/dry g					0	25	PASS	SL
Aroclor 1260	NA	ND	10	20	ng/dry g					0	25	PASS	

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
Sample ID: 19187-CRM1	**QAQC CRM - SRM 1944**				**Matrix: Sediment**		**Sampled:**				**Received:**	
	Method: EPA 8270C				Batch ID: O-6005		Prepared: 24-Aug-13				Analyzed: 06-Sep-13	
(PCB030)	NA	106			% Recovery	100		106	50 - 150%	PASS		
(PCB112)	NA	93			% Recovery	100		93	50 - 150%	PASS		
(PCB198)	NA	110			% Recovery	100		110	50 - 150%	PASS		
(TCMX)	NA	107			% Recovery	100		107	50 - 150%	PASS		
2,4'-DDD	NA	47.2	0.05	0.1	µg/dry g	38		124	70 - 130%	PASS		
2,4'-DDE	NA	23.2	0.05	0.1	µg/dry g	19		122	70 - 130%	PASS		
4,4'-DDD	NA	129.5	0.05	0.1	µg/dry g	108		120	70 - 130%	PASS		
4,4'-DDE	NA	104.9	0.05	0.1	µg/dry g	86		122	70 - 130%	PASS		
4,4'-DDT	NA	134.8	0.05	0.1	µg/dry g	119		113	70 - 130%	PASS		
Chlordane-alpha	NA	20.4	0.05	0.1	µg/dry g	16.5		124	70 - 130%	PASS		
Chlordane-gamma	NA	6.6	0.05	0.1	µg/dry g	8		82	70 - 130%	PASS		
cis-Nonachlor	NA	4.5	0.05	0.1	µg/dry g	3.7		122	70 - 130%	PASS		
Hexachlorobenzene	NA	6.9	0.05	0.1	µg/dry g	6		115	70 - 130%	PASS		
trans-Nonachlor	NA	9.7	0.05	0.1	µg/dry g	8.2		118	70 - 130%	PASS		
Sample ID: 21731-B1	**QAQC Procedural Blank**				**Matrix: DI Water**		**Sampled:**				**Received:**	
	Method: EPA 8270C				Batch ID: O-6001		Prepared: 09-Aug-13				Analyzed: 30-Aug-13	
(PCB030)	NA	97			% Recovery	100		97	50 - 150%	PASS		
(PCB112)	NA	92			% Recovery	100		92	50 - 150%	PASS		
(PCB198)	NA	83			% Recovery	100		83	50 - 150%	PASS		
(TCMX)	NA	97			% Recovery	100		97	50 - 150%	PASS		
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g							
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g							
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g							
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g							
4,4'-DDE	NA	ND	0.05	0.1	ng/dry g							
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g							
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g							
Aldrin	NA	ND	0.05	0.1	ng/dry g							

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
BHC-alpha	NA	ND	0.05	0.1	ng/dry g							
BHC-beta	NA	ND	0.05	0.1	ng/dry g							
BHC-delta	NA	ND	0.05	0.1	ng/dry g							
BHC-gamma	NA	ND	0.05	0.1	ng/dry g							
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g							
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g							
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g							
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g							
Dicofol	NA	ND	0.05	0.1	ng/dry g							
Dieldrin	NA	ND	0.05	0.1	ng/dry g							
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g							
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g							
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g							
Endrin	NA	ND	0.05	0.1	ng/dry g							
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g							
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g							
Heptachlor	NA	ND	0.05	0.1	ng/dry g							
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g							
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g							
Methoxychlor	NA	ND	0.05	0.1	ng/dry g							
Mirex	NA	ND	0.05	0.1	ng/dry g							
Oxychlordane	NA	ND	0.05	0.1	ng/dry g							
Perthane	NA	ND	0.05	0.1	ng/dry g							
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g							
	Method: EPA 8270C-NCI				Batch ID: O-6001			Prepared: 09-Aug-13			Analyzed: 24-Aug-13	
Toxaphene	NA	ND	0.1	0.2	ng/dry g							

Sample ID: 21731-BS1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

(PCB030)	NA	106	% Recovery	100	0	106	50 - 150%	PASS	
(PCB112)	NA	110	% Recovery	100	0	110	50 - 150%	PASS	
(PCB198)	NA	106	% Recovery	100	0	106	50 - 150%	PASS	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
(TCMX)	NA	108			% Recovery	100	0	108	50 - 150%	PASS			
2,4'-DDD	NA	466.23	0.05	0.1	ng/dry g	400	0	117	50 - 150%	PASS			
2,4'-DDE	NA	496.94	0.05	0.1	ng/dry g	400	0	124	50 - 150%	PASS			
2,4'-DDT	NA	569.33	0.05	0.1	ng/dry g	400	0	142	25 - 125%	PASS			
4,4'-DDD	NA	436.24	0.05	0.1	ng/dry g	400	0	109	50 - 150%	PASS			
4,4'-DDE	NA	480.94	0.05	0.1	ng/dry g	400	0	120	50 - 150%	PASS			
4,4'-DDMU	NA	519.37	0.05	0.1	ng/dry g	400	0	130	50 - 150%	PASS			
4,4'-DDT	NA	488.93	0.05	0.1	ng/dry g	400	0	122	25 - 125%	PASS			
Aldrin	NA	383.24	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS			
BHC-alpha	NA	470.59	0.05	0.1	ng/dry g	400	0	118	50 - 150%	PASS			
BHC-beta	NA	438.28	0.05	0.1	ng/dry g	400	0	110	50 - 150%	PASS			
BHC-delta	NA	500.52	0.05	0.1	ng/dry g	400	0	125	50 - 150%	PASS			
BHC-gamma	NA	521.64	0.05	0.1	ng/dry g	400	0	130	50 - 150%	PASS			
Chlordane-alpha	NA	389.19	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS			
Chlordane-gamma	NA	448.35	0.05	0.1	ng/dry g	400	0	112	50 - 150%	PASS			
cis-Nonachlor	NA	365.6	0.05	0.1	ng/dry g	400	0	91	50 - 150%	PASS			
DCPA (Dacthal)	NA	390.47	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS			
Dicofol	NA	294.84	0.05	0.1	ng/dry g	400	0	74	50 - 150%	PASS			
Dieldrin	NA	502.6	0.05	0.1	ng/dry g	400	0	126	50 - 150%	PASS			
Endosulfan Sulfate	NA	443.04	0.05	0.1	ng/dry g	400	0	111	50 - 150%	PASS			
Endosulfan-I	NA	421.71	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS			
Endosulfan-II	NA	520.76	0.05	0.1	ng/dry g	400	0	130	50 - 150%	PASS			
Endrin	NA	496.66	0.05	0.1	ng/dry g	400	0	124	25 - 125%	PASS			
Endrin Aldehyde	NA	260.92	0.05	0.1	ng/dry g	400	0	65	0 - 125%	PASS			
Endrin Ketone	NA	361.03	0.05	0.1	ng/dry g	400	0	90	25 - 125%	PASS			
Heptachlor	NA	403.83	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			
Heptachlor Epoxide	NA	548.73	0.05	0.1	ng/dry g	400	0	137	50 - 150%	PASS			
Hexachlorobenzene	NA	415.51	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS			
Methoxychlor	NA	528.08	0.05	0.1	ng/dry g	400	0	132	50 - 150%	PASS			
Mirex	NA	500.16	0.05	0.1	ng/dry g	400	0	125	50 - 150%	PASS			
Oxychlordane	NA	304.84	0.05	0.1	ng/dry g	400	0	76	50 - 150%	PASS			

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Perthane	NA	400.47	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS			
trans-Nonachlor	NA	370.89	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS			
	Method: EPA 8270C-NCI				Batch ID: O-6001			Prepared: 09-Aug-13				Analyzed: 24-Aug-13	
Toxaphene	NA	2989.2	0.1	0.2	ng/dry g	3000	0	100	50 - 150%	PASS			
Sample ID: 21731-BS2	**QAQC Procedural Blank**				**Matrix: DI Water**			**Sampled:**				**Received:**	
	Method: EPA 8270C				Batch ID: O-6001			Prepared: 09-Aug-13				Analyzed: 30-Aug-13	
(PCB030)	NA	106			% Recovery	100	0	106	50 - 150%	PASS	0	25	PASS
(PCB112)	NA	109			% Recovery	100	0	109	50 - 150%	PASS	1	25	PASS
(PCB198)	NA	108			% Recovery	100	0	108	50 - 150%	PASS	2	25	PASS
(TCMX)	NA	110			% Recovery	100	0	110	50 - 150%	PASS	2	25	PASS
2,4'-DDD	NA	455.65	0.05	0.1	ng/dry g	400	0	114	50 - 150%	PASS	3	25	PASS
2,4'-DDE	NA	493.42	0.05	0.1	ng/dry g	400	0	123	50 - 150%	PASS	1	25	PASS
2,4'-DDT	NA	557.08	0.05	0.1	ng/dry g	400	0	139	25 - 125%	PASS	2	25	PASS
4,4'-DDD	NA	419.25	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS	4	25	PASS
4,4'-DDE	NA	473.16	0.05	0.1	ng/dry g	400	0	118	50 - 150%	PASS	2	25	PASS
4,4'-DDMU	NA	514.86	0.05	0.1	ng/dry g	400	0	129	50 - 150%	PASS	1	25	PASS
4,4'-DDT	NA	466.62	0.05	0.1	ng/dry g	400	0	117	25 - 125%	PASS	4	25	PASS
Aldrin	NA	387.37	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS	1	25	PASS
BHC-alpha	NA	492.22	0.05	0.1	ng/dry g	400	0	123	50 - 150%	PASS	4	25	PASS
BHC-beta	NA	429.2	0.05	0.1	ng/dry g	400	0	107	50 - 150%	PASS	3	25	PASS
BHC-delta	NA	494.97	0.05	0.1	ng/dry g	400	0	124	50 - 150%	PASS	1	25	PASS
BHC-gamma	NA	530.82	0.05	0.1	ng/dry g	400	0	133	50 - 150%	PASS	2	25	PASS
Chlordane-alpha	NA	377.73	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS	3	25	PASS
Chlordane-gamma	NA	454.45	0.05	0.1	ng/dry g	400	0	114	50 - 150%	PASS	2	25	PASS
cis-Nonachlor	NA	370.33	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS	2	25	PASS
DCPA (Dacthal)	NA	359.74	0.05	0.1	ng/dry g	400	0	90	50 - 150%	PASS	9	25	PASS
Dicofol	NA	295.02	0.05	0.1	ng/dry g	400	0	74	50 - 150%	PASS	0	25	PASS
Dieldrin	NA	476.62	0.05	0.1	ng/dry g	400	0	119	50 - 150%	PASS	6	25	PASS
Endosulfan Sulfate	NA	436.86	0.05	0.1	ng/dry g	400	0	109	50 - 150%	PASS	2	25	PASS
Endosulfan-I	NA	429.1	0.05	0.1	ng/dry g	400	0	107	50 - 150%	PASS	2	25	PASS
Endosulfan-II	NA	502.48	0.05	0.1	ng/dry g	400	0	126	50 - 150%	PASS	3	25	PASS

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Endrin	NA	470.2	0.05	0.1	ng/dry g	400	0	118	25 - 125%	PASS	5	25	PASS	
Endrin Aldehyde	NA	238.5	0.05	0.1	ng/dry g	400	0	60	0 - 125%	PASS	8	25	PASS	
Endrin Ketone	NA	340.44	0.05	0.1	ng/dry g	400	0	85	25 - 125%	PASS	6	25	PASS	
Heptachlor	NA	401.2	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS	1	25	PASS	
Heptachlor Epoxide	NA	518.51	0.05	0.1	ng/dry g	400	0	130	50 - 150%	PASS	5	25	PASS	
Hexachlorobenzene	NA	432.52	0.05	0.1	ng/dry g	400	0	108	50 - 150%	PASS	4	25	PASS	
Methoxychlor	NA	478.83	0.05	0.1	ng/dry g	400	0	120	50 - 150%	PASS	10	25	PASS	
Mirex	NA	504.46	0.05	0.1	ng/dry g	400	0	126	50 - 150%	PASS	1	25	PASS	
Oxychlordane	NA	305.02	0.05	0.1	ng/dry g	400	0	76	50 - 150%	PASS	0	25	PASS	
Perthane	NA	369.74	0.05	0.1	ng/dry g	400	0	92	50 - 150%	PASS	8	25	PASS	
trans-Nonachlor	NA	367.23	0.05	0.1	ng/dry g	400	0	92	50 - 150%	PASS	1	25	PASS	
	Method: EPA 8270C-NCI				Batch ID: O-6001			Prepared: 09-Aug-13				Analyzed: 24-Aug-13		
Toxaphene	NA	3052.5	0.1	0.2	ng/dry g	3000	0	102	50 - 150%	PASS	2	25	PASS	

Sample ID: 21732-B1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

(PCB030)	NA	97			% Recovery	100		97	50 - 150%	PASS				
(PCB112)	NA	104			% Recovery	100		104	50 - 150%	PASS				
(PCB198)	NA	104			% Recovery	100		104	50 - 150%	PASS				
(TCMX)	NA	96			% Recovery	100		96	50 - 150%	PASS				
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g									
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g									
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g									
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g									
4,4'-DDE	NA	ND	0.05	0.1	ng/dry g									
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g									
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g									
Aldrin	NA	ND	0.05	0.1	ng/dry g									
BHC-alpha	NA	ND	0.05	0.1	ng/dry g									
BHC-beta	NA	ND	0.05	0.1	ng/dry g									
BHC-delta	NA	ND	0.05	0.1	ng/dry g									
BHC-gamma	NA	ND	0.05	0.1	ng/dry g									

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g							
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g							
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g							
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g							
Dicofol	NA	ND	0.05	0.1	ng/dry g							
Dieldrin	NA	ND	0.05	0.1	ng/dry g							
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g							
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g							
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g							
Endrin	NA	ND	0.05	0.1	ng/dry g							
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g							
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g							
Heptachlor	NA	ND	0.05	0.1	ng/dry g							
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g							
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g							
Methoxychlor	NA	ND	0.05	0.1	ng/dry g							
Mirex	NA	ND	0.05	0.1	ng/dry g							
Oxychlordane	NA	ND	0.05	0.1	ng/dry g							
Perthane	NA	ND	0.05	0.1	ng/dry g							
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g							
		Method: EPA 8270C-NCI				Batch ID: O-6005		Prepared: 24-Aug-13			Analyzed: 06-Sep-13	
Toxaphene	NA	ND	0.1	0.2	ng/dry g							

Sample ID: 21732-BS1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

(PCB030)	NA	93			% Recovery	100	0	93	50 - 150%	PASS
(PCB112)	NA	97			% Recovery	100	0	97	50 - 150%	PASS
(PCB198)	NA	90			% Recovery	100	0	90	50 - 150%	PASS
(TCMX)	NA	92			% Recovery	100	0	92	50 - 150%	PASS
2,4'-DDD	NA	377.6	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS
2,4'-DDE	NA	400.48	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS
2,4'-DDT	NA	386.6	0.05	0.1	ng/dry g	400	0	97	25 - 125%	PASS

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
4,4'-DDD	NA	391	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS			
4,4'-DDE	NA	421.94	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS			
4,4'-DDMU	NA	401.9	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS			
4,4'-DDT	NA	425.6	0.05	0.1	ng/dry g	400	0	106	25 - 125%	PASS			
Aldrin	NA	431.48	0.05	0.1	ng/dry g	400	0	108	50 - 150%	PASS			
BHC-alpha	NA	432.46	0.05	0.1	ng/dry g	400	0	108	50 - 150%	PASS			
BHC-beta	NA	433.5	0.05	0.1	ng/dry g	400	0	108	50 - 150%	PASS			
BHC-delta	NA	465.09	0.05	0.1	ng/dry g	400	0	116	50 - 150%	PASS			
BHC-gamma	NA	419.39	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS			
Chlordane-alpha	NA	403.31	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			
Chlordane-gamma	NA	354.5	0.05	0.1	ng/dry g	400	0	89	50 - 150%	PASS			
cis-Nonachlor	NA	395.56	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS			
DCPA (Dacthal)	NA	389.4	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS			
Dicofol	NA	243.3	0.05	0.1	ng/dry g	400	0	61	50 - 150%	PASS			
Dieldrin	NA	404.93	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			
Endosulfan Sulfate	NA	388.1	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS			
Endosulfan-I	NA	361.9	0.05	0.1	ng/dry g	400	0	90	50 - 150%	PASS			
Endosulfan-II	NA	363.6	0.05	0.1	ng/dry g	400	0	91	50 - 150%	PASS			
Endrin	NA	404.93	0.05	0.1	ng/dry g	400	0	101	25 - 125%	PASS			
Endrin Aldehyde	NA	405.97	0.05	0.1	ng/dry g	400	0	101	0 - 125%	PASS			
Endrin Ketone	NA	375.2	0.05	0.1	ng/dry g	400	0	94	25 - 125%	PASS			
Heptachlor	NA	429.8	0.05	0.1	ng/dry g	400	0	107	50 - 150%	PASS			
Heptachlor Epoxide	NA	411.93	0.05	0.1	ng/dry g	400	0	103	50 - 150%	PASS			
Hexachlorobenzene	NA	359.17	0.05	0.1	ng/dry g	400	0	90	50 - 150%	PASS			
Methoxychlor	NA	406.3	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS			
Mirex	NA	412.38	0.05	0.1	ng/dry g	400	0	103	50 - 150%	PASS			
Oxychlordane	NA	353.3	0.05	0.1	ng/dry g	400	0	88	50 - 150%	PASS			
Perthane	NA	399.4	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS			
trans-Nonachlor	NA	407.09	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS			
		Method: EPA 8270C-NCI				Batch ID: O-6005		Prepared: 24-Aug-13				Analyzed: 06-Sep-13	
Toxaphene	NA	2929.4	0.1	0.2	ng/dry g	3000	0	98	50 - 150%	PASS			

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Sample ID: 21732-BS2	**QAQC Procedural Blank**				**Matrix: DI Water**		**Sampled:**					**Received:**	
	Method: EPA 8270C				Batch ID: O-6005		Prepared: 24-Aug-13					Analyzed: 06-Sep-13	
(PCB030)	NA	97			% Recovery	100	0	97	50 - 150%	PASS	4	25 PASS	
(PCB112)	NA	97			% Recovery	100	0	97	50 - 150%	PASS	0	25 PASS	
(PCB198)	NA	110			% Recovery	100	0	110	50 - 150%	PASS	20	25 PASS	
(TCMX)	NA	95			% Recovery	100	0	95	50 - 150%	PASS	3	25 PASS	
2,4'-DDD	NA	371.4	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS	1	25 PASS	
2,4'-DDE	NA	400.05	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS	0	25 PASS	
2,4'-DDT	NA	373.3	0.05	0.1	ng/dry g	400	0	93	25 - 125%	PASS	4	25 PASS	
4,4'-DDD	NA	372	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS	5	25 PASS	
4,4'-DDE	NA	420.8	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS	0	25 PASS	
4,4'-DDMU	NA	402.45	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS	1	25 PASS	
4,4'-DDT	NA	440.3	0.05	0.1	ng/dry g	400	0	110	25 - 125%	PASS	4	25 PASS	
Aldrin	NA	435.63	0.05	0.1	ng/dry g	400	0	109	50 - 150%	PASS	1	25 PASS	
BHC-alpha	NA	443.52	0.05	0.1	ng/dry g	400	0	111	50 - 150%	PASS	3	25 PASS	
BHC-beta	NA	452.17	0.05	0.1	ng/dry g	400	0	113	50 - 150%	PASS	5	25 PASS	
BHC-delta	NA	472.63	0.05	0.1	ng/dry g	400	0	118	50 - 150%	PASS	2	25 PASS	
BHC-gamma	NA	422.57	0.05	0.1	ng/dry g	400	0	106	50 - 150%	PASS	1	25 PASS	
Chlordane-alpha	NA	405.08	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS	0	25 PASS	
Chlordane-gamma	NA	358.5	0.05	0.1	ng/dry g	400	0	90	50 - 150%	PASS	1	25 PASS	
cis-Nonachlor	NA	397.17	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS	0	25 PASS	
DCPA (Dacthal)	NA	307.8	0.05	0.1	ng/dry g	400	0	77	50 - 150%	PASS	23	25 PASS	
Dicofol	NA	241.4	0.05	0.1	ng/dry g	400	0	60	50 - 150%	PASS	2	25 PASS	
Dieldrin	NA	403	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS	0	25 PASS	
Endosulfan Sulfate	NA	373.5	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS	4	25 PASS	
Endosulfan-I	NA	355.9	0.05	0.1	ng/dry g	400	0	89	50 - 150%	PASS	1	25 PASS	
Endosulfan-II	NA	356.8	0.05	0.1	ng/dry g	400	0	89	50 - 150%	PASS	2	25 PASS	
Endrin	NA	403	0.05	0.1	ng/dry g	400	0	101	25 - 125%	PASS	0	25 PASS	
Endrin Aldehyde	NA	357.01	0.05	0.1	ng/dry g	400	0	89	0 - 125%	PASS	13	25 PASS	
Endrin Ketone	NA	378.3	0.05	0.1	ng/dry g	400	0	95	25 - 125%	PASS	1	25 PASS	
Heptachlor	NA	388.8	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS	10	25 PASS	

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Heptachlor Epoxide	NA	393.2	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS	5	25	PASS	
Hexachlorobenzene	NA	376.1	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS	4	25	PASS	
Methoxychlor	NA	336.9	0.05	0.1	ng/dry g	400	0	84	50 - 150%	PASS	19	25	PASS	
Mirex	NA	425.59	0.05	0.1	ng/dry g	400	0	106	50 - 150%	PASS	3	25	PASS	
Oxychlordane	NA	351.4	0.05	0.1	ng/dry g	400	0	88	50 - 150%	PASS	0	25	PASS	
Perthane	NA	417.8	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS	4	25	PASS	
trans-Nonachlor	NA	415.96	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS	2	25	PASS	
		Method: EPA 8270C-NCI				Batch ID: O-6005		Prepared: 24-Aug-13				Analyzed: 06-Sep-13		
Toxaphene	NA	3077.8	0.1	0.2	ng/dry g	3000	0	103	50 - 150%	PASS	5	25	PASS	

Sample ID: 21733-B1 **B13-8382** **Matrix: Sediment** **Sampled: 10-Jul-13 11:04** **Received: 13-Jul-13**

		Method: EPA 8270C				Batch ID: O-6003		Prepared: 15-Aug-13				Analyzed: 30-Aug-13		
(PCB030)	NA	99			% Recovery	100		99	50 - 150%	PASS				
(PCB112)	NA	95			% Recovery	100		95	50 - 150%	PASS				
(PCB198)	NA	91			% Recovery	100		91	50 - 150%	PASS				
(TCMX)	NA	96			% Recovery	100		96	50 - 150%	PASS				
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g									
2,4'-DDE	NA	ND	0.05	0.1	ng/dry g									
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g									
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g									
4,4'-DDE	NA	ND	0.05	0.1	ng/dry g									
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g									
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g									
Aldrin	NA	ND	0.05	0.1	ng/dry g									
BHC-alpha	NA	ND	0.05	0.1	ng/dry g									
BHC-beta	NA	ND	0.05	0.1	ng/dry g									
BHC-delta	NA	ND	0.05	0.1	ng/dry g									
BHC-gamma	NA	ND	0.05	0.1	ng/dry g									
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g									
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g									
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g									
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g									

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Dicofol	NA	ND	0.05	0.1	ng/dry g								
Dieldrin	NA	ND	0.05	0.1	ng/dry g								
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g								
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g								
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g								
Endrin	NA	ND	0.05	0.1	ng/dry g								
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g								
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g								
Heptachlor	NA	ND	0.05	0.1	ng/dry g								
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g								
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g								
Methoxychlor	NA	ND	0.05	0.1	ng/dry g								
Mirex	NA	ND	0.05	0.1	ng/dry g								
Oxychlordane	NA	ND	0.05	0.1	ng/dry g								
Perthane	NA	ND	0.05	0.1	ng/dry g								
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g								
		Method: EPA 8270C-NCI			Batch ID: O-6003			Prepared: 15-Aug-13				Analyzed: 26-Aug-13	
Toxaphene	NA	ND	0.1	0.2	ng/dry g								

Sample ID: 21733-BS1 **B13-8382** **Matrix: Sediment** **Sampled: 10-Jul-13 11:04** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

(PCB030)	NA	92			% Recovery	100	0	92	50 - 150%	PASS
(PCB112)	NA	107			% Recovery	100	0	107	50 - 150%	PASS
(PCB198)	NA	95			% Recovery	100	0	95	50 - 150%	PASS
(TCMX)	NA	89			% Recovery	100	0	89	50 - 150%	PASS
2,4'-DDD	NA	371.59	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS
2,4'-DDE	NA	398.96	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS
2,4'-DDT	NA	390.49	0.05	0.1	ng/dry g	400	0	98	25 - 125%	PASS
4,4'-DDD	NA	448.42	0.05	0.1	ng/dry g	400	0	112	50 - 150%	PASS
4,4'-DDE	NA	475.95	0.05	0.1	ng/dry g	400	0	119	50 - 150%	PASS
4,4'-DDMU	NA	322.47	0.05	0.1	ng/dry g	400	0	81	50 - 150%	PASS
4,4'-DDT	NA	320.85	0.05	0.1	ng/dry g	400	0	80	25 - 125%	PASS

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Aldrin	NA	394.94	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS			
BHC-alpha	NA	386.54	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS			
BHC-beta	NA	411.3	0.05	0.1	ng/dry g	400	0	103	50 - 150%	PASS			
BHC-delta	NA	405.64	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			
BHC-gamma	NA	333.58	0.05	0.1	ng/dry g	400	0	83	50 - 150%	PASS			
Chlordane-alpha	NA	387.37	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS			
Chlordane-gamma	NA	437.72	0.05	0.1	ng/dry g	400	0	109	50 - 150%	PASS			
cis-Nonachlor	NA	361.82	0.05	0.1	ng/dry g	400	0	90	50 - 150%	PASS			
DCPA (Dacthal)	NA	302.28	0.05	0.1	ng/dry g	400	0	76	50 - 150%	PASS			
Dicofol	NA	246.56	0.05	0.1	ng/dry g	400	0	62	50 - 150%	PASS			
Dieldrin	NA	397.2	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS			
Endosulfan Sulfate	NA	353.29	0.05	0.1	ng/dry g	400	0	88	50 - 150%	PASS			
Endosulfan-I	NA	433.29	0.05	0.1	ng/dry g	400	0	108	50 - 150%	PASS			
Endosulfan-II	NA	355.78	0.05	0.1	ng/dry g	400	0	89	50 - 150%	PASS			
Endrin	NA	398.08	0.05	0.1	ng/dry g	400	0	100	25 - 125%	PASS			
Endrin Aldehyde	NA	262.17	0.05	0.1	ng/dry g	400	0	66	0 - 125%	PASS			
Endrin Ketone	NA	352.13	0.05	0.1	ng/dry g	400	0	88	25 - 125%	PASS			
Heptachlor	NA	426.58	0.05	0.1	ng/dry g	400	0	107	50 - 150%	PASS			
Heptachlor Epoxide	NA	333.15	0.05	0.1	ng/dry g	400	0	83	50 - 150%	PASS			
Hexachlorobenzene	NA	417.74	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS			
Methoxychlor	NA	366.77	0.05	0.1	ng/dry g	400	0	92	50 - 150%	PASS			
Mirex	NA	390.31	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS			
Oxychlordane	NA	306.56	0.05	0.1	ng/dry g	400	0	77	50 - 150%	PASS			
Perthane	NA	412.28	0.05	0.1	ng/dry g	400	0	103	50 - 150%	PASS			
trans-Nonachlor	NA	379.52	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
		Method: EPA 8270C-NCI				Batch ID: O-6003		Prepared: 15-Aug-13				Analyzed: 26-Aug-13	
Toxaphene	NA	3028.8	0.1	0.2	ng/dry g	3000	0	101	50 - 150%	PASS			

Sample ID: 21733-BS2 **B13-8382** **Matrix: Sediment** **Sampled: 10-Jul-13 11:04** **Received: 13-Jul-13**

Method: EPA 8270C — Batch ID: O-6003 — Prepared: 15-Aug-13 — Analyzed: 30-Aug-13

(PCB030)	NA	90			% Recovery	100	0	90	50 - 150%	PASS	2	25	PASS
(PCB112)	NA	106			% Recovery	100	0	106	50 - 150%	PASS	1	25	PASS

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
(PCB198)	NA	97			% Recovery	100	0	97	50 - 150%	PASS	2	25	PASS	
(TCMX)	NA	88			% Recovery	100	0	88	50 - 150%	PASS	1	25	PASS	
2,4'-DDD	NA	367.7	0.05	0.1	ng/dry g	400	0	92	50 - 150%	PASS	1	25	PASS	
2,4'-DDE	NA	393.88	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS	2	25	PASS	
2,4'-DDT	NA	335.96	0.05	0.1	ng/dry g	400	0	84	25 - 125%	PASS	15	25	PASS	
4,4'-DDD	NA	429.68	0.05	0.1	ng/dry g	400	0	107	50 - 150%	PASS	5	25	PASS	
4,4'-DDE	NA	477.27	0.05	0.1	ng/dry g	400	0	119	50 - 150%	PASS	0	25	PASS	
4,4'-DDMU	NA	316.61	0.05	0.1	ng/dry g	400	0	79	50 - 150%	PASS	2	25	PASS	
4,4'-DDT	NA	392.41	0.05	0.1	ng/dry g	400	0	98	25 - 125%	PASS	20	25	PASS	
Aldrin	NA	360.97	0.05	0.1	ng/dry g	400	0	90	50 - 150%	PASS	10	25	PASS	
BHC-alpha	NA	368.19	0.05	0.1	ng/dry g	400	0	92	50 - 150%	PASS	5	25	PASS	
BHC-beta	NA	350.3	0.05	0.1	ng/dry g	400	0	88	50 - 150%	PASS	16	25	PASS	
BHC-delta	NA	387.44	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS	4	25	PASS	
BHC-gamma	NA	321.88	0.05	0.1	ng/dry g	400	0	80	50 - 150%	PASS	4	25	PASS	
Chlordane-alpha	NA	381.2	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS	2	25	PASS	
Chlordane-gamma	NA	446.22	0.05	0.1	ng/dry g	400	0	112	50 - 150%	PASS	3	25	PASS	
cis-Nonachlor	NA	365.22	0.05	0.1	ng/dry g	400	0	91	50 - 150%	PASS	1	25	PASS	
DCPA (Dacthal)	NA	272.37	0.05	0.1	ng/dry g	400	0	68	50 - 150%	PASS	11	25	PASS	
Dicofol	NA	287.13	0.05	0.1	ng/dry g	400	0	72	50 - 150%	PASS	15	25	PASS	
Dieldrin	NA	372.93	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS	6	25	PASS	
Endosulfan Sulfate	NA	363.74	0.05	0.1	ng/dry g	400	0	91	50 - 150%	PASS	3	25	PASS	
Endosulfan-I	NA	434.96	0.05	0.1	ng/dry g	400	0	109	50 - 150%	PASS	1	25	PASS	
Endosulfan-II	NA	316.47	0.05	0.1	ng/dry g	400	0	79	50 - 150%	PASS	12	25	PASS	
Endrin	NA	369.8	0.05	0.1	ng/dry g	400	0	92	25 - 125%	PASS	8	25	PASS	
Endrin Aldehyde	NA	261.82	0.05	0.1	ng/dry g	400	0	65	0 - 125%	PASS	2	25	PASS	
Endrin Ketone	NA	342.18	0.05	0.1	ng/dry g	400	0	86	25 - 125%	PASS	2	25	PASS	
Heptachlor	NA	405.03	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS	6	25	PASS	
Heptachlor Epoxide	NA	329.48	0.05	0.1	ng/dry g	400	0	82	50 - 150%	PASS	1	25	PASS	
Hexachlorobenzene	NA	410.03	0.05	0.1	ng/dry g	400	0	103	50 - 150%	PASS	1	25	PASS	
Methoxychlor	NA	324.82	0.05	0.1	ng/dry g	400	0	81	50 - 150%	PASS	13	25	PASS	
Mirex	NA	395.21	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS	1	25	PASS	

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Oxychlordane	NA	317.13	0.05	0.1	ng/dry g	400	0	79	50 - 150%	PASS	3	25	PASS	
Perthane	NA	382.37	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	7	25	PASS	
trans-Nonachlor	NA	377.63	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS	1	25	PASS	
	Method: EPA 8270C-NCI				Batch ID: O-6003			Prepared: 15-Aug-13				Analyzed: 26-Aug-13		
Toxaphene	NA	3188.5	0.1	0.2	ng/dry g	3000	0	106	50 - 150%	PASS	5	25	PASS	
Sample ID: 21744-MS1	**B13-8308**				**Matrix: Sediment**			**Sampled: 11-Jul-13**		**17:06**		**Received: 13-Jul-13**		
	Method: EPA 8270C				Batch ID: O-6003			Prepared: 15-Aug-13				Analyzed: 30-Aug-13		
(PCB030)	NA	102			% Recovery	100	0	102	50 - 150%	PASS				
(PCB112)	NA	109			% Recovery	100	0	109	50 - 150%	PASS				
(PCB198)	NA	99			% Recovery	100	0	99	50 - 150%	PASS				
(TCMX)	NA	83			% Recovery	100	0	83	50 - 150%	PASS				
2,4'-DDD	NA	46.92	0.05	0.1	ng/dry g	47.84	0	98	50 - 150%	PASS				
2,4'-DDE	NA	39.95	0.05	0.1	ng/dry g	47.84	0.45	83	50 - 150%	PASS				
2,4'-DDT	NA	42.3	0.05	0.1	ng/dry g	47.84	0	88	25 - 125%	PASS				
4,4'-DDD	NA	43.63	0.05	0.1	ng/dry g	47.84	0	91	50 - 150%	PASS				
4,4'-DDE	NA	41.22	0.05	0.1	ng/dry g	47.84	2.5	81	50 - 150%	PASS				
4,4'-DDMU	NA	47.77	0.05	0.1	ng/dry g	47.84	0	100	50 - 150%	PASS				
4,4'-DDT	NA	44.86	0.05	0.1	ng/dry g	47.84	0	94	25 - 125%	PASS				
Aldrin	NA	50.57	0.05	0.1	ng/dry g	47.84	0	106	50 - 150%	PASS				
BHC-alpha	NA	45.5	0.05	0.1	ng/dry g	47.84	0	95	50 - 150%	PASS				
BHC-beta	NA	48.15	0.05	0.1	ng/dry g	47.84	0	101	50 - 150%	PASS				
BHC-delta	NA	39.85	0.05	0.1	ng/dry g	47.84	0	83	50 - 150%	PASS				
BHC-gamma	NA	42.05	0.05	0.1	ng/dry g	47.84	0	88	50 - 150%	PASS				
Chlordane-alpha	NA	50.02	0.05	0.1	ng/dry g	47.84	0	105	50 - 150%	PASS				
Chlordane-gamma	NA	51.35	0.05	0.1	ng/dry g	47.84	0	107	50 - 150%	PASS				
cis-Nonachlor	NA	46.84	0.05	0.1	ng/dry g	47.84	0	98	50 - 150%	PASS				
DCPA (Dacthal)	NA	27.04	0.05	0.1	ng/dry g	47.84	0	57	50 - 150%	PASS				
Dicofol	NA	33.66	0.05	0.1	ng/dry g	47.84	0	70	50 - 150%	PASS				
Dieldrin	NA	45.12	0.05	0.1	ng/dry g	47.84	0	94	50 - 150%	PASS				
Endosulfan Sulfate	NA	43.78	0.05	0.1	ng/dry g	47.84	0	92	50 - 150%	PASS				
Endosulfan-I	NA	46.53	0.05	0.1	ng/dry g	47.84	0	97	50 - 150%	PASS				

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	
Endosulfan-II	NA	49.15	0.05	0.1	ng/dry g	47.84	0	103	50 - 150%	PASS			
Endrin	NA	41.75	0.05	0.1	ng/dry g	47.84	0	87	25 - 125%	PASS			
Endrin Aldehyde	NA	34.1	0.05	0.1	ng/dry g	47.84	0	71	0 - 125%	PASS			
Endrin Ketone	NA	43.54	0.05	0.1	ng/dry g	47.84	0	91	25 - 125%	PASS			
Heptachlor	NA	41.44	0.05	0.1	ng/dry g	47.84	0	87	50 - 150%	PASS			
Heptachlor Epoxide	NA	36.84	0.05	0.1	ng/dry g	47.84	0	77	50 - 150%	PASS			
Hexachlorobenzene	NA	45.72	0.05	0.1	ng/dry g	47.84	0	96	50 - 150%	PASS			
Methoxychlor	NA	44.77	0.05	0.1	ng/dry g	47.84	0	94	50 - 150%	PASS			
Mirex	NA	53.73	0.05	0.1	ng/dry g	47.84	0	112	50 - 150%	PASS			
Oxychlordane	NA	34.85	0.05	0.1	ng/dry g	47.84	0	73	50 - 150%	PASS			
Perthane	NA	40.19	0.05	0.1	ng/dry g	47.84	0	84	50 - 150%	PASS			
trans-Nonachlor	NA	48.71	0.05	0.1	ng/dry g	47.84	0	102	50 - 150%	PASS			
		Method: EPA 8270C-NCI				Batch ID: O-6003		Prepared: 15-Aug-13				Analyzed: 26-Aug-13	
Toxaphene	NA	44.5	0.1	0.2	ng/dry g	43.8	0	102	50 - 150%	PASS			

Sample ID: 21744-MS2 B13-8308 **Matrix: Sediment** **Sampled: 11-Jul-13 17:06** **Received: 13-Jul-13**

		Method: EPA 8270C				Batch ID: O-6003		Prepared: 15-Aug-13				Analyzed: 30-Aug-13	
(PCB030)	NA	104			% Recovery	100	0	104	50 - 150%	PASS	2	25	PASS
(PCB112)	NA	110			% Recovery	100	0	110	50 - 150%	PASS	1	25	PASS
(PCB198)	NA	99			% Recovery	100	0	99	50 - 150%	PASS	0	25	PASS
(TCMX)	NA	84			% Recovery	100	0	84	50 - 150%	PASS	1	25	PASS
2,4'-DDD	NA	46.37	0.05	0.1	ng/dry g	47.84	0	97	50 - 150%	PASS	1	25	PASS
2,4'-DDE	NA	40.55	0.05	0.1	ng/dry g	47.84	0.45	84	50 - 150%	PASS	1	25	PASS
2,4'-DDT	NA	46.27	0.05	0.1	ng/dry g	47.84	0	97	25 - 125%	PASS	10	25	PASS
4,4'-DDD	NA	42.74	0.05	0.1	ng/dry g	47.84	0	89	50 - 150%	PASS	2	25	PASS
4,4'-DDE	NA	41.63	0.05	0.1	ng/dry g	47.84	2.5	82	50 - 150%	PASS	1	25	PASS
4,4'-DDMU	NA	50.27	0.05	0.1	ng/dry g	47.84	0	105	50 - 150%	PASS	5	25	PASS
4,4'-DDT	NA	50.26	0.05	0.1	ng/dry g	47.84	0	105	25 - 125%	PASS	11	25	PASS
Aldrin	NA	48.58	0.05	0.1	ng/dry g	47.84	0	102	50 - 150%	PASS	4	25	PASS
BHC-alpha	NA	47.72	0.05	0.1	ng/dry g	47.84	0	100	50 - 150%	PASS	5	25	PASS
BHC-beta	NA	46.76	0.05	0.1	ng/dry g	47.84	0	98	50 - 150%	PASS	3	25	PASS
BHC-delta	NA	41.55	0.05	0.1	ng/dry g	47.84	0	87	50 - 150%	PASS	5	25	PASS

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
BHC-gamma	NA	39.95	0.05	0.1	ng/dry g	47.84	0	84	50 - 150%	PASS	5	25	PASS	
Chlordane-alpha	NA	50.04	0.05	0.1	ng/dry g	47.84	0	105	50 - 150%	PASS	0	25	PASS	
Chlordane-gamma	NA	53.3	0.05	0.1	ng/dry g	47.84	0	111	50 - 150%	PASS	4	25	PASS	
cis-Nonachlor	NA	46.29	0.05	0.1	ng/dry g	47.84	0	97	50 - 150%	PASS	1	25	PASS	
DCPA (Dacthal)	NA	26.85	0.05	0.1	ng/dry g	47.84	0	56	50 - 150%	PASS	2	25	PASS	
Dicofol	NA	35.18	0.05	0.1	ng/dry g	47.84	0	74	50 - 150%	PASS	6	25	PASS	
Dieldrin	NA	48.55	0.05	0.1	ng/dry g	47.84	0	101	50 - 150%	PASS	7	25	PASS	
Endosulfan Sulfate	NA	48.15	0.05	0.1	ng/dry g	47.84	0	101	50 - 150%	PASS	9	25	PASS	
Endosulfan-I	NA	44.27	0.05	0.1	ng/dry g	47.84	0	93	50 - 150%	PASS	4	25	PASS	
Endosulfan-II	NA	49.69	0.05	0.1	ng/dry g	47.84	0	104	50 - 150%	PASS	1	25	PASS	
Endrin	NA	45.94	0.05	0.1	ng/dry g	47.84	0	96	25 - 125%	PASS	10	25	PASS	
Endrin Aldehyde	NA	41.3	0.05	0.1	ng/dry g	47.84	0	86	0 - 125%	PASS	19	25	PASS	
Endrin Ketone	NA	45.11	0.05	0.1	ng/dry g	47.84	0	94	25 - 125%	PASS	3	25	PASS	
Heptachlor	NA	42.24	0.05	0.1	ng/dry g	47.84	0	88	50 - 150%	PASS	1	25	PASS	
Heptachlor Epoxide	NA	37.18	0.05	0.1	ng/dry g	47.84	0	78	50 - 150%	PASS	1	25	PASS	
Hexachlorobenzene	NA	46.34	0.05	0.1	ng/dry g	47.84	0	97	50 - 150%	PASS	1	25	PASS	
Methoxychlor	NA	46.54	0.05	0.1	ng/dry g	47.84	0	97	50 - 150%	PASS	3	25	PASS	
Mirex	NA	54.75	0.05	0.1	ng/dry g	47.84	0	114	50 - 150%	PASS	2	25	PASS	
Oxychlordane	NA	36.37	0.05	0.1	ng/dry g	47.84	0	76	50 - 150%	PASS	4	25	PASS	
Perthane	NA	40.01	0.05	0.1	ng/dry g	47.84	0	84	50 - 150%	PASS	0	25	PASS	
trans-Nonachlor	NA	50.79	0.05	0.1	ng/dry g	47.84	0	106	50 - 150%	PASS	4	25	PASS	
	Method: EPA 8270C-NCI				Batch ID: O-6003			Prepared: 15-Aug-13				Analyzed: 26-Aug-13		
Toxaphene	NA	43.6	0.1	0.2	ng/dry g	42.3	0	103	50 - 150%	PASS	1	25	PASS	

Sample ID: 21744-R2 **B13-8308** **Matrix: Sediment** **Sampled: 11-Jul-13 17:06** **Received: 13-Jul-13**

	Method: EPA 8270C				Batch ID: O-6003			Prepared: 15-Aug-13				Analyzed: 30-Aug-13		
(PCB030)	NA	104			% Recovery	100		104	50 - 150%	PASS	1	25	PASS	
(PCB112)	NA	114			% Recovery	100		114	50 - 150%	PASS	5	25	PASS	
(PCB198)	NA	100			% Recovery	100		100	50 - 150%	PASS	3	25	PASS	
(TCMX)	NA	103			% Recovery	100		103	50 - 150%	PASS	2	25	PASS	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
2,4'-DDE	NA	0.4	0.05	0.1	ng/dry g						22	25	PASS	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
4,4'-DDE	NA	2.5	0.05	0.1	ng/dry g					0	25 PASS	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Aldrin	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
BHC-beta	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
BHC-delta	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Dicofol	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Dieldrin	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Endrin	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Heptachlor	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Mirex	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Perthane	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	

Method: EPA 8270C-NCI Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 26-Aug-13

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
Toxaphene	NA	ND	0.1	0.2	ng/dry g					0	25 PASS	

Sample ID: 21753-MS1 **B13-8397** **Matrix: Sediment** **Sampled: 12-Jul-13 11:20** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

(PCB030)	NA	87			% Recovery	100	0	87	50 - 150%	PASS
(PCB112)	NA	105			% Recovery	100	0	105	50 - 150%	PASS
(PCB198)	NA	107			% Recovery	100	0	107	50 - 150%	PASS
(TCMX)	NA	86			% Recovery	100	0	86	50 - 150%	PASS
2,4'-DDD	NA	58.16	0.05	0.1	ng/dry g	72.02	0	81	50 - 150%	PASS
2,4'-DDE	NA	73.28	0.05	0.1	ng/dry g	72.02	0.8	101	50 - 150%	PASS
2,4'-DDT	NA	56.36	0.05	0.1	ng/dry g	72.02	0	78	25 - 125%	PASS
4,4'-DDD	NA	66.26	0.05	0.1	ng/dry g	72.02	2.9	88	50 - 150%	PASS
4,4'-DDE	NA	62.12	0.05	0.1	ng/dry g	72.02	9.35	73	50 - 150%	PASS
4,4'-DDMU	NA	93.44	0.05	0.1	ng/dry g	72.02	0	130	50 - 150%	PASS
4,4'-DDT	NA	63.56	0.05	0.1	ng/dry g	72.02	0	88	25 - 125%	PASS
Aldrin	NA	71.3	0.05	0.1	ng/dry g	72.02	0	99	50 - 150%	PASS
BHC-alpha	NA	84.08	0.05	0.1	ng/dry g	72.02	0	117	50 - 150%	PASS
BHC-beta	NA	59.24	0.05	0.1	ng/dry g	72.02	0	82	50 - 150%	PASS
BHC-delta	NA	72.56	0.05	0.1	ng/dry g	72.02	0	101	50 - 150%	PASS
BHC-gamma	NA	78.5	0.05	0.1	ng/dry g	72.02	0	109	50 - 150%	PASS
Chlordane-alpha	NA	72.02	0.05	0.1	ng/dry g	72.02	0	100	50 - 150%	PASS
Chlordane-gamma	NA	75.44	0.05	0.1	ng/dry g	72.02	0.4	104	50 - 150%	PASS
cis-Nonachlor	NA	67.88	0.05	0.1	ng/dry g	72.02	0.25	94	50 - 150%	PASS
DCPA (Dacthal)	NA	52.03	0.05	0.1	ng/dry g	72.02	0	72	50 - 150%	PASS
Dicofol	NA	37.63	0.05	0.1	ng/dry g	72.02	0	52	50 - 150%	PASS
Dieldrin	NA	61.58	0.05	0.1	ng/dry g	72.02	0	86	50 - 150%	PASS
Endosulfan Sulfate	NA	58.52	0.05	0.1	ng/dry g	72.02	0	81	50 - 150%	PASS
Endosulfan-I	NA	72.2	0.05	0.1	ng/dry g	72.02	0	100	50 - 150%	PASS
Endosulfan-II	NA	68.6	0.05	0.1	ng/dry g	72.02	0	95	50 - 150%	PASS
Endrin	NA	65.72	0.05	0.1	ng/dry g	72.02	0	91	25 - 125%	PASS
Endrin Aldehyde	NA	54.92	0.05	0.1	ng/dry g	72.02	0	76	0 - 125%	PASS
Endrin Ketone	NA	64.82	0.05	0.1	ng/dry g	72.02	0	90	25 - 125%	PASS

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Heptachlor	NA	69.86	0.05	0.1	ng/dry g	72.02	0	97	50 - 150%	PASS			
Heptachlor Epoxide	NA	67.34	0.05	0.1	ng/dry g	72.02	0	94	50 - 150%	PASS			
Hexachlorobenzene	NA	68.24	0.05	0.1	ng/dry g	72.02	0	95	50 - 150%	PASS			
Methoxychlor	NA	57.8	0.05	0.1	ng/dry g	72.02	0	80	50 - 150%	PASS			
Mirex	NA	62.12	0.05	0.1	ng/dry g	72.02	0	86	50 - 150%	PASS			
Oxychlordane	NA	57.44	0.05	0.1	ng/dry g	72.02	0	80	50 - 150%	PASS			
Perthane	NA	71.84	0.05	0.1	ng/dry g	72.02	0	100	50 - 150%	PASS			
trans-Nonachlor	NA	72.02	0.05	0.1	ng/dry g	72.02	0.6	99	50 - 150%	PASS			
	Method: EPA 8270C-NCI				Batch ID: O-6001			Prepared: 09-Aug-13				Analyzed: 24-Aug-13	
Toxaphene	NA	91.6	0.1	0.2	ng/dry g	91.3	0	100	50 - 150%	PASS			
Sample ID: 21753-MS2	**B13-8397**				**Matrix: Sediment**			**Sampled: 12-Jul-13**	**11:20**		**Received: 13-Jul-13**		
	Method: EPA 8270C				Batch ID: O-6001			Prepared: 09-Aug-13				Analyzed: 30-Aug-13	
(PCB030)	NA	90			% Recovery	100	0	90	50 - 150%	PASS	3	25	PASS
(PCB112)	NA	108			% Recovery	100	0	108	50 - 150%	PASS	3	25	PASS
(PCB198)	NA	130			% Recovery	100	0	130	50 - 150%	PASS	19	25	PASS
(TCMX)	NA	87			% Recovery	100	0	87	50 - 150%	PASS	1	25	PASS
2,4'-DDD	NA	61.94	0.05	0.1	ng/dry g	72.02	0	86	50 - 150%	PASS	6	25	PASS
2,4'-DDE	NA	60.14	0.05	0.1	ng/dry g	72.02	0.8	82	50 - 150%	PASS	21	25	PASS
2,4'-DDT	NA	55.64	0.05	0.1	ng/dry g	72.02	0	77	25 - 125%	PASS	1	25	PASS
4,4'-DDD	NA	56.72	0.05	0.1	ng/dry g	72.02	2.9	75	50 - 150%	PASS	16	25	PASS
4,4'-DDE	NA	66.62	0.05	0.1	ng/dry g	72.02	9.35	80	50 - 150%	PASS	9	25	PASS
4,4'-DDMU	NA	93.32	0.05	0.1	ng/dry g	72.02	0	130	50 - 150%	PASS	0	25	PASS
4,4'-DDT	NA	56.18	0.05	0.1	ng/dry g	72.02	0	78	25 - 125%	PASS	12	25	PASS
Aldrin	NA	71.48	0.05	0.1	ng/dry g	72.02	0	99	50 - 150%	PASS	0	25	PASS
BHC-alpha	NA	73.64	0.05	0.1	ng/dry g	72.02	0	102	50 - 150%	PASS	14	25	PASS
BHC-beta	NA	72.38	0.05	0.1	ng/dry g	72.02	0	100	50 - 150%	PASS	20	25	PASS
BHC-delta	NA	58.34	0.05	0.1	ng/dry g	72.02	0	81	50 - 150%	PASS	22	25	PASS
BHC-gamma	NA	64.28	0.05	0.1	ng/dry g	72.02	0	89	50 - 150%	PASS	20	25	PASS
Chlordane-alpha	NA	59.42	0.05	0.1	ng/dry g	72.02	0	83	50 - 150%	PASS	19	25	PASS
Chlordane-gamma	NA	60.5	0.05	0.1	ng/dry g	72.02	0.4	83	50 - 150%	PASS	22	25	PASS
cis-Nonachlor	NA	70.58	0.05	0.1	ng/dry g	72.02	0.25	98	50 - 150%	PASS	4	25	PASS

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
DCPA (Dacthal)	NA	40.15	0.05	0.1	ng/dry g	72.02	0	56	50 - 150%	PASS	25	25	PASS	
Dicofol	NA	36.37	0.05	0.1	ng/dry g	72.02	0	50	50 - 150%	PASS	4	25	PASS	
Dieldrin	NA	70.76	0.05	0.1	ng/dry g	72.02	0	98	50 - 150%	PASS	13	25	PASS	
Endosulfan Sulfate	NA	59.6	0.05	0.1	ng/dry g	72.02	0	83	50 - 150%	PASS	2	25	PASS	
Endosulfan-I	NA	71.66	0.05	0.1	ng/dry g	72.02	0	100	50 - 150%	PASS	0	25	PASS	
Endosulfan-II	NA	58.52	0.05	0.1	ng/dry g	72.02	0	81	50 - 150%	PASS	16	25	PASS	
Endrin	NA	63.2	0.05	0.1	ng/dry g	72.02	0	88	25 - 125%	PASS	3	25	PASS	
Endrin Aldehyde	NA	59.24	0.05	0.1	ng/dry g	72.02	0	82	0 - 125%	PASS	8	25	PASS	
Endrin Ketone	NA	67.34	0.05	0.1	ng/dry g	72.02	0	94	25 - 125%	PASS	4	25	PASS	
Heptachlor	NA	70.58	0.05	0.1	ng/dry g	72.02	0	98	50 - 150%	PASS	1	25	PASS	
Heptachlor Epoxide	NA	56.54	0.05	0.1	ng/dry g	72.02	0	79	50 - 150%	PASS	17	25	PASS	
Hexachlorobenzene	NA	72.02	0.05	0.1	ng/dry g	72.02	0	100	50 - 150%	PASS	5	25	PASS	
Methoxychlor	NA	56.36	0.05	0.1	ng/dry g	72.02	0	78	50 - 150%	PASS	3	25	PASS	
Mirex	NA	63.38	0.05	0.1	ng/dry g	72.02	0	88	50 - 150%	PASS	2	25	PASS	
Oxychlordane	NA	56.18	0.05	0.1	ng/dry g	72.02	0	78	50 - 150%	PASS	3	25	PASS	
Perthane	NA	58.16	0.05	0.1	ng/dry g	72.02	0	81	50 - 150%	PASS	21	25	PASS	
trans-Nonachlor	NA	57.26	0.05	0.1	ng/dry g	72.02	0.6	79	50 - 150%	PASS	22	25	PASS	
		Method: EPA 8270C-NCI				Batch ID: O-6001			Prepared: 09-Aug-13			Analyzed: 24-Aug-13		
Toxaphene	NA	96.9	0.1	0.2	ng/dry g	99.8	0	97	50 - 150%	PASS	3	25	PASS	

Sample ID: 21753-R2 **B13-8397** **Matrix: Sediment** **Sampled: 12-Jul-13 11:20** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

(PCB030)	NA	102			% Recovery	100		102	50 - 150%	PASS	2	25	PASS	
(PCB112)	NA	107			% Recovery	100		107	50 - 150%	PASS	1	25	PASS	
(PCB198)	NA	100			% Recovery	100		100	50 - 150%	PASS	1	25	PASS	
(TCMX)	NA	101			% Recovery	100		101	50 - 150%	PASS	3	25	PASS	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
2,4'-DDE	NA	0.8	0.05	0.1	ng/dry g						0	25	PASS	
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
4,4'-DDD	NA	2.8	0.05	0.1	ng/dry g						7	25	PASS	
4,4'-DDE	NA	8.3	0.05	0.1	ng/dry g						22	25	PASS	
4,4'-DDMU	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS		QA CODE
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
Aldrin	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
BHC-beta	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
BHC-delta	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g					176	25	FAIL	SL
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g					164	25	FAIL	SL
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
Dicofol	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
Dieldrin	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
Endrin	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
Heptachlor	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
Mirex	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
Perthane	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
trans-Nonachlor	NA	0.5	0.05	0.1	ng/dry g					33	25	FAIL	NH
		Method: EPA 8270C-NCI				Batch ID: O-6001		Prepared: 09-Aug-13			Analyzed: 24-Aug-13		
Toxaphene	NA	ND	0.1	0.2	ng/dry g					0	25	PASS	

Sample ID: 21764-MS1 **B13-8356** **Matrix: Sediment** **Sampled: 13-Jul-13 9:22** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

(PCB030)	NA	106			% Recovery	100	0	106	50 - 150%		PASS		

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
(PCB112)	NA	105			% Recovery	100	0	105	50 - 150%	PASS			
(PCB198)	NA	116			% Recovery	100	0	116	50 - 150%	PASS			
(TCMX)	NA	104			% Recovery	100	0	104	50 - 150%	PASS			
2,4'-DDD	NA	39.88	0.05	0.1	ng/dry g	46.44	0	86	50 - 150%	PASS			
2,4'-DDE	NA	40.21	0.05	0.1	ng/dry g	46.44	0.15	86	50 - 150%	PASS			
2,4'-DDT	NA	35.31	0.05	0.1	ng/dry g	46.44	0	76	25 - 125%	PASS			
4,4'-DDD	NA	45.78	0.05	0.1	ng/dry g	46.44	0	99	50 - 150%	PASS			
4,4'-DDE	NA	42.88	0.05	0.1	ng/dry g	46.44	1.05	90	50 - 150%	PASS			
4,4'-DDMU	NA	42.35	0.05	0.1	ng/dry g	46.44	0.5	90	50 - 150%	PASS			
4,4'-DDT	NA	34.71	0.05	0.1	ng/dry g	46.44	0	75	25 - 125%	PASS			
Aldrin	NA	44.93	0.05	0.1	ng/dry g	46.44	0	97	50 - 150%	PASS			
BHC-alpha	NA	43.9	0.05	0.1	ng/dry g	46.44	0	95	50 - 150%	PASS			
BHC-beta	NA	45.68	0.05	0.1	ng/dry g	46.44	0	98	50 - 150%	PASS			
BHC-delta	NA	47.86	0.05	0.1	ng/dry g	46.44	0	103	50 - 150%	PASS			
BHC-gamma	NA	42.17	0.05	0.1	ng/dry g	46.44	0	91	50 - 150%	PASS			
Chlordane-alpha	NA	40.56	0.05	0.1	ng/dry g	46.44	0	87	50 - 150%	PASS			
Chlordane-gamma	NA	44.03	0.05	0.1	ng/dry g	46.44	0	95	50 - 150%	PASS			
cis-Nonachlor	NA	48.68	0.05	0.1	ng/dry g	46.44	0	105	50 - 150%	PASS			
DCPA (Dacthal)	NA	31.02	0.05	0.1	ng/dry g	46.44	0	67	50 - 150%	PASS			
Dicofol	NA	31.09	0.05	0.1	ng/dry g	46.44	0	67	50 - 150%	PASS			
Dieldrin	NA	42.27	0.05	0.1	ng/dry g	46.44	0	91	50 - 150%	PASS			
Endosulfan Sulfate	NA	38.07	0.05	0.1	ng/dry g	46.44	0	82	50 - 150%	PASS			
Endosulfan-I	NA	46.23	0.05	0.1	ng/dry g	46.44	0	100	50 - 150%	PASS			
Endosulfan-II	NA	43.91	0.05	0.1	ng/dry g	46.44	0	95	50 - 150%	PASS			
Endrin	NA	37.9	0.05	0.1	ng/dry g	46.44	0	82	25 - 125%	PASS			
Endrin Aldehyde	NA	37.92	0.05	0.1	ng/dry g	46.44	0	82	0 - 125%	PASS			
Endrin Ketone	NA	44.51	0.05	0.1	ng/dry g	46.44	0	96	25 - 125%	PASS			
Heptachlor	NA	44.59	0.05	0.1	ng/dry g	46.44	0	96	50 - 150%	PASS			
Heptachlor Epoxide	NA	47.08	0.05	0.1	ng/dry g	46.44	0	101	50 - 150%	PASS			
Hexachlorobenzene	NA	46.47	0.05	0.1	ng/dry g	46.44	0	100	50 - 150%	PASS			
Methoxychlor	NA	38.01	0.05	0.1	ng/dry g	46.44	0	82	50 - 150%	PASS			

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Mirex	NA	46.19	0.05	0.1	ng/dry g	46.44	0	99	50 - 150%	PASS			
Oxychlordane	NA	43.86	0.05	0.1	ng/dry g	46.44	0	94	50 - 150%	PASS			
Perthane	NA	43.79	0.05	0.1	ng/dry g	46.44	0	94	50 - 150%	PASS			
trans-Nonachlor	NA	40.35	0.05	0.1	ng/dry g	46.44	0	87	50 - 150%	PASS			
	Method: EPA 8270C-NCI				Batch ID: O-6005			Prepared: 24-Aug-13				Analyzed: 06-Sep-13	
Toxaphene	NA	42.3	0.1	0.2	ng/dry g	41.9	0	101	50 - 150%	PASS			
Sample ID: 21764-MS2	**B13-8356**				**Matrix: Sediment**			**Sampled: 13-Jul-13**	**9:22**		**Received: 13-Jul-13**		
	Method: EPA 8270C				Batch ID: O-6005			Prepared: 24-Aug-13				Analyzed: 06-Sep-13	
(PCB030)	NA	101			% Recovery	100	0	101	50 - 150%	PASS	5	25	PASS
(PCB112)	NA	104			% Recovery	100	0	104	50 - 150%	PASS	1	25	PASS
(PCB198)	NA	104			% Recovery	100	0	104	50 - 150%	PASS	11	25	PASS
(TCMX)	NA	99			% Recovery	100	0	99	50 - 150%	PASS	5	25	PASS
2,4'-DDD	NA	40.54	0.05	0.1	ng/dry g	46.44	0	87	50 - 150%	PASS	1	25	PASS
2,4'-DDE	NA	39.56	0.05	0.1	ng/dry g	46.44	0.15	85	50 - 150%	PASS	1	25	PASS
2,4'-DDT	NA	33.05	0.05	0.1	ng/dry g	46.44	0	71	25 - 125%	PASS	7	25	PASS
4,4'-DDD	NA	46.11	0.05	0.1	ng/dry g	46.44	0	99	50 - 150%	PASS	0	25	PASS
4,4'-DDE	NA	42.32	0.05	0.1	ng/dry g	46.44	1.05	89	50 - 150%	PASS	1	25	PASS
4,4'-DDMU	NA	42.09	0.05	0.1	ng/dry g	46.44	0.5	90	50 - 150%	PASS	0	25	PASS
4,4'-DDT	NA	39.17	0.05	0.1	ng/dry g	46.44	0	84	25 - 125%	PASS	11	25	PASS
Aldrin	NA	43.6	0.05	0.1	ng/dry g	46.44	0	94	50 - 150%	PASS	3	25	PASS
BHC-alpha	NA	41.61	0.05	0.1	ng/dry g	46.44	0	90	50 - 150%	PASS	5	25	PASS
BHC-beta	NA	44.97	0.05	0.1	ng/dry g	46.44	0	97	50 - 150%	PASS	1	25	PASS
BHC-delta	NA	46.38	0.05	0.1	ng/dry g	46.44	0	100	50 - 150%	PASS	3	25	PASS
BHC-gamma	NA	40.86	0.05	0.1	ng/dry g	46.44	0	88	50 - 150%	PASS	3	25	PASS
Chlordane-alpha	NA	39.42	0.05	0.1	ng/dry g	46.44	0	85	50 - 150%	PASS	2	25	PASS
Chlordane-gamma	NA	43.51	0.05	0.1	ng/dry g	46.44	0	94	50 - 150%	PASS	1	25	PASS
cis-Nonachlor	NA	48.31	0.05	0.1	ng/dry g	46.44	0	104	50 - 150%	PASS	1	25	PASS
DCPA (Dacthal)	NA	30.73	0.05	0.1	ng/dry g	46.44	0	66	50 - 150%	PASS	2	25	PASS
Dicofol	NA	28.32	0.05	0.1	ng/dry g	46.44	0	61	50 - 150%	PASS	9	25	PASS
Dieldrin	NA	41.98	0.05	0.1	ng/dry g	46.44	0	90	50 - 150%	PASS	1	25	PASS
Endosulfan Sulfate	NA	37.48	0.05	0.1	ng/dry g	46.44	0	81	50 - 150%	PASS	1	25	PASS

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Endosulfan-I	NA	46.84	0.05	0.1	ng/dry g	46.44	0	101	50 - 150%	PASS	1	25	PASS	
Endosulfan-II	NA	40.61	0.05	0.1	ng/dry g	46.44	0	87	50 - 150%	PASS	9	25	PASS	
Endrin	NA	37.93	0.05	0.1	ng/dry g	46.44	0	82	25 - 125%	PASS	0	25	PASS	
Endrin Aldehyde	NA	40.75	0.05	0.1	ng/dry g	46.44	0	88	0 - 125%	PASS	7	25	PASS	
Endrin Ketone	NA	42.4	0.05	0.1	ng/dry g	46.44	0	91	25 - 125%	PASS	5	25	PASS	
Heptachlor	NA	42.88	0.05	0.1	ng/dry g	46.44	0	92	50 - 150%	PASS	4	25	PASS	
Heptachlor Epoxide	NA	43.15	0.05	0.1	ng/dry g	46.44	0	93	50 - 150%	PASS	8	25	PASS	
Hexachlorobenzene	NA	44.13	0.05	0.1	ng/dry g	46.44	0	95	50 - 150%	PASS	5	25	PASS	
Methoxychlor	NA	40.71	0.05	0.1	ng/dry g	46.44	0	88	50 - 150%	PASS	7	25	PASS	
Mirex	NA	44.46	0.05	0.1	ng/dry g	46.44	0	96	50 - 150%	PASS	3	25	PASS	
Oxychlordane	NA	41.09	0.05	0.1	ng/dry g	46.44	0	88	50 - 150%	PASS	7	25	PASS	
Perthane	NA	43.5	0.05	0.1	ng/dry g	46.44	0	94	50 - 150%	PASS	0	25	PASS	
trans-Nonachlor	NA	39.67	0.05	0.1	ng/dry g	46.44	0	85	50 - 150%	PASS	2	25	PASS	
		Method: EPA 8270C-NCI				Batch ID: O-6005		Prepared: 24-Aug-13				Analyzed: 06-Sep-13		
Toxaphene	NA	42.4	0.1	0.2	ng/dry g	42.2	0	100	50 - 150%	PASS	1	25	PASS	

Sample ID: 21764-R2 **B13-8356** **Matrix: Sediment** **Sampled: 13-Jul-13 9:22** **Received: 13-Jul-13**

		Method: EPA 8270C				Batch ID: O-6005		Prepared: 24-Aug-13				Analyzed: 06-Sep-13		
(PCB030)	NA	95			% Recovery	100		95	50 - 150%	PASS	7	25	PASS	
(PCB112)	NA	100			% Recovery	100		100	50 - 150%	PASS	2	25	PASS	
(PCB198)	NA	98			% Recovery	100		98	50 - 150%	PASS	7	25	PASS	
(TCMX)	NA	91			% Recovery	100		91	50 - 150%	PASS	4	25	PASS	
2,4'-DDD	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
2,4'-DDE	NA	0.1	0.05	0.1	ng/dry g						67	25	FAIL	SL
2,4'-DDT	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
4,4'-DDD	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
4,4'-DDE	NA	1	0.05	0.1	ng/dry g						10	25	PASS	
4,4'-DDMU	NA	0.5	0.05	0.1	ng/dry g						0	25	PASS	
4,4'-DDT	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
Aldrin	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
BHC-alpha	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
BHC-beta	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
BHC-delta	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
BHC-gamma	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Chlordane-alpha	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Chlordane-gamma	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
cis-Nonachlor	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
DCPA (Dacthal)	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Dicofol	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Dieldrin	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Endosulfan Sulfate	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Endosulfan-I	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Endosulfan-II	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Endrin	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Endrin Aldehyde	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Endrin Ketone	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Heptachlor	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Heptachlor Epoxide	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Hexachlorobenzene	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Methoxychlor	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Mirex	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Oxychlordane	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
Perthane	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
trans-Nonachlor	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
		Method: EPA 8270C-NCI			Batch ID: O-6005			Prepared: 24-Aug-13			Analyzed: 06-Sep-13	
Toxaphene	NA	ND	0.1	0.2	ng/dry g					0	25 PASS	

Sample ID: 21888-CRM1 **QAQC CRM - SRM 1944** **Matrix: Sediment** **Sampled:** **Received:**

		Method: EPA 8270C			Batch ID: O-6001			Prepared: 09-Aug-13			Analyzed: 30-Aug-13	
(PCB030)	NA	107			% Recovery	100		107	50 - 150%	PASS		
(PCB112)	NA	95			% Recovery	100		95	50 - 150%	PASS		
(PCB198)	NA	130			% Recovery	100		130	50 - 150%	PASS		
(TCMX)	NA	98			% Recovery	100		98	50 - 150%	PASS		
2,4'-DDD	NA	46.2	0.05	0.1	µg/dry g	38		122	70 - 130%	PASS		

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Chlorinated Pesticides — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
2,4'-DDE	NA	21	0.05	0.1	µg/dry g	19		111	70 - 130%	PASS			
4,4'-DDD	NA	136.3	0.05	0.1	µg/dry g	108		126	70 - 130%	PASS			
4,4'-DDE	NA	111.1	0.05	0.1	µg/dry g	86		129	70 - 130%	PASS			
4,4'-DDT	NA	121	0.05	0.1	µg/dry g	119		102	70 - 130%	PASS			
Chlordane-alpha	NA	21.4	0.05	0.1	µg/dry g	16.5		130	70 - 130%	PASS			
Chlordane-gamma	NA	10.2	0.05	0.1	µg/dry g	8		127	70 - 130%	PASS			
cis-Nonachlor	NA	4.6	0.05	0.1	µg/dry g	3.7		124	70 - 130%	PASS			
Hexachlorobenzene	NA	7.7	0.05	0.1	µg/dry g	6		128	70 - 130%	PASS			
trans-Nonachlor	NA	10.6	0.05	0.1	µg/dry g	8.2		129	70 - 130%	PASS			

Sample ID: 21889-CRM1 **QAQC CRM - SRM 1944** **Matrix: Sediment** **Sampled:** **Received:**

Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

(PCB030)	NA	80			% Recovery	100		80	50 - 150%	PASS			
(PCB112)	NA	73			% Recovery	100		73	50 - 150%	PASS			
(PCB198)	NA	92			% Recovery	100		92	50 - 150%	PASS			
(TCMX)	NA	75			% Recovery	100		75	50 - 150%	PASS			
2,4'-DDD	NA	48.2	0.05	0.1	µg/dry g	38		127	70 - 130%	PASS			
2,4'-DDE	NA	24.1	0.05	0.1	µg/dry g	19		127	70 - 130%	PASS			
4,4'-DDD	NA	125.5	0.05	0.1	µg/dry g	108		116	70 - 130%	PASS			
4,4'-DDE	NA	107.4	0.05	0.1	µg/dry g	86		125	70 - 130%	PASS			
4,4'-DDT	NA	129.7	0.05	0.1	µg/dry g	119		109	70 - 130%	PASS			
Chlordane-alpha	NA	16.6	0.05	0.1	µg/dry g	16.5		101	70 - 130%	PASS			
Chlordane-gamma	NA	8.5	0.05	0.1	µg/dry g	8		106	70 - 130%	PASS			
cis-Nonachlor	NA	4.3	0.05	0.1	µg/dry g	3.7		116	70 - 130%	PASS			
Hexachlorobenzene	NA	6.1	0.05	0.1	µg/dry g	6		102	70 - 130%	PASS			
trans-Nonachlor	NA	8.1	0.05	0.1	µg/dry g	8.2		99	70 - 130%	PASS			

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Elements

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
Sample ID: 21731-B1	**QAQC Procedural Blank**				**Matrix: DI Water**		**Sampled:**				**Received:**	
	Method: EPA 6020				Batch ID: E-5124		Prepared: 09-Aug-13				Analyzed: 16-Aug-13	
Aluminum (Al)	NA	ND	1	5	µg/dry g							
Antimony (Sb)	NA	ND	0.025	0.05	µg/dry g							
Arsenic (As)	NA	ND	0.025	0.05	µg/dry g							
Barium (Ba)	NA	ND	0.025	0.05	µg/dry g							
Beryllium (Be)	NA	ND	0.025	0.05	µg/dry g							
Cadmium (Cd)	NA	ND	0.0025	0.005	µg/dry g							
Chromium (Cr)	NA	ND	0.0025	0.005	µg/dry g							
Copper (Cu)	NA	ND	0.0025	0.005	µg/dry g							
Iron (Fe)	NA	ND	1	5	µg/dry g							
Lead (Pb)	NA	ND	0.0025	0.005	µg/dry g							
Nickel (Ni)	NA	ND	0.01	0.02	µg/dry g							
Selenium (Se)	NA	ND	0.025	0.05	µg/dry g							
Silver (Ag)	NA	ND	0.01	0.02	µg/dry g							
Total Phosphorus	NA	ND	0.016	0.05	µg/dry g							
Zinc (Zn)	NA	ND	0.025	0.05	µg/dry g							
	Method: EPA 245.7				Batch ID: E-6013		Prepared: 27-Aug-13				Analyzed: 27-Aug-13	
Mercury (Hg)	NA	ND	0.00001	0.00002	µg/dry g							
Sample ID: 21731-BS1	**QAQC Procedural Blank**				**Matrix: DI Water**		**Sampled:**				**Received:**	
	Method: EPA 6020				Batch ID: E-5124		Prepared: 09-Aug-13				Analyzed: 16-Aug-13	
Aluminum (Al)	NA	2	1	5	µg/dry g	2	0	100	75 - 125%		PASS	
Antimony (Sb)	NA	2.001	0.025	0.05	µg/dry g	2	0	100	75 - 125%		PASS	
Arsenic (As)	NA	2.065	0.025	0.05	µg/dry g	2	0	103	75 - 125%		PASS	
Barium (Ba)	NA	2.009	0.025	0.05	µg/dry g	2	0	100	75 - 125%		PASS	
Beryllium (Be)	NA	2.138	0.025	0.05	µg/dry g	2	0	107	75 - 125%		PASS	
Cadmium (Cd)	NA	2.0582	0.0025	0.005	µg/dry g	2	0	103	75 - 125%		PASS	
Chromium (Cr)	NA	2.0011	0.0025	0.005	µg/dry g	2	0	100	75 - 125%		PASS	
Copper (Cu)	NA	2.0999	0.0025	0.005	µg/dry g	2	0	105	75 - 125%		PASS	
Iron (Fe)	NA	2.1	1	5	µg/dry g	2	0	105	75 - 125%		PASS	

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Elements

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Lead (Pb)	NA	2.03	0.0025	0.005	µg/dry g	2	0	101	75 - 125%	PASS			
Nickel (Ni)	NA	2.06	0.01	0.02	µg/dry g	2	0	103	75 - 125%	PASS			
Selenium (Se)	NA	1.939	0.025	0.05	µg/dry g	2	0	97	75 - 125%	PASS			
Silver (Ag)	NA	0.19	0.01	0.02	µg/dry g	0.2	0	95	75 - 125%	PASS			
Total Phosphorus	NA	530.891	0.016	0.05	µg/dry g	500	0	106	75 - 125%	PASS			
Zinc (Zn)	NA	2.109	0.025	0.05	µg/dry g	2	0	105	75 - 125%	PASS			
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13	
Mercury (Hg)	NA	0.954	0.00001	0.00002	µg/dry g	1	0	95	75 - 125%	PASS			
Sample ID: 21731-BS2	**QAQC Procedural Blank**				**Matrix: DI Water**			**Sampled:**				**Received:**	
	Method: EPA 6020				Batch ID: E-5124			Prepared: 09-Aug-13				Analyzed: 16-Aug-13	
Aluminum (Al)	NA	2	1	5	µg/dry g	2	0	100	75 - 125%	PASS	0	PASS	
Antimony (Sb)	NA	1.985	0.025	0.05	µg/dry g	2	0	99	75 - 125%	PASS	1	25 PASS	
Arsenic (As)	NA	2.031	0.025	0.05	µg/dry g	2	0	102	75 - 125%	PASS	1	25 PASS	
Barium (Ba)	NA	1.964	0.025	0.05	µg/dry g	2	0	98	75 - 125%	PASS	2	25 PASS	
Beryllium (Be)	NA	2.14	0.025	0.05	µg/dry g	2	0	107	75 - 125%	PASS	0	25 PASS	
Cadmium (Cd)	NA	2.0454	0.0025	0.005	µg/dry g	2	0	102	75 - 125%	PASS	1	25 PASS	
Chromium (Cr)	NA	1.9733	0.0025	0.005	µg/dry g	2	0	99	75 - 125%	PASS	1	25 PASS	
Copper (Cu)	NA	2.0858	0.0025	0.005	µg/dry g	2	0	104	75 - 125%	PASS	1	25 PASS	
Iron (Fe)	NA	1.7	1	5	µg/dry g	2	0	85	75 - 125%	PASS	21	PASS	
Lead (Pb)	NA	2.0426	0.0025	0.005	µg/dry g	2	0	102	75 - 125%	PASS	0	25 PASS	
Nickel (Ni)	NA	2.04	0.01	0.02	µg/dry g	2	0	102	75 - 125%	PASS	1	25 PASS	
Selenium (Se)	NA	1.94	0.025	0.05	µg/dry g	2	0	97	75 - 125%	PASS	0	25 PASS	
Silver (Ag)	NA	0.19	0.01	0.02	µg/dry g	0.2	0	95	75 - 125%	PASS	0	25 PASS	
Total Phosphorus	NA	526.293	0.016	0.05	µg/dry g	500	0	105	75 - 125%	PASS	1	25 PASS	
Zinc (Zn)	NA	2.096	0.025	0.05	µg/dry g	2	0	105	75 - 125%	PASS	0	25 PASS	
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13	
Mercury (Hg)	NA	0.928	0.00001	0.00002	µg/dry g	1	0	93	75 - 125%	PASS	2	25 PASS	
Sample ID: 21732-B1	**QAQC Procedural Blank**				**Matrix: DI Water**			**Sampled:**				**Received:**	
	Method: EPA 6020				Batch ID: E-5125			Prepared: 09-Aug-13				Analyzed: 16-Aug-13	
Aluminum (Al)	NA	ND	1	5	µg/dry g								

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Elements — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
Antimony (Sb)	NA	ND	0.025	0.05	µg/dry g							
Arsenic (As)	NA	ND	0.025	0.05	µg/dry g							
Barium (Ba)	NA	ND	0.025	0.05	µg/dry g							
Beryllium (Be)	NA	ND	0.025	0.05	µg/dry g							
Cadmium (Cd)	NA	ND	0.0025	0.005	µg/dry g							
Chromium (Cr)	NA	ND	0.0025	0.005	µg/dry g							
Copper (Cu)	NA	ND	0.0025	0.005	µg/dry g							
Iron (Fe)	NA	ND	1	5	µg/dry g							
Lead (Pb)	NA	ND	0.0025	0.005	µg/dry g							
Nickel (Ni)	NA	ND	0.01	0.02	µg/dry g							
Selenium (Se)	NA	ND	0.025	0.05	µg/dry g							
Silver (Ag)	NA	ND	0.01	0.02	µg/dry g							
Total Phosphorus	NA	ND	0.016	0.05	µg/dry g							
Zinc (Zn)	NA	ND	0.025	0.05	µg/dry g							
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13		Analyzed: 27-Aug-13		
Mercury (Hg)	NA	ND	0.00001	0.00002	µg/dry g							

Sample ID: 21732-BS1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

	Method: EPA 6020				Batch ID: E-5125			Prepared: 09-Aug-13		Analyzed: 16-Aug-13	
Aluminum (Al)	NA	1.9	1	5	µg/dry g	2	0	95	75 - 125%	PASS	
Antimony (Sb)	NA	1.983	0.025	0.05	µg/dry g	2	0	99	75 - 125%	PASS	
Arsenic (As)	NA	2.038	0.025	0.05	µg/dry g	2	0	102	75 - 125%	PASS	
Barium (Ba)	NA	2.017	0.025	0.05	µg/dry g	2	0	101	75 - 125%	PASS	
Beryllium (Be)	NA	1.922	0.025	0.05	µg/dry g	2	0	96	75 - 125%	PASS	
Cadmium (Cd)	NA	2.0785	0.0025	0.005	µg/dry g	2	0	104	75 - 125%	PASS	
Chromium (Cr)	NA	1.9511	0.0025	0.005	µg/dry g	2	0	98	75 - 125%	PASS	
Copper (Cu)	NA	2.0315	0.0025	0.005	µg/dry g	2	0	102	75 - 125%	PASS	
Iron (Fe)	NA	1.8	1	5	µg/dry g	2	0	90	75 - 125%	PASS	
Lead (Pb)	NA	2.0314	0.0025	0.005	µg/dry g	2	0	102	75 - 125%	PASS	
Nickel (Ni)	NA	2.03	0.01	0.02	µg/dry g	2	0	101	75 - 125%	PASS	
Selenium (Se)	NA	1.93	0.025	0.05	µg/dry g	2	0	96	75 - 125%	PASS	
Silver (Ag)	NA	0.19	0.01	0.02	µg/dry g	0.2	0	95	75 - 125%	PASS	

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Elements QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Total Phosphorus	NA	479.467	0.016	0.05	µg/dry g	500	0	96	75 - 125%	PASS				
Zinc (Zn)	NA	2.067	0.025	0.05	µg/dry g	2	0	103	75 - 125%	PASS				
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13		
Mercury (Hg)	NA	0.945	0.00001	0.00002	µg/dry g	1	0	94	75 - 125%	PASS				
Sample ID: 21732-BS2	**QAQC Procedural Blank**				**Matrix: DI Water**			**Sampled:**				**Received:**		
	Method: EPA 6020				Batch ID: E-5125			Prepared: 09-Aug-13				Analyzed: 16-Aug-13		
Aluminum (Al)	NA	1.9	1	5	µg/dry g	2	0	95	75 - 125%	PASS	0	25	PASS	
Antimony (Sb)	NA	1.974	0.025	0.05	µg/dry g	2	0	99	75 - 125%	PASS	0	25	PASS	
Arsenic (As)	NA	2.036	0.025	0.05	µg/dry g	2	0	102	75 - 125%	PASS	0	25	PASS	
Barium (Ba)	NA	2.003	0.025	0.05	µg/dry g	2	0	100	75 - 125%	PASS	1	25	PASS	
Beryllium (Be)	NA	1.934	0.025	0.05	µg/dry g	2	0	97	75 - 125%	PASS	1	25	PASS	
Cadmium (Cd)	NA	2.0513	0.0025	0.005	µg/dry g	2	0	103	75 - 125%	PASS	1	25	PASS	
Chromium (Cr)	NA	1.9428	0.0025	0.005	µg/dry g	2	0	97	75 - 125%	PASS	1	25	PASS	
Copper (Cu)	NA	2.0181	0.0025	0.005	µg/dry g	2	0	101	75 - 125%	PASS	1	25	PASS	
Iron (Fe)	NA	2	1	5	µg/dry g	2	0	100	75 - 125%	PASS	11	25	PASS	
Lead (Pb)	NA	2.0455	0.0025	0.005	µg/dry g	2	0	102	75 - 125%	PASS	0	25	PASS	
Nickel (Ni)	NA	2.01	0.01	0.02	µg/dry g	2	0	100	75 - 125%	PASS	2	25	PASS	
Selenium (Se)	NA	1.941	0.025	0.05	µg/dry g	2	0	97	75 - 125%	PASS	1	25	PASS	
Silver (Ag)	NA	0.19	0.01	0.02	µg/dry g	0.2	0	95	75 - 125%	PASS	0	25	PASS	
Total Phosphorus	NA	469.626	0.016	0.05	µg/dry g	500	0	94	75 - 125%	PASS	2	25	PASS	
Zinc (Zn)	NA	2.06	0.025	0.05	µg/dry g	2	0	103	75 - 125%	PASS	0	25	PASS	
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13		
Mercury (Hg)	NA	0.923	0.00001	0.00002	µg/dry g	1	0	92	75 - 125%	PASS	2	25	PASS	
Sample ID: 21733-MS1	**B13-8382**				**Matrix: Sediment**			**Sampled: 10-Jul-13 11:04**				**Received: 13-Jul-13**		
	Method: EPA 6020				Batch ID: E-5124			Prepared: 09-Aug-13				Analyzed: 16-Aug-13		
Aluminum (Al)	NA	24190.8	1	5	µg/dry g	1009.8	23145.8	103	75 - 125%	PASS				
Antimony (Sb)	NA	49.643	0.025	0.05	µg/dry g	50.5	1.098	96	75 - 125%	PASS				
Arsenic (As)	NA	65.203	0.025	0.05	µg/dry g	50.5	12.298	105	75 - 125%	PASS				
Barium (Ba)	NA	230.607	0.025	0.05	µg/dry g	50.5	164.749	130	75 - 125%	FAIL				SH
Beryllium (Be)	NA	57.325	0.025	0.05	µg/dry g	50.5	0.823	112	75 - 125%	PASS				

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Elements — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Cadmium (Cd)	NA	50.3934	0.0025	0.005	µg/dry g	50.5	0.4262	99	75 - 125%	PASS				
Chromium (Cr)	NA	109.8107	0.0025	0.005	µg/dry g	50.5	54.6667	109	75 - 125%	PASS				
Copper (Cu)	NA	125.0361	0.0025	0.005	µg/dry g	50.5	73.6368	102	75 - 125%	PASS				
Iron (Fe)	NA	34155.7	1	5	µg/dry g	1009.8	33225.4	92	75 - 125%	PASS				
Lead (Pb)	NA	74.3092	0.0025	0.005	µg/dry g	50.5	27.7849	92	75 - 125%	PASS				
Nickel (Ni)	NA	87.08	0.01	0.02	µg/dry g	50.5	31.3	110	75 - 125%	PASS				
Selenium (Se)	NA	51.26	0.025	0.05	µg/dry g	50.5	0.37	101	75 - 125%	PASS				
Silver (Ag)	NA	4.39	0.01	0.02	µg/dry g	5.05	0.26	82	75 - 125%	PASS				
Total Phosphorus	NA	2826.179	0.016	0.05	µg/dry g	50.5	1565.046	2497	75 - 125%	FAIL				SH
Zinc (Zn)	NA	209.188	0.025	0.05	µg/dry g	50.5	156.626	104	75 - 125%	PASS				
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13		
Mercury (Hg)	NA	0.74152	0.00001	0.00002	µg/dry g	0.248	0.4635	112	75 - 125%	PASS				

Sample ID: 21733-MS2 **B13-8382** **Matrix: Sediment** **Sampled: 10-Jul-13 11:04** **Received: 13-Jul-13**

	Method: EPA 6020				Batch ID: E-5124			Prepared: 09-Aug-13				Analyzed: 16-Aug-13		
Aluminum (Al)	NA	25091.6	1	5	µg/dry g	1009.8	23145.8	193	75 - 125%	FAIL	61	25	FAIL	SH
Antimony (Sb)	NA	48.777	0.025	0.05	µg/dry g	50.5	1.098	94	75 - 125%	PASS	2	25	PASS	
Arsenic (As)	NA	64.514	0.025	0.05	µg/dry g	50.5	12.298	103	75 - 125%	PASS	2	25	PASS	
Barium (Ba)	NA	224.223	0.025	0.05	µg/dry g	50.5	164.749	118	75 - 125%	PASS	10	25	PASS	
Beryllium (Be)	NA	56.584	0.025	0.05	µg/dry g	50.5	0.823	110	75 - 125%	PASS	2	25	PASS	
Cadmium (Cd)	NA	49.8513	0.0025	0.005	µg/dry g	50.5	0.4262	98	75 - 125%	PASS	1	25	PASS	
Chromium (Cr)	NA	108.3717	0.0025	0.005	µg/dry g	50.5	54.6667	106	75 - 125%	PASS	3	25	PASS	
Copper (Cu)	NA	124.8286	0.0025	0.005	µg/dry g	50.5	73.6368	101	75 - 125%	PASS	1	25	PASS	
Iron (Fe)	NA	35568.8	1	5	µg/dry g	1009.8	33225.4	232	75 - 125%	FAIL	86	25	FAIL	SH
Lead (Pb)	NA	74.3109	0.0025	0.005	µg/dry g	50.5	27.7849	92	75 - 125%	PASS	0	25	PASS	
Nickel (Ni)	NA	86.64	0.01	0.02	µg/dry g	50.5	31.3	110	75 - 125%	PASS	0	25	PASS	
Selenium (Se)	NA	53.84	0.025	0.05	µg/dry g	50.5	0.37	106	75 - 125%	PASS	5	25	PASS	
Silver (Ag)	NA	4.4	0.01	0.02	µg/dry g	5.05	0.26	82	75 - 125%	PASS	0	25	PASS	
Total Phosphorus	NA	2786.072	0.016	0.05	µg/dry g	50.5	1565.046	2418	75 - 125%	FAIL	3	25	PASS	SH
Zinc (Zn)	NA	195.255	0.025	0.05	µg/dry g	50.5	156.626	76	75 - 125%	PASS	31	25	FAIL	SH
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13		
Mercury (Hg)	NA	0.73904	0.00001	0.00002	µg/dry g	0.248	0.4635	111	75 - 125%	PASS	1	25	PASS	

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Elements QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
Sample ID: 21733-R2	**B13-8382**				**Matrix: Sediment**		**Sampled: 10-Jul-13**	**11:04**		**Received: 13-Jul-13**		
	Method: EPA 6020				Batch ID: E-5124		Prepared: 09-Aug-13			Analyzed: 16-Aug-13		
Aluminum (Al)	NA	22077.4	1	5	µg/dry g					9	25 PASS	
Antimony (Sb)	NA	1.082	0.025	0.05	µg/dry g					3	25 PASS	
Arsenic (As)	NA	12.244	0.025	0.05	µg/dry g					1	25 PASS	
Barium (Ba)	NA	159.599	0.025	0.05	µg/dry g					6	25 PASS	
Beryllium (Be)	NA	0.799	0.025	0.05	µg/dry g					6	25 PASS	
Cadmium (Cd)	NA	0.425	0.0025	0.005	µg/dry g					1	25 PASS	
Chromium (Cr)	NA	52.9387	0.0025	0.005	µg/dry g					6	25 PASS	
Copper (Cu)	NA	73.2267	0.0025	0.005	µg/dry g					1	25 PASS	
Iron (Fe)	NA	32545.1	1	5	µg/dry g					4	25 PASS	
Lead (Pb)	NA	27.8444	0.0025	0.005	µg/dry g					0	25 PASS	
Nickel (Ni)	NA	30.97	0.01	0.02	µg/dry g					2	25 PASS	
Selenium (Se)	NA	0.379	0.025	0.05	µg/dry g					5	25 PASS	
Silver (Ag)	NA	0.25	0.01	0.02	µg/dry g					4	25 PASS	
Total Phosphorus	NA	1537.64	0.016	0.05	µg/dry g					4	25 PASS	
Zinc (Zn)	NA	157.254	0.025	0.05	µg/dry g					1	25 PASS	
	Method: EPA 245.7				Batch ID: E-6013		Prepared: 27-Aug-13			Analyzed: 27-Aug-13		
Mercury (Hg)	NA	0.465	0.00001	0.00002	µg/dry g					1	25 PASS	
Sample ID: 21743-MS1	**B13-8306**				**Matrix: Sediment**		**Sampled: 11-Jul-13**	**13:00**		**Received: 13-Jul-13**		
	Method: EPA 6020				Batch ID: E-5125		Prepared: 09-Aug-13			Analyzed: 17-Aug-13		
Aluminum (Al)	NA	19110.5	1	5	µg/dry g	1299.6	18141.8	75	75 - 125% PASS			SH
Antimony (Sb)	NA	61.55	0.025	0.05	µg/dry g	64.98	0.517	94	75 - 125% PASS			
Arsenic (As)	NA	80.776	0.025	0.05	µg/dry g	64.98	14.24	102	75 - 125% PASS			
Barium (Ba)	NA	644.754	0.025	0.05	µg/dry g	64.98	583.145	95	75 - 125% PASS			
Beryllium (Be)	NA	64.409	0.025	0.05	µg/dry g	64.98	0.611	98	75 - 125% PASS			
Cadmium (Cd)	NA	65.5473	0.0025	0.005	µg/dry g	64.98	1.1154	99	75 - 125% PASS			
Chromium (Cr)	NA	124.6848	0.0025	0.005	µg/dry g	64.98	59.5199	100	75 - 125% PASS			
Copper (Cu)	NA	141.0603	0.0025	0.005	µg/dry g	64.98	81.172	92	75 - 125% PASS			
Iron (Fe)	NA	26385.5	1	5	µg/dry g	1299.6	25799.5	45	75 - 125% FAIL			SH

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Elements

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Lead (Pb)	NA	81.8873	0.0025	0.005	µg/dry g	64.98	23.0505	91	75 - 125%	PASS				
Nickel (Ni)	NA	92.07	0.01	0.02	µg/dry g	64.98	29.09	97	75 - 125%	PASS				
Selenium (Se)	NA	67.116	0.025	0.05	µg/dry g	64.98	1.51	101	75 - 125%	PASS				
Silver (Ag)	NA	5.66	0.01	0.02	µg/dry g	6.5	0.36	82	75 - 125%	PASS				
Total Phosphorus	NA	3365.168	0.016	0.05	µg/dry g	64.98	1798.938	2410	75 - 125%	FAIL				SH
Zinc (Zn)	NA	244.337	0.025	0.05	µg/dry g	64.98	194.593	77	75 - 125%	PASS				SH
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13		
Mercury (Hg)	NA	0.68364	0.00001	0.00002	µg/dry g	0.324	0.3265	110	75 - 125%	PASS				
Sample ID: 21743-MS2	**B13-8306**				**Matrix: Sediment**			**Sampled: 11-Jul-13**		**13:00**		**Received: 13-Jul-13**		
	Method: EPA 6020				Batch ID: E-5125			Prepared: 09-Aug-13				Analyzed: 17-Aug-13		
Aluminum (Al)	NA	19577.1	1	5	µg/dry g	1299.6	18141.8	110	75 - 125%	PASS	38	25	FAIL	SH
Antimony (Sb)	NA	61.503	0.025	0.05	µg/dry g	64.98	0.517	94	75 - 125%	PASS	0	25	PASS	
Arsenic (As)	NA	80.06	0.025	0.05	µg/dry g	64.98	14.24	101	75 - 125%	PASS	1	25	PASS	
Barium (Ba)	NA	652.874	0.025	0.05	µg/dry g	64.98	583.145	107	75 - 125%	PASS	12	25	PASS	
Beryllium (Be)	NA	63.804	0.025	0.05	µg/dry g	64.98	0.611	97	75 - 125%	PASS	1	25	PASS	
Cadmium (Cd)	NA	65.2706	0.0025	0.005	µg/dry g	64.98	1.1154	99	75 - 125%	PASS	0	25	PASS	
Chromium (Cr)	NA	124.7838	0.0025	0.005	µg/dry g	64.98	59.5199	100	75 - 125%	PASS	0	25	PASS	
Copper (Cu)	NA	142.3148	0.0025	0.005	µg/dry g	64.98	81.172	94	75 - 125%	PASS	2	25	PASS	
Iron (Fe)	NA	27258.6	1	5	µg/dry g	1299.6	25799.5	112	75 - 125%	PASS	85	25	FAIL	SH
Lead (Pb)	NA	82.983	0.0025	0.005	µg/dry g	64.98	23.0505	92	75 - 125%	PASS	1	25	PASS	
Nickel (Ni)	NA	92.06	0.01	0.02	µg/dry g	64.98	29.09	97	75 - 125%	PASS	0	25	PASS	
Selenium (Se)	NA	68.489	0.025	0.05	µg/dry g	64.98	1.51	103	75 - 125%	PASS	2	25	PASS	
Silver (Ag)	NA	5.69	0.01	0.02	µg/dry g	6.5	0.36	82	75 - 125%	PASS	0	25	PASS	
Total Phosphorus	NA	3446.159	0.016	0.05	µg/dry g	64.98	1798.938	2535	75 - 125%	FAIL	5	25	PASS	SH
Zinc (Zn)	NA	244.87	0.025	0.05	µg/dry g	64.98	194.593	77	75 - 125%	PASS	0	25	PASS	SH
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13		
Mercury (Hg)	NA	0.68364	0.00001	0.00002	µg/dry g	0.324	0.3265	110	75 - 125%	PASS	0	25	PASS	
Sample ID: 21743-R2	**B13-8306**				**Matrix: Sediment**			**Sampled: 11-Jul-13**		**13:00**		**Received: 13-Jul-13**		
	Method: EPA 6020				Batch ID: E-5125			Prepared: 09-Aug-13				Analyzed: 17-Aug-13		
Aluminum (Al)	NA	17836.4	1	5	µg/dry g						3	25	PASS	

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Elements

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS		QA CODE
Antimony (Sb)	NA	0.51	0.025	0.05	µg/dry g					3	25	PASS	
Arsenic (As)	NA	14.395	0.025	0.05	µg/dry g					2	25	PASS	
Barium (Ba)	NA	587.246	0.025	0.05	µg/dry g					1	25	PASS	
Beryllium (Be)	NA	0.614	0.025	0.05	µg/dry g					1	25	PASS	
Cadmium (Cd)	NA	1.087	0.0025	0.005	µg/dry g					5	25	PASS	
Chromium (Cr)	NA	59.1262	0.0025	0.005	µg/dry g					1	25	PASS	
Copper (Cu)	NA	81.9441	0.0025	0.005	µg/dry g					2	25	PASS	
Iron (Fe)	NA	26168	1	5	µg/dry g					3	25	PASS	
Lead (Pb)	NA	23.7268	0.0025	0.005	µg/dry g					6	25	PASS	
Nickel (Ni)	NA	29.26	0.01	0.02	µg/dry g					1	25	PASS	
Selenium (Se)	NA	1.508	0.025	0.05	µg/dry g					0	25	PASS	
Silver (Ag)	NA	0.36	0.01	0.02	µg/dry g					0	25	PASS	
Total Phosphorus	NA	1786.097	0.016	0.05	µg/dry g					1	25	PASS	
Zinc (Zn)	NA	194.958	0.025	0.05	µg/dry g					0	25	PASS	
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13			Analyzed: 27-Aug-13		
Mercury (Hg)	NA	0.329	0.00001	0.00002	µg/dry g					2	25	PASS	

Sample ID: 21753-MS1 **B13-8397** **Matrix: Sediment** **Sampled: 12-Jul-13** **11:20** **Received: 13-Jul-13**

Method: EPA 6020 Batch ID: E-5126 Prepared: 09-Aug-13 Analyzed: 17-Aug-13

Aluminum (Al)	NA	40813.1	1	5	µg/dry g	1759.2	39309.6	85	75 - 125%	PASS	
Antimony (Sb)	NA	81.211	0.025	0.05	µg/dry g	87.96	1.672	90	75 - 125%	PASS	
Arsenic (As)	NA	104.537	0.025	0.05	µg/dry g	87.96	19.992	96	75 - 125%	PASS	
Barium (Ba)	NA	449.56	0.025	0.05	µg/dry g	87.96	367.371	93	75 - 125%	PASS	
Beryllium (Be)	NA	86.859	0.025	0.05	µg/dry g	87.96	1.12	97	75 - 125%	PASS	
Cadmium (Cd)	NA	88.1231	0.0025	0.005	µg/dry g	87.96	0.5226	100	75 - 125%	PASS	
Chromium (Cr)	NA	242.1533	0.0025	0.005	µg/dry g	87.96	158.5473	95	75 - 125%	PASS	
Copper (Cu)	NA	333.9046	0.0025	0.005	µg/dry g	87.96	264.1284	79	75 - 125%	PASS	SH
Iron (Fe)	NA	46363.5	1	5	µg/dry g	1759.2	44333.4	115	75 - 125%	PASS	
Lead (Pb)	NA	225.9229	0.0025	0.005	µg/dry g	87.96	147.3579	89	75 - 125%	PASS	
Nickel (Ni)	NA	124.96	0.01	0.02	µg/dry g	87.96	42.16	94	75 - 125%	PASS	
Selenium (Se)	NA	88.046	0.025	0.05	µg/dry g	87.96	0.823	99	75 - 125%	PASS	
Silver (Ag)	NA	8.09	0.01	0.02	µg/dry g	8.8	0.86	82	75 - 125%	PASS	

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Elements — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Total Phosphorus	NA	3478.073	0.016	0.05	µg/dry g	87.96	1360.911	2407	75 - 125%	FAIL				SH
Zinc (Zn)	NA	426.57	0.025	0.05	µg/dry g	87.96	364.365	71	75 - 125%	FAIL				SH
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13			Analyzed: 27-Aug-13			
Mercury (Hg)	NA	1.3572	0.00001	0.00002	µg/dry g	0.435	0.926	99	75 - 125%	PASS				
Sample ID: 21753-MS2	**B13-8397**				**Matrix: Sediment**			**Sampled: 12-Jul-13**		**11:20**	**Received: 13-Jul-13**			
	Method: EPA 6020				Batch ID: E-5126			Prepared: 09-Aug-13			Analyzed: 17-Aug-13			
Aluminum (Al)	NA	40121.3	1	5	µg/dry g	1759.2	39309.6	46	75 - 125%	FAIL	60	25	FAIL	SH
Antimony (Sb)	NA	80.541	0.025	0.05	µg/dry g	87.96	1.672	90	75 - 125%	PASS	0	25	PASS	
Arsenic (As)	NA	102.768	0.025	0.05	µg/dry g	87.96	19.992	94	75 - 125%	PASS	2	25	PASS	
Barium (Ba)	NA	450.174	0.025	0.05	µg/dry g	87.96	367.371	94	75 - 125%	PASS	1	25	PASS	
Beryllium (Be)	NA	85.57	0.025	0.05	µg/dry g	87.96	1.12	96	75 - 125%	PASS	1	25	PASS	
Cadmium (Cd)	NA	86.8467	0.0025	0.005	µg/dry g	87.96	0.5226	98	75 - 125%	PASS	2	25	PASS	
Chromium (Cr)	NA	242.0332	0.0025	0.005	µg/dry g	87.96	158.5473	95	75 - 125%	PASS	0	25	PASS	
Copper (Cu)	NA	335.3501	0.0025	0.005	µg/dry g	87.96	264.1284	81	75 - 125%	PASS	2	25	PASS	
Iron (Fe)	NA	45622.8	1	5	µg/dry g	1759.2	44333.4	73	75 - 125%	FAIL	45	25	FAIL	SH
Lead (Pb)	NA	226.5909	0.0025	0.005	µg/dry g	87.96	147.3579	90	75 - 125%	PASS	1	25	PASS	
Nickel (Ni)	NA	125.01	0.01	0.02	µg/dry g	87.96	42.16	94	75 - 125%	PASS	0	25	PASS	
Selenium (Se)	NA	90.77	0.025	0.05	µg/dry g	87.96	0.823	102	75 - 125%	PASS	3	25	PASS	
Silver (Ag)	NA	7.98	0.01	0.02	µg/dry g	8.8	0.86	81	75 - 125%	PASS	1	25	PASS	
Total Phosphorus	NA	3396.927	0.016	0.05	µg/dry g	87.96	1360.911	2315	75 - 125%	FAIL	4	25	PASS	SH
Zinc (Zn)	NA	424.541	0.025	0.05	µg/dry g	87.96	364.365	68	75 - 125%	FAIL	4	25	PASS	SH
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13			Analyzed: 27-Aug-13			
Mercury (Hg)	NA	1.3659	0.00001	0.00002	µg/dry g	0.435	0.926	101	75 - 125%	PASS	2	25	PASS	
Sample ID: 21753-R2	**B13-8397**				**Matrix: Sediment**			**Sampled: 12-Jul-13**		**11:20**	**Received: 13-Jul-13**			
	Method: EPA 6020				Batch ID: E-5126			Prepared: 09-Aug-13			Analyzed: 17-Aug-13			
Aluminum (Al)	NA	39105.7	1	5	µg/dry g						1	25	PASS	
Antimony (Sb)	NA	1.722	0.025	0.05	µg/dry g						6	25	PASS	
Arsenic (As)	NA	20.015	0.025	0.05	µg/dry g						0	25	PASS	
Barium (Ba)	NA	368.337	0.025	0.05	µg/dry g						1	25	PASS	
Beryllium (Be)	NA	1.112	0.025	0.05	µg/dry g						1	25	PASS	

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Elements

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Cadmium (Cd)	NA	0.5169	0.0025	0.005	µg/dry g						2	25	PASS	
Chromium (Cr)	NA	159.5601	0.0025	0.005	µg/dry g						1	25	PASS	
Copper (Cu)	NA	269.1508	0.0025	0.005	µg/dry g						4	25	PASS	
Iron (Fe)	NA	44771.3	1	5	µg/dry g						2	25	PASS	
Lead (Pb)	NA	150.8827	0.0025	0.005	µg/dry g						5	25	PASS	
Nickel (Ni)	NA	42.5	0.01	0.02	µg/dry g						2	25	PASS	
Selenium (Se)	NA	0.837	0.025	0.05	µg/dry g						4	25	PASS	
Silver (Ag)	NA	0.88	0.01	0.02	µg/dry g						5	25	PASS	
Total Phosphorus	NA	1368.652	0.016	0.05	µg/dry g						1	25	PASS	
Zinc (Zn)	NA	364.256	0.025	0.05	µg/dry g						0	25	PASS	
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13		
Mercury (Hg)	NA	0.943	0.00001	0.00002	µg/dry g						4	25	PASS	
Sample ID: 21763-MS1	**B13-8333**				**Matrix: Sediment**			**Sampled: 13-Jul-13**		**7:43**		**Received: 13-Jul-13**		
	Method: EPA 6020				Batch ID: E-5127			Prepared: 09-Aug-13				Analyzed: 17-Aug-13		
Aluminum (Al)	NA	18574.3	1	5	µg/dry g	968.2	18555.4	2	75 - 125%	FAIL				SH
Antimony (Sb)	NA	43.396	0.025	0.05	µg/dry g	48.42	0.434	89	75 - 125%	PASS				
Arsenic (As)	NA	54.723	0.025	0.05	µg/dry g	48.42	7.603	97	75 - 125%	PASS				
Barium (Ba)	NA	199.017	0.025	0.05	µg/dry g	48.42	141.387	119	75 - 125%	PASS				
Beryllium (Be)	NA	45.751	0.025	0.05	µg/dry g	48.42	0.486	93	75 - 125%	PASS				
Cadmium (Cd)	NA	46.5675	0.0025	0.005	µg/dry g	48.42	0.2385	96	75 - 125%	PASS				
Chromium (Cr)	NA	83.6339	0.0025	0.005	µg/dry g	48.42	35.8153	99	75 - 125%	PASS				
Copper (Cu)	NA	67.4029	0.0025	0.005	µg/dry g	48.42	19.5623	99	75 - 125%	PASS				
Iron (Fe)	NA	24741.2	1	5	µg/dry g	968.2	23690.2	109	75 - 125%	PASS				
Lead (Pb)	NA	59.851	0.0025	0.005	µg/dry g	48.42	14.5185	94	75 - 125%	PASS				
Nickel (Ni)	NA	63.24	0.01	0.02	µg/dry g	48.42	18.02	93	75 - 125%	PASS				
Selenium (Se)	NA	47.32	0.025	0.05	µg/dry g	48.42	0.238	97	75 - 125%	PASS				
Silver (Ag)	NA	4.1	0.01	0.02	µg/dry g	4.84	0.1	83	75 - 125%	PASS				
Total Phosphorus	NA	2452.202	0.016	0.05	µg/dry g	48.42	1252.294	2478	75 - 125%	FAIL				SH
Zinc (Zn)	NA	112.916	0.025	0.05	µg/dry g	48.42	71.624	85	75 - 125%	PASS				
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13		
Mercury (Hg)	NA	0.34866	0.00001	0.00002	µg/dry g	0.234	0.081	114	75 - 125%	PASS				

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Elements

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Sample ID: 21763-MS2	**B13-8333**				**Matrix: Sediment**			**Sampled: 13-Jul-13**	**7:43**			**Received: 13-Jul-13**		
	Method: EPA 6020				Batch ID: E-5127			Prepared: 09-Aug-13				Analyzed: 17-Aug-13		
Aluminum (Al)	NA	18250.8	1	5	µg/dry g	968.2	18555.4	-31	75 - 125%	FAIL	228	25	FAIL	SH
Antimony (Sb)	NA	42.768	0.025	0.05	µg/dry g	48.42	0.434	87	75 - 125%	PASS	2	25	PASS	
Arsenic (As)	NA	53.729	0.025	0.05	µg/dry g	48.42	7.603	95	75 - 125%	PASS	2	25	PASS	
Barium (Ba)	NA	196.527	0.025	0.05	µg/dry g	48.42	141.387	114	75 - 125%	PASS	4	25	PASS	
Beryllium (Be)	NA	44.971	0.025	0.05	µg/dry g	48.42	0.486	92	75 - 125%	PASS	1	25	PASS	
Cadmium (Cd)	NA	46.7325	0.0025	0.005	µg/dry g	48.42	0.2385	96	75 - 125%	PASS	0	25	PASS	
Chromium (Cr)	NA	82.8336	0.0025	0.005	µg/dry g	48.42	35.8153	97	75 - 125%	PASS	2	25	PASS	
Copper (Cu)	NA	66.4571	0.0025	0.005	µg/dry g	48.42	19.5623	97	75 - 125%	PASS	2	25	PASS	
Iron (Fe)	NA	24573.6	1	5	µg/dry g	968.2	23690.2	91	75 - 125%	PASS	18	25	PASS	
Lead (Pb)	NA	59.5174	0.0025	0.005	µg/dry g	48.42	14.5185	93	75 - 125%	PASS	1	25	PASS	
Nickel (Ni)	NA	62.86	0.01	0.02	µg/dry g	48.42	18.02	93	75 - 125%	PASS	0	25	PASS	
Selenium (Se)	NA	48.396	0.025	0.05	µg/dry g	48.42	0.238	99	75 - 125%	PASS	2	25	PASS	
Silver (Ag)	NA	4.03	0.01	0.02	µg/dry g	4.84	0.1	81	75 - 125%	PASS	2	25	PASS	
Total Phosphorus	NA	2447.275	0.016	0.05	µg/dry g	48.42	1252.294	2468	75 - 125%	FAIL	0	25	PASS	SH
Zinc (Zn)	NA	110.897	0.025	0.05	µg/dry g	48.42	71.624	81	75 - 125%	PASS	5	25	PASS	
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13		
Mercury (Hg)	NA	0.34632	0.00001	0.00002	µg/dry g	0.234	0.081	113	75 - 125%	PASS	1	25	PASS	
Sample ID: 21763-R2	**B13-8333**				**Matrix: Sediment**			**Sampled: 13-Jul-13**	**7:43**			**Received: 13-Jul-13**		
	Method: EPA 6020				Batch ID: E-5127			Prepared: 09-Aug-13				Analyzed: 17-Aug-13		
Aluminum (Al)	NA	19155.2	1	5	µg/dry g						6	25	PASS	
Antimony (Sb)	NA	0.422	0.025	0.05	µg/dry g						6	25	PASS	
Arsenic (As)	NA	7.807	0.025	0.05	µg/dry g						5	25	PASS	
Barium (Ba)	NA	146.536	0.025	0.05	µg/dry g						7	25	PASS	
Beryllium (Be)	NA	0.506	0.025	0.05	µg/dry g						8	25	PASS	
Cadmium (Cd)	NA	0.2428	0.0025	0.005	µg/dry g						4	25	PASS	
Chromium (Cr)	NA	36.7714	0.0025	0.005	µg/dry g						5	25	PASS	
Copper (Cu)	NA	19.4144	0.0025	0.005	µg/dry g						2	25	PASS	
Iron (Fe)	NA	23753.4	1	5	µg/dry g						1	25	PASS	

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Elements — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
Lead (Pb)	NA	13.8998	0.0025	0.005	µg/dry g					9	25 PASS	
Nickel (Ni)	NA	18.2	0.01	0.02	µg/dry g					2	25 PASS	
Selenium (Se)	NA	0.244	0.025	0.05	µg/dry g					5	25 PASS	
Silver (Ag)	NA	0.11	0.01	0.02	µg/dry g					10	25 PASS	
Total Phosphorus	NA	1248.964	0.016	0.05	µg/dry g					1	25 PASS	
Zinc (Zn)	NA	71.394	0.025	0.05	µg/dry g					1	25 PASS	
	Method: EPA 245.7				Batch ID: E-6013		Prepared: 27-Aug-13				Analyzed: 27-Aug-13	
Mercury (Hg)	NA	0.079	0.00001	0.00002	µg/dry g					5	25 PASS	
Sample ID: 21890-CRM1	**QAQC CRM - RTC 016-050**				**Matrix: Sediment**		**Sampled:**				**Received:**	
	Method: EPA 6020				Batch ID: E-5124		Prepared: 09-Aug-13				Analyzed: 16-Aug-13	
Aluminum (Al)	NA	22336	1	5	µg/dry g	8920		250	75 - 125% FAIL			*
Arsenic (As)	NA	9.065	0.025	0.05	µg/dry g	7.76		117	75 - 125% PASS			
Beryllium (Be)	NA	0.899	0.025	0.05	µg/dry g	0.49		183	75 - 125% FAIL			*
Cadmium (Cd)	NA	0.3718	0.0025	0.005	µg/dry g	0.47		79	75 - 125% PASS			
Chromium (Cr)	NA	36.1296	0.0025	0.005	µg/dry g	14.5		249	75 - 125% FAIL			*
Copper (Cu)	NA	15.1111	0.0025	0.005	µg/dry g	15.5		97	75 - 125% PASS			
Iron (Fe)	NA	18014.7	1	5	µg/dry g	16800		107	75 - 125% PASS			
Lead (Pb)	NA	14.2366	0.0025	0.005	µg/dry g	14.01		102	75 - 125% PASS			
Nickel (Ni)	NA	19.83	0.01	0.02	µg/dry g	16.7		119	75 - 125% PASS			
Zinc (Zn)	NA	76.102	0.025	0.05	µg/dry g	69.7		109	75 - 125% PASS			
	Method: EPA 245.7				Batch ID: E-6013		Prepared: 27-Aug-13				Analyzed: 27-Aug-13	
Mercury (Hg)	NA	0.159	0.00001	0.00002	µg/dry g	0.158		101	75 - 125% PASS			
Sample ID: 21891-CRM1	**QAQC CRM - RTC 016-050**				**Matrix: Sediment**		**Sampled:**				**Received:**	
	Method: EPA 6020				Batch ID: E-5125		Prepared: 09-Aug-13				Analyzed: 17-Aug-13	
Aluminum (Al)	NA	27454.3	1	5	µg/dry g	8920		308	75 - 125% FAIL			*
Arsenic (As)	NA	9.634	0.025	0.05	µg/dry g	7.76		124	75 - 125% PASS			
Beryllium (Be)	NA	0.915	0.025	0.05	µg/dry g	0.49		187	75 - 125% FAIL			*
Cadmium (Cd)	NA	0.3693	0.0025	0.005	µg/dry g	0.47		79	75 - 125% PASS			
Chromium (Cr)	NA	41.6115	0.0025	0.005	µg/dry g	14.5		287	75 - 125% FAIL			*
Copper (Cu)	NA	16.0178	0.0025	0.005	µg/dry g	15.5		103	75 - 125% PASS			

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Elements — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Iron (Fe)	NA	19396.2	1	5	µg/dry g	16800		115	75 - 125%	PASS				
Lead (Pb)	NA	15.0691	0.0025	0.005	µg/dry g	14.01		108	75 - 125%	PASS				
Nickel (Ni)	NA	21.09	0.01	0.02	µg/dry g	16.7		126	75 - 125%	FAIL				R
Zinc (Zn)	NA	80.653	0.025	0.05	µg/dry g	69.7		116	75 - 125%	PASS				
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13		
Mercury (Hg)	NA	0.153	0.00001	0.00002	µg/dry g	0.158		97	75 - 125%	PASS	0	25	PASS	
Sample ID: 21892-CRM1	**QAQC CRM - ERA 540**				**Matrix: Sediment**			**Sampled:**			**Received:**			
	Method: EPA 6020				Batch ID: E-5124			Prepared: 09-Aug-13				Analyzed: 16-Aug-13		
Aluminum (Al)	NA	14590.2	1	5	µg/dry g	9060		161	75 - 125%	FAIL				*
Antimony (Sb)	NA	189.602	0.025	0.05	µg/dry g	106		179	75 - 125%	FAIL				*
Arsenic (As)	NA	196.263	0.025	0.05	µg/dry g	182		108	75 - 125%	PASS				
Beryllium (Be)	NA	107.9	0.025	0.05	µg/dry g	98.3		110	75 - 125%	PASS				
Cadmium (Cd)	NA	60.6189	0.0025	0.005	µg/dry g	60.4		100	75 - 125%	PASS				
Chromium (Cr)	NA	142.1925	0.0025	0.005	µg/dry g	125		114	75 - 125%	PASS				
Copper (Cu)	NA	82.0975	0.0025	0.005	µg/dry g	80.1		102	75 - 125%	PASS				
Iron (Fe)	NA	16804.9	1	5	µg/dry g	12900		130	75 - 125%	FAIL				*
Lead (Pb)	NA	135.4749	0.0025	0.005	µg/dry g	136		100	75 - 125%	PASS				
Nickel (Ni)	NA	141.89	0.01	0.02	µg/dry g	128		111	75 - 125%	PASS				
Selenium (Se)	NA	92.387	0.025	0.05	µg/dry g	85.9		108	75 - 125%	PASS				
Silver (Ag)	NA	61.15	0.01	0.02	µg/dry g	61.3		100	75 - 125%	PASS				
Zinc (Zn)	NA	222.013	0.025	0.05	µg/dry g	204		109	75 - 125%	PASS				
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13		
Mercury (Hg)	NA	9.151	0.00001	0.00002	µg/dry g	9.25		99	75 - 125%	PASS				
Sample ID: 21893-CRM1	**QAQC CRM - ERA 540**				**Matrix: Sediment**			**Sampled:**			**Received:**			
	Method: EPA 6020				Batch ID: E-5125			Prepared: 09-Aug-13				Analyzed: 17-Aug-13		
Aluminum (Al)	NA	16270.2	1	5	µg/dry g	9060		180	75 - 125%	FAIL				*
Antimony (Sb)	NA	182.355	0.025	0.05	µg/dry g	106		172	75 - 125%	FAIL				*
Arsenic (As)	NA	186.729	0.025	0.05	µg/dry g	182		103	75 - 125%	PASS				
Beryllium (Be)	NA	93.648	0.025	0.05	µg/dry g	98.3		95	75 - 125%	PASS				
Cadmium (Cd)	NA	58.2277	0.0025	0.005	µg/dry g	60.4		96	75 - 125%	PASS				

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Elements — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Chromium (Cr)	NA	132.6281	0.0025	0.005	µg/dry g	125		106	75 - 125%	PASS			
Copper (Cu)	NA	76.2468	0.0025	0.005	µg/dry g	80.1		95	75 - 125%	PASS			
Iron (Fe)	NA	16596.2	1	5	µg/dry g	12900		129	75 - 125%	FAIL			*
Lead (Pb)	NA	128.5892	0.0025	0.005	µg/dry g	136		95	75 - 125%	PASS			
Nickel (Ni)	NA	126.87	0.01	0.02	µg/dry g	128		99	75 - 125%	PASS			
Selenium (Se)	NA	88.583	0.025	0.05	µg/dry g	85.9		103	75 - 125%	PASS			
Silver (Ag)	NA	58.44	0.01	0.02	µg/dry g	61.3		95	75 - 125%	PASS			
Zinc (Zn)	NA	209.077	0.025	0.05	µg/dry g	204		102	75 - 125%	PASS			
		Method: EPA 245.7				Batch ID: E-6013		Prepared: 27-Aug-13				Analyzed: 27-Aug-13	
Mercury (Hg)	NA	8.47	0.00001	0.00002	µg/dry g	9.25		92	75 - 125%	PASS			

Sample ID: 22055-B1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

		Method: EPA 6020				Batch ID: E-5126		Prepared: 09-Aug-13				Analyzed: 16-Aug-13	
Aluminum (Al)	NA	ND	1	5	µg/dry g								
Antimony (Sb)	NA	ND	0.025	0.05	µg/dry g								
Arsenic (As)	NA	ND	0.025	0.05	µg/dry g								
Barium (Ba)	NA	ND	0.025	0.05	µg/dry g								
Beryllium (Be)	NA	ND	0.025	0.05	µg/dry g								
Cadmium (Cd)	NA	ND	0.0025	0.005	µg/dry g								
Chromium (Cr)	NA	ND	0.0025	0.005	µg/dry g								
Copper (Cu)	NA	ND	0.0025	0.005	µg/dry g								
Iron (Fe)	NA	ND	1	5	µg/dry g								
Lead (Pb)	NA	ND	0.0025	0.005	µg/dry g								
Nickel (Ni)	NA	ND	0.01	0.02	µg/dry g								
Selenium (Se)	NA	ND	0.025	0.05	µg/dry g								
Silver (Ag)	NA	ND	0.01	0.02	µg/dry g								
Total Phosphorus	NA	ND	0.016	0.05	µg/dry g								
Zinc (Zn)	NA	ND	0.025	0.05	µg/dry g								
		Method: EPA 245.7				Batch ID: E-6013		Prepared: 27-Aug-13				Analyzed: 27-Aug-13	
Mercury (Hg)	NA	ND	0.00001	0.00002	µg/dry g								

Sample ID: 22055-BS1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

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Elements

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
	Method: EPA 6020				Batch ID: E-5126			Prepared: 09-Aug-13				Analyzed: 16-Aug-13		
Aluminum (Al)	NA	1.9	1	5	µg/dry g	2	0	95	75 - 125%	PASS				
Antimony (Sb)	NA	1.88	0.025	0.05	µg/dry g	2	0	94	75 - 125%	PASS				
Arsenic (As)	NA	1.945	0.025	0.05	µg/dry g	2	0	97	75 - 125%	PASS				
Barium (Ba)	NA	1.967	0.025	0.05	µg/dry g	2	0	98	75 - 125%	PASS				
Beryllium (Be)	NA	1.816	0.025	0.05	µg/dry g	2	0	91	75 - 125%	PASS				
Cadmium (Cd)	NA	2.0869	0.0025	0.005	µg/dry g	2	0	104	75 - 125%	PASS				
Chromium (Cr)	NA	1.8702	0.0025	0.005	µg/dry g	2	0	94	75 - 125%	PASS				
Copper (Cu)	NA	1.9263	0.0025	0.005	µg/dry g	2	0	96	75 - 125%	PASS				
Iron (Fe)	NA	2	1	5	µg/dry g	2	0	100	75 - 125%	PASS				
Lead (Pb)	NA	2.0616	0.0025	0.005	µg/dry g	2	0	103	75 - 125%	PASS				
Nickel (Ni)	NA	1.96	0.01	0.02	µg/dry g	2	0	98	75 - 125%	PASS				
Selenium (Se)	NA	1.945	0.025	0.05	µg/dry g	2	0	97	75 - 125%	PASS				
Silver (Ag)	NA	0.19	0.01	0.02	µg/dry g	0.2	0	95	75 - 125%	PASS				
Total Phosphorus	NA	461.876	0.016	0.05	µg/dry g	500	0	92	75 - 125%	PASS				
Zinc (Zn)	NA	1.981	0.025	0.05	µg/dry g	2	0	99	75 - 125%	PASS				
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13		
Mercury (Hg)	NA	0.958	0.00001	0.00002	µg/dry g	1	0	96	75 - 125%	PASS				

Sample ID: 22055-BS2 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

	Method: EPA 6020				Batch ID: E-5126			Prepared: 09-Aug-13				Analyzed: 16-Aug-13		
Aluminum (Al)	NA	1.9	1	5	µg/dry g	2	0	95	75 - 125%	PASS	0	25	PASS	
Antimony (Sb)	NA	1.87	0.025	0.05	µg/dry g	2	0	94	75 - 125%	PASS	0	25	PASS	
Arsenic (As)	NA	1.914	0.025	0.05	µg/dry g	2	0	96	75 - 125%	PASS	1	25	PASS	
Barium (Ba)	NA	1.958	0.025	0.05	µg/dry g	2	0	98	75 - 125%	PASS	0	25	PASS	
Beryllium (Be)	NA	1.83	0.025	0.05	µg/dry g	2	0	92	75 - 125%	PASS	1	25	PASS	
Cadmium (Cd)	NA	2.1065	0.0025	0.005	µg/dry g	2	0	105	75 - 125%	PASS	1	25	PASS	
Chromium (Cr)	NA	1.9051	0.0025	0.005	µg/dry g	2	0	95	75 - 125%	PASS	1	25	PASS	
Copper (Cu)	NA	1.9198	0.0025	0.005	µg/dry g	2	0	96	75 - 125%	PASS	0	25	PASS	
Iron (Fe)	NA	1.5	1	5	µg/dry g	2	0	75	75 - 125%	PASS	29	25	FAIL	R
Lead (Pb)	NA	2.0697	0.0025	0.005	µg/dry g	2	0	103	75 - 125%	PASS	0	25	PASS	
Nickel (Ni)	NA	1.96	0.01	0.02	µg/dry g	2	0	98	75 - 125%	PASS	0	25	PASS	

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Elements — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Selenium (Se)	NA	1.966	0.025	0.05	µg/dry g	2	0	98	75 - 125%	PASS	1	25	PASS	
Silver (Ag)	NA	0.19	0.01	0.02	µg/dry g	0.2	0	95	75 - 125%	PASS	0	25	PASS	
Total Phosphorus	NA	450.674	0.016	0.05	µg/dry g	500	0	90	75 - 125%	PASS	2	25	PASS	
Zinc (Zn)	NA	1.949	0.025	0.05	µg/dry g	2	0	97	75 - 125%	PASS	2	25	PASS	
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13		
Mercury (Hg)	NA	0.929	0.00001	0.00002	µg/dry g	1	0	93	75 - 125%	PASS	3	25	PASS	

Sample ID: 22056-B1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

	Method: EPA 6020				Batch ID: E-5127			Prepared: 09-Aug-13				Analyzed: 16-Aug-13		
Aluminum (Al)	NA	ND	1	5	µg/dry g									
Antimony (Sb)	NA	ND	0.025	0.05	µg/dry g									
Arsenic (As)	NA	ND	0.025	0.05	µg/dry g									
Barium (Ba)	NA	ND	0.025	0.05	µg/dry g									
Beryllium (Be)	NA	ND	0.025	0.05	µg/dry g									
Cadmium (Cd)	NA	ND	0.0025	0.005	µg/dry g									
Chromium (Cr)	NA	ND	0.0025	0.005	µg/dry g									
Copper (Cu)	NA	ND	0.0025	0.005	µg/dry g									
Iron (Fe)	NA	ND	1	5	µg/dry g									
Lead (Pb)	NA	ND	0.0025	0.005	µg/dry g									
Nickel (Ni)	NA	ND	0.01	0.02	µg/dry g									
Selenium (Se)	NA	ND	0.025	0.05	µg/dry g									
Silver (Ag)	NA	ND	0.01	0.02	µg/dry g									
Total Phosphorus	NA	ND	0.016	0.05	µg/dry g									
Zinc (Zn)	NA	ND	0.025	0.05	µg/dry g									
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13		
Mercury (Hg)	NA	ND	0.00001	0.00002	µg/dry g									

Sample ID: 22056-BS1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

	Method: EPA 6020				Batch ID: E-5127			Prepared: 09-Aug-13				Analyzed: 16-Aug-13		
Aluminum (Al)	NA	1.9	1	5	µg/dry g	2	0	95	75 - 125%	PASS				
Antimony (Sb)	NA	1.903	0.025	0.05	µg/dry g	2	0	95	75 - 125%	PASS				
Arsenic (As)	NA	1.939	0.025	0.05	µg/dry g	2	0	97	75 - 125%	PASS				

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Elements

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Barium (Ba)	NA	2.038	0.025	0.05	µg/dry g	2	0	102	75 - 125%	PASS				
Beryllium (Be)	NA	1.811	0.025	0.05	µg/dry g	2	0	91	75 - 125%	PASS				
Cadmium (Cd)	NA	2.0888	0.0025	0.005	µg/dry g	2	0	104	75 - 125%	PASS				
Chromium (Cr)	NA	1.864	0.0025	0.005	µg/dry g	2	0	93	75 - 125%	PASS				
Copper (Cu)	NA	1.8837	0.0025	0.005	µg/dry g	2	0	94	75 - 125%	PASS				
Iron (Fe)	NA	2.4	1	5	µg/dry g	2	0	120	75 - 125%	PASS				
Lead (Pb)	NA	2.0465	0.0025	0.005	µg/dry g	2	0	102	75 - 125%	PASS				
Nickel (Ni)	NA	1.91	0.01	0.02	µg/dry g	2	0	95	75 - 125%	PASS				
Selenium (Se)	NA	1.849	0.025	0.05	µg/dry g	2	0	92	75 - 125%	PASS				
Silver (Ag)	NA	0.19	0.01	0.02	µg/dry g	0.2	0	95	75 - 125%	PASS				
Total Phosphorus	NA	456.209	0.016	0.05	µg/dry g	500	0	91	75 - 125%	PASS				
Zinc (Zn)	NA	1.9	0.025	0.05	µg/dry g	2	0	95	75 - 125%	PASS				
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13		
Mercury (Hg)	NA	0.956	0.00001	0.00002	µg/dry g	1	0	96	75 - 125%	PASS				

Sample ID: 22056-BS2 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

	Method: EPA 6020				Batch ID: E-5127			Prepared: 09-Aug-13				Analyzed: 16-Aug-13		
Aluminum (Al)	NA	1.8	1	5	µg/dry g	2	0	90	75 - 125%	PASS	5	25	PASS	
Antimony (Sb)	NA	1.889	0.025	0.05	µg/dry g	2	0	94	75 - 125%	PASS	1	25	PASS	
Arsenic (As)	NA	1.918	0.025	0.05	µg/dry g	2	0	96	75 - 125%	PASS	1	25	PASS	
Barium (Ba)	NA	2.024	0.025	0.05	µg/dry g	2	0	101	75 - 125%	PASS	1	25	PASS	
Beryllium (Be)	NA	1.814	0.025	0.05	µg/dry g	2	0	91	75 - 125%	PASS	0	25	PASS	
Cadmium (Cd)	NA	2.1097	0.0025	0.005	µg/dry g	2	0	105	75 - 125%	PASS	1	25	PASS	
Chromium (Cr)	NA	1.8606	0.0025	0.005	µg/dry g	2	0	93	75 - 125%	PASS	0	25	PASS	
Copper (Cu)	NA	1.8648	0.0025	0.005	µg/dry g	2	0	93	75 - 125%	PASS	1	25	PASS	
Iron (Fe)	NA	2.4	1	5	µg/dry g	2	0	120	75 - 125%	PASS	0	25	PASS	
Lead (Pb)	NA	2.0588	0.0025	0.005	µg/dry g	2	0	103	75 - 125%	PASS	1	25	PASS	
Nickel (Ni)	NA	1.89	0.01	0.02	µg/dry g	2	0	94	75 - 125%	PASS	2	25	PASS	
Selenium (Se)	NA	1.873	0.025	0.05	µg/dry g	2	0	94	75 - 125%	PASS	2	25	PASS	
Silver (Ag)	NA	0.19	0.01	0.02	µg/dry g	0.2	0	95	75 - 125%	PASS	0	25	PASS	
Total Phosphorus	NA	445.752	0.016	0.05	µg/dry g	500	0	89	75 - 125%	PASS	2	25	PASS	
Zinc (Zn)	NA	1.916	0.025	0.05	µg/dry g	2	0	96	75 - 125%	PASS	1	25	PASS	

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Elements — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13		
Mercury (Hg)	NA	0.928	0.00001	0.00002	µg/dry g	1	0	93	75 - 125%	PASS	3	25	PASS	
Sample ID: 22057-CRM1	**QAQC CRM - RTC 016-050**				**Matrix: Sediment**			**Sampled:**				**Received:**		
	Method: EPA 6020				Batch ID: E-5126			Prepared: 09-Aug-13				Analyzed: 17-Aug-13		
Aluminum (Al)	NA	28227.5	1	5	µg/dry g	8920		316	75 - 125%	FAIL				*
Arsenic (As)	NA	8.67	0.025	0.05	µg/dry g	7.76		112	75 - 125%	PASS				
Beryllium (Be)	NA	0.85	0.025	0.05	µg/dry g	0.49		173	75 - 125%	FAIL				*
Cadmium (Cd)	NA	0.2957	0.0025	0.005	µg/dry g	0.47		63	75 - 125%	FAIL				R
Chromium (Cr)	NA	40.689	0.0025	0.005	µg/dry g	14.5		281	75 - 125%	FAIL				*
Copper (Cu)	NA	14.5833	0.0025	0.005	µg/dry g	15.5		94	75 - 125%	PASS				
Iron (Fe)	NA	18878.3	1	5	µg/dry g	16800		112	75 - 125%	PASS				
Lead (Pb)	NA	14.5944	0.0025	0.005	µg/dry g	14.01		104	75 - 125%	PASS				
Nickel (Ni)	NA	19.59	0.01	0.02	µg/dry g	16.7		117	75 - 125%	PASS				
Zinc (Zn)	NA	72.949	0.025	0.05	µg/dry g	69.7		105	75 - 125%	PASS				
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13		
Mercury (Hg)	NA	0.15	0.00001	0.00002	µg/dry g	0.158		95	75 - 125%	PASS				
Sample ID: 22058-CRM1	**QAQC CRM - RTC 016-050**				**Matrix: Sediment**			**Sampled:**				**Received:**		
	Method: EPA 6020				Batch ID: E-5127			Prepared: 09-Aug-13				Analyzed: 17-Aug-13		
Aluminum (Al)	NA	27447.3	1	5	µg/dry g	8920		308	75 - 125%	FAIL				*
Arsenic (As)	NA	8.781	0.025	0.05	µg/dry g	7.76		113	75 - 125%	PASS				
Beryllium (Be)	NA	0.833	0.025	0.05	µg/dry g	0.49		170	75 - 125%	FAIL				*
Cadmium (Cd)	NA	0.3795	0.0025	0.005	µg/dry g	0.47		81	75 - 125%	PASS				
Chromium (Cr)	NA	38.943	0.0025	0.005	µg/dry g	14.5		269	75 - 125%	FAIL				*
Copper (Cu)	NA	14.6661	0.0025	0.005	µg/dry g	15.5		95	75 - 125%	PASS				
Iron (Fe)	NA	19211.5	1	5	µg/dry g	16800		114	75 - 125%	PASS				
Lead (Pb)	NA	14.4805	0.0025	0.005	µg/dry g	14.01		103	75 - 125%	PASS				
Nickel (Ni)	NA	19.18	0.01	0.02	µg/dry g	16.7		115	75 - 125%	PASS				
Zinc (Zn)	NA	73.128	0.025	0.05	µg/dry g	69.7		105	75 - 125%	PASS				
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13				Analyzed: 27-Aug-13		
Mercury (Hg)	NA	0.154	0.00001	0.00002	µg/dry g	0.158		97	75 - 125%	PASS	0	25	PASS	

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Elements — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
Sample ID: 22059-CRM1	**QAQC CRM - ERA 540**					**Matrix: Sediment**		**Sampled:**			**Received:**	
	Method: EPA 6020					Batch ID: E-5126		Prepared: 09-Aug-13			Analyzed: 17-Aug-13	
Aluminum (Al)	NA	15341.3	1	5	µg/dry g	9060		169	75 - 125% FAIL			*
Antimony (Sb)	NA	179.42	0.025	0.05	µg/dry g	106		169	75 - 125% FAIL			*
Arsenic (As)	NA	180.92	0.025	0.05	µg/dry g	182		99	75 - 125% PASS			
Beryllium (Be)	NA	88.698	0.025	0.05	µg/dry g	98.3		90	75 - 125% PASS			
Cadmium (Cd)	NA	58.9202	0.0025	0.005	µg/dry g	60.4		98	75 - 125% PASS			
Chromium (Cr)	NA	129.8947	0.0025	0.005	µg/dry g	125		104	75 - 125% PASS			
Copper (Cu)	NA	75.4913	0.0025	0.005	µg/dry g	80.1		94	75 - 125% PASS			
Iron (Fe)	NA	16163	1	5	µg/dry g	12900		125	75 - 125% PASS			
Lead (Pb)	NA	131.9418	0.0025	0.005	µg/dry g	136		97	75 - 125% PASS			
Nickel (Ni)	NA	125.4	0.01	0.02	µg/dry g	128		98	75 - 125% PASS			
Selenium (Se)	NA	90.616	0.025	0.05	µg/dry g	85.9		105	75 - 125% PASS			
Silver (Ag)	NA	59.93	0.01	0.02	µg/dry g	61.3		98	75 - 125% PASS			
Zinc (Zn)	NA	202.286	0.025	0.05	µg/dry g	204		99	75 - 125% PASS			
	Method: EPA 245.7					Batch ID: E-6013		Prepared: 27-Aug-13			Analyzed: 27-Aug-13	
Mercury (Hg)	NA	8.58	0.00001	0.00002	µg/dry g	9.25		93	75 - 125% PASS			
Sample ID: 22060-CRM1	**QAQC CRM - ERA 540**					**Matrix: Sediment**		**Sampled:**			**Received:**	
	Method: EPA 6020					Batch ID: E-5127		Prepared: 09-Aug-13			Analyzed: 17-Aug-13	
Aluminum (Al)	NA	15335.3	1	5	µg/dry g	9060		169	75 - 125% FAIL			*
Antimony (Sb)	NA	181.809	0.025	0.05	µg/dry g	106		172	75 - 125% FAIL			*
Arsenic (As)	NA	178.051	0.025	0.05	µg/dry g	182		98	75 - 125% PASS			
Beryllium (Be)	NA	89.227	0.025	0.05	µg/dry g	98.3		91	75 - 125% PASS			
Cadmium (Cd)	NA	59.0119	0.0025	0.005	µg/dry g	60.4		98	75 - 125% PASS			
Chromium (Cr)	NA	128.6268	0.0025	0.005	µg/dry g	125		103	75 - 125% PASS			
Copper (Cu)	NA	73.4806	0.0025	0.005	µg/dry g	80.1		92	75 - 125% PASS			
Iron (Fe)	NA	16534	1	5	µg/dry g	12900		128	75 - 125% FAIL			*
Lead (Pb)	NA	128.5851	0.0025	0.005	µg/dry g	136		95	75 - 125% PASS			
Nickel (Ni)	NA	121.34	0.01	0.02	µg/dry g	128		95	75 - 125% PASS			
Selenium (Se)	NA	85.541	0.025	0.05	µg/dry g	85.9		100	75 - 125% PASS			

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Elements

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Silver (Ag)	NA	59.08	0.01	0.02	µg/dry g	61.3		96	75 - 125%	PASS			
Zinc (Zn)	NA	200.501	0.025	0.05	µg/dry g	204		98	75 - 125%	PASS			
	Method: EPA 245.7				Batch ID: E-6013			Prepared: 27-Aug-13			Analyzed: 27-Aug-13		
Mercury (Hg)	NA	8.7	0.00001	0.00002	µg/dry g	9.25		94	75 - 125%	PASS			

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PCB Congeners

QUALITY CONTROL REPORT

Sample ID: 19187-CRM1 **QAQC CRM - SRM 1944** **Matrix: Sediment** **Sampled:** **Received:**

Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
PCB008	NA	17.3	0.05	0.1	µg/dry g	22.3		78	70 - 130%		PASS	
PCB018	NA	38.1	0.05	0.1	µg/dry g	51		75	70 - 130%		PASS	
PCB028	NA	58.3	0.05	0.1	µg/dry g	80.8		72	70 - 130%		PASS	
PCB031	NA	61.7	0.05	0.1	µg/dry g	78.7		78	70 - 130%		PASS	
PCB044	NA	44.8	0.05	0.1	µg/dry g	60.2		74	70 - 130%		PASS	
PCB049	NA	38.9	0.05	0.1	µg/dry g	53		73	70 - 130%		PASS	
PCB052	NA	61.5	0.05	0.1	µg/dry g	79.4		77	70 - 130%		PASS	
PCB066	NA	52.2	0.05	0.1	µg/dry g	71.9		73	70 - 130%		PASS	
PCB087	NA	21.6	0.05	0.1	µg/dry g	29.9		72	70 - 130%		PASS	
PCB095	NA	54	0.05	0.1	µg/dry g	65		83	70 - 130%		PASS	
PCB099	NA	27.8	0.05	0.1	µg/dry g	37.5		74	70 - 130%		PASS	
PCB101	NA	53.1	0.05	0.1	µg/dry g	73.4		72	70 - 130%		PASS	
PCB105	NA	17.5	0.05	0.1	µg/dry g	24.5		71	70 - 130%		PASS	
PCB110	NA	45.2	0.05	0.1	µg/dry g	63.5		71	70 - 130%		PASS	
PCB118	NA	42.3	0.05	0.1	µg/dry g	58		73	70 - 130%		PASS	
PCB128	NA	6	0.05	0.1	µg/dry g	8.5		71	70 - 130%		PASS	
PCB138	NA	53.8	0.05	0.1	µg/dry g	62.1		87	70 - 130%		PASS	
PCB149	NA	35.8	0.05	0.1	µg/dry g	49.7		72	70 - 130%		PASS	
PCB151	NA	13.3	0.05	0.1	µg/dry g	16.9		79	70 - 130%		PASS	
PCB153	NA	65.9	0.05	0.1	µg/dry g	74		89	70 - 130%		PASS	
PCB156	NA	5.6	0.05	0.1	µg/dry g	6.5		86	70 - 130%		PASS	
PCB170	NA	25.7	0.05	0.1	µg/dry g	22.6		114	70 - 130%		PASS	
PCB180	NA	54.6	0.05	0.1	µg/dry g	44.3		123	70 - 130%		PASS	
PCB183	NA	13.9	0.05	0.1	µg/dry g	12.2		114	70 - 130%		PASS	
PCB187	NA	27.4	0.05	0.1	µg/dry g	24.1		114	70 - 130%		PASS	
PCB194	NA	12	0.05	0.1	µg/dry g	11.2		107	70 - 130%		PASS	
PCB195	NA	4.7	0.05	0.1	µg/dry g	3.8		124	70 - 130%		PASS	
PCB206	NA	7.2	0.05	0.1	µg/dry g	9.2		78	70 - 130%		PASS	
PCB209	NA	4.8	0.05	0.1	µg/dry g	6.8		71	70 - 130%		PASS	

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PCB Congeners — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
Sample ID: 21731-B1	**QAQC Procedural Blank**				**Matrix: DI Water**	**Sampled:**				**Received:**		
	Method: EPA 8270C				Batch ID: O-6001	Prepared: 09-Aug-13				Analyzed: 30-Aug-13		
PCB003	NA	ND	0.05	0.1	ng/dry g							
PCB005	NA	ND	0.05	0.1	ng/dry g							
PCB008	NA	ND	0.05	0.1	ng/dry g							
PCB015	NA	ND	0.05	0.1	ng/dry g							
PCB018	NA	ND	0.05	0.1	ng/dry g							
PCB027	NA	ND	0.05	0.1	ng/dry g							
PCB028	NA	ND	0.05	0.1	ng/dry g							
PCB029	NA	ND	0.05	0.1	ng/dry g							
PCB031	NA	ND	0.05	0.1	ng/dry g							
PCB033	NA	ND	0.05	0.1	ng/dry g							
PCB037	NA	ND	0.05	0.1	ng/dry g							
PCB044	NA	ND	0.05	0.1	ng/dry g							
PCB049	NA	ND	0.05	0.1	ng/dry g							
PCB052	NA	ND	0.05	0.1	ng/dry g							
PCB056(060)	NA	ND	0.1	0.2	ng/dry g							
PCB066	NA	ND	0.05	0.1	ng/dry g							
PCB070	NA	ND	0.05	0.1	ng/dry g							
PCB074	NA	ND	0.05	0.1	ng/dry g							
PCB077	NA	ND	0.05	0.1	ng/dry g							
PCB081	NA	ND	0.05	0.1	ng/dry g							
PCB087	NA	ND	0.05	0.1	ng/dry g							
PCB095	NA	ND	0.05	0.1	ng/dry g							
PCB097	NA	ND	0.05	0.1	ng/dry g							
PCB099	NA	ND	0.05	0.1	ng/dry g							
PCB101	NA	ND	0.05	0.1	ng/dry g							
PCB105	NA	ND	0.05	0.1	ng/dry g							
PCB110	NA	ND	0.05	0.1	ng/dry g							
PCB114	NA	ND	0.05	0.1	ng/dry g							
PCB118	NA	ND	0.05	0.1	ng/dry g							

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
PCB119	NA	ND	0.05	0.1	ng/dry g							
PCB123	NA	ND	0.05	0.1	ng/dry g							
PCB126	NA	ND	0.05	0.1	ng/dry g							
PCB128	NA	ND	0.05	0.1	ng/dry g							
PCB137	NA	ND	0.05	0.1	ng/dry g							
PCB138	NA	ND	0.05	0.1	ng/dry g							
PCB141	NA	ND	0.05	0.1	ng/dry g							
PCB149	NA	ND	0.05	0.1	ng/dry g							
PCB151	NA	ND	0.05	0.1	ng/dry g							
PCB153	NA	ND	0.05	0.1	ng/dry g							
PCB156	NA	ND	0.05	0.1	ng/dry g							
PCB157	NA	ND	0.05	0.1	ng/dry g							
PCB158	NA	ND	0.05	0.1	ng/dry g							
PCB167	NA	ND	0.05	0.1	ng/dry g							
PCB168+132	NA	ND	0.1	0.2	ng/dry g							
PCB169	NA	ND	0.05	0.1	ng/dry g							
PCB170	NA	ND	0.05	0.1	ng/dry g							
PCB174	NA	ND	0.05	0.1	ng/dry g							
PCB177	NA	ND	0.05	0.1	ng/dry g							
PCB180	NA	ND	0.05	0.1	ng/dry g							
PCB183	NA	ND	0.05	0.1	ng/dry g							
PCB187	NA	ND	0.05	0.1	ng/dry g							
PCB189	NA	ND	0.05	0.1	ng/dry g							
PCB194	NA	ND	0.05	0.1	ng/dry g							
PCB195	NA	ND	0.05	0.1	ng/dry g							
PCB199(200)	NA	ND	0.1	0.2	ng/dry g							
PCB201	NA	ND	0.05	0.1	ng/dry g							
PCB203	NA	ND	0.05	0.1	ng/dry g							
PCB206	NA	ND	0.05	0.1	ng/dry g							
PCB209	NA	ND	0.05	0.1	ng/dry g							

Sample ID: 21731-BS1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
		Method: EPA 8270C				Batch ID: O-6001		Prepared: 09-Aug-13				Analyzed: 30-Aug-13	
PCB003	NA	381.28	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
PCB005	NA	369.02	0.05	0.1	ng/dry g	400	0	92	50 - 150%	PASS			
PCB008	NA	389.9	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS			
PCB015	NA	417.03	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS			
PCB018	NA	392.69	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS			
PCB027	NA	365.69	0.05	0.1	ng/dry g	400	0	91	50 - 150%	PASS			
PCB028	NA	379.88	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
PCB029	NA	371.24	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS			
PCB031	NA	387.13	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS			
PCB033	NA	383.99	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS			
PCB037	NA	412.52	0.05	0.1	ng/dry g	400	0	103	50 - 150%	PASS			
PCB044	NA	394.87	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS			
PCB049	NA	380.16	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
PCB052	NA	385.25	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS			
PCB056(060)	NA	463.8	0.1	0.2	ng/dry g	400	0	116	50 - 150%	PASS			
PCB066	NA	403.62	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			
PCB070	NA	419.97	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS			
PCB074	NA	431.59	0.05	0.1	ng/dry g	400	0	108	50 - 150%	PASS			
PCB077	NA	425.15	0.05	0.1	ng/dry g	400	0	106	50 - 150%	PASS			
PCB081	NA	399.57	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS			
PCB087	NA	381.62	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
PCB095	NA	375.12	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS			
PCB097	NA	404.66	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			
PCB099	NA	398.16	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS			
PCB101	NA	407.96	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS			
PCB105	NA	373.98	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS			
PCB110	NA	385.88	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS			
PCB114	NA	440.93	0.05	0.1	ng/dry g	400	0	110	50 - 150%	PASS			
PCB118	NA	405.94	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			
PCB119	NA	392.93	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS			

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PCB123	NA	410.18	0.05	0.1	ng/dry g	400	0	103	50 - 150%	PASS			
PCB126	NA	423.88	0.05	0.1	ng/dry g	400	0	106	50 - 150%	PASS			
PCB128	NA	384.48	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS			
PCB137	NA	398.55	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS			
PCB138	NA	400.9	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS			
PCB141	NA	356.98	0.05	0.1	ng/dry g	400	0	89	50 - 150%	PASS			
PCB149	NA	370.62	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS			
PCB151	NA	390.26	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS			
PCB153	NA	386.27	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS			
PCB156	NA	477.92	0.05	0.1	ng/dry g	400	0	119	50 - 150%	PASS			
PCB157	NA	446.79	0.05	0.1	ng/dry g	400	0	112	50 - 150%	PASS			
PCB158	NA	378.82	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
PCB167	NA	388.58	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS			
PCB168+132	NA	718.8	0.1	0.2	ng/dry g	800	0	90	50 - 150%	PASS			
PCB169	NA	461.91	0.05	0.1	ng/dry g	400	0	115	50 - 150%	PASS			
PCB170	NA	423.1	0.05	0.1	ng/dry g	400	0	106	50 - 150%	PASS			
PCB174	NA	400.15	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS			
PCB177	NA	409.85	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS			
PCB180	NA	403.98	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			
PCB183	NA	392.99	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS			
PCB187	NA	379.6	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
PCB189	NA	423.65	0.05	0.1	ng/dry g	400	0	106	50 - 150%	PASS			
PCB194	NA	436.25	0.05	0.1	ng/dry g	400	0	109	50 - 150%	PASS			
PCB195	NA	396.49	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS			
PCB199(200)	NA	368.7	0.1	0.2	ng/dry g	400	0	92	50 - 150%	PASS			
PCB201	NA	417.91	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS			
PCB203	NA	426.66	0.05	0.1	ng/dry g	400	0	107	50 - 150%	PASS			
PCB206	NA	432.11	0.05	0.1	ng/dry g	400	0	108	50 - 150%	PASS			
PCB209	NA	415.22	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS			

Sample ID: 21731-BS2 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB003	NA	382.8	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	1	25	PASS	
PCB005	NA	368.58	0.05	0.1	ng/dry g	400	0	92	50 - 150%	PASS	0	25	PASS	
PCB008	NA	398.33	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS	3	25	PASS	
PCB015	NA	414.17	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS	0	25	PASS	
PCB018	NA	402.79	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS	3	25	PASS	
PCB027	NA	367.23	0.05	0.1	ng/dry g	400	0	92	50 - 150%	PASS	1	25	PASS	
PCB028	NA	373.39	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS	2	25	PASS	
PCB029	NA	364.94	0.05	0.1	ng/dry g	400	0	91	50 - 150%	PASS	2	25	PASS	
PCB031	NA	389	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS	0	25	PASS	
PCB033	NA	381.67	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS	1	25	PASS	
PCB037	NA	400.89	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS	3	25	PASS	
PCB044	NA	390.84	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS	1	25	PASS	
PCB049	NA	377.16	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS	1	25	PASS	
PCB052	NA	385.16	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	0	25	PASS	
PCB056(060)	NA	461	0.1	0.2	ng/dry g	400	0	115	50 - 150%	PASS	1	25	PASS	
PCB066	NA	399.65	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS	1	25	PASS	
PCB070	NA	416.54	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS	1	25	PASS	
PCB074	NA	420.31	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS	3	25	PASS	
PCB077	NA	402.75	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS	5	25	PASS	
PCB081	NA	390.49	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS	2	25	PASS	
PCB087	NA	375.59	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS	1	25	PASS	
PCB095	NA	377.54	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS	0	25	PASS	
PCB097	NA	393.78	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS	3	25	PASS	
PCB099	NA	399.08	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS	0	25	PASS	
PCB101	NA	408.81	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS	0	25	PASS	
PCB105	NA	370.58	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS	0	25	PASS	
PCB110	NA	382.54	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	0	25	PASS	
PCB114	NA	439.5	0.05	0.1	ng/dry g	400	0	110	50 - 150%	PASS	0	25	PASS	
PCB118	NA	395.94	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS	2	25	PASS	
PCB119	NA	388.68	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS	1	25	PASS	
PCB123	NA	402.69	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS	2	25	PASS	

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB126	NA	403.65	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS	5	25	PASS	
PCB128	NA	367.9	0.05	0.1	ng/dry g	400	0	92	50 - 150%	PASS	4	25	PASS	
PCB137	NA	399.97	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS	0	25	PASS	
PCB138	NA	389.76	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS	3	25	PASS	
PCB141	NA	356.38	0.05	0.1	ng/dry g	400	0	89	50 - 150%	PASS	0	25	PASS	
PCB149	NA	369.56	0.05	0.1	ng/dry g	400	0	92	50 - 150%	PASS	1	25	PASS	
PCB151	NA	390.59	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS	0	25	PASS	
PCB153	NA	384.24	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	1	25	PASS	
PCB156	NA	475.81	0.05	0.1	ng/dry g	400	0	119	50 - 150%	PASS	0	25	PASS	
PCB157	NA	444.98	0.05	0.1	ng/dry g	400	0	111	50 - 150%	PASS	1	25	PASS	
PCB158	NA	371.79	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS	2	25	PASS	
PCB167	NA	382.88	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	1	25	PASS	
PCB168+132	NA	720.7	0.1	0.2	ng/dry g	800	0	90	50 - 150%	PASS	0	25	PASS	
PCB169	NA	453.73	0.05	0.1	ng/dry g	400	0	113	50 - 150%	PASS	2	25	PASS	
PCB170	NA	414.6	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS	2	25	PASS	
PCB174	NA	394.94	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS	1	25	PASS	
PCB177	NA	409.22	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS	0	25	PASS	
PCB180	NA	403.83	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS	0	25	PASS	
PCB183	NA	385.8	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	2	25	PASS	
PCB187	NA	380.35	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS	0	25	PASS	
PCB189	NA	409.16	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS	4	25	PASS	
PCB194	NA	430.26	0.05	0.1	ng/dry g	400	0	108	50 - 150%	PASS	1	25	PASS	
PCB195	NA	391.52	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS	1	25	PASS	
PCB199(200)	NA	368.9	0.1	0.2	ng/dry g	400	0	92	50 - 150%	PASS	0	25	PASS	
PCB201	NA	417.72	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS	0	25	PASS	
PCB203	NA	412.84	0.05	0.1	ng/dry g	400	0	103	50 - 150%	PASS	4	25	PASS	
PCB206	NA	417.19	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS	4	25	PASS	
PCB209	NA	404.9	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS	3	25	PASS	

Sample ID: 21732-B1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

PCB003	NA	ND	0.05	0.1	ng/dry g									

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
PCB005	NA	ND	0.05	0.1	ng/dry g							
PCB008	NA	ND	0.05	0.1	ng/dry g							
PCB015	NA	ND	0.05	0.1	ng/dry g							
PCB018	NA	ND	0.05	0.1	ng/dry g							
PCB027	NA	ND	0.05	0.1	ng/dry g							
PCB028	NA	ND	0.05	0.1	ng/dry g							
PCB029	NA	ND	0.05	0.1	ng/dry g							
PCB031	NA	ND	0.05	0.1	ng/dry g							
PCB033	NA	ND	0.05	0.1	ng/dry g							
PCB037	NA	ND	0.05	0.1	ng/dry g							
PCB044	NA	ND	0.05	0.1	ng/dry g							
PCB049	NA	ND	0.05	0.1	ng/dry g							
PCB052	NA	ND	0.05	0.1	ng/dry g							
PCB056(060)	NA	ND	0.1	0.2	ng/dry g							
PCB066	NA	ND	0.05	0.1	ng/dry g							
PCB070	NA	ND	0.05	0.1	ng/dry g							
PCB074	NA	ND	0.05	0.1	ng/dry g							
PCB077	NA	ND	0.05	0.1	ng/dry g							
PCB081	NA	ND	0.05	0.1	ng/dry g							
PCB087	NA	ND	0.05	0.1	ng/dry g							
PCB095	NA	ND	0.05	0.1	ng/dry g							
PCB097	NA	ND	0.05	0.1	ng/dry g							
PCB099	NA	ND	0.05	0.1	ng/dry g							
PCB101	NA	ND	0.05	0.1	ng/dry g							
PCB105	NA	ND	0.05	0.1	ng/dry g							
PCB110	NA	ND	0.05	0.1	ng/dry g							
PCB114	NA	ND	0.05	0.1	ng/dry g							
PCB118	NA	ND	0.05	0.1	ng/dry g							
PCB119	NA	ND	0.05	0.1	ng/dry g							
PCB123	NA	ND	0.05	0.1	ng/dry g							
PCB126	NA	ND	0.05	0.1	ng/dry g							

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PCB Congeners — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
PCB128	NA	ND	0.05	0.1	ng/dry g							
PCB137	NA	ND	0.05	0.1	ng/dry g							
PCB138	NA	ND	0.05	0.1	ng/dry g							
PCB141	NA	ND	0.05	0.1	ng/dry g							
PCB149	NA	ND	0.05	0.1	ng/dry g							
PCB151	NA	ND	0.05	0.1	ng/dry g							
PCB153	NA	ND	0.05	0.1	ng/dry g							
PCB156	NA	ND	0.05	0.1	ng/dry g							
PCB157	NA	ND	0.05	0.1	ng/dry g							
PCB158	NA	ND	0.05	0.1	ng/dry g							
PCB167	NA	ND	0.05	0.1	ng/dry g							
PCB168+132	NA	ND	0.1	0.2	ng/dry g							
PCB169	NA	ND	0.05	0.1	ng/dry g							
PCB170	NA	ND	0.05	0.1	ng/dry g							
PCB174	NA	ND	0.05	0.1	ng/dry g							
PCB177	NA	ND	0.05	0.1	ng/dry g							
PCB180	NA	ND	0.05	0.1	ng/dry g							
PCB183	NA	ND	0.05	0.1	ng/dry g							
PCB187	NA	ND	0.05	0.1	ng/dry g							
PCB189	NA	ND	0.05	0.1	ng/dry g							
PCB194	NA	ND	0.05	0.1	ng/dry g							
PCB195	NA	ND	0.05	0.1	ng/dry g							
PCB199(200)	NA	ND	0.1	0.2	ng/dry g							
PCB201	NA	ND	0.05	0.1	ng/dry g							
PCB203	NA	ND	0.05	0.1	ng/dry g							
PCB206	NA	ND	0.05	0.1	ng/dry g							
PCB209	NA	ND	0.05	0.1	ng/dry g							

Sample ID: 21732-BS1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

PCB003	NA	422.05	0.05	0.1	ng/dry g	400	0	106	50 - 150%	PASS
PCB005	NA	420.28	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PCB008	NA	394.7	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS			
PCB015	NA	380.5	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
PCB018	NA	372.9	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS			
PCB027	NA	315.3	0.05	0.1	ng/dry g	400	0	79	50 - 150%	PASS			
PCB028	NA	421.92	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS			
PCB029	NA	405.81	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			
PCB031	NA	352.5	0.05	0.1	ng/dry g	400	0	88	50 - 150%	PASS			
PCB033	NA	379.5	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
PCB037	NA	408.14	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS			
PCB044	NA	409.6	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS			
PCB049	NA	423.7	0.05	0.1	ng/dry g	400	0	106	50 - 150%	PASS			
PCB052	NA	405.7	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			
PCB056(060)	NA	403.6	0.1	0.2	ng/dry g	400	0	101	50 - 150%	PASS			
PCB066	NA	402.6	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			
PCB070	NA	378.3	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
PCB074	NA	396.2	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS			
PCB077	NA	373.2	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS			
PCB081	NA	410.76	0.05	0.1	ng/dry g	400	0	103	50 - 150%	PASS			
PCB087	NA	422	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS			
PCB095	NA	418.64	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS			
PCB097	NA	411	0.05	0.1	ng/dry g	400	0	103	50 - 150%	PASS			
PCB099	NA	382.8	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS			
PCB101	NA	388.9	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS			
PCB105	NA	341	0.05	0.1	ng/dry g	400	0	85	50 - 150%	PASS			
PCB110	NA	360.9	0.05	0.1	ng/dry g	400	0	90	50 - 150%	PASS			
PCB114	NA	414.6	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS			
PCB118	NA	346.4	0.05	0.1	ng/dry g	400	0	87	50 - 150%	PASS			
PCB119	NA	398.2	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS			
PCB123	NA	406.5	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS			
PCB126	NA	391.7	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS			
PCB128	NA	427.55	0.05	0.1	ng/dry g	400	0	107	50 - 150%	PASS			

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PCB137	NA	403.48	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			
PCB138	NA	363.9	0.05	0.1	ng/dry g	400	0	91	50 - 150%	PASS			
PCB141	NA	381.04	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
PCB149	NA	380.6	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
PCB151	NA	380.54	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
PCB153	NA	402.6	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			
PCB156	NA	392.1	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS			
PCB157	NA	363.7	0.05	0.1	ng/dry g	400	0	91	50 - 150%	PASS			
PCB158	NA	414.5	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS			
PCB167	NA	418.7	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS			
PCB168+132	NA	812.9	0.1	0.2	ng/dry g	800	0	102	50 - 150%	PASS			
PCB169	NA	443.1	0.05	0.1	ng/dry g	400	0	111	50 - 150%	PASS			
PCB170	NA	405.9	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			
PCB174	NA	371.6	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS			
PCB177	NA	384.1	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS			
PCB180	NA	404.2	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			
PCB183	NA	396.6	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS			
PCB187	NA	403.82	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			
PCB189	NA	380.9	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
PCB194	NA	437.1	0.05	0.1	ng/dry g	400	0	109	50 - 150%	PASS			
PCB195	NA	406.5	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS			
PCB199(200)	NA	422.9	0.1	0.2	ng/dry g	400	0	106	50 - 150%	PASS			
PCB201	NA	360.9	0.05	0.1	ng/dry g	400	0	90	50 - 150%	PASS			
PCB203	NA	405.5	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			
PCB206	NA	416.6	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS			
PCB209	NA	409.3	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS			

Sample ID: 21732-BS2 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

PCB003	NA	393.38	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS	8	25	PASS
PCB005	NA	371.79	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS	12	25	PASS
PCB008	NA	381.4	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS	4	25	PASS

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB015	NA	409.8	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS	7	25	PASS	
PCB018	NA	390.1	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS	5	25	PASS	
PCB027	NA	334.5	0.05	0.1	ng/dry g	400	0	84	50 - 150%	PASS	6	25	PASS	
PCB028	NA	445.27	0.05	0.1	ng/dry g	400	0	111	50 - 150%	PASS	6	25	PASS	
PCB029	NA	337.81	0.05	0.1	ng/dry g	400	0	84	50 - 150%	PASS	18	25	PASS	
PCB031	NA	330.5	0.05	0.1	ng/dry g	400	0	83	50 - 150%	PASS	6	25	PASS	
PCB033	NA	384.1	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	1	25	PASS	
PCB037	NA	432.74	0.05	0.1	ng/dry g	400	0	108	50 - 150%	PASS	6	25	PASS	
PCB044	NA	426.83	0.05	0.1	ng/dry g	400	0	107	50 - 150%	PASS	5	25	PASS	
PCB049	NA	432.1	0.05	0.1	ng/dry g	400	0	108	50 - 150%	PASS	2	25	PASS	
PCB052	NA	425.42	0.05	0.1	ng/dry g	400	0	106	50 - 150%	PASS	5	25	PASS	
PCB056(060)	NA	391.2	0.1	0.2	ng/dry g	400	0	98	50 - 150%	PASS	3	25	PASS	
PCB066	NA	398.1	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS	1	25	PASS	
PCB070	NA	418.7	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS	10	25	PASS	
PCB074	NA	380.3	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS	4	25	PASS	
PCB077	NA	388.3	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS	4	25	PASS	
PCB081	NA	382.3	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	7	25	PASS	
PCB087	NA	405.3	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS	4	25	PASS	
PCB095	NA	403.9	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS	4	25	PASS	
PCB097	NA	422.33	0.05	0.1	ng/dry g	400	0	106	50 - 150%	PASS	3	25	PASS	
PCB099	NA	390.5	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS	2	25	PASS	
PCB101	NA	355.5	0.05	0.1	ng/dry g	400	0	89	50 - 150%	PASS	9	25	PASS	
PCB105	NA	340.9	0.05	0.1	ng/dry g	400	0	85	50 - 150%	PASS	0	25	PASS	
PCB110	NA	345.8	0.05	0.1	ng/dry g	400	0	86	50 - 150%	PASS	5	25	PASS	
PCB114	NA	347.1	0.05	0.1	ng/dry g	400	0	87	50 - 150%	PASS	18	25	PASS	
PCB118	NA	358.4	0.05	0.1	ng/dry g	400	0	90	50 - 150%	PASS	3	25	PASS	
PCB119	NA	383.6	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	4	25	PASS	
PCB123	NA	427.7	0.05	0.1	ng/dry g	400	0	107	50 - 150%	PASS	5	25	PASS	
PCB126	NA	383.46	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	2	25	PASS	
PCB128	NA	399.1	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS	7	25	PASS	
PCB137	NA	381.3	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS	6	25	PASS	

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB138	NA	385.56	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	5	25	PASS	
PCB141	NA	404.99	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS	6	25	PASS	
PCB149	NA	388.1	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS	2	25	PASS	
PCB151	NA	424.01	0.05	0.1	ng/dry g	400	0	106	50 - 150%	PASS	11	25	PASS	
PCB153	NA	394.73	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS	2	25	PASS	
PCB156	NA	364.3	0.05	0.1	ng/dry g	400	0	91	50 - 150%	PASS	7	25	PASS	
PCB157	NA	391.8	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS	7	25	PASS	
PCB158	NA	403.61	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS	3	25	PASS	
PCB167	NA	385.7	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	9	25	PASS	
PCB168+132	NA	835	0.1	0.2	ng/dry g	800	0	104	50 - 150%	PASS	2	25	PASS	
PCB169	NA	435.08	0.05	0.1	ng/dry g	400	0	109	50 - 150%	PASS	2	25	PASS	
PCB170	NA	401.45	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS	1	25	PASS	
PCB174	NA	382.74	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	3	25	PASS	
PCB177	NA	391.3	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS	2	25	PASS	
PCB180	NA	395.8	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS	2	25	PASS	
PCB183	NA	370.45	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS	6	25	PASS	
PCB187	NA	374.14	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS	7	25	PASS	
PCB189	NA	377.61	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS	1	25	PASS	
PCB194	NA	413.64	0.05	0.1	ng/dry g	400	0	103	50 - 150%	PASS	6	25	PASS	
PCB195	NA	361.16	0.05	0.1	ng/dry g	400	0	90	50 - 150%	PASS	12	25	PASS	
PCB199(200)	NA	432.8	0.1	0.2	ng/dry g	400	0	108	50 - 150%	PASS	2	25	PASS	
PCB201	NA	382.72	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	6	25	PASS	
PCB203	NA	374.3	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS	7	25	PASS	
PCB206	NA	389.35	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS	7	25	PASS	
PCB209	NA	446.58	0.05	0.1	ng/dry g	400	0	112	50 - 150%	PASS	9	25	PASS	

Sample ID: 21733-B1 **B13-8382** **Matrix: Sediment** **Sampled: 10-Jul-13** **11:04** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g									
PCB005	NA	ND	0.05	0.1	ng/dry g									
PCB008	NA	ND	0.05	0.1	ng/dry g									
PCB015	NA	ND	0.05	0.1	ng/dry g									

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature
1904 E. Wright Circle, Anaheim CA 92806 main: (714) 602-5320 fax: (714) 602-5321 www.physislabs.com info@physislabs.com CA ELAP #2769

PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
PCB018	NA	ND	0.05	0.1	ng/dry g							
PCB027	NA	ND	0.05	0.1	ng/dry g							
PCB028	NA	ND	0.05	0.1	ng/dry g							
PCB029	NA	ND	0.05	0.1	ng/dry g							
PCB031	NA	ND	0.05	0.1	ng/dry g							
PCB033	NA	ND	0.05	0.1	ng/dry g							
PCB037	NA	ND	0.05	0.1	ng/dry g							
PCB044	NA	ND	0.05	0.1	ng/dry g							
PCB049	NA	ND	0.05	0.1	ng/dry g							
PCB052	NA	ND	0.05	0.1	ng/dry g							
PCB056(060)	NA	ND	0.1	0.2	ng/dry g							
PCB066	NA	ND	0.05	0.1	ng/dry g							
PCB070	NA	ND	0.05	0.1	ng/dry g							
PCB074	NA	ND	0.05	0.1	ng/dry g							
PCB077	NA	ND	0.05	0.1	ng/dry g							
PCB081	NA	ND	0.05	0.1	ng/dry g							
PCB087	NA	ND	0.05	0.1	ng/dry g							
PCB095	NA	ND	0.05	0.1	ng/dry g							
PCB097	NA	ND	0.05	0.1	ng/dry g							
PCB099	NA	ND	0.05	0.1	ng/dry g							
PCB101	NA	ND	0.05	0.1	ng/dry g							
PCB105	NA	ND	0.05	0.1	ng/dry g							
PCB110	NA	ND	0.05	0.1	ng/dry g							
PCB114	NA	ND	0.05	0.1	ng/dry g							
PCB118	NA	ND	0.05	0.1	ng/dry g							
PCB119	NA	ND	0.05	0.1	ng/dry g							
PCB123	NA	ND	0.05	0.1	ng/dry g							
PCB126	NA	ND	0.05	0.1	ng/dry g							
PCB128	NA	ND	0.05	0.1	ng/dry g							
PCB137	NA	ND	0.05	0.1	ng/dry g							
PCB138	NA	ND	0.05	0.1	ng/dry g							

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PCB Congeners — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
PCB141	NA	ND	0.05	0.1	ng/dry g							
PCB149	NA	ND	0.05	0.1	ng/dry g							
PCB151	NA	ND	0.05	0.1	ng/dry g							
PCB153	NA	ND	0.05	0.1	ng/dry g							
PCB156	NA	ND	0.05	0.1	ng/dry g							
PCB157	NA	ND	0.05	0.1	ng/dry g							
PCB158	NA	ND	0.05	0.1	ng/dry g							
PCB167	NA	ND	0.05	0.1	ng/dry g							
PCB168+132	NA	ND	0.1	0.2	ng/dry g							
PCB169	NA	ND	0.05	0.1	ng/dry g							
PCB170	NA	ND	0.05	0.1	ng/dry g							
PCB174	NA	ND	0.05	0.1	ng/dry g							
PCB177	NA	ND	0.05	0.1	ng/dry g							
PCB180	NA	ND	0.05	0.1	ng/dry g							
PCB183	NA	ND	0.05	0.1	ng/dry g							
PCB187	NA	ND	0.05	0.1	ng/dry g							
PCB189	NA	ND	0.05	0.1	ng/dry g							
PCB194	NA	ND	0.05	0.1	ng/dry g							
PCB195	NA	ND	0.05	0.1	ng/dry g							
PCB199(200)	NA	ND	0.1	0.2	ng/dry g							
PCB201	NA	ND	0.05	0.1	ng/dry g							
PCB203	NA	ND	0.05	0.1	ng/dry g							
PCB206	NA	ND	0.05	0.1	ng/dry g							
PCB209	NA	ND	0.05	0.1	ng/dry g							

Sample ID: 21733-BS1 **B13-8382** **Matrix: Sediment** **Sampled: 10-Jul-13 11:04** **Received: 13-Jul-13**
Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	382.89	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS
PCB005	NA	372.89	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS
PCB008	NA	401.54	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS
PCB015	NA	408.85	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS
PCB018	NA	394.86	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PCB027	NA	354.79	0.05	0.1	ng/dry g	400	0	89	50 - 150%	PASS			
PCB028	NA	373.75	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS			
PCB029	NA	369.96	0.05	0.1	ng/dry g	400	0	92	50 - 150%	PASS			
PCB031	NA	393.48	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS			
PCB033	NA	384.83	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS			
PCB037	NA	409.09	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS			
PCB044	NA	395.41	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS			
PCB049	NA	378.1	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
PCB052	NA	389.49	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS			
PCB056(060)	NA	457.9	0.1	0.2	ng/dry g	400	0	114	50 - 150%	PASS			
PCB066	NA	400.91	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS			
PCB070	NA	420.83	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS			
PCB074	NA	428.03	0.05	0.1	ng/dry g	400	0	107	50 - 150%	PASS			
PCB077	NA	419.12	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS			
PCB081	NA	394.37	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS			
PCB087	NA	384.47	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS			
PCB095	NA	376.55	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS			
PCB097	NA	400.67	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS			
PCB099	NA	396.96	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS			
PCB101	NA	411.08	0.05	0.1	ng/dry g	400	0	103	50 - 150%	PASS			
PCB105	NA	366.64	0.05	0.1	ng/dry g	400	0	92	50 - 150%	PASS			
PCB110	NA	385.04	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS			
PCB114	NA	444.09	0.05	0.1	ng/dry g	400	0	111	50 - 150%	PASS			
PCB118	NA	393.68	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS			
PCB119	NA	387.97	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS			
PCB123	NA	409.56	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS			
PCB126	NA	414.93	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS			
PCB128	NA	376.84	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS			
PCB137	NA	388.5	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS			
PCB138	NA	391.42	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS			
PCB141	NA	355.93	0.05	0.1	ng/dry g	400	0	89	50 - 150%	PASS			

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PCB149	NA	365.31	0.05	0.1	ng/dry g	400	0	91	50 - 150%	PASS			
PCB151	NA	390.94	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS			
PCB153	NA	387.14	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS			
PCB156	NA	469.6	0.05	0.1	ng/dry g	400	0	117	50 - 150%	PASS			
PCB157	NA	437.96	0.05	0.1	ng/dry g	400	0	109	50 - 150%	PASS			
PCB158	NA	380.05	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
PCB167	NA	380.68	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
PCB168+132	NA	709.8	0.1	0.2	ng/dry g	800	0	89	50 - 150%	PASS			
PCB169	NA	451.88	0.05	0.1	ng/dry g	400	0	113	50 - 150%	PASS			
PCB170	NA	415.89	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS			
PCB174	NA	391.03	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS			
PCB177	NA	397.12	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS			
PCB180	NA	395.9	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS			
PCB183	NA	371.76	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS			
PCB187	NA	370.26	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS			
PCB189	NA	418.7	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS			
PCB194	NA	422.66	0.05	0.1	ng/dry g	400	0	106	50 - 150%	PASS			
PCB195	NA	392.33	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS			
PCB199(200)	NA	360.3	0.1	0.2	ng/dry g	400	0	90	50 - 150%	PASS			
PCB201	NA	407.85	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS			
PCB203	NA	407.3	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS			
PCB206	NA	435.61	0.05	0.1	ng/dry g	400	0	109	50 - 150%	PASS			
PCB209	NA	416.23	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS			

Sample ID: 21733-BS2 **B13-8382** **Matrix: Sediment** **Sampled: 10-Jul-13** **11:04** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	377.18	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS	2	25	PASS
PCB005	NA	368.77	0.05	0.1	ng/dry g	400	0	92	50 - 150%	PASS	1	25	PASS
PCB008	NA	395.82	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS	1	25	PASS
PCB015	NA	394.69	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS	3	25	PASS
PCB018	NA	392.47	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS	1	25	PASS
PCB027	NA	361.7	0.05	0.1	ng/dry g	400	0	90	50 - 150%	PASS	1	25	PASS

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB028	NA	365.87	0.05	0.1	ng/dry g	400	0	91	50 - 150%	PASS	2	25	PASS	
PCB029	NA	351.95	0.05	0.1	ng/dry g	400	0	88	50 - 150%	PASS	4	25	PASS	
PCB031	NA	382.78	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	2	25	PASS	
PCB033	NA	375.92	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS	2	25	PASS	
PCB037	NA	395.86	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS	3	25	PASS	
PCB044	NA	388.24	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS	2	25	PASS	
PCB049	NA	373.85	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS	2	25	PASS	
PCB052	NA	379.46	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS	2	25	PASS	
PCB056(060)	NA	449.4	0.1	0.2	ng/dry g	400	0	112	50 - 150%	PASS	2	25	PASS	
PCB066	NA	400.13	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS	0	25	PASS	
PCB070	NA	418.27	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS	0	25	PASS	
PCB074	NA	416.54	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS	3	25	PASS	
PCB077	NA	404.58	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS	4	25	PASS	
PCB081	NA	389.82	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS	2	25	PASS	
PCB087	NA	381.65	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS	1	25	PASS	
PCB095	NA	373.81	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS	1	25	PASS	
PCB097	NA	394.2	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS	1	25	PASS	
PCB099	NA	391.06	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS	1	25	PASS	
PCB101	NA	401	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS	3	25	PASS	
PCB105	NA	374.06	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS	2	25	PASS	
PCB110	NA	377.56	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS	2	25	PASS	
PCB114	NA	425.59	0.05	0.1	ng/dry g	400	0	106	50 - 150%	PASS	5	25	PASS	
PCB118	NA	389.93	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS	1	25	PASS	
PCB119	NA	385.94	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	1	25	PASS	
PCB123	NA	406.75	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS	0	25	PASS	
PCB126	NA	408.05	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS	2	25	PASS	
PCB128	NA	356.66	0.05	0.1	ng/dry g	400	0	89	50 - 150%	PASS	5	25	PASS	
PCB137	NA	397.02	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS	2	25	PASS	
PCB138	NA	389.13	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS	1	25	PASS	
PCB141	NA	357.76	0.05	0.1	ng/dry g	400	0	89	50 - 150%	PASS	0	25	PASS	
PCB149	NA	366.58	0.05	0.1	ng/dry g	400	0	92	50 - 150%	PASS	1	25	PASS	

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB151	NA	381.23	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS	3	25	PASS	
PCB153	NA	388.38	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS	0	25	PASS	
PCB156	NA	481.4	0.05	0.1	ng/dry g	400	0	120	50 - 150%	PASS	3	25	PASS	
PCB157	NA	444.88	0.05	0.1	ng/dry g	400	0	111	50 - 150%	PASS	2	25	PASS	
PCB158	NA	375.63	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS	1	25	PASS	
PCB167	NA	393.18	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS	3	25	PASS	
PCB168+132	NA	722.5	0.1	0.2	ng/dry g	800	0	90	50 - 150%	PASS	1	25	PASS	
PCB169	NA	457.2	0.05	0.1	ng/dry g	400	0	114	50 - 150%	PASS	1	25	PASS	
PCB170	NA	408.55	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS	2	25	PASS	
PCB174	NA	392.61	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS	0	25	PASS	
PCB177	NA	402.32	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS	2	25	PASS	
PCB180	NA	398.74	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS	1	25	PASS	
PCB183	NA	379.58	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS	2	25	PASS	
PCB187	NA	380.02	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS	2	25	PASS	
PCB189	NA	415.23	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS	1	25	PASS	
PCB194	NA	430.62	0.05	0.1	ng/dry g	400	0	108	50 - 150%	PASS	2	25	PASS	
PCB195	NA	393.59	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS	0	25	PASS	
PCB199(200)	NA	363.6	0.1	0.2	ng/dry g	400	0	91	50 - 150%	PASS	1	25	PASS	
PCB201	NA	420.22	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS	3	25	PASS	
PCB203	NA	410.63	0.05	0.1	ng/dry g	400	0	103	50 - 150%	PASS	1	25	PASS	
PCB206	NA	440.29	0.05	0.1	ng/dry g	400	0	110	50 - 150%	PASS	1	25	PASS	
PCB209	NA	418.79	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS	1	25	PASS	

Sample ID: 21744-MS1 **B13-8308** **Matrix: Sediment** **Sampled: 11-Jul-13 17:06** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	43.46	0.05	0.1	ng/dry g	47.84	0	91	50 - 150%	PASS				
PCB005	NA	42.16	0.05	0.1	ng/dry g	47.84	0	88	50 - 150%	PASS				
PCB008	NA	45.66	0.05	0.1	ng/dry g	47.84	0	95	50 - 150%	PASS				
PCB015	NA	46.13	0.05	0.1	ng/dry g	47.84	0	96	50 - 150%	PASS				
PCB018	NA	43.74	0.05	0.1	ng/dry g	47.84	0	91	50 - 150%	PASS				
PCB027	NA	42.18	0.05	0.1	ng/dry g	47.84	0	88	50 - 150%	PASS				
PCB028	NA	42.48	0.05	0.1	ng/dry g	47.84	0	89	50 - 150%	PASS				

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PCB029	NA	44.23	0.05	0.1	ng/dry g	47.84	0	92	50 - 150%	PASS			
PCB031	NA	47.32	0.05	0.1	ng/dry g	47.84	0	99	50 - 150%	PASS			
PCB033	NA	46.42	0.05	0.1	ng/dry g	47.84	0	97	50 - 150%	PASS			
PCB037	NA	48.31	0.05	0.1	ng/dry g	47.84	0	101	50 - 150%	PASS			
PCB044	NA	46.11	0.05	0.1	ng/dry g	47.84	0	96	50 - 150%	PASS			
PCB049	NA	45.57	0.05	0.1	ng/dry g	47.84	0	95	50 - 150%	PASS			
PCB052	NA	45.7	0.05	0.1	ng/dry g	47.84	0	96	50 - 150%	PASS			
PCB056(060)	NA	49.5	0.1	0.2	ng/dry g	47.8	0	104	50 - 150%	PASS			
PCB066	NA	45.55	0.05	0.1	ng/dry g	47.84	0	95	50 - 150%	PASS			
PCB070	NA	46.35	0.05	0.1	ng/dry g	47.84	0	97	50 - 150%	PASS			
PCB074	NA	49.15	0.05	0.1	ng/dry g	47.84	0	103	50 - 150%	PASS			
PCB077	NA	48.13	0.05	0.1	ng/dry g	47.84	0	101	50 - 150%	PASS			
PCB081	NA	45.78	0.05	0.1	ng/dry g	47.84	0	96	50 - 150%	PASS			
PCB087	NA	42.92	0.05	0.1	ng/dry g	47.84	0	90	50 - 150%	PASS			
PCB095	NA	40.41	0.05	0.1	ng/dry g	47.84	0	84	50 - 150%	PASS			
PCB097	NA	47.82	0.05	0.1	ng/dry g	47.84	0	100	50 - 150%	PASS			
PCB099	NA	45.43	0.05	0.1	ng/dry g	47.84	0	95	50 - 150%	PASS			
PCB101	NA	45.7	0.05	0.1	ng/dry g	47.84	0	96	50 - 150%	PASS			
PCB105	NA	43.13	0.05	0.1	ng/dry g	47.84	0	90	50 - 150%	PASS			
PCB110	NA	42.45	0.05	0.1	ng/dry g	47.84	0	89	50 - 150%	PASS			
PCB114	NA	51.49	0.05	0.1	ng/dry g	47.84	0	108	50 - 150%	PASS			
PCB118	NA	45.21	0.05	0.1	ng/dry g	47.84	0	95	50 - 150%	PASS			
PCB119	NA	46.16	0.05	0.1	ng/dry g	47.84	0	96	50 - 150%	PASS			
PCB123	NA	47.91	0.05	0.1	ng/dry g	47.84	0	100	50 - 150%	PASS			
PCB126	NA	55.6	0.05	0.1	ng/dry g	47.84	0	116	50 - 150%	PASS			
PCB128	NA	43.48	0.05	0.1	ng/dry g	47.84	0	91	50 - 150%	PASS			
PCB137	NA	49.61	0.05	0.1	ng/dry g	47.84	0	104	50 - 150%	PASS			
PCB138	NA	48.02	0.05	0.1	ng/dry g	47.84	0	100	50 - 150%	PASS			
PCB141	NA	42.38	0.05	0.1	ng/dry g	47.84	0	89	50 - 150%	PASS			
PCB149	NA	39.55	0.05	0.1	ng/dry g	47.84	0	83	50 - 150%	PASS			
PCB151	NA	43.9	0.05	0.1	ng/dry g	47.84	0	92	50 - 150%	PASS			

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PCB153	NA	48.61	0.05	0.1	ng/dry g	47.84	0	102	50 - 150%	PASS			
PCB156	NA	52.61	0.05	0.1	ng/dry g	47.84	0	110	50 - 150%	PASS			
PCB157	NA	47.77	0.05	0.1	ng/dry g	47.84	0	100	50 - 150%	PASS			
PCB158	NA	45.74	0.05	0.1	ng/dry g	47.84	0	96	50 - 150%	PASS			
PCB167	NA	47.4	0.05	0.1	ng/dry g	47.84	0	99	50 - 150%	PASS			
PCB168+132	NA	82.8	0.1	0.2	ng/dry g	95.7	0	87	50 - 150%	PASS			
PCB169	NA	56.43	0.05	0.1	ng/dry g	47.84	0	118	50 - 150%	PASS			
PCB170	NA	48.96	0.05	0.1	ng/dry g	47.84	0	102	50 - 150%	PASS			
PCB174	NA	47.03	0.05	0.1	ng/dry g	47.84	0	98	50 - 150%	PASS			
PCB177	NA	45.83	0.05	0.1	ng/dry g	47.84	0	96	50 - 150%	PASS			
PCB180	NA	50.42	0.05	0.1	ng/dry g	47.84	0	105	50 - 150%	PASS			
PCB183	NA	45.71	0.05	0.1	ng/dry g	47.84	0	96	50 - 150%	PASS			
PCB187	NA	45.51	0.05	0.1	ng/dry g	47.84	0	95	50 - 150%	PASS			
PCB189	NA	53.83	0.05	0.1	ng/dry g	47.84	0	113	50 - 150%	PASS			
PCB194	NA	51.52	0.05	0.1	ng/dry g	47.84	0	108	50 - 150%	PASS			
PCB195	NA	50.43	0.05	0.1	ng/dry g	47.84	0	105	50 - 150%	PASS			
PCB199(200)	NA	39.8	0.1	0.2	ng/dry g	47.8	0	83	50 - 150%	PASS			
PCB201	NA	48.57	0.05	0.1	ng/dry g	47.84	0	102	50 - 150%	PASS			
PCB203	NA	50.8	0.05	0.1	ng/dry g	47.84	0	106	50 - 150%	PASS			
PCB206	NA	51.99	0.05	0.1	ng/dry g	47.84	0	109	50 - 150%	PASS			
PCB209	NA	50.68	0.05	0.1	ng/dry g	47.84	0	106	50 - 150%	PASS			

Sample ID: 21744-MS2 **B13-8308** **Matrix: Sediment** **Sampled: 11-Jul-13 17:06** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	43.28	0.05	0.1	ng/dry g	47.84	0	90	50 - 150%	PASS	1	25	PASS
PCB005	NA	45.78	0.05	0.1	ng/dry g	47.84	0	96	50 - 150%	PASS	9	25	PASS
PCB008	NA	45.97	0.05	0.1	ng/dry g	47.84	0	96	50 - 150%	PASS	1	25	PASS
PCB015	NA	47.53	0.05	0.1	ng/dry g	47.84	0	99	50 - 150%	PASS	3	25	PASS
PCB018	NA	44.49	0.05	0.1	ng/dry g	47.84	0	93	50 - 150%	PASS	2	25	PASS
PCB027	NA	43.01	0.05	0.1	ng/dry g	47.84	0	90	50 - 150%	PASS	2	25	PASS
PCB028	NA	43.56	0.05	0.1	ng/dry g	47.84	0	91	50 - 150%	PASS	2	25	PASS
PCB029	NA	45.98	0.05	0.1	ng/dry g	47.84	0	96	50 - 150%	PASS	4	25	PASS

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB031	NA	47.94	0.05	0.1	ng/dry g	47.84	0	100	50 - 150%	PASS	1	25	PASS	
PCB033	NA	47.09	0.05	0.1	ng/dry g	47.84	0	98	50 - 150%	PASS	1	25	PASS	
PCB037	NA	49.57	0.05	0.1	ng/dry g	47.84	0	104	50 - 150%	PASS	3	25	PASS	
PCB044	NA	47.43	0.05	0.1	ng/dry g	47.84	0	99	50 - 150%	PASS	3	25	PASS	
PCB049	NA	46.59	0.05	0.1	ng/dry g	47.84	0	97	50 - 150%	PASS	2	25	PASS	
PCB052	NA	45.73	0.05	0.1	ng/dry g	47.84	0	96	50 - 150%	PASS	0	25	PASS	
PCB056(060)	NA	50.8	0.1	0.2	ng/dry g	47.8	0	106	50 - 150%	PASS	2	25	PASS	
PCB066	NA	47.29	0.05	0.1	ng/dry g	47.84	0	99	50 - 150%	PASS	4	25	PASS	
PCB070	NA	47.37	0.05	0.1	ng/dry g	47.84	0	99	50 - 150%	PASS	2	25	PASS	
PCB074	NA	50.5	0.05	0.1	ng/dry g	47.84	0	106	50 - 150%	PASS	3	25	PASS	
PCB077	NA	48.46	0.05	0.1	ng/dry g	47.84	0	101	50 - 150%	PASS	0	25	PASS	
PCB081	NA	46.8	0.05	0.1	ng/dry g	47.84	0	98	50 - 150%	PASS	2	25	PASS	
PCB087	NA	44.83	0.05	0.1	ng/dry g	47.84	0	94	50 - 150%	PASS	4	25	PASS	
PCB095	NA	41.8	0.05	0.1	ng/dry g	47.84	0	87	50 - 150%	PASS	4	25	PASS	
PCB097	NA	48.92	0.05	0.1	ng/dry g	47.84	0	102	50 - 150%	PASS	2	25	PASS	
PCB099	NA	47.05	0.05	0.1	ng/dry g	47.84	0	98	50 - 150%	PASS	3	25	PASS	
PCB101	NA	47.34	0.05	0.1	ng/dry g	47.84	0	99	50 - 150%	PASS	3	25	PASS	
PCB105	NA	45.22	0.05	0.1	ng/dry g	47.84	0	95	50 - 150%	PASS	5	25	PASS	
PCB110	NA	43.28	0.05	0.1	ng/dry g	47.84	0	90	50 - 150%	PASS	1	25	PASS	
PCB114	NA	52.53	0.05	0.1	ng/dry g	47.84	0	110	50 - 150%	PASS	2	25	PASS	
PCB118	NA	46.14	0.05	0.1	ng/dry g	47.84	0	96	50 - 150%	PASS	1	25	PASS	
PCB119	NA	47.16	0.05	0.1	ng/dry g	47.84	0	99	50 - 150%	PASS	3	25	PASS	
PCB123	NA	49.47	0.05	0.1	ng/dry g	47.84	0	103	50 - 150%	PASS	3	25	PASS	
PCB126	NA	55.96	0.05	0.1	ng/dry g	47.84	0	117	50 - 150%	PASS	1	25	PASS	
PCB128	NA	46.54	0.05	0.1	ng/dry g	47.84	0	97	50 - 150%	PASS	6	25	PASS	
PCB137	NA	51.44	0.05	0.1	ng/dry g	47.84	0	108	50 - 150%	PASS	4	25	PASS	
PCB138	NA	50.39	0.05	0.1	ng/dry g	47.84	0	105	50 - 150%	PASS	5	25	PASS	
PCB141	NA	44.79	0.05	0.1	ng/dry g	47.84	0	94	50 - 150%	PASS	5	25	PASS	
PCB149	NA	40.52	0.05	0.1	ng/dry g	47.84	0	85	50 - 150%	PASS	2	25	PASS	
PCB151	NA	45.36	0.05	0.1	ng/dry g	47.84	0	95	50 - 150%	PASS	3	25	PASS	
PCB153	NA	50.14	0.05	0.1	ng/dry g	47.84	0	105	50 - 150%	PASS	3	25	PASS	

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PCB Congeners — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB156	NA	53.38	0.05	0.1	ng/dry g	47.84	0	112	50 - 150%	PASS	2	25	PASS	
PCB157	NA	49.64	0.05	0.1	ng/dry g	47.84	0	104	50 - 150%	PASS	4	25	PASS	
PCB158	NA	47.48	0.05	0.1	ng/dry g	47.84	0	99	50 - 150%	PASS	3	25	PASS	
PCB167	NA	46.98	0.05	0.1	ng/dry g	47.84	0	98	50 - 150%	PASS	1	25	PASS	
PCB168+132	NA	85.9	0.1	0.2	ng/dry g	95.7	0	90	50 - 150%	PASS	3	25	PASS	
PCB169	NA	58.56	0.05	0.1	ng/dry g	47.84	0	122	50 - 150%	PASS	3	25	PASS	
PCB170	NA	50	0.05	0.1	ng/dry g	47.84	0	105	50 - 150%	PASS	3	25	PASS	
PCB174	NA	49.1	0.05	0.1	ng/dry g	47.84	0	103	50 - 150%	PASS	5	25	PASS	
PCB177	NA	47.88	0.05	0.1	ng/dry g	47.84	0	100	50 - 150%	PASS	4	25	PASS	
PCB180	NA	51.67	0.05	0.1	ng/dry g	47.84	0	108	50 - 150%	PASS	3	25	PASS	
PCB183	NA	47.21	0.05	0.1	ng/dry g	47.84	0	99	50 - 150%	PASS	3	25	PASS	
PCB187	NA	46.84	0.05	0.1	ng/dry g	47.84	0	98	50 - 150%	PASS	3	25	PASS	
PCB189	NA	54.62	0.05	0.1	ng/dry g	47.84	0	114	50 - 150%	PASS	1	25	PASS	
PCB194	NA	52.62	0.05	0.1	ng/dry g	47.84	0	110	50 - 150%	PASS	2	25	PASS	
PCB195	NA	50.79	0.05	0.1	ng/dry g	47.84	0	106	50 - 150%	PASS	1	25	PASS	
PCB199(200)	NA	40.7	0.1	0.2	ng/dry g	47.8	0	85	50 - 150%	PASS	2	25	PASS	
PCB201	NA	50.58	0.05	0.1	ng/dry g	47.84	0	106	50 - 150%	PASS	4	25	PASS	
PCB203	NA	52.38	0.05	0.1	ng/dry g	47.84	0	109	50 - 150%	PASS	3	25	PASS	
PCB206	NA	52.84	0.05	0.1	ng/dry g	47.84	0	110	50 - 150%	PASS	1	25	PASS	
PCB209	NA	51.29	0.05	0.1	ng/dry g	47.84	0	107	50 - 150%	PASS	1	25	PASS	

Sample ID: 21744-R2 **B13-8308** Method: EPA 8270C **Matrix: Sediment** Batch ID: O-6003 **Sampled: 11-Jul-13 17:06** Prepared: 15-Aug-13 **Received: 13-Jul-13** Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB005	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB008	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB015	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB018	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB027	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB028	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB029	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB031	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS		QA CODE
PCB033	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB037	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB044	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB049	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB052	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g					0	25	PASS	
PCB066	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB070	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB074	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB077	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB081	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB087	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB095	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB097	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB099	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB101	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB105	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB110	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB114	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB118	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB119	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB123	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB126	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB128	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB137	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB138	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB141	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB149	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB151	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB153	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB156	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
PCB157	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB158	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB167	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB168+132	NA	ND	0.1	0.2	ng/dry g					0	25 PASS	
PCB169	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB170	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB174	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB177	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB180	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB183	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB187	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB189	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB194	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB195	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g					0	25 PASS	
PCB201	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB203	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB206	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB209	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	

Sample ID: 21753-MS1 **B13-8397** **Matrix: Sediment** **Sampled: 12-Jul-13 11:20** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	65.08	0.05	0.1	ng/dry g	72.02	0	90	50 - 150%	PASS	
PCB005	NA	69.59	0.05	0.1	ng/dry g	72.02	0	97	50 - 150%	PASS	
PCB008	NA	67.13	0.05	0.1	ng/dry g	72.02	0	93	50 - 150%	PASS	
PCB015	NA	69.81	0.05	0.1	ng/dry g	72.02	0	97	50 - 150%	PASS	
PCB018	NA	66.39	0.05	0.1	ng/dry g	72.02	0	92	50 - 150%	PASS	
PCB027	NA	61.84	0.05	0.1	ng/dry g	72.02	0	86	50 - 150%	PASS	
PCB028	NA	65.73	0.05	0.1	ng/dry g	72.02	0	91	50 - 150%	PASS	
PCB029	NA	68.34	0.05	0.1	ng/dry g	72.02	0	95	50 - 150%	PASS	
PCB031	NA	71.16	0.05	0.1	ng/dry g	72.02	0	99	50 - 150%	PASS	
PCB033	NA	69.38	0.05	0.1	ng/dry g	72.02	0	96	50 - 150%	PASS	

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PCB037	NA	73.71	0.05	0.1	ng/dry g	72.02	0	102	50 - 150%	PASS			
PCB044	NA	69.6	0.05	0.1	ng/dry g	72.02	0.15	96	50 - 150%	PASS			
PCB049	NA	69.69	0.05	0.1	ng/dry g	72.02	1.05	95	50 - 150%	PASS			
PCB052	NA	69.81	0.05	0.1	ng/dry g	72.02	0.2	97	50 - 150%	PASS			
PCB056(060)	NA	76.5	0.1	0.2	ng/dry g	72	0	106	50 - 150%	PASS			
PCB066	NA	71.27	0.05	0.1	ng/dry g	72.02	0.5	98	50 - 150%	PASS			
PCB070	NA	72.27	0.05	0.1	ng/dry g	72.02	0.45	100	50 - 150%	PASS			
PCB074	NA	75.96	0.05	0.1	ng/dry g	72.02	0.15	105	50 - 150%	PASS			
PCB077	NA	75.24	0.05	0.1	ng/dry g	72.02	0	104	50 - 150%	PASS			
PCB081	NA	72.2	0.05	0.1	ng/dry g	72.02	0	100	50 - 150%	PASS			
PCB087	NA	68.16	0.05	0.1	ng/dry g	72.02	0.15	94	50 - 150%	PASS			
PCB095	NA	63.47	0.05	0.1	ng/dry g	72.02	0.65	87	50 - 150%	PASS			
PCB097	NA	74.4	0.05	0.1	ng/dry g	72.02	0	103	50 - 150%	PASS			
PCB099	NA	71.61	0.05	0.1	ng/dry g	72.02	0.75	98	50 - 150%	PASS			
PCB101	NA	72.84	0.05	0.1	ng/dry g	72.02	1.25	99	50 - 150%	PASS			
PCB105	NA	67.41	0.05	0.1	ng/dry g	72.02	0	94	50 - 150%	PASS			
PCB110	NA	68	0.05	0.1	ng/dry g	72.02	0.85	93	50 - 150%	PASS			
PCB114	NA	80.86	0.05	0.1	ng/dry g	72.02	0	112	50 - 150%	PASS			
PCB118	NA	70.83	0.05	0.1	ng/dry g	72.02	0.7	97	50 - 150%	PASS			
PCB119	NA	71.36	0.05	0.1	ng/dry g	72.02	0	99	50 - 150%	PASS			
PCB123	NA	75.98	0.05	0.1	ng/dry g	72.02	0	105	50 - 150%	PASS			
PCB126	NA	83.73	0.05	0.1	ng/dry g	72.02	0	116	50 - 150%	PASS			
PCB128	NA	73.87	0.05	0.1	ng/dry g	72.02	0	103	50 - 150%	PASS			
PCB137	NA	75.39	0.05	0.1	ng/dry g	72.02	0	105	50 - 150%	PASS			
PCB138	NA	77.49	0.05	0.1	ng/dry g	72.02	1.6	105	50 - 150%	PASS			
PCB141	NA	67.8	0.05	0.1	ng/dry g	72.02	0	94	50 - 150%	PASS			
PCB149	NA	62.97	0.05	0.1	ng/dry g	72.02	1.25	86	50 - 150%	PASS			
PCB151	NA	69.07	0.05	0.1	ng/dry g	72.02	0.4	95	50 - 150%	PASS			
PCB153	NA	75.45	0.05	0.1	ng/dry g	72.02	1.95	102	50 - 150%	PASS			
PCB156	NA	82.34	0.05	0.1	ng/dry g	72.02	0	114	50 - 150%	PASS			
PCB157	NA	73.93	0.05	0.1	ng/dry g	72.02	0	103	50 - 150%	PASS			

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PCB158	NA	70.96	0.05	0.1	ng/dry g	72.02	0	99	50 - 150%	PASS			
PCB167	NA	70.27	0.05	0.1	ng/dry g	72.02	0	98	50 - 150%	PASS			
PCB168+132	NA	129.3	0.1	0.2	ng/dry g	144	0.2	90	50 - 150%	PASS			
PCB169	NA	85.73	0.05	0.1	ng/dry g	72.02	0	119	50 - 150%	PASS			
PCB170	NA	79.14	0.05	0.1	ng/dry g	72.02	0	110	50 - 150%	PASS			
PCB174	NA	75.33	0.05	0.1	ng/dry g	72.02	0.7	104	50 - 150%	PASS			
PCB177	NA	71.59	0.05	0.1	ng/dry g	72.02	0	99	50 - 150%	PASS			
PCB180	NA	78.92	0.05	0.1	ng/dry g	72.02	1.3	108	50 - 150%	PASS			
PCB183	NA	72.14	0.05	0.1	ng/dry g	72.02	0.45	100	50 - 150%	PASS			
PCB187	NA	72.75	0.05	0.1	ng/dry g	72.02	0.8	100	50 - 150%	PASS			
PCB189	NA	85.4	0.05	0.1	ng/dry g	72.02	0	119	50 - 150%	PASS			
PCB194	NA	83.53	0.05	0.1	ng/dry g	72.02	0	116	50 - 150%	PASS			
PCB195	NA	79.1	0.05	0.1	ng/dry g	72.02	0	110	50 - 150%	PASS			
PCB199(200)	NA	62.1	0.1	0.2	ng/dry g	72	0	86	50 - 150%	PASS			
PCB201	NA	77.39	0.05	0.1	ng/dry g	72.02	0	107	50 - 150%	PASS			
PCB203	NA	81.13	0.05	0.1	ng/dry g	72.02	0	113	50 - 150%	PASS			
PCB206	NA	83.73	0.05	0.1	ng/dry g	72.02	0	116	50 - 150%	PASS			
PCB209	NA	79.03	0.05	0.1	ng/dry g	72.02	0	110	50 - 150%	PASS			

Sample ID: 21753-MS2 **B13-8397** **Matrix: Sediment** **Sampled: 12-Jul-13 11:20** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	66.23	0.05	0.1	ng/dry g	72.02	0	92	50 - 150%	PASS	2	25	PASS
PCB005	NA	66.11	0.05	0.1	ng/dry g	72.02	0	92	50 - 150%	PASS	5	25	PASS
PCB008	NA	68.5	0.05	0.1	ng/dry g	72.02	0	95	50 - 150%	PASS	2	25	PASS
PCB015	NA	71.99	0.05	0.1	ng/dry g	72.02	0	100	50 - 150%	PASS	3	25	PASS
PCB018	NA	67.12	0.05	0.1	ng/dry g	72.02	0	93	50 - 150%	PASS	1	25	PASS
PCB027	NA	64.85	0.05	0.1	ng/dry g	72.02	0	90	50 - 150%	PASS	5	25	PASS
PCB028	NA	65.48	0.05	0.1	ng/dry g	72.02	0	91	50 - 150%	PASS	0	25	PASS
PCB029	NA	68.5	0.05	0.1	ng/dry g	72.02	0	95	50 - 150%	PASS	0	25	PASS
PCB031	NA	71.02	0.05	0.1	ng/dry g	72.02	0	99	50 - 150%	PASS	0	25	PASS
PCB033	NA	69.18	0.05	0.1	ng/dry g	72.02	0	96	50 - 150%	PASS	0	25	PASS
PCB037	NA	73.09	0.05	0.1	ng/dry g	72.02	0	101	50 - 150%	PASS	1	25	PASS

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QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB044	NA	68.73	0.05	0.1	ng/dry g	72.02	0.15	95	50 - 150%	PASS	1	25	PASS	
PCB049	NA	68.78	0.05	0.1	ng/dry g	72.02	1.05	94	50 - 150%	PASS	1	25	PASS	
PCB052	NA	68.91	0.05	0.1	ng/dry g	72.02	0.2	95	50 - 150%	PASS	2	25	PASS	
PCB056(060)	NA	76.2	0.1	0.2	ng/dry g	72	0	106	50 - 150%	PASS	0	25	PASS	
PCB066	NA	69.35	0.05	0.1	ng/dry g	72.02	0.5	96	50 - 150%	PASS	2	25	PASS	
PCB070	NA	70.25	0.05	0.1	ng/dry g	72.02	0.45	97	50 - 150%	PASS	3	25	PASS	
PCB074	NA	74.5	0.05	0.1	ng/dry g	72.02	0.15	103	50 - 150%	PASS	2	25	PASS	
PCB077	NA	72.44	0.05	0.1	ng/dry g	72.02	0	101	50 - 150%	PASS	3	25	PASS	
PCB081	NA	70.25	0.05	0.1	ng/dry g	72.02	0	98	50 - 150%	PASS	2	25	PASS	
PCB087	NA	66.2	0.05	0.1	ng/dry g	72.02	0.15	92	50 - 150%	PASS	2	25	PASS	
PCB095	NA	60.83	0.05	0.1	ng/dry g	72.02	0.65	84	50 - 150%	PASS	4	25	PASS	
PCB097	NA	72.59	0.05	0.1	ng/dry g	72.02	0	101	50 - 150%	PASS	2	25	PASS	
PCB099	NA	69.5	0.05	0.1	ng/dry g	72.02	0.75	95	50 - 150%	PASS	3	25	PASS	
PCB101	NA	71.21	0.05	0.1	ng/dry g	72.02	1.25	97	50 - 150%	PASS	2	25	PASS	
PCB105	NA	67.24	0.05	0.1	ng/dry g	72.02	0	93	50 - 150%	PASS	1	25	PASS	
PCB110	NA	65.26	0.05	0.1	ng/dry g	72.02	0.85	89	50 - 150%	PASS	4	25	PASS	
PCB114	NA	77	0.05	0.1	ng/dry g	72.02	0	107	50 - 150%	PASS	5	25	PASS	
PCB118	NA	69.01	0.05	0.1	ng/dry g	72.02	0.7	95	50 - 150%	PASS	2	25	PASS	
PCB119	NA	70.2	0.05	0.1	ng/dry g	72.02	0	97	50 - 150%	PASS	2	25	PASS	
PCB123	NA	72.49	0.05	0.1	ng/dry g	72.02	0	101	50 - 150%	PASS	4	25	PASS	
PCB126	NA	84.37	0.05	0.1	ng/dry g	72.02	0	117	50 - 150%	PASS	1	25	PASS	
PCB128	NA	69.64	0.05	0.1	ng/dry g	72.02	0	97	50 - 150%	PASS	6	25	PASS	
PCB137	NA	79.25	0.05	0.1	ng/dry g	72.02	0	110	50 - 150%	PASS	5	25	PASS	
PCB138	NA	76.94	0.05	0.1	ng/dry g	72.02	1.6	105	50 - 150%	PASS	0	25	PASS	
PCB141	NA	66.33	0.05	0.1	ng/dry g	72.02	0	92	50 - 150%	PASS	2	25	PASS	
PCB149	NA	61.72	0.05	0.1	ng/dry g	72.02	1.25	84	50 - 150%	PASS	2	25	PASS	
PCB151	NA	67.61	0.05	0.1	ng/dry g	72.02	0.4	93	50 - 150%	PASS	2	25	PASS	
PCB153	NA	76.34	0.05	0.1	ng/dry g	72.02	1.95	103	50 - 150%	PASS	1	25	PASS	
PCB156	NA	84.26	0.05	0.1	ng/dry g	72.02	0	117	50 - 150%	PASS	3	25	PASS	
PCB157	NA	73.75	0.05	0.1	ng/dry g	72.02	0	102	50 - 150%	PASS	1	25	PASS	
PCB158	NA	71.12	0.05	0.1	ng/dry g	72.02	0	99	50 - 150%	PASS	0	25	PASS	

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QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB167	NA	72.59	0.05	0.1	ng/dry g	72.02	0	101	50 - 150%	PASS	3	25	PASS	
PCB168+132	NA	128.6	0.1	0.2	ng/dry g	144	0.2	89	50 - 150%	PASS	1	25	PASS	
PCB169	NA	89.68	0.05	0.1	ng/dry g	72.02	0	125	50 - 150%	PASS	5	25	PASS	
PCB170	NA	78.59	0.05	0.1	ng/dry g	72.02	0	109	50 - 150%	PASS	1	25	PASS	
PCB174	NA	75.92	0.05	0.1	ng/dry g	72.02	0.7	104	50 - 150%	PASS	0	25	PASS	
PCB177	NA	72.41	0.05	0.1	ng/dry g	72.02	0	101	50 - 150%	PASS	2	25	PASS	
PCB180	NA	79.06	0.05	0.1	ng/dry g	72.02	1.3	108	50 - 150%	PASS	0	25	PASS	
PCB183	NA	70.93	0.05	0.1	ng/dry g	72.02	0.45	98	50 - 150%	PASS	2	25	PASS	
PCB187	NA	72.72	0.05	0.1	ng/dry g	72.02	0.8	100	50 - 150%	PASS	0	25	PASS	
PCB189	NA	86.13	0.05	0.1	ng/dry g	72.02	0	120	50 - 150%	PASS	1	25	PASS	
PCB194	NA	81.16	0.05	0.1	ng/dry g	72.02	0	113	50 - 150%	PASS	3	25	PASS	
PCB195	NA	79	0.05	0.1	ng/dry g	72.02	0	110	50 - 150%	PASS	0	25	PASS	
PCB199(200)	NA	61.9	0.1	0.2	ng/dry g	72	0	86	50 - 150%	PASS	0	25	PASS	
PCB201	NA	77.56	0.05	0.1	ng/dry g	72.02	0	108	50 - 150%	PASS	1	25	PASS	
PCB203	NA	81.99	0.05	0.1	ng/dry g	72.02	0	114	50 - 150%	PASS	1	25	PASS	
PCB206	NA	81.73	0.05	0.1	ng/dry g	72.02	0	113	50 - 150%	PASS	3	25	PASS	
PCB209	NA	79.54	0.05	0.1	ng/dry g	72.02	0	110	50 - 150%	PASS	0	25	PASS	

Sample ID: 21753-R2 **B13-8397** **Matrix: Sediment** **Sampled: 12-Jul-13** **11:20** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

PCB003	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB005	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB008	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB015	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB018	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB027	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB028	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB029	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB031	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB033	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB037	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB044	NA	ND	0.05	0.1	ng/dry g						143	25	FAIL	SL

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS		QA CODE
PCB049	NA	1	0.05	0.1	ng/dry g					10	25	PASS	
PCB052	NA	0.4	0.05	0.1	ng/dry g					156	25	FAIL	SL
PCB056(060)	NA	ND	0.1	0.2	ng/dry g					0	25	PASS	
PCB066	NA	0.3	0.05	0.1	ng/dry g					80	25	FAIL	SL
PCB070	NA	0.6	0.05	0.1	ng/dry g					67	25	FAIL	NH
PCB074	NA	ND	0.05	0.1	ng/dry g					143	25	FAIL	SL
PCB077	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB081	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB087	NA	ND	0.05	0.1	ng/dry g					143	25	FAIL	SL
PCB095	NA	0.5	0.05	0.1	ng/dry g					46	25	FAIL	NH
PCB097	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB099	NA	0.7	0.05	0.1	ng/dry g					13	25	PASS	
PCB101	NA	1.1	0.05	0.1	ng/dry g					24	25	PASS	
PCB105	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB110	NA	0.9	0.05	0.1	ng/dry g					12	25	PASS	
PCB114	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB118	NA	0.7	0.05	0.1	ng/dry g					0	25	PASS	
PCB119	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB123	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB126	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB128	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB137	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB138	NA	1.4	0.05	0.1	ng/dry g					25	25	PASS	
PCB141	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB149	NA	1.1	0.05	0.1	ng/dry g					24	25	PASS	
PCB151	NA	0.4	0.05	0.1	ng/dry g					0	25	PASS	
PCB153	NA	1.6	0.05	0.1	ng/dry g					36	25	FAIL	NH
PCB156	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB157	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB158	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB167	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS		QA CODE
PCB168+132	NA	0.3	0.1	0.2	ng/dry g					100	25	FAIL	SL
PCB169	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB170	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB174	NA	0.6	0.05	0.1	ng/dry g					29	25	FAIL	NH
PCB177	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB180	NA	1.1	0.05	0.1	ng/dry g					31	25	FAIL	NH
PCB183	NA	0.4	0.05	0.1	ng/dry g					22	25	PASS	
PCB187	NA	0.6	0.05	0.1	ng/dry g					50	25	FAIL	NH
PCB189	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB194	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB195	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g					0	25	PASS	
PCB201	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB203	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB206	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB209	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	

Sample ID: 21764-MS1 **B13-8356** **Matrix: Sediment** **Sampled: 13-Jul-13** **9:22** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

PCB003	NA	43.31	0.05	0.1	ng/dry g	46.44	0	93	50 - 150%	PASS
PCB005	NA	44.96	0.05	0.1	ng/dry g	46.44	0	97	50 - 150%	PASS
PCB008	NA	38.79	0.05	0.1	ng/dry g	46.44	0	84	50 - 150%	PASS
PCB015	NA	40.44	0.05	0.1	ng/dry g	46.44	0	87	50 - 150%	PASS
PCB018	NA	38.41	0.05	0.1	ng/dry g	46.44	0	83	50 - 150%	PASS
PCB027	NA	44.64	0.05	0.1	ng/dry g	46.44	0	96	50 - 150%	PASS
PCB028	NA	44.4	0.05	0.1	ng/dry g	46.44	0	96	50 - 150%	PASS
PCB029	NA	48.06	0.05	0.1	ng/dry g	46.44	0	103	50 - 150%	PASS
PCB031	NA	45.43	0.05	0.1	ng/dry g	46.44	0	98	50 - 150%	PASS
PCB033	NA	46.39	0.05	0.1	ng/dry g	46.44	0	100	50 - 150%	PASS
PCB037	NA	41.74	0.05	0.1	ng/dry g	46.44	0	90	50 - 150%	PASS
PCB044	NA	45.05	0.05	0.1	ng/dry g	46.44	0	97	50 - 150%	PASS
PCB049	NA	45.62	0.05	0.1	ng/dry g	46.44	0	98	50 - 150%	PASS

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PCB052	NA	45.75	0.05	0.1	ng/dry g	46.44	0	99	50 - 150%	PASS			
PCB056(060)	NA	44.2	0.1	0.2	ng/dry g	46.4	0	95	50 - 150%	PASS			
PCB066	NA	43.02	0.05	0.1	ng/dry g	46.44	0	93	50 - 150%	PASS			
PCB070	NA	44.19	0.05	0.1	ng/dry g	46.44	0	95	50 - 150%	PASS			
PCB074	NA	44.45	0.05	0.1	ng/dry g	46.44	0	96	50 - 150%	PASS			
PCB077	NA	38.89	0.05	0.1	ng/dry g	46.44	0	84	50 - 150%	PASS			
PCB081	NA	40.72	0.05	0.1	ng/dry g	46.44	0	88	50 - 150%	PASS			
PCB087	NA	43.05	0.05	0.1	ng/dry g	46.44	0	93	50 - 150%	PASS			
PCB095	NA	42.13	0.05	0.1	ng/dry g	46.44	0	91	50 - 150%	PASS			
PCB097	NA	44.14	0.05	0.1	ng/dry g	46.44	0	95	50 - 150%	PASS			
PCB099	NA	44.9	0.05	0.1	ng/dry g	46.44	0	97	50 - 150%	PASS			
PCB101	NA	44.17	0.05	0.1	ng/dry g	46.44	0	95	50 - 150%	PASS			
PCB105	NA	39.08	0.05	0.1	ng/dry g	46.44	0.05	84	50 - 150%	PASS			
PCB110	NA	42.04	0.05	0.1	ng/dry g	46.44	0.1	90	50 - 150%	PASS			
PCB114	NA	41.55	0.05	0.1	ng/dry g	46.44	0	89	50 - 150%	PASS			
PCB118	NA	41.54	0.05	0.1	ng/dry g	46.44	0	89	50 - 150%	PASS			
PCB119	NA	44.01	0.05	0.1	ng/dry g	46.44	0	95	50 - 150%	PASS			
PCB123	NA	41.39	0.05	0.1	ng/dry g	46.44	0	89	50 - 150%	PASS			
PCB126	NA	41.1	0.05	0.1	ng/dry g	46.44	1.7	85	50 - 150%	PASS			
PCB128	NA	40.4	0.05	0.1	ng/dry g	46.44	0	87	50 - 150%	PASS			
PCB137	NA	45.71	0.05	0.1	ng/dry g	46.44	0	98	50 - 150%	PASS			
PCB138	NA	38.93	0.05	0.1	ng/dry g	46.44	0.4	83	50 - 150%	PASS			
PCB141	NA	37.78	0.05	0.1	ng/dry g	46.44	0	81	50 - 150%	PASS			
PCB149	NA	40.33	0.05	0.1	ng/dry g	46.44	0	87	50 - 150%	PASS			
PCB151	NA	40.29	0.05	0.1	ng/dry g	46.44	0	87	50 - 150%	PASS			
PCB153	NA	40.22	0.05	0.1	ng/dry g	46.44	0.05	86	50 - 150%	PASS			
PCB156	NA	37.76	0.05	0.1	ng/dry g	46.44	0	81	50 - 150%	PASS			
PCB157	NA	41.25	0.05	0.1	ng/dry g	46.44	0	89	50 - 150%	PASS			
PCB158	NA	38.02	0.05	0.1	ng/dry g	46.44	0.15	82	50 - 150%	PASS			
PCB167	NA	41.67	0.05	0.1	ng/dry g	46.44	0.15	89	50 - 150%	PASS			
PCB168+132	NA	88.4	0.1	0.2	ng/dry g	92.9	0	95	50 - 150%	PASS			

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PCB169	NA	46.93	0.05	0.1	ng/dry g	46.44	0	101	50 - 150%	PASS			
PCB170	NA	47.29	0.05	0.1	ng/dry g	46.44	0	102	50 - 150%	PASS			
PCB174	NA	47.69	0.05	0.1	ng/dry g	46.44	0	103	50 - 150%	PASS			
PCB177	NA	48.39	0.05	0.1	ng/dry g	46.44	0	104	50 - 150%	PASS			
PCB180	NA	45.16	0.05	0.1	ng/dry g	46.44	0	97	50 - 150%	PASS			
PCB183	NA	48.1	0.05	0.1	ng/dry g	46.44	0	104	50 - 150%	PASS			
PCB187	NA	44.17	0.05	0.1	ng/dry g	46.44	0	95	50 - 150%	PASS			
PCB189	NA	46.86	0.05	0.1	ng/dry g	46.44	0	101	50 - 150%	PASS			
PCB194	NA	43.89	0.05	0.1	ng/dry g	46.44	0	95	50 - 150%	PASS			
PCB195	NA	43.27	0.05	0.1	ng/dry g	46.44	0	93	50 - 150%	PASS			
PCB199(200)	NA	47.5	0.1	0.2	ng/dry g	46.4	0	102	50 - 150%	PASS			
PCB201	NA	45.84	0.05	0.1	ng/dry g	46.44	0	99	50 - 150%	PASS			
PCB203	NA	46.22	0.05	0.1	ng/dry g	46.44	0	100	50 - 150%	PASS			
PCB206	NA	43.13	0.05	0.1	ng/dry g	46.44	0	93	50 - 150%	PASS			
PCB209	NA	40.3	0.05	0.1	ng/dry g	46.44	0	87	50 - 150%	PASS			

Sample ID: 21764-MS2 **B13-8356** **Matrix: Sediment** **Sampled: 13-Jul-13 9:22** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

PCB003	NA	40.12	0.05	0.1	ng/dry g	46.44	0	86	50 - 150%	PASS	8	25	PASS
PCB005	NA	43.05	0.05	0.1	ng/dry g	46.44	0	93	50 - 150%	PASS	4	25	PASS
PCB008	NA	46.76	0.05	0.1	ng/dry g	46.44	0	101	50 - 150%	PASS	18	25	PASS
PCB015	NA	39.68	0.05	0.1	ng/dry g	46.44	0	85	50 - 150%	PASS	2	25	PASS
PCB018	NA	46.91	0.05	0.1	ng/dry g	46.44	0	101	50 - 150%	PASS	20	25	PASS
PCB027	NA	44.26	0.05	0.1	ng/dry g	46.44	0	95	50 - 150%	PASS	1	25	PASS
PCB028	NA	43.15	0.05	0.1	ng/dry g	46.44	0	93	50 - 150%	PASS	3	25	PASS
PCB029	NA	47.33	0.05	0.1	ng/dry g	46.44	0	102	50 - 150%	PASS	1	25	PASS
PCB031	NA	45.61	0.05	0.1	ng/dry g	46.44	0	98	50 - 150%	PASS	0	25	PASS
PCB033	NA	45.42	0.05	0.1	ng/dry g	46.44	0	98	50 - 150%	PASS	2	25	PASS
PCB037	NA	40.7	0.05	0.1	ng/dry g	46.44	0	88	50 - 150%	PASS	2	25	PASS
PCB044	NA	44.3	0.05	0.1	ng/dry g	46.44	0	95	50 - 150%	PASS	2	25	PASS
PCB049	NA	44.61	0.05	0.1	ng/dry g	46.44	0	96	50 - 150%	PASS	2	25	PASS
PCB052	NA	43.81	0.05	0.1	ng/dry g	46.44	0	94	50 - 150%	PASS	5	25	PASS

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB056(060)	NA	44.1	0.1	0.2	ng/dry g	46.4	0	95	50 - 150%	PASS	0	25	PASS	
PCB066	NA	42.78	0.05	0.1	ng/dry g	46.44	0	92	50 - 150%	PASS	1	25	PASS	
PCB070	NA	43.4	0.05	0.1	ng/dry g	46.44	0	93	50 - 150%	PASS	2	25	PASS	
PCB074	NA	43.57	0.05	0.1	ng/dry g	46.44	0	94	50 - 150%	PASS	2	25	PASS	
PCB077	NA	38.85	0.05	0.1	ng/dry g	46.44	0	84	50 - 150%	PASS	0	25	PASS	
PCB081	NA	40.25	0.05	0.1	ng/dry g	46.44	0	87	50 - 150%	PASS	1	25	PASS	
PCB087	NA	41.78	0.05	0.1	ng/dry g	46.44	0	90	50 - 150%	PASS	3	25	PASS	
PCB095	NA	40.75	0.05	0.1	ng/dry g	46.44	0	88	50 - 150%	PASS	3	25	PASS	
PCB097	NA	42.89	0.05	0.1	ng/dry g	46.44	0	92	50 - 150%	PASS	3	25	PASS	
PCB099	NA	44.15	0.05	0.1	ng/dry g	46.44	0	95	50 - 150%	PASS	2	25	PASS	
PCB101	NA	42.94	0.05	0.1	ng/dry g	46.44	0	92	50 - 150%	PASS	3	25	PASS	
PCB105	NA	39.54	0.05	0.1	ng/dry g	46.44	0.05	85	50 - 150%	PASS	1	25	PASS	
PCB110	NA	41.42	0.05	0.1	ng/dry g	46.44	0.1	89	50 - 150%	PASS	1	25	PASS	
PCB114	NA	41.61	0.05	0.1	ng/dry g	46.44	0	90	50 - 150%	PASS	1	25	PASS	
PCB118	NA	41.39	0.05	0.1	ng/dry g	46.44	0	89	50 - 150%	PASS	0	25	PASS	
PCB119	NA	42.99	0.05	0.1	ng/dry g	46.44	0	93	50 - 150%	PASS	2	25	PASS	
PCB123	NA	41.37	0.05	0.1	ng/dry g	46.44	0	89	50 - 150%	PASS	0	25	PASS	
PCB126	NA	37.61	0.05	0.1	ng/dry g	46.44	1.7	77	50 - 150%	PASS	10	25	PASS	
PCB128	NA	46.26	0.05	0.1	ng/dry g	46.44	0	100	50 - 150%	PASS	14	25	PASS	
PCB137	NA	47.09	0.05	0.1	ng/dry g	46.44	0	101	50 - 150%	PASS	3	25	PASS	
PCB138	NA	38.82	0.05	0.1	ng/dry g	46.44	0.4	83	50 - 150%	PASS	0	25	PASS	
PCB141	NA	37.24	0.05	0.1	ng/dry g	46.44	0	80	50 - 150%	PASS	1	25	PASS	
PCB149	NA	39.58	0.05	0.1	ng/dry g	46.44	0	85	50 - 150%	PASS	2	25	PASS	
PCB151	NA	39.92	0.05	0.1	ng/dry g	46.44	0	86	50 - 150%	PASS	1	25	PASS	
PCB153	NA	39.06	0.05	0.1	ng/dry g	46.44	0.05	84	50 - 150%	PASS	2	25	PASS	
PCB156	NA	38.71	0.05	0.1	ng/dry g	46.44	0	83	50 - 150%	PASS	2	25	PASS	
PCB157	NA	41.43	0.05	0.1	ng/dry g	46.44	0	89	50 - 150%	PASS	0	25	PASS	
PCB158	NA	38.17	0.05	0.1	ng/dry g	46.44	0.15	82	50 - 150%	PASS	0	25	PASS	
PCB167	NA	41.68	0.05	0.1	ng/dry g	46.44	0.15	89	50 - 150%	PASS	0	25	PASS	
PCB168+132	NA	87.4	0.1	0.2	ng/dry g	92.9	0	94	50 - 150%	PASS	1	25	PASS	
PCB169	NA	47.79	0.05	0.1	ng/dry g	46.44	0	103	50 - 150%	PASS	2	25	PASS	

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PCB170	NA	47.71	0.05	0.1	ng/dry g	46.44	0	103	50 - 150%	PASS	1	25	PASS	
PCB174	NA	48.36	0.05	0.1	ng/dry g	46.44	0	104	50 - 150%	PASS	1	25	PASS	
PCB177	NA	48.04	0.05	0.1	ng/dry g	46.44	0	103	50 - 150%	PASS	1	25	PASS	
PCB180	NA	43.66	0.05	0.1	ng/dry g	46.44	0	94	50 - 150%	PASS	3	25	PASS	
PCB183	NA	48.15	0.05	0.1	ng/dry g	46.44	0	104	50 - 150%	PASS	0	25	PASS	
PCB187	NA	49.58	0.05	0.1	ng/dry g	46.44	0	107	50 - 150%	PASS	12	25	PASS	
PCB189	NA	45.51	0.05	0.1	ng/dry g	46.44	0	98	50 - 150%	PASS	3	25	PASS	
PCB194	NA	42.95	0.05	0.1	ng/dry g	46.44	0	92	50 - 150%	PASS	3	25	PASS	
PCB195	NA	43.39	0.05	0.1	ng/dry g	46.44	0	93	50 - 150%	PASS	0	25	PASS	
PCB199(200)	NA	47.3	0.1	0.2	ng/dry g	46.4	0	102	50 - 150%	PASS	0	25	PASS	
PCB201	NA	44.75	0.05	0.1	ng/dry g	46.44	0	96	50 - 150%	PASS	3	25	PASS	
PCB203	NA	46.05	0.05	0.1	ng/dry g	46.44	0	99	50 - 150%	PASS	1	25	PASS	
PCB206	NA	41.14	0.05	0.1	ng/dry g	46.44	0	89	50 - 150%	PASS	4	25	PASS	
PCB209	NA	38.43	0.05	0.1	ng/dry g	46.44	0	83	50 - 150%	PASS	5	25	PASS	

Sample ID: 21764-R2 **B13-8356** **Matrix: Sediment** **Sampled: 13-Jul-13 9:22** **Received: 13-Jul-13**

Method: EPA 8270C Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

PCB003	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB005	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB008	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB015	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB018	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB027	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB028	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB029	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB031	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB033	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB037	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB044	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB049	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB052	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PCB056(060)	NA	ND	0.1	0.2	ng/dry g						0	25	PASS	

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS		QA CODE
PCB066	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB070	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB074	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB077	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB081	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB087	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB095	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB097	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB099	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB101	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB105	NA	ND	0.05	0.1	ng/dry g					67	25	FAIL	SL
PCB110	NA	ND	0.05	0.1	ng/dry g					120	25	FAIL	SL
PCB114	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB118	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB119	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB123	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB126	NA	2.2	0.05	0.1	ng/dry g					59	25	FAIL	NH
PCB128	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB137	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB138	NA	0.3	0.05	0.1	ng/dry g					50	25	FAIL	SL
PCB141	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB149	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB151	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB153	NA	ND	0.05	0.1	ng/dry g					67	25	FAIL	SL
PCB156	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB157	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB158	NA	0.2	0.05	0.1	ng/dry g					67	25	FAIL	SL
PCB167	NA	0.1	0.05	0.1	ng/dry g					67	25	FAIL	SL
PCB168+132	NA	ND	0.1	0.2	ng/dry g					0	25	PASS	
PCB169	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PCB170	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
PCB174	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB177	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB180	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB183	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB187	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB189	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB194	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB195	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB199(200)	NA	ND	0.1	0.2	ng/dry g					0	25 PASS	
PCB201	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB203	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB206	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	
PCB209	NA	ND	0.05	0.1	ng/dry g					0	25 PASS	

Sample ID: 21888-CRM1 **QAQC CRM - SRM 1944** **Matrix: Sediment** **Sampled:** **Received:**

Method: EPA 8270C Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 30-Aug-13

PCB008	NA	23.3	0.05	0.1	µg/dry g	22.3	104	70 - 130%	PASS	
PCB018	NA	47.1	0.05	0.1	µg/dry g	51	92	70 - 130%	PASS	
PCB028	NA	79.2	0.05	0.1	µg/dry g	80.8	98	70 - 130%	PASS	
PCB031	NA	80.5	0.05	0.1	µg/dry g	78.7	102	70 - 130%	PASS	
PCB044	NA	45.7	0.05	0.1	µg/dry g	60.2	76	70 - 130%	PASS	
PCB049	NA	59.4	0.05	0.1	µg/dry g	53	112	70 - 130%	PASS	
PCB052	NA	60.5	0.05	0.1	µg/dry g	79.4	76	70 - 130%	PASS	
PCB066	NA	52.8	0.05	0.1	µg/dry g	71.9	73	70 - 130%	PASS	
PCB087	NA	22.2	0.05	0.1	µg/dry g	29.9	74	70 - 130%	PASS	
PCB095	NA	46.2	0.05	0.1	µg/dry g	65	71	70 - 130%	PASS	
PCB099	NA	27.6	0.05	0.1	µg/dry g	37.5	74	70 - 130%	PASS	
PCB101	NA	52	0.05	0.1	µg/dry g	73.4	71	70 - 130%	PASS	
PCB105	NA	17.6	0.05	0.1	µg/dry g	24.5	72	70 - 130%	PASS	
PCB110	NA	45.4	0.05	0.1	µg/dry g	63.5	71	70 - 130%	PASS	
PCB118	NA	41.1	0.05	0.1	µg/dry g	58	71	70 - 130%	PASS	
PCB128	NA	7.6	0.05	0.1	µg/dry g	8.5	89	70 - 130%	PASS	

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PCB Congeners — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PCB138	NA	56.8	0.05	0.1	µg/dry g	62.1		91	70 - 130%	PASS			
PCB149	NA	36.6	0.05	0.1	µg/dry g	49.7		74	70 - 130%	PASS			
PCB151	NA	12.6	0.05	0.1	µg/dry g	16.9		75	70 - 130%	PASS			
PCB153	NA	62.8	0.05	0.1	µg/dry g	74		85	70 - 130%	PASS			
PCB156	NA	6.4	0.05	0.1	µg/dry g	6.5		98	70 - 130%	PASS			
PCB170	NA	26.7	0.05	0.1	µg/dry g	22.6		118	70 - 130%	PASS			
PCB180	NA	32.6	0.05	0.1	µg/dry g	44.3		74	70 - 130%	PASS			
PCB183	NA	10.4	0.05	0.1	µg/dry g	12.2		85	70 - 130%	PASS			
PCB187	NA	21.5	0.05	0.1	µg/dry g	24.1		89	70 - 130%	PASS			
PCB194	NA	14.3	0.05	0.1	µg/dry g	11.2		128	70 - 130%	PASS			
PCB195	NA	4.3	0.05	0.1	µg/dry g	3.8		113	70 - 130%	PASS			
PCB206	NA	11.3	0.05	0.1	µg/dry g	9.2		123	70 - 130%	PASS			
PCB209	NA	8.5	0.05	0.1	µg/dry g	6.8		125	70 - 130%	PASS			

Sample ID: 21889-CRM1 **QAQC CRM - SRM 1944** **Matrix: Sediment** **Sampled:** **Received:**

Method: EPA 8270C Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 30-Aug-13

PCB008	NA	17.2	0.05	0.1	µg/dry g	22.3		77	70 - 130%	PASS			
PCB018	NA	39	0.05	0.1	µg/dry g	51		76	70 - 130%	PASS			
PCB028	NA	61.1	0.05	0.1	µg/dry g	80.8		76	70 - 130%	PASS			
PCB031	NA	65.3	0.05	0.1	µg/dry g	78.7		83	70 - 130%	PASS			
PCB044	NA	42.3	0.05	0.1	µg/dry g	60.2		70	70 - 130%	PASS			
PCB049	NA	53.6	0.05	0.1	µg/dry g	53		101	70 - 130%	PASS			
PCB052	NA	60	0.05	0.1	µg/dry g	79.4		76	70 - 130%	PASS			
PCB066	NA	51.7	0.05	0.1	µg/dry g	71.9		72	70 - 130%	PASS			
PCB087	NA	23.2	0.05	0.1	µg/dry g	29.9		78	70 - 130%	PASS			
PCB095	NA	45.9	0.05	0.1	µg/dry g	65		71	70 - 130%	PASS			
PCB099	NA	27.1	0.05	0.1	µg/dry g	37.5		72	70 - 130%	PASS			
PCB101	NA	53.9	0.05	0.1	µg/dry g	73.4		73	70 - 130%	PASS			
PCB105	NA	18.3	0.05	0.1	µg/dry g	24.5		75	70 - 130%	PASS			
PCB110	NA	48.9	0.05	0.1	µg/dry g	63.5		77	70 - 130%	PASS			
PCB118	NA	42.7	0.05	0.1	µg/dry g	58		74	70 - 130%	PASS			
PCB128	NA	8.2	0.05	0.1	µg/dry g	8.5		96	70 - 130%	PASS			

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PCB Congeners

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PCB138	NA	43.9	0.05	0.1	µg/dry g	62.1		71	70 - 130%	PASS			
PCB149	NA	35	0.05	0.1	µg/dry g	49.7		70	70 - 130%	PASS			
PCB151	NA	13.9	0.05	0.1	µg/dry g	16.9		82	70 - 130%	PASS			
PCB153	NA	53.1	0.05	0.1	µg/dry g	74		72	70 - 130%	PASS			
PCB156	NA	3.3	0.05	0.1	µg/dry g	6.5		51	70 - 130%	FAIL			R
PCB170	NA	20.9	0.05	0.1	µg/dry g	22.6		92	70 - 130%	PASS			
PCB180	NA	38.1	0.05	0.1	µg/dry g	44.3		86	70 - 130%	PASS			
PCB183	NA	10.2	0.05	0.1	µg/dry g	12.2		84	70 - 130%	PASS			
PCB187	NA	22	0.05	0.1	µg/dry g	24.1		91	70 - 130%	PASS			
PCB194	NA	9	0.05	0.1	µg/dry g	11.2		80	70 - 130%	PASS			
PCB195	NA	4.1	0.05	0.1	µg/dry g	3.8		108	70 - 130%	PASS			
PCB206	NA	8.7	0.05	0.1	µg/dry g	9.2		95	70 - 130%	PASS			
PCB209	NA	5.7	0.05	0.1	µg/dry g	6.8		84	70 - 130%	PASS			

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PolyBrominated Diphenyl Ethers QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
Sample ID: 21731-B1	**QAQC Procedural Blank**				**Matrix: DI Water**		**Sampled:**				**Received:**	
	Method: EPA 8270C-NCI				Batch ID: O-6001		Prepared: 09-Aug-13				Analyzed: 24-Aug-13	
(DFPBDE)	NA	87			% Recovery	100		87	50 - 150%	PASS		
(FTBDE)	NA	102			% Recovery	100		102	50 - 150%	PASS		
PBDE017	NA	ND	0.05	0.1	ng/dry g							
PBDE028	NA	ND	0.05	0.1	ng/dry g							
PBDE047	NA	ND	0.05	0.1	ng/dry g							
PBDE049	NA	ND	0.05	0.1	ng/dry g							
PBDE066	NA	ND	0.05	0.1	ng/dry g							
PBDE071	NA	ND	0.05	0.1	ng/dry g							
PBDE085	NA	ND	0.05	0.1	ng/dry g							
PBDE099	NA	ND	0.05	0.1	ng/dry g							
PBDE100	NA	ND	0.05	0.1	ng/dry g							
PBDE138	NA	ND	0.05	0.1	ng/dry g							
PBDE153	NA	ND	0.05	0.1	ng/dry g							
PBDE154	NA	ND	0.05	0.1	ng/dry g							
PBDE183	NA	ND	0.05	0.1	ng/dry g							
PBDE190	NA	ND	0.05	0.1	ng/dry g							
PBDE209	NA	ND	0.05	0.1	ng/dry g							
Sample ID: 21731-BS1	**QAQC Procedural Blank**				**Matrix: DI Water**		**Sampled:**				**Received:**	
	Method: EPA 8270C-NCI				Batch ID: O-6001		Prepared: 09-Aug-13				Analyzed: 24-Aug-13	
(DFPBDE)	NA	106			% Recovery	100	0	106	50 - 150%	PASS		
(FTBDE)	NA	112			% Recovery	100	0	112	50 - 150%	PASS		
PBDE017	NA	440.6	0.05	0.1	ng/dry g	400	0	110	50 - 150%	PASS		
PBDE028	NA	452.8	0.05	0.1	ng/dry g	400	0	113	50 - 150%	PASS		
PBDE047	NA	433.5	0.05	0.1	ng/dry g	400	0	108	50 - 150%	PASS		
PBDE049	NA	350.8	0.05	0.1	ng/dry g	400	0	88	50 - 150%	PASS		
PBDE066	NA	443.2	0.05	0.1	ng/dry g	400	0	111	50 - 150%	PASS		
PBDE071	NA	432.1	0.05	0.1	ng/dry g	400	0	108	50 - 150%	PASS		
PBDE085	NA	489	0.05	0.1	ng/dry g	400	0	122	50 - 150%	PASS		

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PolyBrominated Diphenyl Ethers QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
PBDE099	NA	455.2	0.05	0.1	ng/dry g	400	0	114	50 - 150%	PASS				
PBDE100	NA	444.1	0.05	0.1	ng/dry g	400	0	111	50 - 150%	PASS				
PBDE138	NA	466.9	0.05	0.1	ng/dry g	400	0	117	50 - 150%	PASS				
PBDE153	NA	482	0.05	0.1	ng/dry g	400	0	121	50 - 150%	PASS				
PBDE154	NA	412	0.05	0.1	ng/dry g	400	0	103	50 - 150%	PASS				
PBDE183	NA	419.7	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS				
PBDE190	NA	514	0.05	0.1	ng/dry g	400	0	128	50 - 150%	PASS				
PBDE209	NA	1910	0.05	0.1	ng/dry g	2000	0	95	50 - 150%	PASS				
Sample ID: 21731-BS2	**QAQC Procedural Blank**				**Matrix: DI Water**			**Sampled:**					**Received:**	
	Method: EPA 8270C-NCI				Batch ID: O-6001			Prepared: 09-Aug-13					Analyzed: 24-Aug-13	
(DFPBDE)	NA	103			% Recovery	100	0	103	50 - 150%	PASS	3	25	PASS	
(FTBDE)	NA	110			% Recovery	100	0	110	50 - 150%	PASS	2	25	PASS	
PBDE017	NA	446.2	0.05	0.1	ng/dry g	400	0	112	50 - 150%	PASS	2	25	PASS	
PBDE028	NA	455.8	0.05	0.1	ng/dry g	400	0	114	50 - 150%	PASS	1	25	PASS	
PBDE047	NA	427.6	0.05	0.1	ng/dry g	400	0	107	50 - 150%	PASS	1	25	PASS	
PBDE049	NA	348	0.05	0.1	ng/dry g	400	0	87	50 - 150%	PASS	1	25	PASS	
PBDE066	NA	437.6	0.05	0.1	ng/dry g	400	0	109	50 - 150%	PASS	2	25	PASS	
PBDE071	NA	460	0.05	0.1	ng/dry g	400	0	115	50 - 150%	PASS	6	25	PASS	
PBDE085	NA	513	0.05	0.1	ng/dry g	400	0	128	50 - 150%	PASS	5	25	PASS	
PBDE099	NA	460.3	0.05	0.1	ng/dry g	400	0	115	50 - 150%	PASS	1	25	PASS	
PBDE100	NA	452.5	0.05	0.1	ng/dry g	400	0	113	50 - 150%	PASS	2	25	PASS	
PBDE138	NA	488.4	0.05	0.1	ng/dry g	400	0	122	50 - 150%	PASS	4	25	PASS	
PBDE153	NA	497.7	0.05	0.1	ng/dry g	400	0	124	50 - 150%	PASS	2	25	PASS	
PBDE154	NA	440.8	0.05	0.1	ng/dry g	400	0	110	50 - 150%	PASS	7	25	PASS	
PBDE183	NA	435.5	0.05	0.1	ng/dry g	400	0	109	50 - 150%	PASS	4	25	PASS	
PBDE190	NA	578	0.05	0.1	ng/dry g	400	0	145	50 - 150%	PASS	12	25	PASS	
PBDE209	NA	2198	0.05	0.1	ng/dry g	2000	0	110	50 - 150%	PASS	14	25	PASS	
Sample ID: 21732-B1	**QAQC Procedural Blank**				**Matrix: DI Water**			**Sampled:**					**Received:**	
	Method: EPA 8270C-NCI				Batch ID: O-6005			Prepared: 24-Aug-13					Analyzed: 06-Sep-13	
(DFPBDE)	NA	127			% Recovery	100		127	50 - 150%	PASS				

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PolyBrominated Diphenyl Ethers QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
(FTBDE)	NA	103			% Recovery	100		103	50 - 150%	PASS			
PBDE017	NA	ND	0.05	0.1	ng/dry g								
PBDE028	NA	ND	0.05	0.1	ng/dry g								
PBDE047	NA	ND	0.05	0.1	ng/dry g								
PBDE049	NA	ND	0.05	0.1	ng/dry g								
PBDE066	NA	ND	0.05	0.1	ng/dry g								
PBDE071	NA	ND	0.05	0.1	ng/dry g								
PBDE085	NA	ND	0.05	0.1	ng/dry g								
PBDE099	NA	ND	0.05	0.1	ng/dry g								
PBDE100	NA	ND	0.05	0.1	ng/dry g								
PBDE138	NA	ND	0.05	0.1	ng/dry g								
PBDE153	NA	ND	0.05	0.1	ng/dry g								
PBDE154	NA	ND	0.05	0.1	ng/dry g								
PBDE183	NA	ND	0.05	0.1	ng/dry g								
PBDE190	NA	ND	0.05	0.1	ng/dry g								
PBDE209	NA	ND	0.05	0.1	ng/dry g								

Sample ID: 21732-BS1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

Method: EPA 8270C-NCI Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

(DFPBDE)	NA	109			% Recovery	100	0	109	50 - 150%	PASS			
(FTBDE)	NA	121			% Recovery	100	0	121	50 - 150%	PASS			
PBDE017	NA	394.02	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS			
PBDE028	NA	388.6	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS			
PBDE047	NA	418.2	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS			
PBDE049	NA	389.4	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS			
PBDE066	NA	358.6	0.05	0.1	ng/dry g	400	0	90	50 - 150%	PASS			
PBDE071	NA	376.1	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS			
PBDE085	NA	381.02	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
PBDE099	NA	371.4	0.05	0.1	ng/dry g	400	0	93	50 - 150%	PASS			
PBDE100	NA	347.4	0.05	0.1	ng/dry g	400	0	87	50 - 150%	PASS			
PBDE138	NA	388.7	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS			
PBDE153	NA	403.6	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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PolyBrominated Diphenyl Ethers QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PBDE154	NA	429.5	0.05	0.1	ng/dry g	400	0	107	50 - 150%	PASS			
PBDE183	NA	381.9	0.05	0.1	ng/dry g	400	0	95	50 - 150%	PASS			
PBDE190	NA	443.85	0.05	0.1	ng/dry g	400	0	111	50 - 150%	PASS			
PBDE209	NA	405.9	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS			

Sample ID: 21732-BS2 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**
Method: EPA 8270C-NCI Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

(DFPBDE)	NA	115			% Recovery	100	0	115	50 - 150%	PASS	5	25	PASS
(FTBDE)	NA	120			% Recovery	100	0	120	50 - 150%	PASS	1	25	PASS
PBDE017	NA	384.6	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	3	25	PASS
PBDE028	NA	401.9	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS	3	25	PASS
PBDE047	NA	375.2	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS	11	25	PASS
PBDE049	NA	395.8	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS	2	25	PASS
PBDE066	NA	399.2	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS	11	25	PASS
PBDE071	NA	358.9	0.05	0.1	ng/dry g	400	0	90	50 - 150%	PASS	4	25	PASS
PBDE085	NA	419.7	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS	10	25	PASS
PBDE099	NA	395.9	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS	6	25	PASS
PBDE100	NA	402.6	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS	15	25	PASS
PBDE138	NA	393.2	0.05	0.1	ng/dry g	400	0	98	50 - 150%	PASS	1	25	PASS
PBDE153	NA	384.8	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	5	25	PASS
PBDE154	NA	387.2	0.05	0.1	ng/dry g	400	0	97	50 - 150%	PASS	10	25	PASS
PBDE183	NA	419.6	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS	10	25	PASS
PBDE190	NA	423.95	0.05	0.1	ng/dry g	400	0	106	50 - 150%	PASS	5	25	PASS
PBDE209	NA	377.8	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS	7	25	PASS

Sample ID: 21733-B1 **B13-8382** **Matrix: Sediment** **Sampled: 10-Jul-13 11:04** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 26-Aug-13

(DFPBDE)	NA	93			% Recovery	100		93	50 - 150%	PASS			
(FTBDE)	NA	107			% Recovery	100		107	50 - 150%	PASS			
PBDE017	NA	ND	0.05	0.1	ng/dry g								
PBDE028	NA	ND	0.05	0.1	ng/dry g								
PBDE047	NA	ND	0.05	0.1	ng/dry g								

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PolyBrominated Diphenyl Ethers QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
PBDE049	NA	ND	0.05	0.1	ng/dry g							
PBDE066	NA	ND	0.05	0.1	ng/dry g							
PBDE071	NA	ND	0.05	0.1	ng/dry g							
PBDE085	NA	ND	0.05	0.1	ng/dry g							
PBDE099	NA	ND	0.05	0.1	ng/dry g							
PBDE100	NA	ND	0.05	0.1	ng/dry g							
PBDE138	NA	ND	0.05	0.1	ng/dry g							
PBDE153	NA	ND	0.05	0.1	ng/dry g							
PBDE154	NA	ND	0.05	0.1	ng/dry g							
PBDE183	NA	ND	0.05	0.1	ng/dry g							
PBDE190	NA	ND	0.05	0.1	ng/dry g							
PBDE209	NA	ND	0.05	0.1	ng/dry g							

Sample ID: 21733-BS1 **B13-8382** **Matrix: Sediment** **Sampled: 10-Jul-13 11:04** **Received: 13-Jul-13**

Method: EPA 8270C-NCI Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 26-Aug-13

(DFPBDE)	NA	101			% Recovery	100	0	101	50 - 150%	PASS
(FTBDE)	NA	110			% Recovery	100	0	110	50 - 150%	PASS
PBDE017	NA	439.3	0.05	0.1	ng/dry g	400	0	110	50 - 150%	PASS
PBDE028	NA	465.5	0.05	0.1	ng/dry g	400	0	116	50 - 150%	PASS
PBDE047	NA	429.7	0.05	0.1	ng/dry g	400	0	107	50 - 150%	PASS
PBDE049	NA	407.7	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS
PBDE066	NA	444.3	0.05	0.1	ng/dry g	400	0	111	50 - 150%	PASS
PBDE071	NA	421.9	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS
PBDE085	NA	414	0.05	0.1	ng/dry g	400	0	103	50 - 150%	PASS
PBDE099	NA	384	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS
PBDE100	NA	403	0.05	0.1	ng/dry g	400	0	101	50 - 150%	PASS
PBDE138	NA	415	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS
PBDE153	NA	437	0.05	0.1	ng/dry g	400	0	109	50 - 150%	PASS
PBDE154	NA	396	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS
PBDE183	NA	377.2	0.05	0.1	ng/dry g	400	0	94	50 - 150%	PASS
PBDE190	NA	429	0.05	0.1	ng/dry g	400	0	107	50 - 150%	PASS
PBDE209	NA	2225	0.05	0.1	ng/dry g	2000	0	111	50 - 150%	PASS

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PolyBrominated Diphenyl Ethers QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Sample ID: 21733-BS2	**B13-8382**				**Matrix: Sediment**		**Sampled: 10-Jul-13**	**11:04**		**Received: 13-Jul-13**			
	Method: EPA 8270C-NCI				Batch ID: O-6003		Prepared: 15-Aug-13			Analyzed: 26-Aug-13			
(DFPBDE)	NA	99			% Recovery	100	0	99	50 - 150%	PASS	2	25	PASS
(FTBDE)	NA	113			% Recovery	100	0	113	50 - 150%	PASS	3	25	PASS
PBDE017	NA	433	0.05	0.1	ng/dry g	400	0	108	50 - 150%	PASS	2	25	PASS
PBDE028	NA	456	0.05	0.1	ng/dry g	400	0	114	50 - 150%	PASS	2	25	PASS
PBDE047	NA	408.4	0.05	0.1	ng/dry g	400	0	102	50 - 150%	PASS	5	25	PASS
PBDE049	NA	415	0.05	0.1	ng/dry g	400	0	104	50 - 150%	PASS	2	25	PASS
PBDE066	NA	438.8	0.05	0.1	ng/dry g	400	0	110	50 - 150%	PASS	1	25	PASS
PBDE071	NA	412	0.05	0.1	ng/dry g	400	0	103	50 - 150%	PASS	2	25	PASS
PBDE085	NA	449	0.05	0.1	ng/dry g	400	0	112	50 - 150%	PASS	7	25	PASS
PBDE099	NA	395.4	0.05	0.1	ng/dry g	400	0	99	50 - 150%	PASS	3	25	PASS
PBDE100	NA	400	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS	1	25	PASS
PBDE138	NA	428.9	0.05	0.1	ng/dry g	400	0	107	50 - 150%	PASS	3	25	PASS
PBDE153	NA	434.7	0.05	0.1	ng/dry g	400	0	109	50 - 150%	PASS	0	25	PASS
PBDE154	NA	400	0.05	0.1	ng/dry g	400	0	100	50 - 150%	PASS	1	25	PASS
PBDE183	NA	384.5	0.05	0.1	ng/dry g	400	0	96	50 - 150%	PASS	2	25	PASS
PBDE190	NA	420.3	0.05	0.1	ng/dry g	400	0	105	50 - 150%	PASS	2	25	PASS
PBDE209	NA	2293	0.05	0.1	ng/dry g	2000	0	115	50 - 150%	PASS	4	25	PASS
Sample ID: 21744-MS1	**B13-8308**				**Matrix: Sediment**		**Sampled: 11-Jul-13**	**17:06**		**Received: 13-Jul-13**			
	Method: EPA 8270C-NCI				Batch ID: O-6003		Prepared: 15-Aug-13			Analyzed: 26-Aug-13			
(DFPBDE)	NA	99			% Recovery	100	0	99	50 - 150%	PASS			
(FTBDE)	NA	112			% Recovery	100	0	112	50 - 150%	PASS			
PBDE017	NA	6.54	0.05	0.1	ng/dry g	5.84	0	112	50 - 150%	PASS			
PBDE028	NA	6.76	0.05	0.1	ng/dry g	5.84	0	116	50 - 150%	PASS			
PBDE047	NA	6.42	0.05	0.1	ng/dry g	5.84	0	110	50 - 150%	PASS			
PBDE049	NA	6.11	0.05	0.1	ng/dry g	5.84	0	105	50 - 150%	PASS			
PBDE066	NA	6.78	0.05	0.1	ng/dry g	5.84	0	116	50 - 150%	PASS			
PBDE071	NA	6.1	0.05	0.1	ng/dry g	5.84	0	104	50 - 150%	PASS			
PBDE085	NA	6.53	0.05	0.1	ng/dry g	5.84	0	112	50 - 150%	PASS			

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PolyBrominated Diphenyl Ethers QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	
PBDE099	NA	5.96	0.05	0.1	ng/dry g	5.84	0	102	50 - 150%	PASS			
PBDE100	NA	6.06	0.05	0.1	ng/dry g	5.84	0	104	50 - 150%	PASS			
PBDE138	NA	6.23	0.05	0.1	ng/dry g	5.84	0	107	50 - 150%	PASS			
PBDE153	NA	6.67	0.05	0.1	ng/dry g	5.84	0	114	50 - 150%	PASS			
PBDE154	NA	5.99	0.05	0.1	ng/dry g	5.84	0	103	50 - 150%	PASS			
PBDE183	NA	5.68	0.05	0.1	ng/dry g	5.84	0	97	50 - 150%	PASS			
PBDE190	NA	6.24	0.05	0.1	ng/dry g	5.84	0	107	50 - 150%	PASS			
PBDE209	NA	28.29	0.05	0.1	ng/dry g	29.21	0	97	50 - 150%	PASS			
Sample ID: 21744-MS2	**B13-8308**				**Matrix: Sediment**			**Sampled: 11-Jul-13**		**17:06**		**Received: 13-Jul-13**	
	Method: EPA 8270C-NCI				Batch ID: O-6003			Prepared: 15-Aug-13				Analyzed: 26-Aug-13	
(DFPBDE)	NA	95			% Recovery	100	0	95	50 - 150%	PASS	4	25	PASS
(FTBDE)	NA	110.3			% Recovery	100	0	110	50 - 150%	PASS	2	25	PASS
PBDE017	NA	6.59	0.05	0.1	ng/dry g	5.65	0	117	50 - 150%	PASS	4	25	PASS
PBDE028	NA	6.58	0.05	0.1	ng/dry g	5.65	0	116	50 - 150%	PASS	0	25	PASS
PBDE047	NA	6.21	0.05	0.1	ng/dry g	5.65	0	110	50 - 150%	PASS	0	25	PASS
PBDE049	NA	5.97	0.05	0.1	ng/dry g	5.65	0	106	50 - 150%	PASS	1	25	PASS
PBDE066	NA	6.3	0.05	0.1	ng/dry g	5.65	0	112	50 - 150%	PASS	4	25	PASS
PBDE071	NA	5.81	0.05	0.1	ng/dry g	5.65	0	103	50 - 150%	PASS	1	25	PASS
PBDE085	NA	6.18	0.05	0.1	ng/dry g	5.65	0	109	50 - 150%	PASS	3	25	PASS
PBDE099	NA	5.32	0.05	0.1	ng/dry g	5.65	0	94	50 - 150%	PASS	8	25	PASS
PBDE100	NA	5.62	0.05	0.1	ng/dry g	5.65	0	99	50 - 150%	PASS	5	25	PASS
PBDE138	NA	6.21	0.05	0.1	ng/dry g	5.65	0	110	50 - 150%	PASS	3	25	PASS
PBDE153	NA	5.9	0.05	0.1	ng/dry g	5.65	0	104	50 - 150%	PASS	9	25	PASS
PBDE154	NA	5.54	0.05	0.1	ng/dry g	5.65	0	98	50 - 150%	PASS	5	25	PASS
PBDE183	NA	5.38	0.05	0.1	ng/dry g	5.65	0	95	50 - 150%	PASS	2	25	PASS
PBDE190	NA	5.81	0.05	0.1	ng/dry g	5.65	0	103	50 - 150%	PASS	4	25	PASS
PBDE209	NA	29.27	0.05	0.1	ng/dry g	28.23	0	104	50 - 150%	PASS	7	25	PASS
Sample ID: 21744-R2	**B13-8308**				**Matrix: Sediment**			**Sampled: 11-Jul-13**		**17:06**		**Received: 13-Jul-13**	
	Method: EPA 8270C-NCI				Batch ID: O-6003			Prepared: 15-Aug-13				Analyzed: 26-Aug-13	
(DFPBDE)	NA	97			% Recovery	100		97	50 - 150%	PASS	3	25	PASS

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PolyBrominated Diphenyl Ethers QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
(FTBDE)	NA	103			% Recovery	100		103	50 - 150%	PASS	4	25 PASS	
PBDE017	NA	ND	0.05	0.1	ng/dry g						0	25 PASS	
PBDE028	NA	ND	0.05	0.1	ng/dry g						0	25 PASS	
PBDE047	NA	ND	0.05	0.1	ng/dry g						0	25 PASS	
PBDE049	NA	ND	0.05	0.1	ng/dry g						0	25 PASS	
PBDE066	NA	ND	0.05	0.1	ng/dry g						0	25 PASS	
PBDE071	NA	ND	0.05	0.1	ng/dry g						0	25 PASS	
PBDE085	NA	ND	0.05	0.1	ng/dry g						0	25 PASS	
PBDE099	NA	ND	0.05	0.1	ng/dry g						0	25 PASS	
PBDE100	NA	ND	0.05	0.1	ng/dry g						0	25 PASS	
PBDE138	NA	ND	0.05	0.1	ng/dry g						0	25 PASS	
PBDE153	NA	ND	0.05	0.1	ng/dry g						0	25 PASS	
PBDE154	NA	ND	0.05	0.1	ng/dry g						0	25 PASS	
PBDE183	NA	ND	0.05	0.1	ng/dry g						0	25 PASS	
PBDE190	NA	ND	0.05	0.1	ng/dry g						0	25 PASS	
PBDE209	NA	ND	0.05	0.1	ng/dry g						0	25 PASS	

Sample ID: 21753-MS1 **B13-8397** **Matrix: Sediment** **Sampled: 12-Jul-13 11:20** **Received: 13-Jul-13**

Method: EPA 8270C-NCI Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 24-Aug-13

(DFPBDE)	NA	97			% Recovery	100	0	97	50 - 150%	PASS
(FTBDE)	NA	112			% Recovery	100	0	112	50 - 150%	PASS
PBDE017	NA	14.21	0.05	0.1	ng/dry g	12.17	0	117	50 - 150%	PASS
PBDE028	NA	14.12	0.05	0.1	ng/dry g	12.17	0	116	50 - 150%	PASS
PBDE047	NA	13.02	0.05	0.1	ng/dry g	12.17	0	107	50 - 150%	PASS
PBDE049	NA	10.46	0.05	0.1	ng/dry g	12.17	0.5	82	50 - 150%	PASS
PBDE066	NA	14.08	0.05	0.1	ng/dry g	12.17	0	116	50 - 150%	PASS
PBDE071	NA	13.81	0.05	0.1	ng/dry g	12.17	0	113	50 - 150%	PASS
PBDE085	NA	14.69	0.05	0.1	ng/dry g	12.17	0	121	50 - 150%	PASS
PBDE099	NA	14.08	0.05	0.1	ng/dry g	12.17	0	116	50 - 150%	PASS
PBDE100	NA	13.34	0.05	0.1	ng/dry g	12.17	0	110	50 - 150%	PASS
PBDE138	NA	13.23	0.05	0.1	ng/dry g	12.17	0	109	50 - 150%	PASS
PBDE153	NA	15.05	0.05	0.1	ng/dry g	12.17	0	124	50 - 150%	PASS

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PolyBrominated Diphenyl Ethers QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
PBDE154	NA	12.23	0.05	0.1	ng/dry g	12.17	0	100	50 - 150%	PASS			
PBDE183	NA	11.65	0.05	0.1	ng/dry g	12.17	0	96	50 - 150%	PASS			
PBDE190	NA	13.56	0.05	0.1	ng/dry g	12.17	0	111	50 - 150%	PASS			
PBDE209	NA	46.47	0.05	0.1	ng/dry g	60.86	0	76	50 - 150%	PASS			

Sample ID: 21753-MS2 **B13-8397** **Matrix: Sediment** **Sampled: 12-Jul-13 11:20** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 24-Aug-13

(DFPBDE)	NA	101			% Recovery	100	0	101	50 - 150%	PASS	4	25	PASS
(FTBDE)	NA	115			% Recovery	100	0	115	50 - 150%	PASS	3	25	PASS
PBDE017	NA	15.65	0.05	0.1	ng/dry g	13.31	0	118	50 - 150%	PASS	1	25	PASS
PBDE028	NA	15.65	0.05	0.1	ng/dry g	13.31	0	118	50 - 150%	PASS	2	25	PASS
PBDE047	NA	14.42	0.05	0.1	ng/dry g	13.31	0	108	50 - 150%	PASS	1	25	PASS
PBDE049	NA	12.71	0.05	0.1	ng/dry g	13.31	0.5	92	50 - 150%	PASS	11	25	PASS
PBDE066	NA	13.97	0.05	0.1	ng/dry g	13.31	0	105	50 - 150%	PASS	10	25	PASS
PBDE071	NA	14.58	0.05	0.1	ng/dry g	13.31	0	110	50 - 150%	PASS	3	25	PASS
PBDE085	NA	16.24	0.05	0.1	ng/dry g	13.31	0	122	50 - 150%	PASS	1	25	PASS
PBDE099	NA	15.81	0.05	0.1	ng/dry g	13.31	0	119	50 - 150%	PASS	3	25	PASS
PBDE100	NA	14.08	0.05	0.1	ng/dry g	13.31	0	106	50 - 150%	PASS	4	25	PASS
PBDE138	NA	14.06	0.05	0.1	ng/dry g	13.31	0	106	50 - 150%	PASS	3	25	PASS
PBDE153	NA	17.16	0.05	0.1	ng/dry g	13.31	0	129	50 - 150%	PASS	4	25	PASS
PBDE154	NA	13.97	0.05	0.1	ng/dry g	13.31	0	105	50 - 150%	PASS	5	25	PASS
PBDE183	NA	12.98	0.05	0.1	ng/dry g	13.31	0	98	50 - 150%	PASS	2	25	PASS
PBDE190	NA	14.53	0.05	0.1	ng/dry g	13.31	0	109	50 - 150%	PASS	2	25	PASS
PBDE209	NA	45.62	0.05	0.1	ng/dry g	66.55	0	69	50 - 150%	PASS	10	25	PASS

Sample ID: 21753-R2 **B13-8397** **Matrix: Sediment** **Sampled: 12-Jul-13 11:20** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 24-Aug-13

(DFPBDE)	NA	88			% Recovery	100		88	50 - 150%	PASS	6	25	PASS
(FTBDE)	NA	117			% Recovery	100		117	50 - 150%	PASS	7	25	PASS
PBDE017	NA	ND	0.05	0.1	ng/dry g						0	25	PASS
PBDE028	NA	ND	0.05	0.1	ng/dry g						0	25	PASS
PBDE047	NA	ND	0.05	0.1	ng/dry g						0	25	PASS

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ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS		QA CODE
PBDE049	NA	ND	0.05	0.1	ng/dry g					181	25	FAIL	SL
PBDE066	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PBDE071	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PBDE085	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PBDE099	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PBDE100	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PBDE138	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PBDE153	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PBDE154	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PBDE183	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PBDE190	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PBDE209	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	

Sample ID: 21764-MS1 **B13-8356** **Matrix: Sediment** **Sampled: 13-Jul-13** 9:22 **Received: 13-Jul-13**

Method: EPA 8270C-NCI Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

(DFPBDE)	NA	122			% Recovery	100	0	122	50 - 150%	PASS
(FTBDE)	NA	131			% Recovery	100	0	131	50 - 150%	PASS
PBDE017	NA	37.42	0.05	0.1	ng/dry g	46.44	0	81	50 - 150%	PASS
PBDE028	NA	40.79	0.05	0.1	ng/dry g	46.44	0	88	50 - 150%	PASS
PBDE047	NA	43.36	0.05	0.1	ng/dry g	46.44	0.05	93	50 - 150%	PASS
PBDE049	NA	39.92	0.05	0.1	ng/dry g	46.44	0	86	50 - 150%	PASS
PBDE066	NA	46.87	0.05	0.1	ng/dry g	46.44	0	101	50 - 150%	PASS
PBDE071	NA	48.06	0.05	0.1	ng/dry g	46.44	0	103	50 - 150%	PASS
PBDE085	NA	46.56	0.05	0.1	ng/dry g	46.44	0	100	50 - 150%	PASS
PBDE099	NA	45.52	0.05	0.1	ng/dry g	46.44	0.2	98	50 - 150%	PASS
PBDE100	NA	45.31	0.05	0.1	ng/dry g	46.44	0	98	50 - 150%	PASS
PBDE138	NA	45.23	0.05	0.1	ng/dry g	46.44	0	97	50 - 150%	PASS
PBDE153	NA	43.67	0.05	0.1	ng/dry g	46.44	0	94	50 - 150%	PASS
PBDE154	NA	43.99	0.05	0.1	ng/dry g	46.44	0	95	50 - 150%	PASS
PBDE183	NA	33.41	0.05	0.1	ng/dry g	46.44	0	72	50 - 150%	PASS
PBDE190	NA	41.71	0.05	0.1	ng/dry g	46.44	0	90	50 - 150%	PASS
PBDE209	NA	42.09	0.05	0.1	ng/dry g	46.44	0	91	50 - 150%	PASS

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PolyBrominated Diphenyl Ethers QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Sample ID: 21764-MS2	**B13-8356**				**Matrix: Sediment**		**Sampled: 13-Jul-13**	**9:22**		**Received: 13-Jul-13**				
	Method: EPA 8270C-NCI				Batch ID: O-6005		Prepared: 24-Aug-13			Analyzed: 06-Sep-13				
(DFPBDE)	NA	100			% Recovery	100	0	100	50 - 150%	PASS	20	25	PASS	
(FTBDE)	NA	136			% Recovery	100	0	136	50 - 150%	PASS	4	25	PASS	
PBDE017	NA	43.72	0.05	0.1	ng/dry g	46.44	0	94	50 - 150%	PASS	15	25	PASS	
PBDE028	NA	45.12	0.05	0.1	ng/dry g	46.44	0	97	50 - 150%	PASS	10	25	PASS	
PBDE047	NA	38.49	0.05	0.1	ng/dry g	46.44	0.05	83	50 - 150%	PASS	11	25	PASS	
PBDE049	NA	44.83	0.05	0.1	ng/dry g	46.44	0	97	50 - 150%	PASS	12	25	PASS	
PBDE066	NA	44.71	0.05	0.1	ng/dry g	46.44	0	96	50 - 150%	PASS	5	25	PASS	
PBDE071	NA	45.15	0.05	0.1	ng/dry g	46.44	0	97	50 - 150%	PASS	6	25	PASS	
PBDE085	NA	47.54	0.05	0.1	ng/dry g	46.44	0	102	50 - 150%	PASS	2	25	PASS	
PBDE099	NA	37.84	0.05	0.1	ng/dry g	46.44	0.2	81	50 - 150%	PASS	19	25	PASS	
PBDE100	NA	47.65	0.05	0.1	ng/dry g	46.44	0	103	50 - 150%	PASS	5	25	PASS	
PBDE138	NA	43.68	0.05	0.1	ng/dry g	46.44	0	94	50 - 150%	PASS	3	25	PASS	
PBDE153	NA	42.64	0.05	0.1	ng/dry g	46.44	0	92	50 - 150%	PASS	2	25	PASS	
PBDE154	NA	46.24	0.05	0.1	ng/dry g	46.44	0	100	50 - 150%	PASS	5	25	PASS	
PBDE183	NA	32.48	0.05	0.1	ng/dry g	46.44	0	70	50 - 150%	PASS	3	25	PASS	
PBDE190	NA	42.38	0.05	0.1	ng/dry g	46.44	0	91	50 - 150%	PASS	1	25	PASS	
PBDE209	NA	35.64	0.05	0.1	ng/dry g	46.44	0	77	50 - 150%	PASS	17	25	PASS	
Sample ID: 21764-R2	**B13-8356**				**Matrix: Sediment**		**Sampled: 13-Jul-13**	**9:22**		**Received: 13-Jul-13**				
	Method: EPA 8270C-NCI				Batch ID: O-6005		Prepared: 24-Aug-13			Analyzed: 06-Sep-13				
(DFPBDE)	NA	136			% Recovery	100		136	50 - 150%	PASS	20	25	PASS	
(FTBDE)	NA	118			% Recovery	100		118	50 - 150%	PASS	1	25	PASS	
PBDE017	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PBDE028	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PBDE047	NA	0.1	0.05	0.1	ng/dry g						67	25	FAIL	SL
PBDE049	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PBDE066	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PBDE071	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	
PBDE085	NA	ND	0.05	0.1	ng/dry g						0	25	PASS	

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PolyBrominated Diphenyl Ethers QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS		QA CODE
PBDE099	NA	0.4	0.05	0.1	ng/dry g					156	25	FAIL	SL
PBDE100	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PBDE138	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PBDE153	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PBDE154	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PBDE183	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PBDE190	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	
PBDE209	NA	ND	0.05	0.1	ng/dry g					0	25	PASS	

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
Sample ID: 19187-CRM1	**QAQC CRM - SRM 1944**				**Matrix: Sediment**		**Sampled:**			**Received:**		
	Method: EPA 8270C				Batch ID: O-6005		Prepared: 24-Aug-13			Analyzed: 06-Sep-13		
(d10-Acenaphthene)	NA	95			% Recovery	100		95	50 - 150% PASS			
(d10-Phenanthrene)	NA	92			% Recovery	100		92	50 - 150% PASS			
(d12-Chrysene)	NA	76			% Recovery	100		76	50 - 150% PASS			
(d8-Naphthalene)	NA	73			% Recovery	100		73	25 - 125% PASS			
1-Methylnaphthalene	NA	362.2	1	5	µg/dry g	520		70	70 - 130% PASS			
1-Methylphenanthrene	NA	1233.4	1	5	µg/dry g	1700		73	70 - 130% PASS			
2,6-Dimethylnaphthalene	NA	580	1	5	µg/dry g	790		73	70 - 130% PASS			
2-Methylnaphthalene	NA	803.3	1	5	µg/dry g	950		85	70 - 130% PASS			
Acenaphthene	NA	268.5	1	5	µg/dry g	570		47	70 - 130% FAIL			R
Anthracene	NA	1998.7	1	5	µg/dry g	1770		113	70 - 130% PASS			
Benz[a]anthracene	NA	4415.3	1	5	µg/dry g	4720		94	70 - 130% PASS			
Benzo[a]pyrene	NA	3154.3	1	5	µg/dry g	4300		73	70 - 130% PASS			
Benzo[b]fluoranthene	NA	2996	1	5	µg/dry g	3870		77	70 - 130% PASS			
Benzo[e]pyrene	NA	2755	1	5	µg/dry g	3280		84	70 - 130% PASS			
Benzo[g,h,i]perylene	NA	2105.7	1	5	µg/dry g	2840		74	70 - 130% PASS			
Benzo[k]fluoranthene	NA	3140.9	1	5	µg/dry g	4390		72	70 - 130% PASS			
Biphenyl	NA	231.7	1	5	µg/dry g	320		72	70 - 130% PASS			
Chrysene	NA	4541.2	1	5	µg/dry g	5900		77	70 - 130% PASS			
Dibenz[a,h]anthracene	NA	427.7	1	5	µg/dry g	424		101	70 - 130% PASS			
Dibenzothiophene	NA	550.9	1	5	µg/dry g	620		89	70 - 130% PASS			
Fluoranthene	NA	8859	1	5	µg/dry g	8920		99	70 - 130% PASS			
Fluorene	NA	686	1	5	µg/dry g	850		81	70 - 130% PASS			
Indeno[1,2,3-c,d]pyrene	NA	3149	1	5	µg/dry g	2780		113	70 - 130% PASS			
Naphthalene	NA	1219.8	1	5	µg/dry g	1650		74	70 - 130% PASS			
Perylene	NA	1377.5	1	5	µg/dry g	1170		118	70 - 130% PASS			
Phenanthrene	NA	4870.8	1	5	µg/dry g	5270		92	70 - 130% PASS			
Pyrene	NA	8356.4	1	5	µg/dry g	9700		86	70 - 130% PASS			
Sample ID: 21731-B1	**QAQC Procedural Blank**				**Matrix: DI Water**		**Sampled:**			**Received:**		

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
		Method: EPA 8270C				Batch ID: O-6001		Prepared: 09-Aug-13				Analyzed: 30-Aug-13	
(d10-Acenaphthene)	NA	75			% Recovery	100		75	50 - 150%	PASS			
(d10-Phenanthrene)	NA	84			% Recovery	100		84	50 - 150%	PASS			
(d12-Chrysene)	NA	122			% Recovery	100		122	50 - 150%	PASS			
(d8-Naphthalene)	NA	62			% Recovery	100		62	25 - 125%	PASS			
1-Methylnaphthalene	NA	ND	1	5	ng/dry g								
1-Methylphenanthrene	NA	ND	1	5	ng/dry g								
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g								
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g								
2-Methylnaphthalene	NA	ND	1	5	ng/dry g								
Acenaphthene	NA	ND	1	5	ng/dry g								
Acenaphthylene	NA	ND	1	5	ng/dry g								
Anthracene	NA	ND	1	5	ng/dry g								
Benz[a]anthracene	NA	ND	1	5	ng/dry g								
Benzo[a]pyrene	NA	ND	1	5	ng/dry g								
Benzo[b]fluoranthene	NA	ND	1	5	ng/dry g								
Benzo[e]pyrene	NA	ND	1	5	ng/dry g								
Benzo[g,h,i]perylene	NA	ND	1	5	ng/dry g								
Benzo[k]fluoranthene	NA	ND	1	5	ng/dry g								
Biphenyl	NA	ND	1	5	ng/dry g								
Chrysene	NA	ND	1	5	ng/dry g								
Dibenz[a,h]anthracene	NA	ND	1	5	ng/dry g								
Dibenzothiophene	NA	ND	1	5	ng/dry g								
Fluoranthene	NA	ND	1	5	ng/dry g								
Fluorene	NA	ND	1	5	ng/dry g								
Indeno[1,2,3-c,d]pyrene	NA	ND	1	5	ng/dry g								
Naphthalene	NA	ND	1	5	ng/dry g								
Perylene	NA	ND	1	5	ng/dry g								
Phenanthrene	NA	ND	1	5	ng/dry g								
Pyrene	NA	ND	1	5	ng/dry g								

Sample ID: 21731-BS1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
	Method: EPA 8270C				Batch ID: O-6001			Prepared: 09-Aug-13			Analyzed: 30-Aug-13		
(d10-Acenaphthene)	NA	96			% Recovery	100	0	96	50 - 150%	PASS			
(d10-Phenanthrene)	NA	106			% Recovery	100	0	106	50 - 150%	PASS			
(d12-Chrysene)	NA	120			% Recovery	100	0	120	50 - 150%	PASS			
(d8-Naphthalene)	NA	90			% Recovery	100	0	90	25 - 125%	PASS			
1-Methylnaphthalene	NA	431.9	1	5	ng/dry g	400	0	108	50 - 150%	PASS			
1-Methylphenanthrene	NA	411.8	1	5	ng/dry g	400	0	103	50 - 150%	PASS			
2,3,5-Trimethylnaphthalene	NA	411.2	1	5	ng/dry g	400	0	103	50 - 150%	PASS			
2,6-Dimethylnaphthalene	NA	397.7	1	5	ng/dry g	400	0	99	50 - 150%	PASS			
2-Methylnaphthalene	NA	408.5	1	5	ng/dry g	400	0	102	50 - 150%	PASS			
Acenaphthene	NA	400	1	5	ng/dry g	400	0	100	50 - 150%	PASS			
Acenaphthylene	NA	350.9	1	5	ng/dry g	400	0	88	50 - 150%	PASS			
Anthracene	NA	364.4	1	5	ng/dry g	400	0	91	50 - 150%	PASS			
Benz[a]anthracene	NA	399.7	1	5	ng/dry g	400	0	100	50 - 150%	PASS			
Benzo[a]pyrene	NA	498	1	5	ng/dry g	400	0	125	50 - 150%	PASS			
Benzo[b]fluoranthene	NA	464.5	1	5	ng/dry g	400	0	116	50 - 150%	PASS			
Benzo[e]pyrene	NA	485.7	1	5	ng/dry g	400	0	121	50 - 150%	PASS			
Benzo[g,h,i]perylene	NA	433.3	1	5	ng/dry g	400	0	108	50 - 150%	PASS			
Benzo[k]fluoranthene	NA	437.7	1	5	ng/dry g	400	0	109	50 - 150%	PASS			
Biphenyl	NA	415.4	1	5	ng/dry g	400	0	104	50 - 150%	PASS			
Chrysene	NA	463.3	1	5	ng/dry g	400	0	116	50 - 150%	PASS			
Dibenz[a,h]anthracene	NA	446.6	1	5	ng/dry g	400	0	112	50 - 150%	PASS			
Dibenzothiophene	NA	430.3	1	5	ng/dry g	400	0	108	50 - 150%	PASS			
Fluoranthene	NA	449.1	1	5	ng/dry g	400	0	112	50 - 150%	PASS			
Fluorene	NA	401.3	1	5	ng/dry g	400	0	100	50 - 150%	PASS			
Indeno[1,2,3-c,d]pyrene	NA	406.9	1	5	ng/dry g	400	0	102	50 - 150%	PASS			
Naphthalene	NA	423	1	5	ng/dry g	400	0	106	25 - 125%	PASS			
Perylene	NA	406.2	1	5	ng/dry g	400	0	102	50 - 150%	PASS			
Phenanthrene	NA	447	1	5	ng/dry g	400	0	112	50 - 150%	PASS			
Pyrene	NA	440.1	1	5	ng/dry g	400	0	110	50 - 150%	PASS			

Sample ID: 21731-BS2 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
	Method: EPA 8270C				Batch ID: O-6001			Prepared: 09-Aug-13			Analyzed: 30-Aug-13		
(d10-Acenaphthene)	NA	109			% Recovery	100	0	109	50 - 150%	PASS	13	25 PASS	
(d10-Phenanthrene)	NA	118			% Recovery	100	0	118	50 - 150%	PASS	11	25 PASS	
(d12-Chrysene)	NA	132			% Recovery	100	0	132	50 - 150%	PASS	10	25 PASS	
(d8-Naphthalene)	NA	100			% Recovery	100	0	100	25 - 125%	PASS	11	25 PASS	
1-Methylnaphthalene	NA	481.1	1	5	ng/dry g	400	0	120	50 - 150%	PASS	11	25 PASS	
1-Methylphenanthrene	NA	463.8	1	5	ng/dry g	400	0	116	50 - 150%	PASS	12	25 PASS	
2,3,5-Trimethylnaphthalene	NA	453.4	1	5	ng/dry g	400	0	113	50 - 150%	PASS	9	25 PASS	
2,6-Dimethylnaphthalene	NA	430.8	1	5	ng/dry g	400	0	108	50 - 150%	PASS	9	25 PASS	
2-Methylnaphthalene	NA	446.5	1	5	ng/dry g	400	0	112	50 - 150%	PASS	9	25 PASS	
Acenaphthene	NA	438.1	1	5	ng/dry g	400	0	110	50 - 150%	PASS	10	25 PASS	
Acenaphthylene	NA	416.2	1	5	ng/dry g	400	0	104	50 - 150%	PASS	17	25 PASS	
Anthracene	NA	386.2	1	5	ng/dry g	400	0	97	50 - 150%	PASS	6	25 PASS	
Benz[a]anthracene	NA	444.6	1	5	ng/dry g	400	0	111	50 - 150%	PASS	10	25 PASS	
Benzo[a]pyrene	NA	498.9	1	5	ng/dry g	400	0	125	50 - 150%	PASS	1	25 PASS	
Benzo[b]fluoranthene	NA	567.5	1	5	ng/dry g	400	0	142	50 - 150%	PASS	20	25 PASS	
Benzo[e]pyrene	NA	562	1	5	ng/dry g	400	0	140	50 - 150%	PASS	15	25 PASS	
Benzo[g,h,i]perylene	NA	440.5	1	5	ng/dry g	400	0	110	50 - 150%	PASS	2	25 PASS	
Benzo[k]fluoranthene	NA	516.9	1	5	ng/dry g	400	0	129	50 - 150%	PASS	17	25 PASS	
Biphenyl	NA	477	1	5	ng/dry g	400	0	119	50 - 150%	PASS	13	25 PASS	
Chrysene	NA	526.3	1	5	ng/dry g	400	0	132	50 - 150%	PASS	13	25 PASS	
Dibenz[a,h]anthracene	NA	483.6	1	5	ng/dry g	400	0	121	50 - 150%	PASS	8	25 PASS	
Dibenzothiophene	NA	474.2	1	5	ng/dry g	400	0	119	50 - 150%	PASS	10	25 PASS	
Fluoranthene	NA	512.3	1	5	ng/dry g	400	0	128	50 - 150%	PASS	13	25 PASS	
Fluorene	NA	416.1	1	5	ng/dry g	400	0	104	50 - 150%	PASS	4	25 PASS	
Indeno[1,2,3-c,d]pyrene	NA	457.5	1	5	ng/dry g	400	0	114	50 - 150%	PASS	11	25 PASS	
Naphthalene	NA	479.3	1	5	ng/dry g	400	0	120	25 - 125%	PASS	12	25 PASS	
Perylene	NA	426	1	5	ng/dry g	400	0	107	50 - 150%	PASS	5	25 PASS	
Phenanthrene	NA	462	1	5	ng/dry g	400	0	115	50 - 150%	PASS	4	25 PASS	
Pyrene	NA	501.1	1	5	ng/dry g	400	0	125	50 - 150%	PASS	13	25 PASS	

Sample ID: 21732-B1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
		Method: EPA 8270C				Batch ID: O-6005		Prepared: 24-Aug-13				Analyzed: 06-Sep-13	
(d10-Acenaphthene)	NA	80			% Recovery	100		80	50 - 150%	PASS			
(d10-Phenanthrene)	NA	80			% Recovery	100		80	50 - 150%	PASS			
(d12-Chrysene)	NA	82			% Recovery	100		82	50 - 150%	PASS			
(d8-Naphthalene)	NA	56			% Recovery	100		56	25 - 125%	PASS			
1-Methylnaphthalene	NA	ND	1	5	ng/dry g								
1-Methylphenanthrene	NA	ND	1	5	ng/dry g								
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g								
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g								
2-Methylnaphthalene	NA	ND	1	5	ng/dry g								
Acenaphthene	NA	ND	1	5	ng/dry g								
Acenaphthylene	NA	ND	1	5	ng/dry g								
Anthracene	NA	ND	1	5	ng/dry g								
Benz[a]anthracene	NA	ND	1	5	ng/dry g								
Benzo[a]pyrene	NA	ND	1	5	ng/dry g								
Benzo[b]fluoranthene	NA	ND	1	5	ng/dry g								
Benzo[e]pyrene	NA	ND	1	5	ng/dry g								
Benzo[g,h,i]perylene	NA	ND	1	5	ng/dry g								
Benzo[k]fluoranthene	NA	ND	1	5	ng/dry g								
Biphenyl	NA	ND	1	5	ng/dry g								
Chrysene	NA	ND	1	5	ng/dry g								
Dibenz[a,h]anthracene	NA	ND	1	5	ng/dry g								
Dibenzothiophene	NA	ND	1	5	ng/dry g								
Fluoranthene	NA	ND	1	5	ng/dry g								
Fluorene	NA	ND	1	5	ng/dry g								
Indeno[1,2,3-c,d]pyrene	NA	ND	1	5	ng/dry g								
Naphthalene	NA	ND	1	5	ng/dry g								
Perylene	NA	ND	1	5	ng/dry g								
Phenanthrene	NA	ND	1	5	ng/dry g								
Pyrene	NA	ND	1	5	ng/dry g								

Sample ID: 21732-BS1 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
	Method: EPA 8270C				Batch ID: O-6005			Prepared: 24-Aug-13			Analyzed: 06-Sep-13		
(d10-Acenaphthene)	NA	108			% Recovery	100	0	108	50 - 150%	PASS			
(d10-Phenanthrene)	NA	113			% Recovery	100	0	113	50 - 150%	PASS			
(d12-Chrysene)	NA	125			% Recovery	100	0	125	50 - 150%	PASS			
(d8-Naphthalene)	NA	98			% Recovery	100	0	98	25 - 125%	PASS			
1-Methylnaphthalene	NA	441.2	1	5	ng/dry g	400	0	110	50 - 150%	PASS			
1-Methylphenanthrene	NA	389.4	1	5	ng/dry g	400	0	97	50 - 150%	PASS			
2,3,5-Trimethylnaphthalene	NA	378.5	1	5	ng/dry g	400	0	95	50 - 150%	PASS			
2,6-Dimethylnaphthalene	NA	362.6	1	5	ng/dry g	400	0	91	50 - 150%	PASS			
2-Methylnaphthalene	NA	346.6	1	5	ng/dry g	400	0	87	50 - 150%	PASS			
Acenaphthene	NA	387.8	1	5	ng/dry g	400	0	97	50 - 150%	PASS			
Acenaphthylene	NA	355.2	1	5	ng/dry g	400	0	89	50 - 150%	PASS			
Anthracene	NA	419.7	1	5	ng/dry g	400	0	105	50 - 150%	PASS			
Benz[a]anthracene	NA	352.3	1	5	ng/dry g	400	0	88	50 - 150%	PASS			
Benzo[a]pyrene	NA	368.1	1	5	ng/dry g	400	0	92	50 - 150%	PASS			
Benzo[b]fluoranthene	NA	393.7	1	5	ng/dry g	400	0	98	50 - 150%	PASS			
Benzo[e]pyrene	NA	443.9	1	5	ng/dry g	400	0	111	50 - 150%	PASS			
Benzo[g,h,i]perylene	NA	400	1	5	ng/dry g	400	0	100	50 - 150%	PASS			
Benzo[k]fluoranthene	NA	407.6	1	5	ng/dry g	400	0	102	50 - 150%	PASS			
Biphenyl	NA	346.9	1	5	ng/dry g	400	0	87	50 - 150%	PASS			
Chrysene	NA	393.2	1	5	ng/dry g	400	0	98	50 - 150%	PASS			
Dibenz[a,h]anthracene	NA	351	1	5	ng/dry g	400	0	88	50 - 150%	PASS			
Dibenzothiophene	NA	362.8	1	5	ng/dry g	400	0	91	50 - 150%	PASS			
Fluoranthene	NA	422	1	5	ng/dry g	400	0	105	50 - 150%	PASS			
Fluorene	NA	341.6	1	5	ng/dry g	400	0	85	50 - 150%	PASS			
Indeno[1,2,3-c,d]pyrene	NA	384.9	1	5	ng/dry g	400	0	96	50 - 150%	PASS			
Naphthalene	NA	424.7	1	5	ng/dry g	400	0	106	25 - 125%	PASS			
Perylene	NA	391.5	1	5	ng/dry g	400	0	98	50 - 150%	PASS			
Phenanthrene	NA	353.1	1	5	ng/dry g	400	0	88	50 - 150%	PASS			
Pyrene	NA	402.3	1	5	ng/dry g	400	0	101	50 - 150%	PASS			

Sample ID: 21732-BS2 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
	Method: EPA 8270C				Batch ID: O-6005			Prepared: 24-Aug-13			Analyzed: 06-Sep-13			
(d10-Acenaphthene)	NA	121			% Recovery	100	0	121	50 - 150%	PASS	11	25	PASS	
(d10-Phenanthrene)	NA	119			% Recovery	100	0	119	50 - 150%	PASS	5	25	PASS	
(d12-Chrysene)	NA	135			% Recovery	100	0	135	50 - 150%	PASS	8	25	PASS	
(d8-Naphthalene)	NA	112			% Recovery	100	0	112	25 - 125%	PASS	13	25	PASS	
1-Methylnaphthalene	NA	398.6	1	5	ng/dry g	400	0	100	50 - 150%	PASS	10	25	PASS	
1-Methylphenanthrene	NA	441.3	1	5	ng/dry g	400	0	110	50 - 150%	PASS	13	25	PASS	
2,3,5-Trimethylnaphthalene	NA	434.1	1	5	ng/dry g	400	0	109	50 - 150%	PASS	14	25	PASS	
2,6-Dimethylnaphthalene	NA	414.7	1	5	ng/dry g	400	0	104	50 - 150%	PASS	13	25	PASS	
2-Methylnaphthalene	NA	401.1	1	5	ng/dry g	400	0	100	50 - 150%	PASS	14	25	PASS	
Acenaphthene	NA	381	1	5	ng/dry g	400	0	95	50 - 150%	PASS	2	25	PASS	
Acenaphthylene	NA	368	1	5	ng/dry g	400	0	92	50 - 150%	PASS	3	25	PASS	
Anthracene	NA	411.5	1	5	ng/dry g	400	0	103	50 - 150%	PASS	2	25	PASS	
Benz[a]anthracene	NA	377.4	1	5	ng/dry g	400	0	94	50 - 150%	PASS	7	25	PASS	
Benzo[a]pyrene	NA	373.5	1	5	ng/dry g	400	0	93	50 - 150%	PASS	1	25	PASS	
Benzo[b]fluoranthene	NA	373.9	1	5	ng/dry g	400	0	93	50 - 150%	PASS	5	25	PASS	
Benzo[e]pyrene	NA	399.5	1	5	ng/dry g	400	0	100	50 - 150%	PASS	10	25	PASS	
Benzo[g,h,i]perylene	NA	410.3	1	5	ng/dry g	400	0	103	50 - 150%	PASS	3	25	PASS	
Benzo[k]fluoranthene	NA	382.4	1	5	ng/dry g	400	0	96	50 - 150%	PASS	6	25	PASS	
Biphenyl	NA	405.3	1	5	ng/dry g	400	0	101	50 - 150%	PASS	15	25	PASS	
Chrysene	NA	342.9	1	5	ng/dry g	400	0	86	50 - 150%	PASS	13	25	PASS	
Dibenz[a,h]anthracene	NA	371.5	1	5	ng/dry g	400	0	93	50 - 150%	PASS	6	25	PASS	
Dibenzothiophene	NA	420.9	1	5	ng/dry g	400	0	105	50 - 150%	PASS	14	25	PASS	
Fluoranthene	NA	377.9	1	5	ng/dry g	400	0	94	50 - 150%	PASS	11	25	PASS	
Fluorene	NA	381.2	1	5	ng/dry g	400	0	95	50 - 150%	PASS	11	25	PASS	
Indeno[1,2,3-c,d]pyrene	NA	387.8	1	5	ng/dry g	400	0	97	50 - 150%	PASS	1	25	PASS	
Naphthalene	NA	382.8	1	5	ng/dry g	400	0	96	25 - 125%	PASS	10	25	PASS	
Perylene	NA	331	1	5	ng/dry g	400	0	83	50 - 150%	PASS	17	25	PASS	
Phenanthrene	NA	416.1	1	5	ng/dry g	400	0	104	50 - 150%	PASS	17	25	PASS	
Pyrene	NA	378.6	1	5	ng/dry g	400	0	95	50 - 150%	PASS	6	25	PASS	

Sample ID: 21733-B1 **B13-8382** **Matrix: Sediment** **Sampled: 10-Jul-13 11:04** **Received: 13-Jul-13**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

PHYSIS
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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
		Method: EPA 8270C				Batch ID: O-6003		Prepared: 15-Aug-13				Analyzed: 09-Sep-13	
(d10-Acenaphthene)	NA	80			% Recovery	100		80	50 - 150%	PASS			
(d10-Phenanthrene)	NA	88			% Recovery	100		88	50 - 150%	PASS			
(d12-Chrysene)	NA	117			% Recovery	100		117	50 - 150%	PASS			
(d8-Naphthalene)	NA	60			% Recovery	100		60	25 - 125%	PASS			
1-Methylnaphthalene	NA	ND	1	5	ng/dry g								
1-Methylphenanthrene	NA	ND	1	5	ng/dry g								
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g								
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g								
2-Methylnaphthalene	NA	ND	1	5	ng/dry g								
Acenaphthene	NA	ND	1	5	ng/dry g								
Acenaphthylene	NA	ND	1	5	ng/dry g								
Anthracene	NA	ND	1	5	ng/dry g								
Benz[a]anthracene	NA	ND	1	5	ng/dry g								
Benzo[a]pyrene	NA	ND	1	5	ng/dry g								
Benzo[b]fluoranthene	NA	ND	1	5	ng/dry g								
Benzo[e]pyrene	NA	ND	1	5	ng/dry g								
Benzo[g,h,i]perylene	NA	ND	1	5	ng/dry g								
Benzo[k]fluoranthene	NA	ND	1	5	ng/dry g								
Biphenyl	NA	ND	1	5	ng/dry g								
Chrysene	NA	ND	1	5	ng/dry g								
Dibenz[a,h]anthracene	NA	ND	1	5	ng/dry g								
Dibenzothiophene	NA	ND	1	5	ng/dry g								
Fluoranthene	NA	ND	1	5	ng/dry g								
Fluorene	NA	ND	1	5	ng/dry g								
Indeno[1,2,3-c,d]pyrene	NA	ND	1	5	ng/dry g								
Naphthalene	NA	ND	1	5	ng/dry g								
Perylene	NA	ND	1	5	ng/dry g								
Phenanthrene	NA	ND	1	5	ng/dry g								
Pyrene	NA	ND	1	5	ng/dry g								

Sample ID: 21733-BS1 **B13-8382** **Matrix: Sediment** **Sampled: 10-Jul-13 11:04** **Received: 13-Jul-13**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
	Method: EPA 8270C				Batch ID: O-6003			Prepared: 15-Aug-13				Analyzed: 09-Sep-13	
(d10-Acenaphthene)	NA	105			% Recovery	100	0	105	50 - 150%	PASS			
(d10-Phenanthrene)	NA	111			% Recovery	100	0	111	50 - 150%	PASS			
(d12-Chrysene)	NA	130			% Recovery	100	0	130	50 - 150%	PASS			
(d8-Naphthalene)	NA	99			% Recovery	100	0	99	25 - 125%	PASS			
1-Methylnaphthalene	NA	474.7	1	5	ng/dry g	400	0	119	50 - 150%	PASS			
1-Methylphenanthrene	NA	426.5	1	5	ng/dry g	400	0	107	50 - 150%	PASS			
2,3,5-Trimethylnaphthalene	NA	461.4	1	5	ng/dry g	400	0	115	50 - 150%	PASS			
2,6-Dimethylnaphthalene	NA	433.6	1	5	ng/dry g	400	0	108	50 - 150%	PASS			
2-Methylnaphthalene	NA	447.2	1	5	ng/dry g	400	0	112	50 - 150%	PASS			
Acenaphthene	NA	448.8	1	5	ng/dry g	400	0	112	50 - 150%	PASS			
Acenaphthylene	NA	406.4	1	5	ng/dry g	400	0	102	50 - 150%	PASS			
Anthracene	NA	391.8	1	5	ng/dry g	400	0	98	50 - 150%	PASS			
Benz[a]anthracene	NA	430	1	5	ng/dry g	400	0	108	50 - 150%	PASS			
Benzo[a]pyrene	NA	435.1	1	5	ng/dry g	400	0	109	50 - 150%	PASS			
Benzo[b]fluoranthene	NA	495.8	1	5	ng/dry g	400	0	124	50 - 150%	PASS			
Benzo[e]pyrene	NA	496.8	1	5	ng/dry g	400	0	124	50 - 150%	PASS			
Benzo[g,h,i]perylene	NA	431.4	1	5	ng/dry g	400	0	108	50 - 150%	PASS			
Benzo[k]fluoranthene	NA	435.9	1	5	ng/dry g	400	0	109	50 - 150%	PASS			
Biphenyl	NA	358.9	1	5	ng/dry g	400	0	90	50 - 150%	PASS			
Chrysene	NA	376.8	1	5	ng/dry g	400	0	94	50 - 150%	PASS			
Dibenz[a,h]anthracene	NA	328.3	1	5	ng/dry g	400	0	82	50 - 150%	PASS			
Dibenzothiophene	NA	353.7	1	5	ng/dry g	400	0	88	50 - 150%	PASS			
Fluoranthene	NA	392.7	1	5	ng/dry g	400	0	98	50 - 150%	PASS			
Fluorene	NA	429.5	1	5	ng/dry g	400	0	107	50 - 150%	PASS			
Indeno[1,2,3-c,d]pyrene	NA	438.6	1	5	ng/dry g	400	0	110	50 - 150%	PASS			
Naphthalene	NA	360.5	1	5	ng/dry g	400	0	90	25 - 125%	PASS			
Perylene	NA	413.1	1	5	ng/dry g	400	0	103	50 - 150%	PASS			
Phenanthrene	NA	465.3	1	5	ng/dry g	400	0	116	50 - 150%	PASS			
Pyrene	NA	396.2	1	5	ng/dry g	400	0	99	50 - 150%	PASS			

Sample ID: 21733-BS2 B13-8382 **Matrix: Sediment** **Sampled: 10-Jul-13 11:04** **Received: 13-Jul-13**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
	Method: EPA 8270C				Batch ID: O-6003			Prepared: 15-Aug-13			Analyzed: 09-Sep-13			
(d10-Acenaphthene)	NA	103			% Recovery	100	0	103	50 - 150%	PASS	2	25	PASS	
(d10-Phenanthrene)	NA	111			% Recovery	100	0	111	50 - 150%	PASS	0	25	PASS	
(d12-Chrysene)	NA	115			% Recovery	100	0	115	50 - 150%	PASS	12	25	PASS	
(d8-Naphthalene)	NA	98			% Recovery	100	0	98	25 - 125%	PASS	1	25	PASS	
1-Methylnaphthalene	NA	495	1	5	ng/dry g	400	0	124	50 - 150%	PASS	4	25	PASS	
1-Methylphenanthrene	NA	412.7	1	5	ng/dry g	400	0	103	50 - 150%	PASS	4	25	PASS	
2,3,5-Trimethylnaphthalene	NA	419.2	1	5	ng/dry g	400	0	105	50 - 150%	PASS	9	25	PASS	
2,6-Dimethylnaphthalene	NA	410.6	1	5	ng/dry g	400	0	103	50 - 150%	PASS	5	25	PASS	
2-Methylnaphthalene	NA	453.6	1	5	ng/dry g	400	0	113	50 - 150%	PASS	1	25	PASS	
Acenaphthene	NA	440.2	1	5	ng/dry g	400	0	110	50 - 150%	PASS	2	25	PASS	
Acenaphthylene	NA	393.2	1	5	ng/dry g	400	0	98	50 - 150%	PASS	4	25	PASS	
Anthracene	NA	369.4	1	5	ng/dry g	400	0	92	50 - 150%	PASS	6	25	PASS	
Benz[a]anthracene	NA	397.5	1	5	ng/dry g	400	0	99	50 - 150%	PASS	9	25	PASS	
Benzo[a]pyrene	NA	489.9	1	5	ng/dry g	400	0	122	50 - 150%	PASS	11	25	PASS	
Benzo[b]fluoranthene	NA	453.6	1	5	ng/dry g	400	0	113	50 - 150%	PASS	9	25	PASS	
Benzo[e]pyrene	NA	463.1	1	5	ng/dry g	400	0	116	50 - 150%	PASS	7	25	PASS	
Benzo[g,h,i]perylene	NA	397.9	1	5	ng/dry g	400	0	99	50 - 150%	PASS	9	25	PASS	
Benzo[k]fluoranthene	NA	391.2	1	5	ng/dry g	400	0	98	50 - 150%	PASS	11	25	PASS	
Biphenyl	NA	380.4	1	5	ng/dry g	400	0	95	50 - 150%	PASS	5	25	PASS	
Chrysene	NA	365.4	1	5	ng/dry g	400	0	91	50 - 150%	PASS	3	25	PASS	
Dibenz[a,h]anthracene	NA	367	1	5	ng/dry g	400	0	92	50 - 150%	PASS	11	25	PASS	
Dibenzothiophene	NA	360.8	1	5	ng/dry g	400	0	90	50 - 150%	PASS	2	25	PASS	
Fluoranthene	NA	380.8	1	5	ng/dry g	400	0	95	50 - 150%	PASS	3	25	PASS	
Fluorene	NA	421.5	1	5	ng/dry g	400	0	105	50 - 150%	PASS	2	25	PASS	
Indeno[1,2,3-c,d]pyrene	NA	430.1	1	5	ng/dry g	400	0	108	50 - 150%	PASS	2	25	PASS	
Naphthalene	NA	378.2	1	5	ng/dry g	400	0	95	25 - 125%	PASS	5	25	PASS	
Perylene	NA	417	1	5	ng/dry g	400	0	104	50 - 150%	PASS	1	25	PASS	
Phenanthrene	NA	464.9	1	5	ng/dry g	400	0	116	50 - 150%	PASS	0	25	PASS	
Pyrene	NA	395.4	1	5	ng/dry g	400	0	99	50 - 150%	PASS	0	25	PASS	

Sample ID: 21744-MS1 B13-8308 **Matrix: Sediment** **Sampled: 11-Jul-13 17:06** **Received: 13-Jul-13**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
	Method: EPA 8270C				Batch ID: O-6003			Prepared: 15-Aug-13			Analyzed: 09-Sep-13		
(d10-Acenaphthene)	NA	84			% Recovery	100	0	84	50 - 150%	PASS			
(d10-Phenanthrene)	NA	96			% Recovery	100	0	96	50 - 150%	PASS			
(d12-Chrysene)	NA	126			% Recovery	100	0	126	50 - 150%	PASS			
(d8-Naphthalene)	NA	64			% Recovery	100	0	64	25 - 125%	PASS			
1-Methylnaphthalene	NA	44.2	1	5	ng/dry g	47.8	0	92	50 - 150%	PASS			
1-Methylphenanthrene	NA	54.4	1	5	ng/dry g	47.8	0	114	50 - 150%	PASS			
2,3,5-Trimethylnaphthalene	NA	49.2	1	5	ng/dry g	47.8	0	103	50 - 150%	PASS			
2,6-Dimethylnaphthalene	NA	43.8	1	5	ng/dry g	47.8	0.6	90	50 - 150%	PASS			
2-Methylnaphthalene	NA	43.1	1	5	ng/dry g	47.8	0	90	50 - 150%	PASS			
Acenaphthene	NA	46.9	1	5	ng/dry g	47.8	0	98	50 - 150%	PASS			
Acenaphthylene	NA	46.6	1	5	ng/dry g	47.8	0	97	50 - 150%	PASS			
Anthracene	NA	46.5	1	5	ng/dry g	47.8	1.2	95	50 - 150%	PASS			
Benz[a]anthracene	NA	47.7	1	5	ng/dry g	47.8	1.9	96	50 - 150%	PASS			
Benzo[a]pyrene	NA	41.5	1	5	ng/dry g	47.8	6.6	73	50 - 150%	PASS			
Benzo[b]fluoranthene	NA	40.4	1	5	ng/dry g	47.8	4.3	76	50 - 150%	PASS			
Benzo[e]pyrene	NA	38.7	1	5	ng/dry g	47.8	2.8	75	50 - 150%	PASS			
Benzo[g,h,i]perylene	NA	51.7	1	5	ng/dry g	47.8	3.2	101	50 - 150%	PASS			
Benzo[k]fluoranthene	NA	43.3	1	5	ng/dry g	47.8	2.8	85	50 - 150%	PASS			
Biphenyl	NA	41.9	1	5	ng/dry g	47.8	0	88	50 - 150%	PASS			
Chrysene	NA	43.8	1	5	ng/dry g	47.8	2.4	87	50 - 150%	PASS			
Dibenz[a,h]anthracene	NA	46.9	1	5	ng/dry g	47.8	0	98	50 - 150%	PASS			
Dibenzothiophene	NA	47.5	1	5	ng/dry g	47.8	0	99	50 - 150%	PASS			
Fluoranthene	NA	38.9	1	5	ng/dry g	47.8	2.3	77	50 - 150%	PASS			
Fluorene	NA	51.6	1	5	ng/dry g	47.8	0	108	50 - 150%	PASS			
Indeno[1,2,3-c,d]pyrene	NA	42.2	1	5	ng/dry g	47.8	4.5	79	50 - 150%	PASS			
Naphthalene	NA	39.4	1	5	ng/dry g	47.8	0	82	25 - 125%	PASS			
Perylene	NA	38.6	1	5	ng/dry g	47.8	13.4	53	50 - 150%	PASS			
Phenanthrene	NA	51.3	1	5	ng/dry g	47.8	0.6	106	50 - 150%	PASS			
Pyrene	NA	40	1	5	ng/dry g	47.8	2.7	78	50 - 150%	PASS			

Sample ID: 21744-MS2 B13-8308 **Matrix: Sediment** **Sampled: 11-Jul-13 17:06** **Received: 13-Jul-13**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
		Method: EPA 8270C				Batch ID: O-6003		Prepared: 15-Aug-13			Analyzed: 09-Sep-13			
(d10-Acenaphthene)	NA	85			% Recovery	100	0	85	50 - 150%	PASS	1	25	PASS	
(d10-Phenanthrene)	NA	98			% Recovery	100	0	98	50 - 150%	PASS	2	25	PASS	
(d12-Chrysene)	NA	118			% Recovery	100	0	118	50 - 150%	PASS	7	25	PASS	
(d8-Naphthalene)	NA	66			% Recovery	100	0	66	25 - 125%	PASS	3	25	PASS	
1-Methylnaphthalene	NA	43.5	1	5	ng/dry g	47.8	0	91	50 - 150%	PASS	1	25	PASS	
1-Methylphenanthrene	NA	55	1	5	ng/dry g	47.8	0	115	50 - 150%	PASS	1	25	PASS	
2,3,5-Trimethylnaphthalene	NA	49.8	1	5	ng/dry g	47.8	0	104	50 - 150%	PASS	1	25	PASS	
2,6-Dimethylnaphthalene	NA	42.4	1	5	ng/dry g	47.8	0.6	87	50 - 150%	PASS	3	25	PASS	
2-Methylnaphthalene	NA	41.3	1	5	ng/dry g	47.8	0	86	50 - 150%	PASS	5	25	PASS	
Acenaphthene	NA	46.5	1	5	ng/dry g	47.8	0	97	50 - 150%	PASS	1	25	PASS	
Acenaphthylene	NA	46.4	1	5	ng/dry g	47.8	0	97	50 - 150%	PASS	0	25	PASS	
Anthracene	NA	45.1	1	5	ng/dry g	47.8	1.2	92	50 - 150%	PASS	3	25	PASS	
Benz[a]anthracene	NA	46.3	1	5	ng/dry g	47.8	1.9	93	50 - 150%	PASS	3	25	PASS	
Benzo[a]pyrene	NA	39.6	1	5	ng/dry g	47.8	6.6	69	50 - 150%	PASS	6	25	PASS	
Benzo[b]fluoranthene	NA	46.9	1	5	ng/dry g	47.8	4.3	89	50 - 150%	PASS	16	25	PASS	
Benzo[e]pyrene	NA	45.8	1	5	ng/dry g	47.8	2.8	90	50 - 150%	PASS	18	25	PASS	
Benzo[g,h,i]perylene	NA	48.3	1	5	ng/dry g	47.8	3.2	94	50 - 150%	PASS	7	25	PASS	
Benzo[k]fluoranthene	NA	48.8	1	5	ng/dry g	47.8	2.8	96	50 - 150%	PASS	12	25	PASS	
Biphenyl	NA	43.2	1	5	ng/dry g	47.8	0	90	50 - 150%	PASS	2	25	PASS	
Chrysene	NA	48.3	1	5	ng/dry g	47.8	2.4	96	50 - 150%	PASS	10	25	PASS	
Dibenz[a,h]anthracene	NA	46.6	1	5	ng/dry g	47.8	0	97	50 - 150%	PASS	1	25	PASS	
Dibenzothiophene	NA	46.8	1	5	ng/dry g	47.8	0	98	50 - 150%	PASS	1	25	PASS	
Fluoranthene	NA	39.2	1	5	ng/dry g	47.8	2.3	77	50 - 150%	PASS	0	25	PASS	
Fluorene	NA	50.7	1	5	ng/dry g	47.8	0	106	50 - 150%	PASS	2	25	PASS	
Indeno[1,2,3-c,d]pyrene	NA	42	1	5	ng/dry g	47.8	4.5	78	50 - 150%	PASS	1	25	PASS	
Naphthalene	NA	39.6	1	5	ng/dry g	47.8	0	83	25 - 125%	PASS	1	25	PASS	
Perylene	NA	39.8	1	5	ng/dry g	47.8	13.4	55	50 - 150%	PASS	4	25	PASS	
Phenanthrene	NA	48.8	1	5	ng/dry g	47.8	0.6	101	50 - 150%	PASS	5	25	PASS	
Pyrene	NA	42.5	1	5	ng/dry g	47.8	2.7	83	50 - 150%	PASS	6	25	PASS	

Sample ID: 21744-R2 **B13-8308** **Matrix: Sediment** **Sampled: 11-Jul-13 17:06** **Received: 13-Jul-13**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
		Method: EPA 8270C				Batch ID: O-6003		Prepared: 15-Aug-13			Analyzed: 09-Sep-13			
(d10-Acenaphthene)	NA	79			% Recovery	100		79	50 - 150%	PASS	7	25	PASS	
(d10-Phenanthrene)	NA	94			% Recovery	100		94	50 - 150%	PASS	4	25	PASS	
(d12-Chrysene)	NA	118			% Recovery	100		118	50 - 150%	PASS	6	25	PASS	
(d8-Naphthalene)	NA	61			% Recovery	100		61	25 - 125%	PASS	5	25	PASS	
1-Methylnaphthalene	NA	ND	1	5	ng/dry g						0	25	PASS	
1-Methylphenanthrene	NA	ND	1	5	ng/dry g						0	25	PASS	
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g						0	25	PASS	
2,6-Dimethylnaphthalene	NA	ND	1	5	ng/dry g						10	25	PASS	
2-Methylnaphthalene	NA	ND	1	5	ng/dry g						0	25	PASS	
Acenaphthene	NA	ND	1	5	ng/dry g						0	25	PASS	
Acenaphthylene	NA	ND	1	5	ng/dry g						0	25	PASS	
Anthracene	NA	1.1	1	5	ng/dry g						17	25	PASS	J
Benz[a]anthracene	NA	1.3	1	5	ng/dry g						59	25	FAIL	J,SL
Benzo[a]pyrene	NA	6.6	1	5	ng/dry g						2	25	PASS	
Benzo[b]fluoranthene	NA	4.7	1	5	ng/dry g						21	25	PASS	J
Benzo[e]pyrene	NA	3.1	1	5	ng/dry g						21	25	PASS	J
Benzo[g,h,i]perylene	NA	3	1	5	ng/dry g						13	25	PASS	J
Benzo[k]fluoranthene	NA	2.8	1	5	ng/dry g						4	25	PASS	J
Biphenyl	NA	ND	1	5	ng/dry g						0	25	PASS	
Chrysene	NA	1.7	1	5	ng/dry g						58	25	FAIL	J,SL
Dibenz[a,h]anthracene	NA	ND	1	5	ng/dry g						0	25	PASS	
Dibenzothiophene	NA	ND	1	5	ng/dry g						0	25	PASS	
Fluoranthene	NA	1.4	1	5	ng/dry g						76	25	FAIL	J,SL
Fluorene	NA	ND	1	5	ng/dry g						0	25	PASS	
Indeno[1,2,3-c,d]pyrene	NA	4.4	1	5	ng/dry g						4	25	PASS	J
Naphthalene	NA	ND	1	5	ng/dry g						0	25	PASS	
Perylene	NA	12	1	5	ng/dry g						21	25	PASS	
Phenanthrene	NA	ND	1	5	ng/dry g						26	25	FAIL	SL
Pyrene	NA	2.1	1	5	ng/dry g						44	25	FAIL	J,SL

Sample ID: 21753-MS1 B13-8397 **Matrix: Sediment** **Sampled: 12-Jul-13 11:20** **Received: 13-Jul-13**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
	Method: EPA 8270C				Batch ID: O-6001			Prepared: 09-Aug-13			Analyzed: 30-Aug-13		
(d10-Acenaphthene)	NA	74			% Recovery	100	0	74	50 - 150%	PASS			
(d10-Phenanthrene)	NA	97			% Recovery	100	0	97	50 - 150%	PASS			
(d12-Chrysene)	NA	147			% Recovery	100	0	147	50 - 150%	PASS			
(d8-Naphthalene)	NA	50			% Recovery	100	0	50	25 - 125%	PASS			
1-Methylnaphthalene	NA	61.1	1	5	ng/dry g	72	1.8	82	50 - 150%	PASS			
1-Methylphenanthrene	NA	91.2	1	5	ng/dry g	72	3.9	121	50 - 150%	PASS			
2,3,5-Trimethylnaphthalene	NA	69	1	5	ng/dry g	72	0	96	50 - 150%	PASS			
2,6-Dimethylnaphthalene	NA	57	1	5	ng/dry g	72	2.2	76	50 - 150%	PASS			
2-Methylnaphthalene	NA	58.4	1	5	ng/dry g	72	3.7	76	50 - 150%	PASS			
Acenaphthene	NA	66.5	1	5	ng/dry g	72	1.6	90	50 - 150%	PASS			
Acenaphthylene	NA	67.7	1	5	ng/dry g	72	6.4	85	50 - 150%	PASS			
Anthracene	NA	91.4	1	5	ng/dry g	72	25.1	92	50 - 150%	PASS			
Benz[a]anthracene	NA	81.4	1	5	ng/dry g	72	45	51	50 - 150%	PASS			
Benzo[a]pyrene	NA	85.8	1	5	ng/dry g	72	107.9	-31	50 - 150%	FAIL			M
Benzo[b]fluoranthene	NA	84.6	1	5	ng/dry g	72	100.4	-22	50 - 150%	FAIL			M
Benzo[e]pyrene	NA	84.1	1	5	ng/dry g	72	68.1	22	50 - 150%	FAIL			M
Benzo[g,h,i]perylene	NA	98.3	1	5	ng/dry g	72	53.7	62	50 - 150%	PASS			
Benzo[k]fluoranthene	NA	82	1	5	ng/dry g	72	57	35	50 - 150%	FAIL			M
Biphenyl	NA	56.8	1	5	ng/dry g	72	0.5	78	50 - 150%	PASS			
Chrysene	NA	71.7	1	5	ng/dry g	72	70.3	2	50 - 150%	FAIL			M
Dibenz[a,h]anthracene	NA	91.5	1	5	ng/dry g	72	27.1	89	50 - 150%	PASS			
Dibenzothiophene	NA	73.7	1	5	ng/dry g	72	2.1	99	50 - 150%	PASS			
Fluoranthene	NA	76.4	1	5	ng/dry g	72	46.5	42	50 - 150%	FAIL			M
Fluorene	NA	70.1	1	5	ng/dry g	72	1.7	95	50 - 150%	PASS			
Indeno[1,2,3-c,d]pyrene	NA	80	1	5	ng/dry g	72	70.2	14	50 - 150%	FAIL			M
Naphthalene	NA	57.9	1	5	ng/dry g	72	4	75	25 - 125%	PASS			
Perylene	NA	96.1	1	5	ng/dry g	72	31.1	90	50 - 150%	PASS			
Phenanthrene	NA	87.1	1	5	ng/dry g	72	15.8	99	50 - 150%	PASS			
Pyrene	NA	86.6	1	5	ng/dry g	72	53.4	46	50 - 150%	FAIL			M

Sample ID: 21753-MS2 **B13-8397** **Matrix: Sediment** **Sampled: 12-Jul-13 11:20** **Received: 13-Jul-13**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
	Method: EPA 8270C				Batch ID: O-6001			Prepared: 09-Aug-13			Analyzed: 30-Aug-13			
(d10-Acenaphthene)	NA	85			% Recovery	100	0	85	50 - 150%	PASS	14	25	PASS	
(d10-Phenanthrene)	NA	100			% Recovery	100	0	100	50 - 150%	PASS	3	25	PASS	
(d12-Chrysene)	NA	145			% Recovery	100	0	145	50 - 150%	PASS	1	25	PASS	
(d8-Naphthalene)	NA	63			% Recovery	100	0	63	25 - 125%	PASS	23	25	PASS	
1-Methylnaphthalene	NA	71.7	1	5	ng/dry g	72	1.8	97	50 - 150%	PASS	17	25	PASS	
1-Methylphenanthrene	NA	88.4	1	5	ng/dry g	72	3.9	117	50 - 150%	PASS	3	25	PASS	
2,3,5-Trimethylnaphthalene	NA	76.7	1	5	ng/dry g	72	0	107	50 - 150%	PASS	11	25	PASS	
2,6-Dimethylnaphthalene	NA	68	1	5	ng/dry g	72	2.2	91	50 - 150%	PASS	18	25	PASS	
2-Methylnaphthalene	NA	72.5	1	5	ng/dry g	72	3.7	96	50 - 150%	PASS	23	25	PASS	
Acenaphthene	NA	75.7	1	5	ng/dry g	72	1.6	103	50 - 150%	PASS	13	25	PASS	
Acenaphthylene	NA	78.6	1	5	ng/dry g	72	6.4	100	50 - 150%	PASS	16	25	PASS	
Anthracene	NA	90.8	1	5	ng/dry g	72	25.1	91	50 - 150%	PASS	1	25	PASS	
Benz[a]anthracene	NA	74.2	1	5	ng/dry g	72	45	41	50 - 150%	FAIL	22	25	PASS	M
Benzo[a]pyrene	NA	87.9	1	5	ng/dry g	72	107.9	-28	50 - 150%	FAIL	10	25	PASS	M
Benzo[b]fluoranthene	NA	83.8	1	5	ng/dry g	72	100.4	-23	50 - 150%	FAIL	4	25	PASS	M
Benzo[e]pyrene	NA	84.3	1	5	ng/dry g	72	68.1	23	50 - 150%	FAIL	4	25	PASS	M
Benzo[g,h,i]perylene	NA	103.3	1	5	ng/dry g	72	53.7	69	50 - 150%	PASS	11	25	PASS	
Benzo[k]fluoranthene	NA	81.4	1	5	ng/dry g	72	57	34	50 - 150%	FAIL	3	25	PASS	M
Biphenyl	NA	67.7	1	5	ng/dry g	72	0.5	93	50 - 150%	PASS	18	25	PASS	
Chrysene	NA	71.6	1	5	ng/dry g	72	70.3	2	50 - 150%	FAIL	0	25	PASS	M
Dibenz[a,h]anthracene	NA	78.6	1	5	ng/dry g	72	27.1	72	50 - 150%	PASS	21	25	PASS	
Dibenzothiophene	NA	74.7	1	5	ng/dry g	72	2.1	101	50 - 150%	PASS	2	25	PASS	
Fluoranthene	NA	73.1	1	5	ng/dry g	72	46.5	37	50 - 150%	FAIL	13	25	PASS	M
Fluorene	NA	76.4	1	5	ng/dry g	72	1.7	104	50 - 150%	PASS	9	25	PASS	
Indeno[1,2,3-c,d]pyrene	NA	68.3	1	5	ng/dry g	72	70.2	-3	50 - 150%	FAIL	309	25	FAIL	M
Naphthalene	NA	68.7	1	5	ng/dry g	72	4	90	25 - 125%	PASS	18	25	PASS	
Perylene	NA	85.8	1	5	ng/dry g	72	31.1	76	50 - 150%	PASS	17	25	PASS	
Phenanthrene	NA	90.7	1	5	ng/dry g	72	15.8	104	50 - 150%	PASS	5	25	PASS	
Pyrene	NA	73.4	1	5	ng/dry g	72	53.4	28	50 - 150%	FAIL	49	25	FAIL	M

Sample ID: 21753-R2 **B13-8397** **Matrix: Sediment** **Sampled: 12-Jul-13 11:20** **Received: 13-Jul-13**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
		Method: EPA 8270C			Batch ID: O-6001			Prepared: 09-Aug-13			Analyzed: 30-Aug-13			
(d10-Acenaphthene)	NA	74			% Recovery	100		74	50 - 150%	PASS	7	25	PASS	
(d10-Phenanthrene)	NA	88			% Recovery	100		88	50 - 150%	PASS	3	25	PASS	
(d12-Chrysene)	NA	117			% Recovery	100		117	50 - 150%	PASS	23	25	PASS	
(d8-Naphthalene)	NA	51			% Recovery	100		51	25 - 125%	PASS	8	25	PASS	
1-Methylnaphthalene	NA	1.6	1	5	ng/dry g						22	25	PASS	J
1-Methylphenanthrene	NA	3.8	1	5	ng/dry g						5	25	PASS	J
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g						0	25	PASS	
2,6-Dimethylnaphthalene	NA	2.1	1	5	ng/dry g						9	25	PASS	J
2-Methylnaphthalene	NA	3.4	1	5	ng/dry g						14	25	PASS	J
Acenaphthene	NA	1.5	1	5	ng/dry g						18	25	PASS	J
Acenaphthylene	NA	5.2	1	5	ng/dry g						38	25	FAIL	SL
Anthracene	NA	22.5	1	5	ng/dry g						21	25	PASS	
Benz[a]anthracene	NA	45.7	1	5	ng/dry g						3	25	PASS	
Benzo[a]pyrene	NA	98.4	1	5	ng/dry g						18	25	PASS	
Benzo[b]fluoranthene	NA	93	1	5	ng/dry g						15	25	PASS	
Benzo[e]pyrene	NA	58.7	1	5	ng/dry g						28	25	FAIL	NH
Benzo[g,h,i]perylene	NA	50.5	1	5	ng/dry g						12	25	PASS	
Benzo[k]fluoranthene	NA	50.6	1	5	ng/dry g						22	25	PASS	
Biphenyl	NA	ND	1	5	ng/dry g						0	25	PASS	
Chrysene	NA	64.2	1	5	ng/dry g						17	25	PASS	
Dibenz[a,h]anthracene	NA	26.4	1	5	ng/dry g						6	25	PASS	
Dibenzothiophene	NA	2.1	1	5	ng/dry g						0	25	PASS	J
Fluoranthene	NA	39.5	1	5	ng/dry g						30	25	FAIL	NH
Fluorene	NA	1.4	1	5	ng/dry g						35	25	FAIL	J,SL
Indeno[1,2,3-c,d]pyrene	NA	65.6	1	5	ng/dry g						13	25	PASS	
Naphthalene	NA	3.8	1	5	ng/dry g						10	25	PASS	J
Perylene	NA	30.3	1	5	ng/dry g						5	25	PASS	
Phenanthrene	NA	13.5	1	5	ng/dry g						29	25	FAIL	NH
Pyrene	NA	45.3	1	5	ng/dry g						30	25	FAIL	NH

Sample ID: 21764-MS1 B13-8356 **Matrix: Sediment** **Sampled: 13-Jul-13 9:22** **Received: 13-Jul-13**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
	Method: EPA 8270C				Batch ID: O-6005			Prepared: 24-Aug-13			Analyzed: 06-Sep-13		
(d10-Acenaphthene)	NA	94			% Recovery	100	0	94	50 - 150%	PASS			
(d10-Phenanthrene)	NA	97			% Recovery	100	0	97	50 - 150%	PASS			
(d12-Chrysene)	NA	86			% Recovery	100	0	86	50 - 150%	PASS			
(d8-Naphthalene)	NA	72			% Recovery	100	0	72	25 - 125%	PASS			
1-Methylnaphthalene	NA	45.7	1	5	ng/dry g	46.4	1.5	95	50 - 150%	PASS			
1-Methylphenanthrene	NA	42	1	5	ng/dry g	46.4	2.7	85	50 - 150%	PASS			
2,3,5-Trimethylnaphthalene	NA	40.6	1	5	ng/dry g	46.4	0	87	50 - 150%	PASS			
2,6-Dimethylnaphthalene	NA	38.4	1	5	ng/dry g	46.4	2	78	50 - 150%	PASS			
2-Methylnaphthalene	NA	47.5	1	5	ng/dry g	46.4	3.2	95	50 - 150%	PASS			
Acenaphthene	NA	37.9	1	5	ng/dry g	46.4	0	82	50 - 150%	PASS			
Acenaphthylene	NA	40.5	1	5	ng/dry g	46.4	0	87	50 - 150%	PASS			
Anthracene	NA	44.3	1	5	ng/dry g	46.4	6.6	81	50 - 150%	PASS			
Benz[a]anthracene	NA	46	1	5	ng/dry g	46.4	33.9	26	50 - 150%	FAIL			M
Benzo[a]pyrene	NA	43.8	1	5	ng/dry g	46.4	35.6	18	50 - 150%	FAIL			M
Benzo[b]fluoranthene	NA	45.9	1	5	ng/dry g	46.4	13.6	70	50 - 150%	PASS			
Benzo[e]pyrene	NA	46.2	1	5	ng/dry g	46.4	25.5	45	50 - 150%	FAIL			M
Benzo[g,h,i]perylene	NA	46.9	1	5	ng/dry g	46.4	17.1	64	50 - 150%	PASS			
Benzo[k]fluoranthene	NA	48	1	5	ng/dry g	46.4	4.9	93	50 - 150%	PASS			
Biphenyl	NA	45.6	1	5	ng/dry g	46.4	0	98	50 - 150%	PASS			
Chrysene	NA	40.3	1	5	ng/dry g	46.4	51	-23	50 - 150%	FAIL			M
Dibenz[a,h]anthracene	NA	43	1	5	ng/dry g	46.4	13.7	63	50 - 150%	PASS			
Dibenzothiophene	NA	48.1	1	5	ng/dry g	46.4	1.5	100	50 - 150%	PASS			
Fluoranthene	NA	46	1	5	ng/dry g	46.4	7.3	83	50 - 150%	PASS			
Fluorene	NA	39.2	1	5	ng/dry g	46.4	0	84	50 - 150%	PASS			
Indeno[1,2,3-c,d]pyrene	NA	38.5	1	5	ng/dry g	46.4	8.5	65	50 - 150%	PASS			
Naphthalene	NA	42.9	1	5	ng/dry g	46.4	2.5	87	25 - 125%	PASS			
Perylene	NA	45.9	1	5	ng/dry g	46.4	5.4	87	50 - 150%	PASS			
Phenanthrene	NA	46.2	1	5	ng/dry g	46.4	6.3	86	50 - 150%	PASS			
Pyrene	NA	36	1	5	ng/dry g	46.4	20.9	33	50 - 150%	FAIL			M

Sample ID: 21764-MS2 B13-8356 **Matrix: Sediment** **Sampled: 13-Jul-13 9:22** **Received: 13-Jul-13**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
	Method: EPA 8270C				Batch ID: O-6005			Prepared: 24-Aug-13			Analyzed: 06-Sep-13			
(d10-Acenaphthene)	NA	90			% Recovery	100	0	90	50 - 150%	PASS	4	25	PASS	
(d10-Phenanthrene)	NA	96			% Recovery	100	0	96	50 - 150%	PASS	1	25	PASS	
(d12-Chrysene)	NA	83			% Recovery	100	0	83	50 - 150%	PASS	4	25	PASS	
(d8-Naphthalene)	NA	64			% Recovery	100	0	64	25 - 125%	PASS	12	25	PASS	
1-Methylnaphthalene	NA	41.7	1	5	ng/dry g	46.4	1.5	87	50 - 150%	PASS	9	25	PASS	
1-Methylphenanthrene	NA	40.9	1	5	ng/dry g	46.4	2.7	82	50 - 150%	PASS	4	25	PASS	
2,3,5-Trimethylnaphthalene	NA	39.2	1	5	ng/dry g	46.4	0	84	50 - 150%	PASS	4	25	PASS	
2,6-Dimethylnaphthalene	NA	41.3	1	5	ng/dry g	46.4	2	85	50 - 150%	PASS	9	25	PASS	
2-Methylnaphthalene	NA	43.1	1	5	ng/dry g	46.4	3.2	86	50 - 150%	PASS	10	25	PASS	
Acenaphthene	NA	46	1	5	ng/dry g	46.4	0	99	50 - 150%	PASS	19	25	PASS	
Acenaphthylene	NA	38.6	1	5	ng/dry g	46.4	0	83	50 - 150%	PASS	5	25	PASS	
Anthracene	NA	39.2	1	5	ng/dry g	46.4	6.6	70	50 - 150%	PASS	15	25	PASS	
Benz[a]anthracene	NA	46.6	1	5	ng/dry g	46.4	33.9	27	50 - 150%	FAIL	4	25	PASS	M
Benzo[a]pyrene	NA	42	1	5	ng/dry g	46.4	35.6	14	50 - 150%	FAIL	25	25	PASS	M
Benzo[b]fluoranthene	NA	37.9	1	5	ng/dry g	46.4	13.6	52	50 - 150%	PASS	30	25	FAIL	NH
Benzo[e]pyrene	NA	47.1	1	5	ng/dry g	46.4	25.5	47	50 - 150%	FAIL	4	25	PASS	M
Benzo[g,h,i]perylene	NA	42.1	1	5	ng/dry g	46.4	17.1	54	50 - 150%	PASS	17	25	PASS	
Benzo[k]fluoranthene	NA	42	1	5	ng/dry g	46.4	4.9	80	50 - 150%	PASS	15	25	PASS	
Biphenyl	NA	43	1	5	ng/dry g	46.4	0	93	50 - 150%	PASS	5	25	PASS	
Chrysene	NA	40.3	1	5	ng/dry g	46.4	51	-23	50 - 150%	FAIL	0	25	PASS	M
Dibenz[a,h]anthracene	NA	42.9	1	5	ng/dry g	46.4	13.7	63	50 - 150%	PASS	0	25	PASS	
Dibenzothiophene	NA	46.7	1	5	ng/dry g	46.4	1.5	97	50 - 150%	PASS	3	25	PASS	
Fluoranthene	NA	44.5	1	5	ng/dry g	46.4	7.3	80	50 - 150%	PASS	4	25	PASS	
Fluorene	NA	37.7	1	5	ng/dry g	46.4	0	81	50 - 150%	PASS	4	25	PASS	
Indeno[1,2,3-c,d]pyrene	NA	40.1	1	5	ng/dry g	46.4	8.5	68	50 - 150%	PASS	5	25	PASS	
Naphthalene	NA	39.3	1	5	ng/dry g	46.4	2.5	79	25 - 125%	PASS	10	25	PASS	
Perylene	NA	46.5	1	5	ng/dry g	46.4	5.4	89	50 - 150%	PASS	2	25	PASS	
Phenanthrene	NA	49.1	1	5	ng/dry g	46.4	6.3	92	50 - 150%	PASS	7	25	PASS	
Pyrene	NA	36.1	1	5	ng/dry g	46.4	20.9	33	50 - 150%	FAIL	0	25	PASS	M

Sample ID: 21764-R2 **B13-8356** **Matrix: Sediment** **Sampled: 13-Jul-13 9:22** **Received: 13-Jul-13**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
		Method: EPA 8270C				Batch ID: O-6005		Prepared: 24-Aug-13			Analyzed: 06-Sep-13			
(d10-Acenaphthene)	NA	80			% Recovery	100		80	50 - 150%	PASS	4	25	PASS	
(d10-Phenanthrene)	NA	85			% Recovery	100		85	50 - 150%	PASS	1	25	PASS	
(d12-Chrysene)	NA	78			% Recovery	100		78	50 - 150%	PASS	15	25	PASS	
(d8-Naphthalene)	NA	56			% Recovery	100		56	25 - 125%	PASS	2	25	PASS	
1-Methylnaphthalene	NA	1.2	1	5	ng/dry g						45	25	FAIL	J,SL
1-Methylphenanthrene	NA	3.4	1	5	ng/dry g						57	25	FAIL	J,SL
2,3,5-Trimethylnaphthalene	NA	ND	1	5	ng/dry g						0	25	PASS	
2,6-Dimethylnaphthalene	NA	1.5	1	5	ng/dry g						46	25	FAIL	J,SL
2-Methylnaphthalene	NA	2.5	1	5	ng/dry g						44	25	FAIL	J,SL
Acenaphthene	NA	ND	1	5	ng/dry g						0	25	PASS	
Acenaphthylene	NA	ND	1	5	ng/dry g						0	25	PASS	
Anthracene	NA	6.6	1	5	ng/dry g						0	25	PASS	
Benz[a]anthracene	NA	52.1	1	5	ng/dry g						107	25	FAIL	NH
Benzo[a]pyrene	NA	49.8	1	5	ng/dry g						80	25	FAIL	NH
Benzo[b]fluoranthene	NA	18.1	1	5	ng/dry g						67	25	FAIL	NH
Benzo[e]pyrene	NA	35	1	5	ng/dry g						75	25	FAIL	NH
Benzo[g,h,i]perylene	NA	21.1	1	5	ng/dry g						47	25	FAIL	NH
Benzo[k]fluoranthene	NA	5.9	1	5	ng/dry g						38	25	FAIL	SL
Biphenyl	NA	ND	1	5	ng/dry g						0	25	PASS	
Chrysene	NA	81.2	1	5	ng/dry g						118	25	FAIL	NH
Dibenz[a,h]anthracene	NA	19.2	1	5	ng/dry g						81	25	FAIL	NH
Dibenzothiophene	NA	1.4	1	5	ng/dry g						13	25	PASS	J
Fluoranthene	NA	8.6	1	5	ng/dry g						37	25	FAIL	SL
Fluorene	NA	ND	1	5	ng/dry g						0	25	PASS	
Indeno[1,2,3-c,d]pyrene	NA	10.3	1	5	ng/dry g						42	25	FAIL	NH
Naphthalene	NA	2.2	1	5	ng/dry g						24	25	PASS	J
Perylene	NA	7.9	1	5	ng/dry g						90	25	FAIL	SL
Phenanthrene	NA	7.4	1	5	ng/dry g						35	25	FAIL	SL
Pyrene	NA	28.9	1	5	ng/dry g						77	25	FAIL	NH

Sample ID: 21888-CRM1 **QAQC CRM - SRM 1944** **Matrix: Sediment** **Sampled:** **Received:**

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
	Method: EPA 8270C				Batch ID: O-6001			Prepared: 09-Aug-13				Analyzed: 09-Sep-13	
(d10-Acenaphthene)	NA	94			% Recovery	100		94	50 - 150%	PASS			
(d10-Phenanthrene)	NA	100			% Recovery	100		100	50 - 150%	PASS			
(d12-Chrysene)	NA	92			% Recovery	100		92	50 - 150%	PASS			
(d8-Naphthalene)	NA	55			% Recovery	100		55	25 - 125%	PASS			
1-Methylnaphthalene	NA	370.6	1	5	µg/dry g	520		71	70 - 130%	PASS			
1-Methylphenanthrene	NA	1517.9	1	5	µg/dry g	1700		89	70 - 130%	PASS			
2,6-Dimethylnaphthalene	NA	608	1	5	µg/dry g	790		77	70 - 130%	PASS			
2-Methylnaphthalene	NA	792.9	1	5	µg/dry g	950		83	70 - 130%	PASS			
Acenaphthene	NA	433.7	1	5	µg/dry g	570		76	70 - 130%	PASS			
Anthracene	NA	1968.5	1	5	µg/dry g	1770		111	70 - 130%	PASS			
Benz[a]anthracene	NA	4807.3	1	5	µg/dry g	4720		102	70 - 130%	PASS			
Benzo[a]pyrene	NA	3421.5	1	5	µg/dry g	4300		80	70 - 130%	PASS			
Benzo[b]fluoranthene	NA	3542.4	1	5	µg/dry g	3870		92	70 - 130%	PASS			
Benzo[e]pyrene	NA	2384.2	1	5	µg/dry g	3280		73	70 - 130%	PASS			
Benzo[g,h,i]perylene	NA	2479.8	1	5	µg/dry g	2840		87	70 - 130%	PASS			
Benzo[k]fluoranthene	NA	3145.6	1	5	µg/dry g	4390		72	70 - 130%	PASS			
Biphenyl	NA	222.5	1	5	µg/dry g	320		70	70 - 130%	PASS			
Chrysene	NA	5378.5	1	5	µg/dry g	5900		91	70 - 130%	PASS			
Dibenz[a,h]anthracene	NA	432.2	1	5	µg/dry g	424		102	70 - 130%	PASS			
Dibenzothiophene	NA	685.9	1	5	µg/dry g	620		111	70 - 130%	PASS			
Fluoranthene	NA	9608.8	1	5	µg/dry g	8920		108	70 - 130%	PASS			
Fluorene	NA	595.4	1	5	µg/dry g	850		70	70 - 130%	PASS			
Indeno[1,2,3-c,d]pyrene	NA	3562.8	1	5	µg/dry g	2780		128	70 - 130%	PASS			
Naphthalene	NA	1121.6	1	5	µg/dry g	1650		68	70 - 130%	FAIL			*
Perylene	NA	1169.3	1	5	µg/dry g	1170		100	70 - 130%	PASS			
Phenanthrene	NA	5572	1	5	µg/dry g	5270		106	70 - 130%	PASS			
Pyrene	NA	9250.3	1	5	µg/dry g	9700		95	70 - 130%	PASS			
Sample ID: 21889-CRM1	**QAQC CRM - SRM 1944**				**Matrix: Sediment**			**Sampled:**				**Received:**	
	Method: EPA 8270C				Batch ID: O-6003			Prepared: 15-Aug-13				Analyzed: 09-Sep-13	
(d10-Acenaphthene)	NA	70			% Recovery	100		70	50 - 150%	PASS			

PHYSIS Project ID: 1307001-001 **Client: AMEC** **Project: POLA/POLB Harbor Toxics TMDL and Bight '13**

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Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
(d10-Phenanthrene)	NA	93			% Recovery	100		93	50 - 150%	PASS			
(d12-Chrysene)	NA	92			% Recovery	100		92	50 - 150%	PASS			
(d8-Naphthalene)	NA	51			% Recovery	100		51	25 - 125%	PASS			
1-Methylnaphthalene	NA	389	1	5	µg/dry g	520		75	70 - 130%	PASS			
1-Methylphenanthrene	NA	1189.5	1	5	µg/dry g	1700		70	70 - 130%	PASS			
2,6-Dimethylnaphthalene	NA	461.3	1	5	µg/dry g	790		58	70 - 130%	FAIL			R
2-Methylnaphthalene	NA	814.4	1	5	µg/dry g	950		86	70 - 130%	PASS			
Acenaphthene	NA	430.1	1	5	µg/dry g	570		75	70 - 130%	PASS			
Anthracene	NA	2119.5	1	5	µg/dry g	1770		120	70 - 130%	PASS			
Benz[a]anthracene	NA	4428.1	1	5	µg/dry g	4720		94	70 - 130%	PASS			
Benzo[a]pyrene	NA	3289.9	1	5	µg/dry g	4300		77	70 - 130%	PASS			
Benzo[b]fluoranthene	NA	3396.9	1	5	µg/dry g	3870		88	70 - 130%	PASS			
Benzo[e]pyrene	NA	2301.5	1	5	µg/dry g	3280		70	70 - 130%	PASS			
Benzo[g,h,i]perylene	NA	2211.1	1	5	µg/dry g	2840		78	70 - 130%	PASS			
Benzo[k]fluoranthene	NA	3275.5	1	5	µg/dry g	4390		75	70 - 130%	PASS			
Biphenyl	NA	245	1	5	µg/dry g	320		77	70 - 130%	PASS			
Chrysene	NA	5534.4	1	5	µg/dry g	5900		94	70 - 130%	PASS			
Dibenz[a,h]anthracene	NA	354.4	1	5	µg/dry g	424		84	70 - 130%	PASS			
Dibenzothiophene	NA	520.3	1	5	µg/dry g	620		84	70 - 130%	PASS			
Fluoranthene	NA	8458.8	1	5	µg/dry g	8920		95	70 - 130%	PASS			
Fluorene	NA	764.9	1	5	µg/dry g	850		90	70 - 130%	PASS			
Indeno[1,2,3-c,d]pyrene	NA	3501.7	1	5	µg/dry g	2780		126	70 - 130%	PASS			
Naphthalene	NA	1043.4	1	5	µg/dry g	1650		63	70 - 130%	FAIL			*
Perylene	NA	974.1	1	5	µg/dry g	1170		83	70 - 130%	PASS			
Phenanthrene	NA	4586.3	1	5	µg/dry g	5270		87	70 - 130%	PASS			
Pyrene	NA	8022.9	1	5	µg/dry g	9700		83	70 - 130%	PASS			

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Pyrethroids QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODE
Sample ID: 21731-B1	**QAQC Procedural Blank**				**Matrix: DI Water**		**Sampled:**				**Received:**	
	Method: EPA 8270C-NCI				Batch ID: O-6001		Prepared: 09-Aug-13				Analyzed: 23-Aug-13	
Allethrin	NA	ND	0.25	0.5	ng/dry g							
Bifenthrin	NA	ND	0.25	0.5	ng/dry g							
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g							
Cypermethrin	NA	ND	0.25	0.5	ng/dry g							
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g							
Fenvalerate	NA	ND	0.25	0.5	ng/dry g							
Fluvalinate	NA	ND	0.25	0.5	ng/dry g							
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g							
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g							
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g							
Prallethrin	NA	ND	0.25	0.5	ng/dry g							
Resmethrin	NA	ND	0.25	0.5	ng/dry g							
Sample ID: 21731-BS1	**QAQC Procedural Blank**				**Matrix: DI Water**		**Sampled:**				**Received:**	
	Method: EPA 8270C-NCI				Batch ID: O-6001		Prepared: 09-Aug-13				Analyzed: 23-Aug-13	
Allethrin	NA	771.8	0.25	0.5	ng/dry g	800	0	96	50 - 150%		PASS	
Bifenthrin	NA	737.6	0.25	0.5	ng/dry g	800	0	92	50 - 150%		PASS	
Cyfluthrin	NA	489.7	0.25	0.5	ng/dry g	800	0	61	50 - 150%		PASS	
Cypermethrin	NA	541.5	0.25	0.5	ng/dry g	800	0	68	50 - 150%		PASS	
Esfenvalerate	NA	594.8	0.25	0.5	ng/dry g	800	0	74	50 - 150%		PASS	
Fenvalerate	NA	596.1	0.25	0.5	ng/dry g	800	0	75	50 - 150%		PASS	
Fluvalinate	NA	523.1	0.25	0.5	ng/dry g	800	0	65	50 - 150%		PASS	
L-Cyhalothrin	NA	546.8	0.25	0.5	ng/dry g	800	0	68	50 - 150%		PASS	
Permethrin, cis-	NA	159.9	0.25	0.5	ng/dry g	211	0	76	50 - 150%		PASS	
Permethrin, trans-	NA	456.4	0.25	0.5	ng/dry g	574	0	80	50 - 150%		PASS	
Prallethrin	NA	802.2	0.25	0.5	ng/dry g	800	0	100	50 - 150%		PASS	
Resmethrin	NA	661.8	0.25	0.5	ng/dry g	800	0	83	50 - 150%		PASS	
Sample ID: 21731-BS2	**QAQC Procedural Blank**				**Matrix: DI Water**		**Sampled:**				**Received:**	

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Pyrethroids QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
		Method: EPA 8270C-NCI				Batch ID: O-6001		Prepared: 09-Aug-13			Analyzed: 23-Aug-13		
Allethrin	NA	723.8	0.25	0.5	ng/dry g	800	0	90	50 - 150%	PASS	6	25 PASS	
Bifenthrin	NA	780.7	0.25	0.5	ng/dry g	800	0	98	50 - 150%	PASS	6	25 PASS	
Cyfluthrin	NA	523.6	0.25	0.5	ng/dry g	800	0	65	50 - 150%	PASS	6	25 PASS	
Cypermethrin	NA	528.7	0.25	0.5	ng/dry g	800	0	66	50 - 150%	PASS	3	25 PASS	
Esfenvalerate	NA	625.9	0.25	0.5	ng/dry g	800	0	78	50 - 150%	PASS	5	25 PASS	
Fenvalerate	NA	622	0.25	0.5	ng/dry g	800	0	78	50 - 150%	PASS	4	25 PASS	
Fluvalinate	NA	547.5	0.25	0.5	ng/dry g	800	0	68	50 - 150%	PASS	5	25 PASS	
L-Cyhalothrin	NA	505.2	0.25	0.5	ng/dry g	800	0	63	50 - 150%	PASS	8	25 PASS	
Permethrin, cis-	NA	151	0.25	0.5	ng/dry g	211	0	72	50 - 150%	PASS	5	25 PASS	
Permethrin, trans-	NA	415.5	0.25	0.5	ng/dry g	574	0	72	50 - 150%	PASS	11	25 PASS	
Prallethrin	NA	755.2	0.25	0.5	ng/dry g	800	0	94	50 - 150%	PASS	6	25 PASS	
Resmethrin	NA	613.8	0.25	0.5	ng/dry g	800	0	77	50 - 150%	PASS	8	25 PASS	
Sample ID: 21732-B1	**QAQC Procedural Blank**				**Matrix: DI Water**			**Sampled:**			**Received:**		
		Method: EPA 8270C-NCI				Batch ID: O-6005		Prepared: 24-Aug-13			Analyzed: 06-Sep-13		
Allethrin	NA	ND	0.25	0.5	ng/dry g								
Bifenthrin	NA	ND	0.25	0.5	ng/dry g								
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g								
Cypermethrin	NA	ND	0.25	0.5	ng/dry g								
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g								
Fenvalerate	NA	ND	0.25	0.5	ng/dry g								
Fluvalinate	NA	ND	0.25	0.5	ng/dry g								
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g								
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g								
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g								
Prallethrin	NA	ND	0.25	0.5	ng/dry g								
Resmethrin	NA	ND	0.25	0.5	ng/dry g								
Sample ID: 21732-BS1	**QAQC Procedural Blank**				**Matrix: DI Water**			**Sampled:**			**Received:**		
		Method: EPA 8270C-NCI				Batch ID: O-6005		Prepared: 24-Aug-13			Analyzed: 06-Sep-13		
Allethrin	NA	688.3	0.25	0.5	ng/dry g	800	0	86	50 - 150%	PASS			

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Pyrethroids QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Bifenthrin	NA	636.7	0.25	0.5	ng/dry g	800	0	80	50 - 150%	PASS			
Cyfluthrin	NA	756.8	0.25	0.5	ng/dry g	800	0	95	50 - 150%	PASS			
Cypermethrin	NA	782.4	0.25	0.5	ng/dry g	800	0	98	50 - 150%	PASS			
Esfenvalerate	NA	757.5	0.25	0.5	ng/dry g	800	0	95	50 - 150%	PASS			
Fenvalerate	NA	688.5	0.25	0.5	ng/dry g	800	0	86	50 - 150%	PASS			
Fluvalinate	NA	818	0.25	0.5	ng/dry g	800	0	102	50 - 150%	PASS			
L-Cyhalothrin	NA	792.1	0.25	0.5	ng/dry g	800	0	99	50 - 150%	PASS			
Permethrin, cis-	NA	122.2	0.25	0.5	ng/dry g	211	0	58	50 - 150%	PASS			
Permethrin, trans-	NA	330.6	0.25	0.5	ng/dry g	574	0	58	50 - 150%	PASS			
Prallethrin	NA	779.6	0.25	0.5	ng/dry g	800	0	97	50 - 150%	PASS			
Resmethrin	NA	578.3	0.25	0.5	ng/dry g	800	0	72	50 - 150%	PASS			

Sample ID: 21732-BS2 **QAQC Procedural Blank** **Matrix: DI Water** **Sampled:** **Received:**
Method: EPA 8270C-NCI Batch ID: O-6005 Prepared: 24-Aug-13 Analyzed: 06-Sep-13

Allethrin	NA	604.9	0.25	0.5	ng/dry g	800	0	76	50 - 150%	PASS	12	25	PASS
Bifenthrin	NA	663.2	0.25	0.5	ng/dry g	800	0	83	50 - 150%	PASS	4	25	PASS
Cyfluthrin	NA	800.5	0.25	0.5	ng/dry g	800	0	100	50 - 150%	PASS	5	25	PASS
Cypermethrin	NA	796.8	0.25	0.5	ng/dry g	800	0	100	50 - 150%	PASS	2	25	PASS
Esfenvalerate	NA	791.1	0.25	0.5	ng/dry g	800	0	99	50 - 150%	PASS	4	25	PASS
Fenvalerate	NA	737.1	0.25	0.5	ng/dry g	800	0	92	50 - 150%	PASS	7	25	PASS
Fluvalinate	NA	844.6	0.25	0.5	ng/dry g	800	0	106	50 - 150%	PASS	4	25	PASS
L-Cyhalothrin	NA	856.1	0.25	0.5	ng/dry g	800	0	107	50 - 150%	PASS	8	25	PASS
Permethrin, cis-	NA	128.3	0.25	0.5	ng/dry g	211	0	61	50 - 150%	PASS	5	25	PASS
Permethrin, trans-	NA	377.6	0.25	0.5	ng/dry g	574	0	66	50 - 150%	PASS	13	25	PASS
Prallethrin	NA	800.9	0.25	0.5	ng/dry g	800	0	100	50 - 150%	PASS	3	25	PASS
Resmethrin	NA	494.9	0.25	0.5	ng/dry g	800	0	62	50 - 150%	PASS	15	25	PASS

Sample ID: 21733-B1 **B13-8382** **Matrix: Sediment** **Sampled: 10-Jul-13 11:04** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 25-Aug-13

Allethrin	NA	ND	0.25	0.5	ng/dry g								
Bifenthrin	NA	ND	0.25	0.5	ng/dry g								
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g								

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Pyrethroids — QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Cypermethrin	NA	ND	0.25	0.5	ng/dry g									
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g									
Fenvalerate	NA	ND	0.25	0.5	ng/dry g									
Fluvalinate	NA	ND	0.25	0.5	ng/dry g									
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g									
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g									
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g									
Prallethrin	NA	ND	0.25	0.5	ng/dry g									
Resmethrin	NA	ND	0.25	0.5	ng/dry g									

Sample ID: 21733-BS1 **B13-8382** **Matrix: Sediment** **Sampled: 10-Jul-13 11:04** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 25-Aug-13

Allethrin	NA	839.8	0.25	0.5	ng/dry g	800	0	105	50 - 150%	PASS				
Bifenthrin	NA	802.8	0.25	0.5	ng/dry g	800	0	100	50 - 150%	PASS				
Cyfluthrin	NA	758.4	0.25	0.5	ng/dry g	800	0	95	50 - 150%	PASS				
Cypermethrin	NA	774.2	0.25	0.5	ng/dry g	800	0	97	50 - 150%	PASS				
Esfenvalerate	NA	726.5	0.25	0.5	ng/dry g	800	0	91	50 - 150%	PASS				
Fenvalerate	NA	703.1	0.25	0.5	ng/dry g	800	0	88	50 - 150%	PASS				
Fluvalinate	NA	704.9	0.25	0.5	ng/dry g	800	0	88	50 - 150%	PASS				
L-Cyhalothrin	NA	703.3	0.25	0.5	ng/dry g	800	0	88	50 - 150%	PASS				
Permethrin, cis-	NA	176.8	0.25	0.5	ng/dry g	211	0	84	50 - 150%	PASS				
Permethrin, trans-	NA	533.2	0.25	0.5	ng/dry g	574	0	93	50 - 150%	PASS				
Prallethrin	NA	765.4	0.25	0.5	ng/dry g	800	0	96	50 - 150%	PASS				
Resmethrin	NA	729.8	0.25	0.5	ng/dry g	800	0	91	50 - 150%	PASS				

Sample ID: 21733-BS2 **B13-8382** **Matrix: Sediment** **Sampled: 10-Jul-13 11:04** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 25-Aug-13

Allethrin	NA	837.5	0.25	0.5	ng/dry g	800	0	105	50 - 150%	PASS	0	25	PASS	
Bifenthrin	NA	780.5	0.25	0.5	ng/dry g	800	0	98	50 - 150%	PASS	2	25	PASS	
Cyfluthrin	NA	760.9	0.25	0.5	ng/dry g	800	0	95	50 - 150%	PASS	0	25	PASS	
Cypermethrin	NA	815.8	0.25	0.5	ng/dry g	800	0	102	50 - 150%	PASS	5	25	PASS	
Esfenvalerate	NA	719.7	0.25	0.5	ng/dry g	800	0	90	50 - 150%	PASS	1	25	PASS	

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Pyrethroids QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Fenvalerate	NA	697.7	0.25	0.5	ng/dry g	800	0	87	50 - 150%	PASS	1	25	PASS	
Fluvalinate	NA	702.6	0.25	0.5	ng/dry g	800	0	88	50 - 150%	PASS	0	25	PASS	
L-Cyhalothrin	NA	700.8	0.25	0.5	ng/dry g	800	0	88	50 - 150%	PASS	0	25	PASS	
Permethrin, cis-	NA	188.1	0.25	0.5	ng/dry g	211	0	89	50 - 150%	PASS	6	25	PASS	
Permethrin, trans-	NA	561.2	0.25	0.5	ng/dry g	574	0	98	50 - 150%	PASS	5	25	PASS	
Prallethrin	NA	790.2	0.25	0.5	ng/dry g	800	0	99	50 - 150%	PASS	3	25	PASS	
Resmethrin	NA	727.5	0.25	0.5	ng/dry g	800	0	91	50 - 150%	PASS	0	25	PASS	
Sample ID: 21744-MS1	**B13-8308**				**Matrix: Sediment**			**Sampled: 11-Jul-13**		**17:06**		**Received: 13-Jul-13**		
	Method: EPA 8270C-NCI				Batch ID: O-6003			Prepared: 15-Aug-13				Analyzed: 25-Aug-13		
Allethrin	NA	11.46	0.25	0.5	ng/dry g	11.68	0	98	50 - 150%	PASS				
Bifenthrin	NA	12.82	0.25	0.5	ng/dry g	11.68	0	110	50 - 150%	PASS				
Cyfluthrin	NA	11.74	0.25	0.5	ng/dry g	11.68	0	101	50 - 150%	PASS				
Cypermethrin	NA	11.61	0.25	0.5	ng/dry g	11.68	0	99	50 - 150%	PASS				
Esfenvalerate	NA	12.61	0.25	0.5	ng/dry g	11.68	0	108	50 - 150%	PASS				
Fenvalerate	NA	12.73	0.25	0.5	ng/dry g	11.68	0	109	50 - 150%	PASS				
Fluvalinate	NA	12.27	0.25	0.5	ng/dry g	11.68	0	105	50 - 150%	PASS				
L-Cyhalothrin	NA	12.55	0.25	0.5	ng/dry g	11.68	0	107	50 - 150%	PASS				
Permethrin, cis-	NA	3.27	0.25	0.5	ng/dry g	3.09	0	106	50 - 150%	PASS				
Permethrin, trans-	NA	9.41	0.25	0.5	ng/dry g	8.38	0	112	50 - 150%	PASS				
Prallethrin	NA	10.17	0.25	0.5	ng/dry g	11.68	0	87	50 - 150%	PASS				
Resmethrin	NA	10.14	0.25	0.5	ng/dry g	11.68	0	87	50 - 150%	PASS				
Sample ID: 21744-MS2	**B13-8308**				**Matrix: Sediment**			**Sampled: 11-Jul-13**		**17:06**		**Received: 13-Jul-13**		
	Method: EPA 8270C-NCI				Batch ID: O-6003			Prepared: 15-Aug-13				Analyzed: 25-Aug-13		
Allethrin	NA	10.6	0.25	0.5	ng/dry g	11.29	0	94	50 - 150%	PASS	4	25	PASS	
Bifenthrin	NA	11.52	0.25	0.5	ng/dry g	11.29	0	102	50 - 150%	PASS	8	25	PASS	
Cyfluthrin	NA	11.48	0.25	0.5	ng/dry g	11.29	0	102	50 - 150%	PASS	1	25	PASS	
Cypermethrin	NA	11.58	0.25	0.5	ng/dry g	11.29	0	103	50 - 150%	PASS	4	25	PASS	
Esfenvalerate	NA	11.41	0.25	0.5	ng/dry g	11.29	0	101	50 - 150%	PASS	7	25	PASS	
Fenvalerate	NA	11.8	0.25	0.5	ng/dry g	11.29	0	105	50 - 150%	PASS	4	25	PASS	
Fluvalinate	NA	11.1	0.25	0.5	ng/dry g	11.29	0	98	50 - 150%	PASS	7	25	PASS	

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Pyrethroids QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
L-Cyhalothrin	NA	11.85	0.25	0.5	ng/dry g	11.29	0	105	50 - 150%	PASS	2	25	PASS	
Permethrin, cis-	NA	3.19	0.25	0.5	ng/dry g	2.98	0	107	50 - 150%	PASS	1	25	PASS	
Permethrin, trans-	NA	7.67	0.25	0.5	ng/dry g	8.1	0	95	50 - 150%	PASS	16	25	PASS	
Prallethrin	NA	10.96	0.25	0.5	ng/dry g	11.29	0	97	50 - 150%	PASS	11	25	PASS	
Resmethrin	NA	9.28	0.25	0.5	ng/dry g	11.29	0	82	50 - 150%	PASS	6	25	PASS	

Sample ID: 21744-R2 **B13-8308** **Matrix: Sediment** **Sampled: 11-Jul-13 17:06** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6003 Prepared: 15-Aug-13 Analyzed: 25-Aug-13

Allethrin	NA	ND	0.25	0.5	ng/dry g						0	25	PASS	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g						0	25	PASS	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g						0	25	PASS	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g						0	25	PASS	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g						0	25	PASS	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g						0	25	PASS	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g						0	25	PASS	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g						0	25	PASS	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g						0	25	PASS	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g						0	25	PASS	
Prallethrin	NA	ND	0.25	0.5	ng/dry g						0	25	PASS	
Resmethrin	NA	ND	0.25	0.5	ng/dry g						0	25	PASS	

Sample ID: 21753-MS1 **B13-8397** **Matrix: Sediment** **Sampled: 12-Jul-13 11:20** **Received: 13-Jul-13**
Method: EPA 8270C-NCI Batch ID: O-6001 Prepared: 09-Aug-13 Analyzed: 23-Aug-13

Allethrin	NA	31.26	0.25	0.5	ng/dry g	24.34	0	128	50 - 150%	PASS				
Bifenthrin	NA	29.94	0.25	0.5	ng/dry g	24.34	0	123	50 - 150%	PASS				
Cyfluthrin	NA	24.34	0.25	0.5	ng/dry g	24.34	0	100	50 - 150%	PASS				
Cypermethrin	NA	23.87	0.25	0.5	ng/dry g	24.34	0	98	50 - 150%	PASS				
Esfenvalerate	NA	23.66	0.25	0.5	ng/dry g	24.34	0	97	50 - 150%	PASS				
Fenvalerate	NA	24.86	0.25	0.5	ng/dry g	24.34	0	102	50 - 150%	PASS				
Fluvalinate	NA	22.51	0.25	0.5	ng/dry g	24.34	0	92	50 - 150%	PASS				
L-Cyhalothrin	NA	23.03	0.25	0.5	ng/dry g	24.34	0	95	50 - 150%	PASS				
Permethrin, cis-	NA	7.53	0.25	0.5	ng/dry g	6.41	0	117	50 - 150%	PASS				

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Pyrethroids QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODE
Permethrin, trans-	NA	20.6	0.25	0.5	ng/dry g	17.46	0	118	50 - 150%	PASS			
Prallethrin	NA	25.01	0.25	0.5	ng/dry g	24.34	0	103	50 - 150%	PASS			
Resmethrin	NA	13.07	0.25	0.5	ng/dry g	24.34	0	54	50 - 150%	PASS			
Sample ID: 21753-MS2	**B13-8397**				**Matrix: Sediment**		**Sampled: 12-Jul-13**		**11:20**		**Received: 13-Jul-13**		
	Method: EPA 8270C-NCI				Batch ID: O-6001		Prepared: 09-Aug-13				Analyzed: 23-Aug-13		
Allethrin	NA	37.18	0.25	0.5	ng/dry g	26.61	0	140	50 - 150%	PASS	9	25 PASS	
Bifenthrin	NA	38.01	0.25	0.5	ng/dry g	26.61	0	143	50 - 150%	PASS	15	25 PASS	
Cyfluthrin	NA	25.84	0.25	0.5	ng/dry g	26.61	0	97	50 - 150%	PASS	3	25 PASS	
Cypermethrin	NA	26.41	0.25	0.5	ng/dry g	26.61	0	99	50 - 150%	PASS	1	25 PASS	
Esfenvalerate	NA	27.39	0.25	0.5	ng/dry g	26.61	0	103	50 - 150%	PASS	6	25 PASS	
Fenvalerate	NA	27.75	0.25	0.5	ng/dry g	26.61	0	104	50 - 150%	PASS	2	25 PASS	
Fluvalinate	NA	22.85	0.25	0.5	ng/dry g	26.61	0	86	50 - 150%	PASS	7	25 PASS	
L-Cyhalothrin	NA	23.82	0.25	0.5	ng/dry g	26.61	0	90	50 - 150%	PASS	5	25 PASS	
Permethrin, cis-	NA	8.95	0.25	0.5	ng/dry g	7.02	0	127	50 - 150%	PASS	8	25 PASS	
Permethrin, trans-	NA	25.82	0.25	0.5	ng/dry g	19.1	0	135	50 - 150%	PASS	13	25 PASS	
Prallethrin	NA	29.15	0.25	0.5	ng/dry g	26.61	0	110	50 - 150%	PASS	7	25 PASS	
Resmethrin	NA	17.37	0.25	0.5	ng/dry g	26.61	0	65	50 - 150%	PASS	18	25 PASS	
Sample ID: 21753-R2	**B13-8397**				**Matrix: Sediment**		**Sampled: 12-Jul-13**		**11:20**		**Received: 13-Jul-13**		
	Method: EPA 8270C-NCI				Batch ID: O-6001		Prepared: 09-Aug-13				Analyzed: 23-Aug-13		
Allethrin	NA	ND	0.25	0.5	ng/dry g						0	25 PASS	
Bifenthrin	NA	ND	0.25	0.5	ng/dry g						0	25 PASS	
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g						0	25 PASS	
Cypermethrin	NA	ND	0.25	0.5	ng/dry g						0	25 PASS	
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g						0	25 PASS	
Fenvalerate	NA	ND	0.25	0.5	ng/dry g						0	25 PASS	
Fluvalinate	NA	ND	0.25	0.5	ng/dry g						0	25 PASS	
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g						0	25 PASS	
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g						0	25 PASS	
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g						0	25 PASS	
Prallethrin	NA	ND	0.25	0.5	ng/dry g						0	25 PASS	

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Pyrethroids QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODE
Resmethrin	NA	ND	0.25	0.5	ng/dry g						0	25	PASS	
Sample ID: 21764-MS1	**B13-8356**				**Matrix: Sediment**			**Sampled: 13-Jul-13**	**9:22**		**Received: 13-Jul-13**			
	Method: EPA 8270C-NCI				Batch ID: O-6005			Prepared: 24-Aug-13			Analyzed: 06-Sep-13			
Allethrin	NA	11.25	0.25	0.5	ng/dry g	11.18	0	101	50 - 150%	PASS				
Bifenthrin	NA	11.24	0.25	0.5	ng/dry g	11.18	0	101	50 - 150%	PASS				
Cyfluthrin	NA	9.71	0.25	0.5	ng/dry g	11.18	0	87	50 - 150%	PASS				
Cypermethrin	NA	9.31	0.25	0.5	ng/dry g	11.18	0	83	50 - 150%	PASS				
Esfenvalerate	NA	8.82	0.25	0.5	ng/dry g	11.18	0	79	50 - 150%	PASS				
Fenvalerate	NA	8.88	0.25	0.5	ng/dry g	11.18	0	79	50 - 150%	PASS				
Fluvalinate	NA	8.82	0.25	0.5	ng/dry g	11.18	0	79	50 - 150%	PASS				
L-Cyhalothrin	NA	11.6	0.25	0.5	ng/dry g	11.18	0	104	50 - 150%	PASS				
Permethrin, cis-	NA	2.52	0.25	0.5	ng/dry g	2.95	0	85	50 - 150%	PASS				
Permethrin, trans-	NA	8.38	0.25	0.5	ng/dry g	8.02	0	104	50 - 150%	PASS				
Prallethrin	NA	11.37	0.25	0.5	ng/dry g	11.18	0	102	50 - 150%	PASS				
Resmethrin	NA	9.97	0.25	0.5	ng/dry g	11.18	0	89	50 - 150%	PASS				
Sample ID: 21764-MS2	**B13-8356**				**Matrix: Sediment**			**Sampled: 13-Jul-13**	**9:22**		**Received: 13-Jul-13**			
	Method: EPA 8270C-NCI				Batch ID: O-6005			Prepared: 24-Aug-13			Analyzed: 06-Sep-13			
Allethrin	NA	11.46	0.25	0.5	ng/dry g	11.26	0	102	50 - 150%	PASS	1	25	PASS	
Bifenthrin	NA	12.82	0.25	0.5	ng/dry g	11.26	0	114	50 - 150%	PASS	12	25	PASS	
Cyfluthrin	NA	9.9	0.25	0.5	ng/dry g	11.26	0	88	50 - 150%	PASS	1	25	PASS	
Cypermethrin	NA	9.93	0.25	0.5	ng/dry g	11.26	0	88	50 - 150%	PASS	6	25	PASS	
Esfenvalerate	NA	7.89	0.25	0.5	ng/dry g	11.26	0	70	50 - 150%	PASS	12	25	PASS	
Fenvalerate	NA	8.06	0.25	0.5	ng/dry g	11.26	0	72	50 - 150%	PASS	9	25	PASS	
Fluvalinate	NA	8.85	0.25	0.5	ng/dry g	11.26	0	79	50 - 150%	PASS	0	25	PASS	
L-Cyhalothrin	NA	12.24	0.25	0.5	ng/dry g	11.26	0	109	50 - 150%	PASS	5	25	PASS	
Permethrin, cis-	NA	3.6	0.25	0.5	ng/dry g	2.97	0	121	50 - 150%	PASS	35	25	FAIL	R
Permethrin, trans-	NA	9.35	0.25	0.5	ng/dry g	8.08	0	116	50 - 150%	PASS	11	25	PASS	
Prallethrin	NA	11.59	0.25	0.5	ng/dry g	11.26	0	103	50 - 150%	PASS	1	25	PASS	
Resmethrin	NA	10.18	0.25	0.5	ng/dry g	11.26	0	90	50 - 150%	PASS	1	25	PASS	

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Pyrethroids QUALITY CONTROL REPORT

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Sample ID: 21764-R2	**B13-8356**				**Matrix: Sediment**		**Sampled: 13-Jul-13**	**9:22**		**Received: 13-Jul-13**		
	Method: EPA 8270C-NCI				Batch ID: O-6005		Prepared: 24-Aug-13			Analyzed: 06-Sep-13		
Allethrin	NA	ND	0.25	0.5	ng/dry g					0	25	PASS
Bifenthrin	NA	ND	0.25	0.5	ng/dry g					0	25	PASS
Cyfluthrin	NA	ND	0.25	0.5	ng/dry g					0	25	PASS
Cypermethrin	NA	ND	0.25	0.5	ng/dry g					0	25	PASS
Esfenvalerate	NA	ND	0.25	0.5	ng/dry g					0	25	PASS
Fenvalerate	NA	ND	0.25	0.5	ng/dry g					0	25	PASS
Fluvalinate	NA	ND	0.25	0.5	ng/dry g					0	25	PASS
L-Cyhalothrin	NA	ND	0.25	0.5	ng/dry g					0	25	PASS
Permethrin, cis-	NA	ND	0.25	0.5	ng/dry g					0	25	PASS
Permethrin, trans-	NA	ND	0.25	0.5	ng/dry g					0	25	PASS
Prallethrin	NA	ND	0.25	0.5	ng/dry g					0	25	PASS
Resmethrin	NA	ND	0.25	0.5	ng/dry g					0	25	PASS

SUBCONTRACT REPORT

INSTITUTE FOR INTEGRATED RESEARCH IN MATERIALS, ENVIRONMENTS & SOCIETY

October 14, 2013

Physis Environmental Laboratories, Inc.
1904 E. Wright Circle
Anaheim, CA 92806

Re: IIRMES Project ID: 119-13-11
Physis Environmental Laboratories, In Project ID: 1307001-001

ATTN: Misty Mercier

IIRMES is pleased to provide you with the enclosed analytical data report for your 1307001-001 project. According to the chain-of-custody, 32 samples were received intact at IIRMES on 8/8/2013. Per your instructions, the samples were analyzed for:

- Total Nitrogen Using Method SM 5310 B
- Total Organic Carbon Using Method SM 5310 B

Please don't hesitate to call if you have any questions and thank you very much for using our laboratory for your analytical needs.

Regards,

Alexander Long

Reviewed and Approved _____

Project Sample List

Physis Environmental Laboratories, Inc.
IIRMES Project ID: **119-13-11**
Project Officer: Misty Mercier
Project Description: 1307001-001

Sample ID#	*Client Sample ID*	*Sample Description*	*Date Sampled*	*Matrix*
8282	QAQC	Lab Blank		DI Water
8283	QAQC	SRM 1944		Sediment
8284	B13-8382		10-Jul-13	Sediment
8285	B13-8374		10-Jul-13	Sediment
8286	B13-8371		10-Jul-13	Sediment
8287	B13-8363		10-Jul-13	Sediment
8288	B13-8360		10-Jul-13	Sediment
8289	B13-8349		10-Jul-13	Sediment
8290	B13-8326		10-Jul-13	Sediment
8291	B13-8367		11-Jul-13	Sediment
8292	B13-8302		11-Jul-13	Sediment
8293	B13-8304		11-Jul-13	Sediment
8294	B13-8397		12-Jul-13	Sediment
8295	B13-8396		12-Jul-13	Sediment
8296	B13-8340		12-Jul-13	Sediment
8297	B13-8347		12-Jul-13	Sediment
8298	TMDL6-CP		12-Jul-13	Sediment
8299	TMDL4-CS		12-Jul-13	Sediment
8300	TMDL3-TB		12-Jul-13	Sediment
8301	B13-8365		13-Jul-13	Sediment
8302	B13-8318		13-Jul-13	Sediment
8303	B13-8322		13-Jul-13	Sediment
8304	B13-8306		11-Jul-13	Sediment
8305	B13-8308		11-Jul-13	Sediment

Project Sample List

Physis Environmental Laboratories, Inc.
IIRMES Project ID: **119-13-11**
Project Officer: Misty Mercier
Project Description: 1307001-001

8306	B13-8310	11-Jul-13	Sediment
8307	B13-8316	11-Jul-13	Sediment
8308	TMDL2-FH	11-Jul-13	Sediment
8309	TMDL1-CH	11-Jul-13	Sediment
8310	TMDL5-DT	11-Jul-13	Sediment
8311	B13-8401	12-Jul-13	Sediment
8312	B13-8399	12-Jul-13	Sediment
8313	B13-8384	12-Jul-13	Sediment
8314	B13-8333	13-Jul-13	Sediment
8315	B13-8356	13-Jul-13	Sediment

Institute for Integrated Research in Materials, Environments, and Society

Quality Assurance Summary

Laboratory Batch: The IIRMES Quality Manual (QM) defines a laboratory batch as a group of 20 or fewer samples of similar matrix that are processed together under the same conditions using the same reagents. QC samples are associated with each batch and are used to assess the validity of the sample analyses.

Procedural Blank: Potential laboratory contamination during sample processing and analysis is monitored through the analysis of procedural blanks at a minimum frequency of 1 per batch. The IIRMES QM requires that all measurable procedural blank constituents be less than 10x the MDL and that any detectable constituents be flagged in the project sample results with a *B* qualifier.

Accuracy: Accuracy of the project data is indicated by the analysis of a combination of blank spikes (BS), matrix spikes (MS), laboratory control spikes (LCS), certified reference materials (CRM), and/or surrogate spikes at a minimum frequency of 1 per batch. The IIRMES QM requires that 95% of the compounds greater than 10x the MDL be within the specified acceptance limits.

Precision: Precision of the project data is determined by the analysis of duplicate matrix spikes, blank spikes, and/or duplicate test sample analysis on a minimum frequency of 1 per batch. The IIRMES QM requires that for 95% of the compounds greater than 10x the MDL, the relative percent difference (RPD) be within the specified acceptance range.

Holding Time: The IIRMES QM requires that all samples be processed and analyzed within the method specific recommended holding times. Those sample analyses falling outside that specified holding time will be flagged in the sample results with a *H*.

Total/Dissolved Fraction: In some instances the results for the dissolved fraction may be higher than the total fraction for a particular analyte. This is typically caused by the corresponding analytical variation for each result and indicates the target analyte is primarily in the dissolved phase of the sample.

Institute for Integrated Research in Materials, Environments, and Society

IIRMES Qualifier Codes

Code	***Definition***
ND	Analyte not detected at or above the listed MDL
B	Analyte was detected in the associated procedural blank
H	Sample was received and/or analyzed past the recommended holding time
J	Analyte was detected at a concentration above the MDL but below the RL, therefore the reported value is estimated
N	Insufficient sample, analysis could not be performed
M	Analyte was outside the specified recovery and/or RPD acceptance limits due to matrix interference. The associated blank spikes were within limits, therefore the sample data was reported without further clarification
Q1	Analyte concentration in the sample exceeded the spike concentration, therefore the MS recovery and/or RPD limits do not apply
Q2	Analyte results for R1 and/or R2 were lower than 10x the MDL, therefore the RPD limits do not apply
NH	Sample was heterogeneous and sample homogeneity could not be readily achieved using routine laboratory procedures, therefore the corresponding RPD was outside the specified acceptance limits.

DATA REPORT

INSTITUTE FOR INTEGRATED RESEARCH IN MATERIALS, ENVIRONMENTS & SOCIETY

California State University, Long Beach, 1250 Bellflower Blvd., Long Beach, CA 90840 (562-985-2469)

General Chemistry

ANALYTICAL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Batch	Prepared	Analyzed	Method	QA Code
8284-R1 B13-8382					**Sediment**	**Sampled: 7/10/2013 11:04**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	1.21	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8285-R1 B13-8374					**Sediment**	**Sampled: 7/10/2013 14:28**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	1.18	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8286-R1 B13-8371					**Sediment**	**Sampled: 7/10/2013 12:03**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	0.89	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8287-R1 B13-8363					**Sediment**	**Sampled: 7/10/2013 13:38**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	0.89	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8288-R1 B13-8360					**Sediment**	**Sampled: 7/10/2013 15:30**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	0.82	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8289-R1 B13-8349					**Sediment**	**Sampled: 7/10/2013 9:51**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	1.49	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8290-R1 B13-8326					**Sediment**	**Sampled: 7/10/2013 8:28**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	

INSTITUTE FOR INTEGRATED RESEARCH IN MATERIALS, ENVIRONMENTS & SOCIETY

California State University, Long Beach, 1250 Bellflower Blvd., Long Beach, CA 90840 (562-985-2469)

General Chemistry

ANALYTICAL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Batch	Prepared	Analyzed	Method	QA Code
Total Organic Carbon	NA	1.11	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8291-R1 B13-8367					**Sediment**	**Sampled: 7/11/2013 14:10**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	0.53	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8292-R1 B13-8302					**Sediment**	**Sampled: 7/11/2013 9:29**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	1.51	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8293-R1 B13-8304					**Sediment**	**Sampled: 7/11/2013 16:24**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	2.15	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8294-R1 B13-8397					**Sediment**	**Sampled: 7/12/2013 11:20**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	2.39	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8295-R1 B13-8396					**Sediment**	**Sampled: 7/12/2013 9:58**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	1.67	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8296-R1 B13-8340					**Sediment**	**Sampled: 7/12/2013 8:19**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	1.35	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8297-R1 B13-8347					**Sediment**	**Sampled: 7/12/2013 15:41**			**Received: 08-Aug-13**	

INSTITUTE FOR INTEGRATED RESEARCH IN MATERIALS, ENVIRONMENTS & SOCIETY

California State University, Long Beach, 1250 Bellflower Blvd., Long Beach, CA 90840 (562-985-2469)

General Chemistry

ANALYTICAL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Batch	Prepared	Analyzed	Method	QA Code
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	1.65	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8298-R1 TMDL6-CP					**Sediment**	**Sampled: 7/12/2013 15:41**			**Received: 08-Aug-13**	
Total Organic Carbon	NA	1.25	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8299-R1 TMDL4-CS					**Sediment**	**Sampled: 7/12/2013 12:20**			**Received: 08-Aug-13**	
Total Organic Carbon	NA	3.35	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8300-R1 TMDL3-TB					**Sediment**	**Sampled: 7/12/2013 15:41**			**Received: 08-Aug-13**	
Total Organic Carbon	NA	2.03	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8301-R1 B13-8365					**Sediment**	**Sampled: 7/13/2013 8:37**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	1.22	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8302-R1 B13-8318					**Sediment**	**Sampled: 7/13/2013 10:57**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	1.68	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8303-R1 B13-8322					**Sediment**	**Sampled: 7/13/2013 10:11**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	1.51	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8304-R1 B13-8306					**Sediment**	**Sampled: 7/11/2013 13:00**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	1.9	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	

INSTITUTE FOR INTEGRATED RESEARCH IN MATERIALS, ENVIRONMENTS & SOCIETY

California State University, Long Beach, 1250 Bellflower Blvd., Long Beach, CA 90840 (562-985-2469)

General Chemistry

ANALYTICAL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Batch	Prepared	Analyzed	Method	QA Code
8305-R1 B13-8308					**Sediment**	**Sampled: 7/11/2013 17:06**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	1.79	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8306-R1 B13-8310					**Sediment**	**Sampled: 7/11/2013 17:51**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	1.7	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8307-R1 B13-8316					**Sediment**	**Sampled: 7/11/2013 10:23**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	1.79	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8308-R1 TMDL2-FH					**Sediment**	**Sampled: 7/11/2013 15:25**			**Received: 08-Aug-13**	
Total Organic Carbon	NA	1.93	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8309-R1 TMDL1-CH					**Sediment**	**Sampled: 7/11/2013 12:07**			**Received: 08-Aug-13**	
Total Organic Carbon	NA	2.41	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8310-R1 TMDL5-DT					**Sediment**	**Sampled: 7/11/2013 15:25**			**Received: 08-Aug-13**	
Total Organic Carbon	NA	3.19	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8311-R1 B13-8401					**Sediment**	**Sampled: 7/12/2013 14:42**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	3.1	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8312-R1 B13-8399					**Sediment**	**Sampled: 7/12/2013 13:55**			**Received: 08-Aug-13**	

INSTITUTE FOR INTEGRATED RESEARCH IN MATERIALS, ENVIRONMENTS & SOCIETY

California State University, Long Beach, 1250 Bellflower Blvd., Long Beach, CA 90840 (562-985-2469)

General Chemistry

ANALYTICAL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Batch	Prepared	Analyzed	Method	QA Code
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	1.72	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8313-R1 B13-8384					**Sediment**	**Sampled: 7/12/2013 9:13**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	2.21	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8314-R1 B13-8333					**Sediment**	**Sampled: 7/13/2013 7:43**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	1.7	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
8315-R1 B13-8356					**Sediment**	**Sampled: 7/13/2013 9:22**			**Received: 08-Aug-13**	
Total Nitrogen	NA	ND	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	
Total Organic Carbon	NA	1.32	0.01	0.02	% Dry Weight	GC-02-018	8/13/2013	8/13/2013	SM 5310 B	

QUALITY CONTROL REPORT

INSTITUTE FOR INTEGRATED RESEARCH IN MATERIALS, ENVIRONMENTS & SOCIETY
California State University, Long Beach, 1250 Bellflower Blvd., Long Beach, CA 90840 (562-985-2469)

General Chemistry

QUALITY CONTROL REPORT

Analyte	Batch ID	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Fraction: NA		**QAQC**	**Lab Blank**											
Lab Blank **8282-B1**			**DI Water**											
Total Nitrogen Prepared: 13-Aug-13 Analyzed: 13-Aug-13	GC-02-018	ND	0.01	0.02	% Dry Weight	0								
Total Organic Carbon Prepared: 13-Aug-13 Analyzed: 13-Aug-13	GC-02-018	ND	0.01	0.02	% Dry Weight	0								
Fraction: NA		**QAQC**	**SRM 1944**											
CRM **8283-CRM1**			**Sediment**											
Total Organic Carbon Prepared: 13-Aug-13 Analyzed: 13-Aug-13	GC-02-018	4.52	0.01	0.02	% Dry Weight	4.4		103	3.3 - 5.5	PASS				
Fraction: NA		**B13-8363**												
Lab Dup **8287-R2**			**Sediment**											
Total Nitrogen Prepared: 13-Aug-13 Analyzed: 13-Aug-13	GC-02-018	ND	0.01	0.02	% Dry Weight	0					0		PASS	
Total Organic Carbon Prepared: 13-Aug-13 Analyzed: 13-Aug-13	GC-02-018	1.11	0.01	0.02	% Dry Weight	0					22		PASS	
Fraction: NA		**B13-8322**												
Lab Dup **8303-R2**			**Sediment**											

INSTITUTE FOR INTEGRATED RESEARCH IN MATERIALS, ENVIRONMENTS & SOCIETY
California State University, Long Beach, 1250 Bellflower Blvd., Long Beach, CA 90840 (562-985-2469)

General Chemistry

QUALITY CONTROL REPORT

Analyte	Batch ID	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Total Nitrogen Prepared: 13-Aug-13 Analyzed: 13-Aug-13	GC-02-018	ND	0.01	0.02	% Dry Weight	0					0		PASS	
Total Organic Carbon Prepared: 13-Aug-13 Analyzed: 13-Aug-13	GC-02-018	1.61	0.01	0.02	% Dry Weight	0					6		PASS	

CHAIN-OF-CUSTODY

Sample Receipt Form

Institute for Integrated Research in Materials, Environments, and Society (IIRMES)

Client: Physis	*Date Received:* 8/8/13
Temperature: 50 °C AL	*Wet Ice* *Blue Ice* *Dry Ice* *N/A*
Custody seals present and intact? *Yes* *No* *Not Applicable*	

COC received with samples?	Yes	X	No	
COC signed and dated?	Yes	X	No	
Analyses requested on COC?	Yes	X	No	
Correct sample containers used?	Yes	X	No	
Container labels match COC?	Yes	X	No	
Adequate sample volumes received?	Yes	X	No	
Sample containers received intact?	Yes	X	No	

Number of Samples Received: 32

Notes:

Samples checked by: _____ **Date:** 8/8/13

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.

CHAIN of CUSTODY

SEND TO: IIRMES

COMPANY NAME: Physis Environmental Laboratories, Inc.	EMAIL: sc@physislabs.com	PROJECT NAME / NUMBER: 1307001-001	COC PAGE: 1 of 4
PROJECT MANAGER: Misty Mercier	FAX: 714 602-5321	PO #:	PHYSIS SOS #: 1307001
COMPANY ADDRESS: 1904 E. Wright Circle, Anaheim, CA 92806	PHONE: 714 602-5320 office; 714 335-5918 cell	SAMPLED BY:	

TYPE OF ICE USED: ☐ WET ☐ BLUE ☐ DRY

SHIPPED VIA: ☐ FEDEX ☐ UPS ☐ USPS ☐ Client ☑ Physis ☐ other

TURNAROUND TIME: ☑ STANDARD ☑ RUSH business days

REPORT FORMAT: ☑ PDF/EDD ☐ SWAMP EDD ☐ other

SPECIAL INSTRUCTIONS:
please report down the MDL
PLease report results in dry weight

PHYSIS MATRIX CODES:
SW = seawater FW = freshwater RW = rainwater
WW = wastewater DW = drinking water
S = sediment T = tissue E = extract O = other (specify)

REQUESTED ANALYSES

	SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE date	SAMPLE time	physis matrix code	# of bottles	Total Organic Carbon	Total Nitrogen
1	B13-8382		7/10/13	11:04	S	1	X	X
2	B13-8374		7/10/13	14:28	S	1	X	X
3	B13-8371		7/10/13	12:03	S	1	X	X
4	B13-8363		7/10/13	13:38	S	1	X	X
5	B13-8360		7/10/13	15:30	S	1	X	X
6	B13-8349		7/10/13	9:51	S	1	X	X
7	B13-8326		7/10/13	8:28	S	1	X	X
8	B13-8367		7/11/13	14:10	S	1	X	X
9	B13-8302		7/11/13	9:29	S	1	X	X
10	B13-8304		7/11/13	16:24	S	1	X	X

print	signature	company	date & time	print	signature	company	date & time
Rich Hanken		PHYSIS	8/8/13	Alex Long		IIRMES	8/8/13

PHYSIS ENVIRONMENTAL LABORATORIES, INC.

CHAIN of CUSTODY

SEND TO: IIRMES

COMPANY NAME	EMAIL	PROJECT NAME / NUMBER	COC PAGE
Physis Environmental Laboratories, Inc.	sc@physislabs.com	1008001-004	1 of 4

PROJECT MANAGER	FAX	PO #	PHYSIS SOS #	TYPE OF ICE USED
Misty Mercier	714 602-5321		1008001	☐ WET ☐ BLUE ☐ DRY

COMPANY ADDRESS	PHONE	SAMPLED BY	SHIPPED VIA
1904 E. Wright Circle Anaheim, CA 92806	714 602-5320 office 714 335-5918 cell		☐ FEDEX ☐ UPS ☐ USPS ☐ Client ☑ Physis ☐ other

TURNAROUND TIME
☑ STANDARD ☐ RUSH business days

REPORT FORMAT
☑ PDF/EDD ☐ SWAMP EDD ☐ other

SPECIAL INSTRUCTIONS
please report down the MDL
PLease report results in dry weight

PHYSIS MATRIX CODES
SW = seawater FW = freshwater RW = rainwater
WW = wastewater DW = drinking water
S = sediment T = tissue E = extract O = other (specify)

REQUESTED ANALYSES

	SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE date	SAMPLE time	physis matrix code	# of bottles	Total Organic Carbon	Total Nitrogen
1	B13-8397		7/12/13	11:20	S	1	X	X
2	B13-8396		7/12/13	9:58	S	1	X	X
3	B13-8340		7/12/13	8:19	S	1	X	X
4	B13-8347		7/12/13	15:41	S	1	X	X
5	TMDL6-CP		7/12/13	15:41	S	1	X	
6	TMDL4-CS		7/12/13	12:20	S	1	X	
7	TMDL3-TB		7/12/13	15:41	S	1	X	
8	B13-8365		7/13/13	8:37	S	1	X	X
9	B13-8318		7/13/13	10:57	S	1	X	X
10	B13-8322		7/13/13	10:11	S	1	X	X

print	signature	company	date & time	print	signature	company	date & time
Rich Hanken		PHYSIS	8/6/13	Alex Long		IIRMES	8/8/13

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.

CHAIN of CUSTODY

SEND TO: IIRMES

COMPANY NAME: Physis Environmental Laboratories, Inc.	EMAIL: sc@physislabs.com	PROJECT NAME / NUMBER: 1008001-004	COC PAGE: 3 of 4
PROJECT MANAGER: Misty Mercier	FAX: 714 602-5321	PO #:	PHYSIS SOS #: 1008001
COMPANY ADDRESS: 1904 E. Wright Circle, Anaheim, CA 92806	PHONE: 714 602-5320 office; 714 335-5918 cell	SAMPLED BY:	TYPE OF ICE USED: ☐ WET ☐ BLUE ☐ DRY
			SHIPPED VIA: ☐ FEDEX ☐ UPS ☐ USPS ☐ Client ☑ Physis ☐ other

TURNAROUND TIME: ☑ STANDARD ☑ RUSH business days

REPORT FORMAT: ☑ PDF/EDD ☐ SWAMP EDD ☐ other

SPECIAL INSTRUCTIONS:
please report down the MDL
PLease report results in dry weight

PHYSIS MATRIX CODES
SW = seawater FW = freshwater RW = rainwater
WW = wastewater DW = drinking water
S = sediment T = tissue E = extract O = other (specify)

REQUESTED ANALYSES

	SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE date	SAMPLE time	physis matrix code	# of bottles	Total Organic Carbon	Total Nitrogen
1	B13-8306		7/11/13	13:00	S	1	X	X
2	B13-8308		7/11/13	17:06	S	1	X	X
3	B13-8310		7/11/13	17:51	S	1	X	X
4	B13-8316		7/11/13	10:23	S	1	X	X
5	TMDL2-FH		7/11/13	15:25	S	1	X	
6	TMDL1-CH		7/11/13	12:07	S	1	X	
7	TMDL5-DT		7/11/13	15:25	S	1	X	
8	B13-8401		7/12/13	14:42	S	1	X	X
9	B13-8399		7/12/13	13:55	S	1	X	X
10	B13-8384		7/12/13	9:13	S	1	X	X

print	signature	company	date & time	print	signature	company	date & time
Rich Hanken		7/12/13	9/8/13	Alex Long		IIRMES	8/8/13

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.

CHAIN of CUSTODY

SEND TO: IIRMES

COMPANY NAME	EMAIL	PROJECT NAME / NUMBER	COC PAGE
Physis Environmental Laboratories, Inc.	sc@physislabs.com	1008001-004	4 of 4

PROJECT MANAGER	FAX	PO #	PHYSIS SOS #	TYPE OF ICE USED
Misty Mercier	714 602-5321		1008001	☐ WET ☐ BLUE ☐ DRY

COMPANY ADDRESS	PHONE	SAMPLED BY	SHIPPED VIA
1904 E. Wright Circle Anaheim, CA 92806	714 602-5320 office 714 335-5918 cell		☐ FEDEX ☐ UPS ☐ USPS ☐ Client ☑ Physis ☐ other

TURNAROUND TIME: ☑ STANDARD ☑ RUSH business days

REPORT FORMAT: ☑ PDF/EDD ☐ SWAMP EDD ☐ other

SPECIAL INSTRUCTIONS
please report down the MDL
PLease report results in dry weight

PHYSIS MATRIX CODES
SW = seawater FW = freshwater RW = rainwater
WW = wastewater DW = drinking water
S = sediment T = tissue E = extract O = other (specify)

REQUESTED ANALYSES

	SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE date	SAMPLE time	physis matrix code	# of bottles	Total Organic Carbon	Total Nitrogen
1	B13-8333		7/13/13	7:43	S	1	X	X
2	B13-8356		7/13/13	9:22	S	1	X	X
3								
4								
5								
6								
7								
8								
9								
10								

print	signature	company	date & time	print	signature	company	date & time
Rich Hanken		PHYSIS	8/8/13	Alex Long		IIRMES	8/8/13

SUBCONTRACT REPORT

CHAIN OF CUSTODY

1307001-001

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Physis Environmental Laboratories, Inc.
Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8382	7/10/13	1104	General Chemistry	Grab	8 oz Glass	None	1
B13-8382	7/10/13	1104	Metals	Grab	8 oz Glass	None	1
B13-8382	7/10/13	1104	PBDE	Grab	8 oz Glass	None	1
B13-8382	7/10/13	1104	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8382	7/10/13	1104	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JB

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:
AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:
Physis Environmental Laboratories, Inc.
Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8374	7/10/13	1428	General Chemistry	Grab	8 oz Glass	None	1
B13-8374	7/10/13	1428	Metals	Grab	8 oz Glass	None	1
B13-8374	7/10/13	1428	PBDE	Grab	8 oz Glass	None	1
B13-8374	7/10/13	1428	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8374	7/10/13	1428	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JB

Relinquished By: [signature] Date/Time: 7/13/13 1100 Received By: [signature] Date/Time: 7/13/13 1300

Relinquished By: Date/Time: Received By: Date/Time:

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Physis Environmental Laboratories, Inc.
Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8371	7/10/13	1203	General Chemistry	Grab	8 oz Glass	None	1
B13-8371	7/10/13	1203	Metals	Grab	8 oz Glass	None	1
B13-8371	7/10/13	1203	PBDE	Grab	8 oz Glass	None	1
B13-8371	7/10/13	1203	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8371	7/10/13	1203	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JL

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/12/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Physis Environmental Laboratories, Inc.
Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8363	7/10/13	1338	General Chemistry	Grab	8 oz Glass	None	1
B13-8363	7/10/13	1338	Metals	Grab	8 oz Glass	None	1
B13-8363	7/10/13	1338	PBDE	Grab	8 oz Glass	None	1
B13-8363	7/10/13	1338	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8363	7/10/13	1338	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: [signature] Date/Time: 7/13/13 1300 Received By: [signature] Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
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San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Physis Environmental Laboratories, Inc.
Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8360	7/10/13	1530	General Chemistry	Grab	8 oz Glass	None	1
B13-8360	7/10/13	1530	Metals	Grab	8 oz Glass	None	1
B13-8360	7/10/13	1530	PBDE	Grab	8 oz Glass	None	1
B13-8360	7/10/13	1530 ~~1500~~ JR	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8360	7/10/13	1530	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: [signature] Date/Time: 7/10/13 1500 Received By: [signature] Date/Time: 7/12/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Physis Environmental Laboratories, Inc.
Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8349	7/10/13	0951	General Chemistry	Grab	8 oz Glass	None	1
B13-8349	7/10/13	0951	Metals	Grab	8 oz Glass	None	1
B13-8349	7/10/13	0951	PBDE	Grab	8 oz Glass	None	1
B13-8349	7/10/13	0951	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8349	7/10/13	0951	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JB

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1200

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Physis Environmental Laboratories, Inc.
Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8326	7/10/13	0828	General Chemistry	Grab	8 oz Glass	None	1
B13-8326	7/10/13	0828	Metals	Grab	8 oz Glass	None	1
B13-8326	7/10/13	0828	PBDE	Grab	8 oz Glass	None	1
B13-8326	7/10/13	0828	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8326	7/10/13	0828	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JB

Relinquished By: [signature] Date/Time: 7/13/13 1300 Received By: [signature] Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Physis Environmental Laboratories, Inc.
Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8367	7/11/13	1410	General Chemistry	Grab	8 oz Glass	None	1
B13-8367	7/11/13	1410	Metals	Grab	8 oz Glass	None	1
B13-8367	7/11/13	1410	PBDE	Grab	8 oz Glass	None	1
B13-8367	7/11/13	1410	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8367	7/11/13	1410	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: [signature]

Relinquished By: [signature] Date/Time: 7/13/13 0800 Received By: [signature] Date/Time: 7/12/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

1307001-001

Analysis Request a.. Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:
AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:
Physis Environmental Laboratories, Inc.
Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8302	7/11/13	0929	General Chemistry	Grab	8 oz Glass	None	1
B13-8302	7/11/13	0929	Metals	Grab	8 oz Glass	None	1
B13-8302	7/11/13	0929	PBDE	Grab	8 oz Glass	None	1
B13-8302	7/11/13	0929	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8302	7/11/13	0929	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: [signature] Date/Time: 7/12/13 12:00 Received By: [signature] Date/Time: 7/12/13 8:00

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request a... Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Physis Environmental Laboratories, Inc.
Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8304	7/11/13	1624	General Chemistry	Grab	8 oz Glass	None	1
B13-8304	7/11/13	1624	Metals	Grab	8 oz Glass	None	1
B13-8304	7/11/13	1624	PBDE	Grab	8 oz Glass	None	1
B13-8304	7/11/13	1624	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8304	7/11/13	1624	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JB

Relinquished By: _____ Date/Time: 7/13/13 1700 Received By: _____ Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request a... Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Physis Environmental Laboratories, Inc.
Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8306	7/11/13	1300	General Chemistry	Grab	8 oz Glass	None	1
B13-8306	7/11/13	1300	Metals	Grab	8 oz Glass	None	1
B13-8306	7/11/13	1306	PBDE	Grab	8 oz Glass	None	1
B13-8306	7/11/13	1300	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8306	7/11/13	1300	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: [signature] Date/Time: 7/12/13 1300 Received By: [signature] Date/Time: 7/12/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Physis Environmental Laboratories, Inc.
Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8308	7/11/13	1706	General Chemistry	Grab	8 oz Glass	None	1
B13-8308	7/11/13	1706	Metals	Grab	8 oz Glass	None	1
B13-8308	7/11/13	1706	PBDE	Grab	8 oz Glass	None	1
B13-8308	7/11/13	1706	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8308	7/11/13	1706	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: [signature] Date/Time: 7/13/13 1300 Received By: [signature] Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

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Attn: Chris Stransky
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To:

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Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8310	7/11/13	1751	General Chemistry	Grab	8 oz Glass	None	1
B13-8310	7/11/13	1751	Metals	Grab	8 oz Glass	None	1
B13-8310	7/11/13	1751	PBDE	Grab	8 oz Glass	None	1
B13-8310	7/11/13	1751	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8310	7/11/13	1751	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/12/13 1300 Received By: _____ Date/Time: 7/12/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request a... Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Physis Environmental Laboratories, Inc.
Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8316	7/11/13	1023	General Chemistry	Grab	8 oz Glass	None	1
B13-8316	7/11/13	1023	Metals	Grab	8 oz Glass	None	1
B13-8316	7/11/13	1023	PBDE	Grab	8 oz Glass	None	1
B13-8316	7/11/13	1023	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8316	7/11/13	1023	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JB

Relinquished By: _____ Date/Time: 7/13/13 1700 Received By: _____ Date/Time: 7/13/13 [illegible]

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request a... Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: (858) 300-4350 Fax: (858) 300-4301

To:

Physis Environmental Laboratories, Inc.
Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
TMDL2-FH	7/11/13	1525	General Chemistry	Grab	8 oz Glass	None	1
TMDL2-FH	7/11/13	1525	Metals	Grab	8 oz Glass	None	1
TMDL2-FH	7/11/13	1525	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analysis list. NOTE: Analytical requirements for these samples differs from the Bight '13 samples.

Sampler's Initials: JR

Relinquished By: [signature] Date/Time: 7/12/13 1300 Received By: [signature] Date/Time: 7/13/13 1200

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request a. . Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:
AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: (858) 300-4350 Fax: (858) 300-4301

To:
Physis Environmental Laboratories, Inc.
Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
TMDL1-CH	7/11/13	1207	General Chemistry	Grab	8 oz Glass	None	1
TMDL1-CH	7/11/13	1207	Metals	Grab	8 oz Glass	None	1
TMDL1-CH	7/11/13	1207	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analysis list. NOTE: Analytical requirements for these samples differs from the Bight '13 samples.

Sampler's Initials: JB

Relinquished By: [signature] Date/Time: 7/13/13 1300 Received By: [signature] Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: (858) 300-4350 Fax: (858) 300-4301

To:

Physis Environmental Laboratories, Inc.
Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
TMDL5-DT	7/11/13	1525	General Chemistry	Grab	8 oz Glass	None	1
TMDL5-DT	7/11/13	1525	Metals	Grab	8 oz Glass	None	1
TMDL5-DT	7/11/13	1525	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analysis list. NOTE: Analytical requirements for these samples differs from the Bight '13 samples.

Sampler's Initials: JR

Relinquished By: [signature] Date/Time: 7/13/13 1300 Received By: [signature] Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

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To:

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1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8401	7/12/13	1442	General Chemistry	Grab	8 oz Glass	None	1
B13-8401	7/12/13	1442	Metals	Grab	8 oz Glass	None	1
B13-8401	7/12/13	1442	PBDE	Grab	8 oz Glass	None	1
B13-8401	7/12/13	1442	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8401	7/12/13	1442	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JF

Relinquished By: [signature] Date/Time: 7/12/13 1300 Received By: [signature] Date/Time: 7/13/13 1200

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
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To:

Physis Environmental Laboratories, Inc.
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1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8399	7/12/13	1355	General Chemistry	Grab	8 oz Glass	None	1
B13-8399	7/12/13	1355	Metals	Grab	8 oz Glass	None	1
B13-8399	7/12/13	1355	PBDE	Grab	8 oz Glass	None	1
B13-8399	7/12/13	1355	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8399	7/12/13	1355	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JB

Relinquished By: _____ Date/Time: 7/12/13 1300 Received By: _____ Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8384	7/12/13	0913	General Chemistry	Grab	8 oz Glass	None	1
B13-8384	7/12/13	0913	Metals	Grab	8 oz Glass	None	1
B13-8384	7/12/13	0913	PBDE	Grab	8 oz Glass	None	1
B13-8384	7/12/13	0913	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8384	7/12/13	0913	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JB

Relinquished By: [signature] Date/Time: 7/13/13 1700 Received By: [signature] Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

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To:
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Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8397	7/12/13	1120	General Chemistry	Grab	8 oz Glass	None	1
B13-8397	7/12/13	1120	Metals	Grab	8 oz Glass	None	1
B13-8397	7/12/13	1120	PBDE	Grab	8 oz Glass	None	1
B13-8397	7/12/13	1120	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8397	7/12/13	1120	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JB

Relinquished By: [signature] Date/Time: 7/13/13 1300 Received By: [signature] Date/Time: 7/13/13 1300

Relinquished By: Date/Time: Received By: Date/Time:

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8396	7/12/13	0958	General Chemistry	Grab	8 oz Glass	None	1
B13-8396	7/12/13	0958	Metals	Grab	8 oz Glass	None	1
B13-8396	7/12/13	0958	PBDE	Grab	8 oz Glass	None	1
B13-8396	7/12/13	0958	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8396	7/12/13	0958	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JT

Relinquished By: [signature] Date/Time: 7/13/13 1700 Received By: [signature] Date/Time: 7/13/13 1305

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:
AMEC Environment & Infrastructure
Attn: Chris Stransky
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To:
Physis Environmental Laboratories, Inc.
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1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8340	7/12/13	0819	General Chemistry	Grab	8 oz Glass	None	1
B13-8340	7/12/13	0819	Metals	Grab	8 oz Glass	None	1
B13-8340	7/12/13	0819	PBDE	Grab	8 oz Glass	None	1
B13-8340	7/12/13	0819	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8340	7/12/13	0819	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: [signature] Date/Time: 7/13/13 1300 Received By: [signature] Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request a... Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

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AMEC Environment & Infrastructure
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Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8347	7/12/13	1541	General Chemistry	Grab	8 oz Glass	None	1
B13-8347	7/12/13	1541	Metals	Grab	8 oz Glass	None	1
B13-8347	7/12/13	1541	PBDE	Grab	8 oz Glass	None	1
B13-8347	7/12/13	1541	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8347	7/12/13	1541	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: [signature] Date/Time: 7/13/13 1200 Received By: [signature] Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:
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To:
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Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
TMDL6-CP	7/12/13	1541	General Chemistry	Grab	8 oz Glass	None	1
TMDL6-CP	7/12/13	1541	Metals	Grab	8 oz Glass	None	1
TMDL6-CP	7/12/13	1541	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analysis list. NOTE: Analytical requirements for these samples differs from the Bight '13 samples.

Sampler's Initials: JS

Relinquished By: [signature] Date/Time: 7/13/13 1300 Received By: [signature] Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
TMDL4-CS	7/12/13	1220	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analysis list.

Sampler's Initials: JR

Relinquished By: [signature] Date/Time: 7/13/13 1300 Received By: [signature] Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
TMDL4-CS	7/12/13	1220	General Chemistry	Grab	8 oz Glass	None	1
TMDL4-CS	7/12/13	1220	Metals	Grab	8 oz Glass	None	1
TMDL4-CS	7/12/13	1220	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analysis list. NOTE: Analytical requirements for these samples differs from the Bight '13 samples.

Sampler's Initials: JB

Relinquished By: [signature] Date/Time: 7/13/13 1300 Received By: [signature] Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

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Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
TMDL3-TB	7/12/13	1541	General Chemistry	Grab	8 oz Glass	None	1
TMDL3-TB	7/12/13	1541	Metals	Grab	8 oz Glass	None	1
TMDL3-TB	7/12/13	1541	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analysis list. NOTE: Analytical requirements for these samples differs from the Bight '13 samples.

Sampler's Initials: JR

Relinquished By: [signature] Date/Time: 7/13/13 1300 Received By: [signature] Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

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Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
~~8365~~ B13-~~8309~~ 8365	7/13/13	0837	General Chemistry	Grab	8 oz Glass	None	1
8365 B13-~~8309~~	7/13/13	0837	Metals	Grab	8 oz Glass	None	1
8365 B13-~~8309~~	7/13/13	0837	PBDE	Grab	8 oz Glass	None	1
8365 B13-~~8309~~	7/13/13	0837	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
8365 B13-~~8309~~	7/13/13	0837	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/12/13 1200

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request a... Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8318	7/13/13	1057	General Chemistry	Grab	8 oz Glass	None	1
B13-8318	7/13/13	1057	Metals	Grab	8 oz Glass	None	1
B13-8318	7/13/13	1057	PBDE	Grab	8 oz Glass	None	1
B13-8318	7/13/13	1057	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8318	7/13/13	1057	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request a... Chain of Custody

POLA/POLB

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8322	7/13/13	1011	General Chemistry	Grab	8 oz Glass	None	1
B13-8322	7/13/13	1011	Metals	Grab	8 oz Glass	None	1
B13-8322	7/13/13	1011	PBDE	Grab	8 oz Glass	None	1
B13-8322	7/13/13	1011	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8322	7/13/13	1011	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: [signature] Date/Time: 7/13/13 1300 Received By: [signature] Date/Time: 7/13/13 13:40

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
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Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8333	7/13/13	0743	General Chemistry	Grab	8 oz Glass	None	1
B13-8333	7/13/13	0743	Metals	Grab	8 oz Glass	None	1
B13-8333	7/13/13	0743	PBDE	Grab	8 oz Glass	None	1
B13-8333	7/13/13	0743	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8333	7/13/13	0743	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: [signature] Date/Time: 7/13/13 1500 Received By: [signature] Date/Time: 7/13/13 1500

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request a... Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8356	7/13/13	0922	General Chemistry	Grab	8 oz Glass	None	1
B13-8356	7/13/13	0922	Metals	Grab	8 oz Glass	None	1
B13-8356	7/13/13	0922	PBDE	Grab	8 oz Glass	None	1
B13-8356	7/13/13	0922	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8356	7/13/13	0922	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JTY

Relinquished By: [signature] Date/Time: 7/13/13 1000 Received By: [signature] Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

AMEC - Chemical Analyte List for POLA/POLB Bight '13 Sediment Sampling

26 Bight '13 Samples ONLY

General Chemistry

Analyte	Analytical method	Sediment Target Reporting Limits
Total Solids	160.3/Plumb (mod.)	0.10%
Total Organic Carbon	9060	0.01%
Grain Size	PSA/2000	0.10%
Total Nitrogen	PSA, Sieve and PSA, Sieve and PSA	0.0 mg/kg
Total Phosphorus	SM 4500-P E/2003	4.6 mg/kg
Ammonia	SM 4500-NH3	0.2 mg/kg
Sulfide	USEPA 376.2	0.5 mg/kg

PAHs

Analyte	Analytical Method	Sediment Target Reporting Limits
Acenaphthene	8270C/8270D-SIM	20 µg/kg
Acenaphthylene	8270C/8270D-SIM	20 µg/kg
Anthracene	8270C/8270D-SIM	20 µg/kg
Benzo[a]anthracene	8270C/8270D-SIM	20 µg/kg
Benzo[a]pyrene	8270C/8270D-SIM	20 µg/kg
Benzo[b]fluoranthene	8270C/8270D-SIM	20 µg/kg
Benzo[e]pyrene	8270C/8270D-SIM	20 µg/kg
Benzo[g,h,i]perylene	8270C/8270D-SIM	20 µg/kg
Benzo[k]fluoranthene	8270C/8270D-SIM	20 µg/kg
Biphenyl	8270C/8270D-SIM	20 µg/kg
Chrysene	8270C/8270D-SIM	20 µg/kg
Dibenz[a,h]anthracene	8270C/8270D-SIM	20 µg/kg
Fluoranthene	8270C/8270D-SIM	20 µg/kg
Fluorene	8270C/8270D-SIM	20 µg/kg
Indeno[1,2,3-c,d]pyrene	8270C/8270D-SIM	20 µg/kg
Naphthalene	8270C/8270D-SIM	20 µg/kg
Perylene	8270C/8270D-SIM	20 µg/kg
Phenanthrene	8270C/8270D-SIM	20 µg/kg
Pyrene	8270C/8270D-SIM	20 µg/kg
2,3-Dimethylnaphthalene	8270C/8270D-SIM	20 µg/kg
1-Methylnaphthalene	8270C/8270D-SIM	20 µg/kg
2-Methylnaphthalene	8270C/8270D-SIM	20 µg/kg
1-Methylphenanthrene	8270C/8270D-SIM	20 µg/kg
1,6,7-Trimethylnaphthalene	8270C/8270D-SIM	20 µg/kg

Pyrethroid Pesticides

Analyte	Analysis Method	Sediment Target Reporting Limits
Bifenthrin	EPA 8270 C-NCI	2 µg/kg
Cyfluthrin	EPA 8270 C-NCI	2.5 µg/kg
Cypermethrin	EPA 8270 C-NCI	2.5 µg/kg
Deltamethrin	EPA 8270 C-NCI	2.5 µg/kg
Esfenvalerate	EPA 8270 C-NCI	2.5 µg/kg
Fenvalerate	EPA 8270 C-NCI	2.5 µg/kg
Permethrin	EPA 8270 C-NCI	2 µg/kg
Prallethrin	EPA 8270 C-NCI	2.5 µg/kg
Tetramethrin	EPA 8270 C-NCI	2.5 µg/kg
Tralomethrin	EPA 8270 C-NCI	2.5 µg/kg
Resmethrin	EPA 8270 C-NCI	2 µg/kg
Sumithrin	EPA 8270 C-NCI	10 µg/kg

Metals

Analyte	Analytical Method	Sediment Target Reporting Limits
Aluminum	6020/200.8/200.7	50
Antimony	6020/200.8/200.7	10 mg/kg
Arsenic	6020/200.8/200.7	1.0 mg/kg
Barium	6020/200.8/200.7	NA
Beryllium	6020/200.8/200.7	0.2 mg/kg
Cadmium	6020/200.8/200.7	0.01 mg/kg
Chromium	6020/200.8/200.7	0.1 mg/kg
Cobalt	6020/200.8/200.7	0.1 mg/kg
Iron	6020/200.8/200.7	NA
Lead	6020/200.8/200.7	0.1 mg/kg
Mercury	7471A	0.05 mg/kg
Nickel	6020/200.8/200.7	0.1 mg/kg
Selenium	6020/200.8/200.7	0.1 mg/kg
Silver	6020/200.8/200.7	0.1 mg/kg
Zinc	6020/200.7/200.8	0.1 mg/kg

PBDEs

Analyte	Analytical Method	Sediment Target Reporting Limits
BDE-17	8270 C-NCI	0.1 µg/kg
BDE-28	8270 C-NCI	0.1 µg/kg
BDE-47	8270 C-NCI	0.1 µg/kg
BDE-49	8270 C-NCI	0.1 µg/kg
BDE-66	8270 C-NCI	0.1 µg/kg
BDE-71	8270 C-NCI	0.1 µg/kg
BDE-100	8270 C-NCI	0.1 µg/kg
BDE-119	8270 C-NCI	0.1 µg/kg
BDE-153	8270 C-NCI	0.1 µg/kg
BDE-154	8270 C-NCI	0.1 µg/kg
BDE-183	8270 C-NCI	0.1 µg/kg
BDE-209	8270 C-NCI	0.1 µg/kg

Chlorinated Hydrocarbons

Analyte	Analysis Method	Sediment Target Reporting Limits
Hexachlorobenzene	8081A	0.2 µg/kg
Hexachlorobutadiene	8081A	0.2 µg/kg
o,p'-DDD	8081A	0.2 µg/kg
o,p'-DDE	8081A	0.2 µg/kg
o,p'-DDT	8081A	0.2 µg/kg
p,p'-DDD	8081A	0.2 µg/kg
p,p'-DDE	8081A	0.2 µg/kg
p,p'-DDT	8081A	0.2 µg/kg
Pentachlorobenzene	8081A	0.2 µg/kg
Hexachlorobenzene	8081A	0.2 µg/kg
Heptachlor	8081A	0.2 µg/kg
Heptachlor epoxide	8081A	0.2 µg/kg
Oxychlordane	8081A	0.2 µg/kg
Nonachlor	8081A	0.2 µg/kg

PCB Congeners

Analyte	Analytical Method	Sediment Target Reporting Limits
PCB-5	8270C SIM-PCB	0.1-10 µg/kg
PCB-8	8270C SIM-PCB	0.2-10 µg/kg
PCB-9	8270C SIM-PCB	0.2-10 µg/kg
PCB-15	8270C SIM-PCB	0.2-10 µg/kg
PCB-18	8270C SIM-PCB	0.2-10 µg/kg
PCB-27	8270C SIM-PCB	0.2-10 µg/kg
PCB-28	8270C SIM-PCB	0.2-10 µg/kg
PCB-29	8270C SIM-PCB	0.2-10 µg/kg
PCB-31	8270C SIM-PCB	0.2-10 µg/kg
PCB-33	8270C SIM-PCB	0.2-10 µg/kg
PCB-37	8270C SIM-PCB	0.2-10 µg/kg
PCB-44	8270C SIM-PCB	0.2-10 µg/kg
PCB-45	8270C SIM-PCB	0.2-10 µg/kg
PCB-49	8270C SIM-PCB	0.2-10 µg/kg
PCB-52	8270C SIM-PCB	0.2-10 µg/kg
PCB-56	8270C SIM-PCB	0.2-10 µg/kg
PCB-60	8270C SIM-PCB	0.2-10 µg/kg
PCB-64	8270C SIM-PCB	0.2-10 µg/kg
PCB-66	8270C SIM-PCB	0.2-10 µg/kg
PCB-70	8270C SIM-PCB	0.2-10 µg/kg
PCB-74	8270C SIM-PCB	0.2-10 µg/kg
PCB-77	8270C SIM-PCB	0.2-10 µg/kg
PCB-81	8270C SIM-PCB	0.2-10 µg/kg
PCB-87	8270C SIM-PCB	0.2-10 µg/kg
PCB-95	8270C SIM-PCB	0.2-10 µg/kg
PCB-97	8270C SIM-PCB	0.2-10 µg/kg
PCB-99	8270C SIM-PCB	0.2-10 µg/kg
PCB-101	8270C SIM-PCB	0.2-10 µg/kg
PCB-105	8270C SIM-PCB	0.2-10 µg/kg
PCB-110	8270C SIM-PCB	0.2-10 µg/kg
PCB-114	8270C SIM-PCB	0.2-10 µg/kg
PCB-118	8270C SIM-PCB	0.2-10 µg/kg
PCB-123	8270C SIM-PCB	0.2-10 µg/kg
PCB-126	8270C SIM-PCB	0.2-10 µg/kg
PCB-128	8270C SIM-PCB	0.2-10 µg/kg
PCB-132	8270C SIM-PCB	0.2-10 µg/kg
PCB-135	8270C SIM-PCB	0.2-10 µg/kg
PCB-138	8270C SIM-PCB	0.2-10 µg/kg
PCB-141	8270C SIM-PCB	0.2-10 µg/kg
PCB-144	8270C SIM-PCB	0.2-10 µg/kg
PCB-146	8270C SIM-PCB	0.2-10 µg/kg
PCB-149	8270C SIM-PCB	0.2-10 µg/kg
PCB-151	8270C SIM-PCB	0.2-10 µg/kg
PCB-153	8270C SIM-PCB	0.2-10 µg/kg
PCB-156	8270C SIM-PCB	0.2-10 µg/kg
PCB-157	8270C SIM-PCB	0.2-10 µg/kg
PCB-158	8270C SIM-PCB	0.2-10 µg/kg
PCB-167	8270C SIM-PCB	0.2-10 µg/kg
PCB-168	8270C SIM-PCB	0.2-10 µg/kg
PCB-169	8270C SIM-PCB	0.2-10 µg/kg
PCB-170	8270C SIM-PCB	0.2-10 µg/kg
PCB-174	8270C SIM-PCB	0.2-10 µg/kg
PCB-177	8270C SIM-PCB	0.2-10 µg/kg
PCB-180	8270C SIM-PCB	0.2-10 µg/kg
PCB-183	8270C SIM-PCB	0.2-10 µg/kg
PCB-187	8270C SIM-PCB	0.2-10 µg/kg
PCB-189	8270C SIM-PCB	0.2-10 µg/kg
PCB-194	8270C SIM-PCB	0.2-10 µg/kg
PCB-195	8270C SIM-PCB	0.2-10 µg/kg
PCB-200	8270C SIM-PCB	0.2-10 µg/kg
PCB-201	8270C SIM-PCB	0.2-10 µg/kg
PCB-206	8270C SIM-PCB	0.2-10 µg/kg
PCB-209	8270C SIM-PCB	0.2-10 µg/kg

AMEC - Chemical Analyte List for POLA/POLB Bight '13 Sediment Sampling

6 TMDL Sites ONLY

General Chemistry

Analyte	Analysis Method	Sediment Target Reporting Limits
Total Solids	SM 2540 G	0.10%
Total Organic Carbon	9060	0.01%
Grain Size	SM2560	0.10%
Ammonia	SM 4500-NH3	0.2 mg/kg
Sulfide	USEPA 376.2	0.5 mg/kg

PAHs

Analyte	Analysis Method	Sediment Target Reporting Limits
Acenaphthene	8270C/8270D-SIM	20 µg/kg
Acenaphthylene	8270C/8270D-SIM	20 µg/kg
Anthracene	8270C/8270D-SIM	20 µg/kg
Benz(a)anthracene	8270C/8270D-SIM	20 µg/kg
Benzo(a)pyrene	8270C/8270D-SIM	20 µg/kg
Benzo(b)fluoranthene	8270C/8270D-SIM	20 µg/kg
Benzo(e)pyrene	8270C/8270D-SIM	20 µg/kg
Benzo(g,h,i)perylene	8270C/8270D-SIM	20 µg/kg
Benzo(k)fluoranthene	8270C/8270D-SIM	20 µg/kg
Biphenyl	8270C/8270D-SIM	20 µg/kg
Chrysene	8270C/8270D-SIM	20 µg/kg
Dibenz(a,h)anthracene	8270C/8270D-SIM	20 µg/kg
Fluoranthene	8270C/8270D-SIM	20 µg/kg
Fluorene	8270C/8270D-SIM	20 µg/kg
Indeno(1,2,3-c,d)pyrene	8270C/8270D-SIM	20 µg/kg
Naphthalene	8270C/8270D-SIM	20 µg/kg
Perylene	8270C/8270D-SIM	20 µg/kg
Phenanthrene	8270C/8270D-SIM	20 µg/kg
Pyrene	8270C/8270D-SIM	20 µg/kg
2,6-Dimethylnaphthalene	8270C/8270D-SIM	20 µg/kg
1-Methylnaphthalene	8270C/8270D-SIM	20 µg/kg
2-Methylnaphthalene	8270C/8270D-SIM	20 µg/kg
1-Methylphenanthrene	8270C/8270D-SIM	20 µg/kg
1,6,7-Trimethylnaphthalene	8270C/8270D-SIM	20 µg/kg

Pyrethroid Pesticides

Analyte	Analysis Method	Sediment Target Reporting Limit
Allethrin	EPA 8270 C NCI	1 µg/kg
Bifenthrin	EPA 8270 C NCI	0.5 µg/kg
Cyfluthrin	EPA 8270 C NCI	0.5 µg/kg
Cypermethrin	EPA 8270 C NCI	0.5 µg/kg
Delta	EPA 8270 C NCI	2 µg/kg
Esfenvalerate/Fenvalerate	EPA 8270 C NCI	0.5 µg/kg
Fenpropathrin	EPA 8270 C NCI	0.5 µg/kg
Fenvalerate	EPA 8270 C NCI	1 µg/kg
Fluvalinate	EPA 8270 C NCI	1 µg/kg
L-Cyhalothrin	EPA 8270 C NCI	0.5 µg/kg
Permethrin, cis	EPA 8270 C NCI	0.5 µg/kg
Permethrin, trans	EPA 8270 C NCI	0.5 µg/kg
Prallethrin	EPA 8270 C NCI	1 µg/kg
Tetramethrin	EPA 8270 C NCI	10 µg/kg

Metals

Analyte	Analysis Method	Sediment Target Reporting Limits
Aluminum	6020/6010B	NA
Antimony	6020/6010B	10 mg/kg
Arsenic	6020/6010B	1.0 mg/kg
Barium	6020/6010B	NA
Beryllium	6020/6010B	0.2 mg/kg
Cadmium	6020/6010B	0.07 mg/kg
Chromium	6020/6010B	0.1 mg/kg
Copper	6020/6010B	0.1 mg/kg
Iron	6020/6010B	NA
Lead	6020/6010B	0.1 mg/kg
Mercury	7471A	0.02 mg/kg
Nickel	6020/6010B	0.1 mg/kg
Selenium	6020/6010B	0.1 mg/kg
Silver	6020/6010B	0.1 mg/kg
Zinc	6020/6010B	0.1 mg/kg

Chlorinated Hydrocarbons

Analyte	Analysis Method	Sediment Target Reporting Limits
alpha-Chlordane	8081A	0.5 µg/kg
gamma-Chlordane	8081A	0.5 µg/kg
2,4'-DDT	8081A	0.5 µg/kg
4,4'-DDT	8081A	0.5 µg/kg
2,4'-DDD	8081A	0.5 µg/kg
4,4'-DDD	8081A	0.5 µg/kg
2,4'-DDE	8081A	0.5 µg/kg
4,4'-DDE	8081A	0.5 µg/kg
4,4'-DDMU	8081A	0.5 µg/kg
cis-Nonachlor	8081A	0.5 µg/kg
trans-Nonachlor	8081A	0.5 µg/kg
Oxychlordane	8081A	0.5 µg/kg
Dieldrin	8081A	0.5 µg/kg
Heptachlor	8081A	0.5 µg/kg

For TMDL Site 4-CG ONLY

PCB Congeners

Analyte	Analysis Method	Sediment Target Reporting Limits
PCB-3	8270C SIM PCB	[illegible]
PCB-8	8270C SIM PCB	[illegible]
PCB-[illegible]	8270C SIM PCB	[illegible]
PCB-15	8270C SIM PCB	[illegible]
PCB-18	8270C SIM PCB	[illegible]
PCB-27	8270C SIM PCB	[illegible]
PCB-28	8270C SIM PCB	[illegible]
PCB-29	8270C SIM PCB	[illegible]
PCB-31	8270C SIM PCB	[illegible]
PCB-33	8270C SIM PCB	[illegible]
PCB-37	8270C SIM PCB	[illegible]
PCB-44	8270C SIM PCB	[illegible]
PCB-49	8270C SIM PCB	[illegible]
PCB-52	8270C SIM PCB	[illegible]
PCB-56	8270C SIM PCB	[illegible]
PCB-60	8270C SIM PCB	[illegible]
PCB-66	8270C SIM PCB	[illegible]
PCB-70	8270C SIM PCB	[illegible]
PCB-74	8270C SIM PCB	[illegible]
PCB-77	8270C SIM PCB	[illegible]
PCB-81	8270C SIM PCB	[illegible]
PCB-87	8270C SIM PCB	[illegible]
PCB-95	8270C SIM PCB	[illegible]
PCB-97	8270C SIM PCB	[illegible]
PCB-99	8270C SIM PCB	[illegible]
PCB-101	8270C SIM PCB	[illegible]
PCB-105	8270C SIM PCB	[illegible]
PCB-110	8270C SIM PCB	[illegible]
PCB-114	8270C SIM PCB	[illegible]
PCB-118	8270C SIM PCB	[illegible]
PCB-119	8270C SIM PCB	[illegible]
PCB-123	8270C SIM PCB	[illegible]
PCB-126	8270C SIM PCB	[illegible]
PCB-128	8270C SIM PCB	[illegible]
PCB-137	8270C SIM PCB	[illegible]
PCB-138	8270C SIM PCB	[illegible]
PCB-141	8270C SIM PCB	[illegible]
PCB-149	8270C SIM PCB	[illegible]
PCB-151	8270C SIM PCB	[illegible]
PCB-153	8270C SIM PCB	[illegible]
PCB-156	8270C SIM PCB	[illegible]
PCB-157	8270C SIM PCB	[illegible]
PCB-158	8270C SIM PCB	[illegible]
PCB-167	8270C SIM PCB	[illegible]
PCB-168	8270C SIM PCB	[illegible]
PCB-169	8270C SIM PCB	[illegible]
PCB-170	8270C SIM PCB	[illegible]
PCB-174	8270C SIM PCB	[illegible]
PCB-177	8270C SIM PCB	[illegible]
PCB-180	8270C SIM PCB	[illegible]
PCB-183	8270C SIM PCB	[illegible]
PCB-187	8270C SIM PCB	[illegible]
PCB-189	8270C SIM PCB	[illegible]
PCB-194	8270C SIM PCB	[illegible]
PCB-195	8270C SIM PCB	[illegible]
PCB-200	8270C SIM PCB	[illegible]
PCB-201	8270C SIM PCB	[illegible]
PCB-203	8270C SIM PCB	[illegible]
PCB-206	8270C SIM PCB	[illegible]
PCB-209	8270C SIM PCB	[illegible]

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.

PHYSIS PROJECT ID
1307001-001

SAMPLE RECEIPT SUMMARY

CLIENT: AMEC Date Received: 7/13/13 Received By: MB Inspected By: EV

COURIER
☑ PHYSIS ☐ CLIENT ☐ FEDEX ☐ UPS
start 11:30 end 14:00 ☐ OTHER: _____

COOLER
☑ COOLER ☐ BOX total # 5
☐ OTHER: _____

TEMPERATURE
0 °C ☐ WET ICE ☐ BLUE ICE
☑ DRY ICE ☐ NONE

SAMPLE INTEGRITY UPON RECEIPT

1. COC(s) included and completely filled out..... *YES*
2. All sample containers arrived intact..... *YES*
3. All samples listed on COC(s) are present..... *YES*
4. Information on containers consistent with information on COC(s)..... *YES*
5. Correct containers and volume for all analyses indicated..... *YES*
6. All samples received within method holding time..... *YES*
7. Correct preservation used for all analyses indicated..... *YES*

NOTES

Reset Form

1904 E. Wright Circle, Anaheim CA 92806 (714) 602-5320 main / (714) 602-5321 fax

Print Form

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APPENDIX E

CHEMISTRY QA/QC VALIDATION REPORT

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ANCHOR QEA

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DATA VALIDATION REVIEW REPORT – EPA STAGE 2A

Project:	Port of Los Angeles/Port of Long Beach Harbor Toxics Total Maximum Daily Load (TMDL) / Bight 2013
Project Number:	120711-01.03
Date:	May 21, 2014

This validation report summarizes the review of 32 sediment samples collected July 10 - 13, 2013. Samples were collected by AMEC and submitted to Physis Environmental Laboratories, Inc. (Physis) in Anaheim, California. Two analyses were subcontracted to the Institute for Integrated Research in Materials, Environments, and Society (IIRMES). The samples were analyzed for the following parameters:

- Polycyclic aromatic hydrocarbons (PAHs), pesticides, and polychlorinated biphenyl (PCB) congeners by United States Environmental Protection Agency (USEPA) method 8270C
- Toxaphene by USEPA 8270C- negative chemical ionization (NCI)
- Metals by USEPA methods 6020 and 245.7 (cadmium, chromium, copper, lead, zinc and mercury)
- Total solids by Standard Method (SM) 2540B
- Total organic carbon (TOC) by SM 5310B
- Total sulfides by Plumb 1981/ (Trace Element Research Laboratory)TERL
- Ammonia as nitrogen by SM 4500-NH_3 D

The following analyses were included in the laboratory report, but were not evaluated.

- PCB Aroclors by USEPA method 8270C
- Metals by USEPA 6020 (aluminum, antimony, arsenic, barium, beryllium, iron, nickel, phosphorus, selenium, silver)
- Total nitrogen by SM 4500-N
- Fipronil and degradates, polybrominated diphenyl ethers (PBDEs) and pyrethroids by USEPA 8270C-NCl

Physis sample data group (SDG) number 1307001-001 and IIRMES SDG number 119-13-11 were reviewed in this report. Samples reviewed in this report are presented in Table 1.

Table 1
Samples Reviewed

Sample ID	Physis Lab ID	IIRMES ID	Matrix	Analyses Requested
B13-8302	21741	8292	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8304	21742	8293	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8306	21743	8304	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8308	21744	8305	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8310	21745	8306	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8316	21746	8307	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8318	21761	8302	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8322	21762	8303	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8326	21739	8290	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8333	21763	8314	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8340	21755	8296	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8347	21756	8297	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8349	21738	8289	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8356	21764	8315	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8360	21737	8288	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8363	21736	8287	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8365	21760	8301	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8367	21740	8291	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8371	21735	8286	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8374	21734	8285	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8382	21733	8284	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8384	21752	8313	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8396	21754	8295	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8397	21753	8294	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8399	21751	8312	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
B13-8401	21750	8311	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
TMDL1-CH	21748	8309	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
TMDL2-FH	21747	8308	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
TMDL3-TB	21759	8300	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
TMDL4-CS	21758	8299	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
TMDL5-DT	21749	8310	Sediment	PAHs, pesticides, PCB congeners, metals, TOC
TMDL6-CP	21757	8298	Sediment	PAHs, pesticides, PCB congeners, metals, TOC

DATA VALIDATION AND QUALIFICATIONS

The following comments refer to the laboratory's performance in meeting the quality assurance/quality control (QA/QC) criteria outlined in the Programmatic Quality Assurance Project Plan (PQAPP, Anchor QEA, 2013) and the Coordinated Compliance

Monitoring and Reporting Plan (CCMRP (Anchor QEA, 2014). Laboratory results were reviewed with the following guidelines:

- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA 2004)
- *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA 1999)
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA 2008)

Laboratory and method QC criteria were also used as stated in USEPA 1986 (SW-846, Third Edition), Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, update 1, August 1993; update II, January 1995; update IIA, February 1994; update IIB, August 1995; update III, June 1997; update IIIA, May 1999; update IIIB, June 2008; update IVA and IVB, January 2008. Unless noted in this report, laboratory results for the samples listed above were within QC criteria.

FIELD DOCUMENTATION

Field documentation was checked for completeness and accuracy. The chain-of-custody forms were signed by Physis and IIRMES at the time of sample receipt. The samples were received within the correct temperature range and in good condition.

SAMPLE PRESERVATION AND HOLDING TIMES

Samples were appropriately preserved and analyzed within holding times for samples stored in frozen archive.

LABORATORY METHOD BLANKS

Laboratory method blanks were analyzed at the required frequencies and were free of target analytes.

FIELD QUALITY CONTROL

Rinse Blanks

Rinse blanks were not required in association with these sample sets.

Field Duplicates

No field duplicates were analyzed in association with these sample sets.

SURROGATE RECOVERIES

Surrogate recoveries were within laboratory control limits.

LABORATORY CONTROL AND LABORATORY CONTROL SAMPLE DUPLICATE

Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD) were analyzed at the required frequencies and all recoveries were within project-specified control limits.

STANDARD REFERENCE MATERIAL

Standard reference material (SRM) samples were analyzed in addition to LCS/LCSD for some analyses and resulted in recoveries within specified limits, with the following exceptions:

- Metals: Percent recovery (%R) values for chromium were above the control limits in all of the analyses of SRM RTC 016-050. Results have been qualified "J" to indicate a potentially high bias. Cadmium recovered low in one analysis of RTC 016-050; associated results were qualified "J" to indicate a potentially low bias.
- PAH: Acenaphthene recovered low in one analysis of SRM 1944; associated results were qualified "J" or "UJ" to indicate a potentially low bias.

See Table 2 for qualified data.

LABORATORY DUPLICATES

Laboratory duplicates were analyzed at the required frequencies. If the sample or duplicate result is less than five times the method reporting limit (MRL), then the relative percent difference (RPD) control limit is no longer appropriate. In these situations, the difference between the sample results and duplicate results must be within ± 2 times the MRL to meet control criteria. All duplicate results were within required limits, with the following exceptions:

- PAH: The duplicate analysis of sample B13-8356 resulted in a RPD above the control limit for benz[a]anthracene, benzo[a]pyrene, benzo[e]pyrene, chrysene,

and pyrene. The parent sample results were qualified "J" to indicate that they are estimated.

- PAH: The duplicate analysis of sample B13-8397 resulted in a RPD above the control limit for benzo[e]pyrene, fluoranthene, pyrene. The parent sample results were qualified "J" to indicate that they are estimated.
- Pesticides: The duplicate analysis of sample B13-8397 resulted in a RPD above the control limit for gamma-chlordane and trans-nonachlor. The parent sample results were qualified "J" to indicate that they are estimated.
- PCB: The duplicate analysis of sample B13-8397 resulted in a RPD above the control limit for PCB-052, PCB-066, PCB-070, PCB-095, PCB-153, PCB-180, and PCB-187. The parent sample results were qualified "J" or "UJ" to indicate that they are estimated.

See Table 2 for qualified data.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

Matrix spike (MS) and matrix spike duplicate (MSD) samples were analyzed at the required frequencies and all reported recoveries and RPDs were within project-specified control limits with the following exceptions:

- PAH: The %R values for benzo(a)pyrene, benzo(b)fluoranthene, benzo(e)pyrene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene were below the control limits in the MS and MSD performed on sample B13-8397. Benz(a)anthracene was below the control limit in the MSD, and the RPD values for the MS/MSD were above the control limit for indeno(1,2,3-cd)pyrene and pyrene. In the MS/MSD performed on sample B13-8356, benz(a)anthracene, benzo(a)pyrene, benzo(e)pyrene, chrysene, and pyrene %R values were below the control limit in both the MS and MSD, and the RPD for benzo(b)fluoranthene was above the control limit. Parent sample results were qualified "J" to indicate a potentially low bias.
- Metals: The %R values for zinc were below the project control limits in the MS/MSD performed on sample B13-8397. Associated results were qualified "J" to indicate a potentially low bias.

See Table 2 for qualified data.

PROJECT-REQUIRED REPORTING LIMITS

With a few exceptions, quantitation limits were acceptable as reported. Dieldrin and toxaphene TMDL sediment targets are currently below achievable laboratory reporting or detection limits. All non-detected data were reported using the method detection limits.

OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical methods and all requested sample analyses were completed. Accuracy was acceptable as demonstrated by the LCS/LCSD, MS/MSD, SRM and surrogate recovery values with the exceptions noted above. Precision was also acceptable as demonstrated by the LCS/LCSD. MS/MSD and laboratory duplicate RPD values. All results are acceptable as reported or as qualified. No data were rejected; completeness goals were met.

DATA QUALIFIER DEFINITIONS

U Indicates the compound or analyte was analyzed for but not detected at or above the specified limit.

J Indicates an estimated value.

UJ Indicates the compound or analyte was analyzed for but not detected and the specified limit reported is estimated

Table 2
Data Qualifier Summary

Sample ID	Parameter	Analyte	Reported Result	Qualified Result	Reason
B13-8302	Metals	Chromium	79.72 µg/g	79.72J µg/g	High SRM %R
B13-8304	Metals	Chromium	69.93 µg/g	69.93J µg/g	High SRM %R
B13-8306	Metals	Chromium	59.91 µg/g	59.91J µg/g	High SRM %R
B13-8308	Metals	Chromium	67.21 µg/g	67.21J µg/g	High SRM %R
B13-8310	Metals	Chromium	57.65 µg/g	57.65J µg/g	High SRM %R
	PAHs	Acenaphthene	1.0U ng/g	1.0UJ ng/g	Low SRM %R
B13-8316	Metals	Chromium	76.56 µg/g	76.56J µg/g	High SRM %R
	PAHs	Acenaphthene	1.0U ng/g	1.0UJ ng/g	Low SRM %R
B13-8318	Metals	Chromium	68.76 µg/g	68.76J µg/g	High SRM %R
		Zinc	137.54 µg/g	137.54J µg/g	Low MS/MSD %R
		Cadmium	0.49 µg/g	0.49J µg/g	Low SRM %R
B13-8322	Metals	Chromium	73.01 µg/g	73.01J µg/g	High SRM %R
		Zinc	145.19 µg/g	145.19J µg/g	Low MS/MSD %R

Sample ID	Parameter	Analyte	Reported Result	Qualified Result	Reason
		Cadmium	0.46 µg/g	0.46J µg/g	Low SRM %R
B13-8326	Metals	Chromium	42.80 µg/g	42.80J µg/g	High SRM %R
B13-8333	Metals	Chromium	34.86 µg/g	34.86J µg/g	High SRM %R
	PAHs	Acenaphthene	1.0U ng/g	1.0UJ ng/g	Low SRM %R
B13-8340	Metals	Chromium	71.21 µg/g	71.21J µg/g	High SRM %R
		Zinc	152.8 µg/g	152.8J µg/g	Low MS/MSD %R
		Cadmium	0.5499 µg/g	0.5499J µg/g	Low SRM %R
B13-8347	Metals	Chromium	71.62 µg/g	71.62J µg/g	High SRM %R
		Zinc	141.4 µg/g	141.4J µg/g	Low MS/MSD %R
		Cadmium	0.467 µg/g	0.467J µg/g	Low SRM %R
B13-8349	Metals	Chromium	78.86 µg/g	78.86J µg/g	High SRM %R
B13-8356	Metals	Chromium	46.41 µg/g	46.41J µg/g	High SRM %R
	PAHs	Benz[a]-anthracene	15.7 ng/g	15.7J ng/g	High duplicate RPD, low MS/MSD %R
		Benzo[a]-pyrene	21.4 ng/g	21.4J ng/g	
		Benzo[e]-pyrene	16.0 ng/g	16.0J ng/g	
		Chrysene	20.9 ng/g	20.9J ng/g	
		Pyrene	12.9 ng/g	12.9J ng/g	
		Benzo[b]-fluoranthene	9.0 ng/g	9.0J ng/g	High MS/MSD RPD value
		Acenaphthene	1.0U ng/g	1.0UJ ng/g	Low SRM %R
B13-8360	Metals	Chromium	34.12 µg/g	34.12J µg/g	High SRM %R
B13-8363	Metals	Chromium	50.31 µg/g	50.31J µg/g	High SRM %R
B13-8365	Metals	Chromium	55.22 µg/g	55.22J µg/g	High SRM %R
		Zinc	122.1 µg/g	122.1J µg/g	Low MS/MSD %R
		Cadmium	0.282 µg/g	0.282J µg/g	Low SRM %R
B13-8367	Metals	Chromium	20.97 µg/g	20.97J µg/g	High SRM %R
B13-8371	Metals	Chromium	35.99 µg/g	35.99J µg/g	High SRM %R
B13-8374	Metals	Chromium	62.33 µg/g	62.33J µg/g	High SRM %R
B13-8382	Metals	Chromium	56.40 µg/g	56.40J µg/g	High SRM %R
B13-8384	Metals	Chromium	71.95 µg/g	71.95J µg/g	High SRM %R
	PAHs	Acenaphthene	1.0U ng/g	1.0UJ ng/g	Low SRM %R
B13-8396	Metals	Chromium	64.88 µg/g	64.88J µg/g	High SRM %R
		Zinc	144.9 µg/g	144.9J µg/g	Low MS/MSD %R
		Cadmium	0.2924 µg/g	0.2924J µg/g	Low SRM %R
B13-8397	Metals	Chromium	157.53 µg/g	157.53J µg/g	High SRM %R
		Zinc	364.5 µg/g	364.5J µg/g	Low MS/MSD %R
		Cadmium	0.5284 µg/g	0.5284J µg/g	Low SRM %R
	PAHs	Pyrene	61.5 ng/g	61.5J ng/g	High duplicate and MS/MSD RPD, low MS/MSD %R

Sample ID	Parameter	Analyte	Reported Result	Qualified Result	Reason
		Benzo[e]-pyrene	77.5 ng/g	77.5J ng/g	High duplicate RPD, Low MS/MSD %R
		Fluoranthene	53.4 ng/g	53.4J ng/g	
		Benzo[a]-pyrene	117.5 ng/g	117.5J ng/g	Low MS/MSD %R
		Benzo[b]-fluoranthene	107.9 ng/g	107.9J ng/g	
		Benzo[k]fluoranthene	63.4 ng/g	63.4J ng/g	
		Chrysene	76.3 ng/g	76.3J ng/g	
		Indeno[1,2,3-c,d]pyrene	74.8 ng/g	74.8J ng/g	Low MS/MSD %R, high MS/MSD RPD
		Benz[a]-anthracene	44.3 ng/g	44.3J ng/g	Low MSD %R
	Pesticides	Chlordane-gamma	0.8 ng/g	0.8J ng/g	High duplicate RPD
		trans-Nonachlor	0.7 ng/g	0.7J ng/g	
	PCBs	PCB-052	0.05U ng/g	0.05UJ ng/g	High duplicate RPD
		PCB-066	0.70 ng/g	0.70J ng/g	
		PCB-070	0.30 ng/g	0.30J ng/g	
		PCB-095	0.80 ng/g	0.80J ng/g	
		PCB-153	2.3 ng/g	2.3J ng/g	
		PCB-180	1.5 ng/g	1.5J ng/g	
		PCB-187	1.0 ng/g	1.0J ng/g	
B13-8399	Metals	Chromium	78.60 µg/g	78.60J µg/g	High SRM %R
	PAHs	Acenaphthene	32.2 ng/g	32.2J ng/g	Low SRM %R
B13-8401	Metals	Chromium	86.83 µg/g	86.83J µg/g	High SRM %R
	PAHs	Acenaphthene	1.1 ng/g	1.1J ng/g	Low SRM %R
TMDL1-CH	Metals	Chromium	110.8384 µg/g	110.8384J µg/g	High SRM %R
	PAHs	Acenaphthene	1.0U ng/g	1.0UJ ng/g	Low SRM %R
TMDL2-FH	Metals	Chromium	124.73 µg/g	124.73J µg/g	High SRM %R
	PAHs	Acenaphthene	2.2 ng/g	2.2J ng/g	Low SRM %R
TMDL3-TB	Metals	Chromium	31.55 µg/g	31.55J µg/g	High SRM %R
		Zinc	82.07 µg/g	82.07J µg/g	Low MS/MSD %R
		Cadmium	0.2798 µg/g	0.2798J µg/g	Low SRM %R
TMDL4-CS	Metals	Chromium	125.25 µg/g	125.25J µg/g	High SRM %R
		Zinc	745.63 µg/g	745.63J µg/g	Low MS/MSD %R
		Cadmium	2.19 µg/g	2.19J µg/g	Low SRM %R
TMDL5-DT	Metals	Chromium	121.54 µg/g	121.54J µg/g	High SRM %R
	PAHs	Acenaphthene	2.1 ng/g	2.1J ng/g	Low SRM %R
TMDL6-CP	Metals	Chromium	36.68 µg/g	36.68J µg/g	High SRM %R

Sample ID	Parameter	Analyte	Reported Result	Qualified Result	Reason
		Zinc	102.72 µg/g	102.72J µg/g	Low MS/MSD %R
		Cadmium	0.3673 µg/g	0.3673J µg/g	Low SRM %R

REFERENCES

Anchor QEA, 2014. *Coordinated Compliance Monitoring and Reporting Plan Incorporating Quality Assurance Project Plan Components.* Greater Los Angeles and Long Beach Harbor Waters. Prepared for California Department of Transportation; Cities of Bellflower, Lakewood, Long Beach, Los Angeles, Paramount, Rancho Palos Verdes, Rolling Hills, Rolling Hills Estates, and Signal Hill; Los Angeles County; Los Angeles County Flood Control District; Ports of Long Beach and Los Angeles. January 2014.

Anchor QEA, 2013. Draft Programmatic Quality Assurance Project Plan. Supporting Compliance Monitoring and Special Studies Related to the Harbor Toxics Total Maximum Daily Load. Prepared for the Ports of Long Beach and Los Angeles. August 2013.

USEPA, 1999. USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response (OERR). EPA 540-R-99-008. October.

USEPA, 2004. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation (OSRTI). EPA 540-R-04-004. October.

USEPA, 2008. USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. USEPA 540-R-08-01. June.

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APPENDIX F

GRAIN SIZE DATA (CITY OF SAN DIEGO)

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Appendix Table F-1: POLA/POLB Bight '13/TMDL Grain Size Summary Final Results*

Site	Port	% Gravel	% Sand	% Fines (Silt + Clay)
B13-8302	POLA	0	15.9	83.3
B13-8304	POLA	0	22.2	77.1
B13-8306	POLA	0	32.6	67.3
B13-8308	POLA	0	22.0	76.8
B13-8310	POLA	0	28.0	71.0
B13-8316	POLA	0	16.5	81.9
B13-8340	POLA	0	18.8	79.7
B13-8367	POLA	0	87.0	12.3
B13-8384	POLA	0	14.4	82.2
B13-8396	POLA	0	13.6	85.2
B13-8397	POLA	0	6.3	92.8
TMDL-1 CH	POLA	0	12.5	87.5
TMDL-2 FH	POLA	0	18.6	81.4
TMDL-2 FH Dup (5-DT)	POLA	0	13.9	86.1
TMDL-4 CS	POLA	0	29.7	70.3
B13-8318	POLB	0	13.7	85.0
B13-8322	POLB	0	13.5	84.9
B13-8326	POLB	0	33.8	65.8
B13-8333	POLB	0	49.1	50.4
B13-8347	POLB	0	11.2	87.8
B13-8349	POLB	0	11.7	85.7
B13-8356	POLB	0	24.4	73.8
B13-8360	POLB	0	52.4	46.6
B13-8363	POLB	0	28.8	69.9
B13-8365	POLB	0	24.3	73.9
B13-8371	POLB	0	50.1	48.9
B13-8374	POLB	0	17.3	80.0
B13-8382	POLB	0	27.5	71.0
B13-8399	POLB	0	21.4	77.1
B13-8401	POLB	0	11.6	84.4
TMDL-3 TB	POLB	0	40.1	59.9
TMDL-3 TB Dup (6-CP)	POLB	0	36.2	63.8

* Originally this data was qualified as DRAFT data provided by SCCWRP on July 1, 2015. The data are provided with a qualifier related to the clay fraction. The fraction of clay appears anonymously low following a review of region-wide data by SCCWRP. It appears however that the clay fraction is accounted for accordingly in the combined silt & clay fines category.

POLA - Shaded blue rows
POLB - Unshaded white rows

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APPENDIX G

TOXICITY TESTING REPORT (NAUTILUS)

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Nautilus Environmental

Bight'13 Sediment Toxicity Test Results
Ports of Los Angeles and Long Beach

Prepared for: AMEC Environment and Infrastructure, Inc.
9210 Sky Park Court, Suite 200
San Diego, CA 92123

Prepared by: Nautilus Environmental
4340 Vandever Avenue
San Diego, CA 92120

Data Quality Assurance:

- Nautilus Environmental is accredited by the State of California Water Resources Control Board Environmental Laboratory Accreditation Program (Certificate No. 1802) and the State of Washington Department of Ecology (Lab ID C552). Specific fields of testing applicable to each accreditation are available upon request.
- All data have been reviewed and verified.
- All test results have met minimum test acceptability criteria under their respective EPA protocols, unless otherwise noted in this report.
- All test results have met internal Quality Assurance Program requirements.

Results verified by: Adrienne Cibar

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1.0 INTRODUCTION

The Port of Los Angeles (POLA) and the Port of Long Beach ([POLB] herein referred to as the Ports) jointly participated in monitoring requirements in support of the Dominguez Channel, Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants Total Maximum Daily Load (TMDL), State Water Resources Control Board (SWRCB) Resolution No. R11-008 (referred to as the "Harbor Toxics TMDL"). Monitoring requirements in support of the TMDL in 2013 were fulfilled by the Ports through participation with the region-wide Bight '13 monitoring efforts coordinated by the Southern California Coastal Water Research Project (SCCWRP). Program management and sample collection for the Ports was performed by AMEC Environment & Infrastructure, Inc. (AMEC).

AMEC has partnered with Nautilus Environmental (Nautilus) to perform sediment toxicity testing as part of the Harbor Toxics TMDL program. Since the Harbor Toxics TMDL program coincided with the Southern California Bight 2013 Regional Marine Monitoring Survey (Bight'13), in addition to standard USEPA testing protocols, specific testing guidelines provided by SCCWRP for Bight'13 were followed for this testing event (SCCWRP 2013). Furthermore, toxicology and analytical laboratories were required to participate in laboratory intercalibration testing to ensure standard practices between labs and comparability of data generated throughout the region. Nautilus passed intercalibration testing for all Bight '13 toxicity tests conducted. This report summarizes results of the July 2013 sampling events.

Thirty sediment samples were collected throughout the two Ports and were evaluated using two test methods. These included a:

- 10-Day amphipod (*Eohaustorius estuarius)* solid-phase sediment test, and
- 48-hour mussel *(Mytilus galloprovincialis)* larval survival and development sediment-water interface test

2.0 MATERIALS AND METHODS

The methods employed to evaluate sediment toxicity are described below.

2.1 Sample Collection, Receipt, and Preparation

Test site sediments for the Harbor Toxics TMDL program were collected between July 10, 2013 and July 13, 2013 by AMEC personnel. Approximately five liters of sediment were provided from each site, in five one-liter (L) high density polyethylene plastic containers. Samples were delivered in coolers with wet ice to Nautilus by AMEC personnel from July 11, 2013 through July 13, 2013. Upon receipt, contents of coolers were verified against chain of custody forms. Temperatures were measured and recorded on a sample check-in form. All samples were stored at 4 ± 2°C in the dark until used for testing. Copies of chain of custody forms and sample check-in data sheets are provided in Appendix A.

For the entire testing program, each sample was sieved through a 1-mm Nitex® mesh screen prior to testing to remove potential native organisms and ensure reliable test organism recovery. Following homogenization and sieving, interstitial pore water samples were collected and analyzed for total ammonia content. Prior to testing, each sample was thoroughly homogenized.

2.2 Toxicity Test Methodology

Test methods and acceptability criteria for the amphipod test and the mussel test are described in Tables 1 and 2, respectively. Additional guidance for the regional program was developed by SCCWRP in collaboration with participating laboratories, and is outlined in the *Bight' 13 Toxicity Testing Manual* (SCCWRP 2013).

The solid-phase amphipod tests included two concurrent controls. The laboratory control sediment consisted of coarse sand collected at the amphipod collection site along with each batch of organisms. The amphipod collection site is composed mostly of sand, with minimal silt and clay fractions. Thus, an additional "fine grain size" control sediment was tested to better represent the common fine sediments found within bays and harbors. The fine grain size control sediment was collected in the Sail Bay area of Mission Bay in San Diego, California, which is a relatively contaminant free area with no power boats or large marinas, and this sediment has been used as a fine-grain control at Nautilus for several years. One large batch of fine grain sediment was collected by AMEC on July 9, 2013 and distributed to all participating laboratories for testing throughout the Bight '13 program.

Table 1. Toxicity Test **Methodology and QA/QC Requirements for the 10-day Solid Phase Amphipod Toxicity Test**

Test organism	Marine Amphipod – *Eohaustorius estuarius*
Test organism source	Northwestern Aquatic Sciences; Newport, OR
Test organism size at initiation	3-5 mm
Test duration; endpoint	10 days; survival
Test solution renewal	None
Feeding	Prior to test initiation only
Test chamber	1-L glass jar
Sediment depth	2 cm
Overlying water volume	800 mL
Test temperature	15 ± 2°C
Water quality monitoring	Overlying water: pH, temperature, salinity, and dissolved oxygen daily, total ammonia on days 0 and 10. Interstitial water: pH, salinity, and total ammonia day 0.
Overlying water	Natural seawater collected off the SIO Pier in La Jolla, CA. 20µm filtered. Seawater was diluted to 32 ppt with deionized water prior to testing.
Number of organisms/chamber	20
Number of replicates	5, plus 1 surrogate test chamber for water quality readings
Daily Observations	Observations were recorded daily in each replicate for emergence from sediment, aeration, mortality, and sediment appearance.
Negative controls	1) Lab control: 0.5 mm sieved sand collected near organism home site (two lab controls per test batch; one per 7-8 samples); 2) Fine Grain Size Control: sediment collected in Sail Bay, Mission Bay, CA (one fine grain control per test batch)
Photoperiod	Continuous (24 hour) light for the sediment test; continuous dark for the reference toxicant water only test
Aeration	Continuous (3-4 bubbles per second)
Test Protocol(s)	SCCWRP 2013 and USEPA 600/R-94/025 (EPA 1994)
Test acceptability criterion	≥ 90 percent mean survival in the lab control
Reference toxicant test	Ammonium chloride

cm – centimeter
°C – degrees Celsius
L - Liter
mL – milliliter
mm - millimeter
ppt – parts per thousand
SIO – Scripps Institution of Oceanography
µm - micrometer
USEPA – United States Environmental Protection Agency

Table 2. Toxicity Test Methodology and QA/QC Requirements for Sediment Water Interface Bivalve Larvae Development Toxicity Tests

Test organism	Mediterranean mussel - *Mytilus galloprovincialis*
Test organism source	Taylor Shellfish; Shelton, WA
Test duration, endpoint	48 hours, survival and development- reported as percent normal-alive (PNA) mussel embryos
Test solution renewal	None
Feeding	None
Test chamber	250-mL polycarbonate screen tube inside 1-L glass jar
Screen Size	25-micron
Test temperature	15 ± 1°C test-wide mean, 15 ± 3°C instantaneous
Sediment depth	4 cm
Overlying water volume	300 mL
Overlying water quality monitoring	pH, temperature, salinity, and dissolved oxygen daily, total ammonia on days 0 and 2
Overlying water	1-µm filtered natural seawater collected off the SIO Pier in La Jolla, CA. Seawater was diluted to 32 ppt with deionized water prior to testing.
Number of organisms/chamber	~300 larvae
Number of replicates	5, plus 1 surrogate chamber for daily water quality
Negative control	Water only with screen tube (2 lab controls; one per 7-8 samples)
Photoperiod	16 hours light/8 hours dark
Aeration	Continuous (1-2 bubbles per second)
Test Protocol	SCCWRP 2013, USEPA 1995, and Anderson et al. 1996
Test acceptability criterion	Mean control percent normal-alive ≥70
Reference toxicant test	Ammonium chloride

cm – centimeter
°C – degrees Celsius
L - Liter
mL – milliliter
ppt – parts per thousand
SIO – Scripps Institution of Oceanography
µm - micrometer
USEPA – United States Environmental Protection Agency

2.3 Statistical Analyses

For the amphipod tests, survival in each sample was compared to survival in the lab control. Amphipod survival data, expressed as a proportion, were arcsine square-root transformed prior to analysis to normalize the distribution of the data and satisfy statistical assumptions for analysis. Statistical assumptions were evaluated prior to analysis using Bartlett's Test or F-test for differences in variance and D'Agostino Pearson Omnibus test for normality. Unpaired *t*-test comparisons were performed to identify significant differences between the laboratory control and individual samples. If parametric assumptions were not met, the data were initially tested with Kruskal-Wallis test, followed by the Mann-Whitney U-test, if *post-hoc* tests were warranted.

For the mussel tests percent normal-alive (# normal embryos/ initial # of embryos) in each sample was compared to percent normal-alive in the lab control. Following guidance from SCCWRP, unpaired *t*-test comparisons assuming unequal variance were performed with a Welch's correction on the untransformed data for each sample in comparison to the lab control. For a test where outliers are suspected among replicates, the Dixon's Test for Detecting Outliers was used according to USEPA guidance (USEPA 2000) to statistically determine whether or not the data points are outliers. As a general guideline, data were not removed from analysis unless there is corroborating evidence, beyond the statistical analysis, that indicated that a given replicate was anomalous.

Statistical analyses of test data were performed using GraphPad Prism, Version 4.02. Statistical analyses for the reference toxicant data were performed using Comprehensive Environmental Toxicity Information System Software (CETIS™), version 1.8.4.23 (Tidepool Scientific Software 2012).

2.4 Testing Schedule

The 30 samples were tested in two batches initiated between July 16 and 23, 2013. All tests were initiated within the two-week holding time specified in for the Bight program. A summary of the sample identification numbers, sample collection and receipt dates, and testing schedule is provided in Table 3.

Table 3. Toxicity Testing Schedule

Test Batch	Sample ID B13-xxxx	Sample Collection Date	Sample Receipt Date	Amphipod Test Initiation Date	Mussel Test Initiation Date
Batch #1	8374	7/10/13	7/11/13	7/16/13	7/16/13
	8371	7/10/13	7/11/13		
	8382	7/10/13	7/11/13		
	8363	7/10/13	7/11/13		
	8360	7/10/13	7/11/13		
	8356	7/13/13	7/13/13		
	8347	7/12/13	7/12/13		
	8333	7/13/13	7/13/13		
	8322	7/13/13	7/13/13		
	8349	7/10/13	7/11/13		
	8326	7/10/13	7/11/13		
	8318	7/13/13	7/13/13		
	8310	7/11/13	7/12/13		
	8304	7/11/13	7/12/13		
	8308	7/11/13	7/12/13		
Batch #2	8401	7/12/13	7/12/13	7/23/13	7/20/13
	8399	7/12/13	7/12/13		
	TMDL-3TB	7/12/13	7/12/13		
	8397	7/12/13	7/12/13		
	TMDL-4CS	7/12/13	7/12/13		
	8396	7/12/13	7/12/13		
	8384	7/12/13	7/12/13		
	8340	7/12/13	7/12/13		
	8367	7/11/13	7/12/13		
	TMDL-2FH	7/11/13	7/12/13		
	8316	7/11/13	7/12/13		
	8302	7/11/13	7/12/13		
	8365	7/13/13	7/13/13		
	8306	7/11/13	7/12/13		
	TMDL-1CH	7/11/13	7/12/13		

3.0 RESULTS

All lab controls for both species met test acceptability criteria as defined in the Bight '13 Toxicity Testing Manual. Batch #1 results for both species tested are presented in Figure 1, and for Batch #2 in Figure 2. A summary of toxicity test results are discussed below and detailed summaries, statistical results, and raw data sheets are provided in Appendix B (amphipods) and C (mussels).

3.1 *Batch #1*

Solid-Phase Tests

Mean survival of amphipods in the Batch #1 sediment laboratory controls was 98 and 99 percent for Lab Control #1 and #2, respectively. Mean survival in the Fine Grain Size Control was 99 percent, indicating that the organisms were not particularly sensitive to fine grain size during this round of testing. Little to no emergence or avoidance of the sediment by amphipods was noted for any of the sediments tested in Batch #1. Mean amphipod survival in the seven test sites associated with Lab Control #1 ranged from 85 to 98 percent. For the batch associated with Lab Control #1, mean survival in one sample (B13-8347; 85 percent) was found to be statistically reduced from the lab control.

Mean amphipod survival in the eight test sites associated with Lab Control #2 ranged from 89 to 98 percent; seven of the eight samples were statistically decreased from the lab control. However, only one sample (B13-8322; 89 percent survival) resulted in mean survival below 90 percent. Lab Control #2 had little variability among replicates, which resulted in an increase in statistical power to detect small differences as significant.

Sediment-Water Interface Tests

For Batch #1, mean percent normal-alive mussel embryos in the water only laboratory controls was 70.6 percent for Lab Control #1 and 70.7 percent for Lab Control #2. Mean normal-alive mussel embryos in the seven test sites associated with Lab Control #1 ranged from 58.1 to 72.8 percent; four of these resulted in a statically significant decrease from control (B13-8374, B13-8371, B13-8382 and B13-8347).

Mean normal-alive mussel embryos in the eight test sites associated with Lab Control #2 ranged from 59.5 to 70.5 percent; two of these resulted in a statically significant decrease from control (B13-8349 and B13-8308).

3.2 *Batch #2*

Solid-Phase Tests

Mean survival of amphipods in the Batch #2 sediment laboratory controls was 98 and 99 percent for Lab Control #1 and #2, respectively. Mean survival in the Fine Grain Size Control was 97 percent, indicating that the organisms were not particularly sensitive to fine grain size during this round of testing. Mean amphipod survival in the seven test sites associated with Lab Control #1 ranged from 83 to 97 percent. For the batch associated with Lab Control #1, mean survival in five samples was found to be statistically reduced from the lab control. Two of these resulted in mean survival below 90 percent (B13-8401; 86 percent, and TMDL-4CS; 83 percent). Additionally, daily observations revealed that several amphipods were emerging (i.e. avoiding the sediment) from all five replicates of the TMDL-4CS sample and were found swimming at the water surface. Each day, any amphipods that were observed out of the sediment were gently pushed down from the water surface until they re-burrowed in the sediment. Emergence was observed in some other samples as well, but only a few animals in one or two replicates. Daily observation datasheets are available with raw bench data in Appendix B.

Mean amphipod survival in the eight test sites associated with Lab Control #2 ranged from 77 to 97 percent. For the batch of samples associated with Lab Control #2, six of the eight samples were statistically decreased from the lab control. All six of these resulted in mean survival less than 90 percent (B13-8340, TMDL-2FH, B13-8302, B13-8365, B13-8306, and TMDL-1CH).

Sediment-Water Interface Tests

For Batch #2, mean percent normal-alive mussel embryos in the water only laboratory controls was 75.0 percent for Lab Control #1 and 74.8 percent for Lab Control #2. Mean normal-alive mussel embryos in the seven test sites associated with Lab Control #1 ranged from 60.3 to 90.2 percent; none of these resulted in a statically significant effect from control.

Mean normal-alive mussel embryos in the eight test sites associated with Lab Control #2 ranged from 67.4 to 95.4 percent; none of which resulted in a statically significant effect from control.

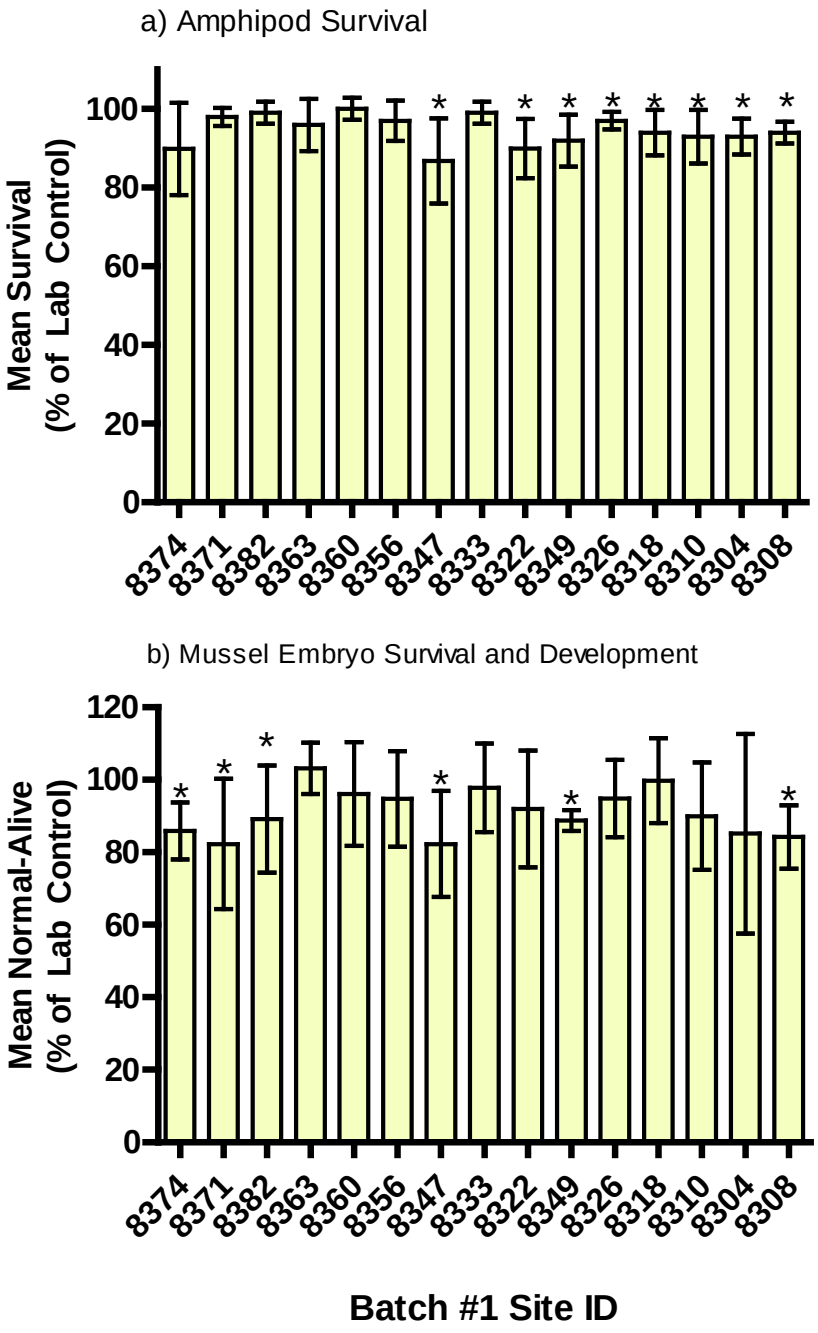

Figure 1. Results for the POLA/POLB Bight 13' Batch #1 Toxicity Tests

a) Amphipod 10-day survival in the solid-phase sediment test, and b) mussel embryo percent normal-alive in the sediment water interface test. Results are presented as percent of lab control (mean ± standard deviation of the mean (SD)). *An asterisk indicates a statistically significant decrease compared to the lab control ($p < 0.05$).

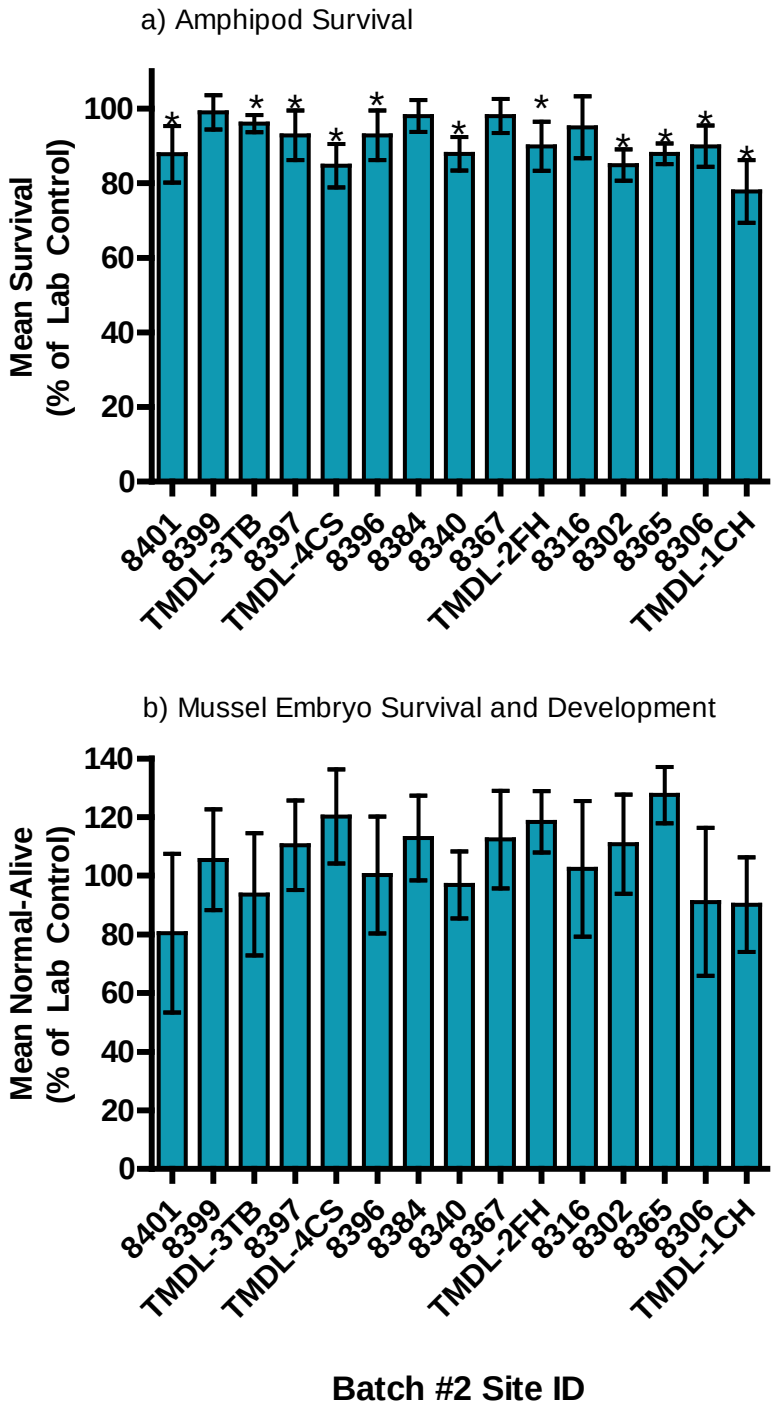

Figure 2. Results for the POLA/POLB Bight 13' Batch #2 Toxicity Tests

a) Amphipod 10-day survival in the solid-phase sediment test, and b) mussel embryo percent normal alive in the sediment water interface test. Results are presented as percent of lab control (mean ± standard error of the mean (SD)). *An asterisk indicates a statistically significant decrease compared to the lab control ($p < 0.05$).

4.0 QUALITY ASSURANCE

All of the data presented have been thoroughly reviewed and are deemed acceptable for reporting in accordance with relevant protocols and Nautilus' internal QA/QC program. Any deviations with respect to test conditions and acceptability criteria are summarized below. All were determined to be minor with no impact on the final data or its interpretation. A list of laboratory qualifier codes can be found in Appendix D.

4.1 Sample Receipt, Handling and Holding Time

Samples were received and processed according to protocol described in previous sections. All tests were initiated within the two week holding time outlined for the Bight'13 program.

All samples were received on ice. Receipt temperatures ranged from 1.1 to 12.6°C. Upon receipt, all samples were moved to cold storage and held at 4 ± 2°C in the dark.

All ammonia values were below any reported thresholds for the test species with the exception of one sample at 48 hours in the mussel test (Tang 1997; USEPA 1994). Sample B13-8360 in Batch #1 had a calculated overlying unionized ammonia value of 0.050 mg/L, at the unpublished threshold value provided by the Marine Pollution Studies Laboratory. However, the total values of 2.1 mg/L remained below the threshold value given in the SCCWRP Technical Report 582 of 4.0 mg/L (SCCWRP 2009). Also note that the unionized value for sample B13-8360 was below the calculated no observed effect concentration (NOEC) for development of 0.090 mg/L for the concurrent reference toxicant test. Total and unionized ammonia tables (Appendix Tables E-1 through E-3) and all calculation and raw ammonia data sheets can be found in Appendix E.

4.2 Solid-Phase Toxicity Tests

All water quality parameters were within required ranges as defined by the test protocol for the entirety of the test.

4.3 Sediment-Water Interface Tests

All water quality parameters were within required ranges as defined by the test protocol for the entirety of the test. A few replicates were calculated as outliers using Dixon's test and they are noted in the summary table in Appendix B; however no outliers were excluded in the analysis for these tests.

4.4 Reference Toxicant Tests

Reference toxicant test results are provided in Appendix F. All reference toxicant tests met test acceptability criteria. However, median lethal effect (LC_{50}, IC_{50}) concentration values for the *Eohaustorius* and *Mytilus* reference toxicant tests (respectively) were above ± two standard deviations of internal control chart means for both species in Batch #1, and for *Eohaustorius* only during Batch #2 testing.

5.0 REFERENCES

Anderson B.S., J.W. Hunt, M. Hester, B.M. Phillips. 1996. Assessment of sediment toxicity at the sediment-water interface. In: G.K. Ostrander (ed.) Techniques in Aquatic Toxicology. Lewis Publishers, Ann Arbor, MI.

Bay, S.M., D.J. Greenstein, M. Jacobe, C. Barton, K. Sakamoto, D. Young, K.J. Ritter, K.C. Schiff. 2011. Southern California Bight 2008 Regional Monitoring Program: I. Sediment Toxicity. Technical Report 640. Southern California Coastal Water Research Project. Costa Mesa, CA

GraphPad© Prism Software, Inc. 1992-2004. Prism, Version 4.02.

Kohn N.P., J.Q. Word, D.K. Niyogi. 1994. Acute toxicity of ammonia to four species of marine amphipod. *Marine Environmental Research*. 38; 1-15.

SCCWRP, 2013. BIGHT'13 Toxicology Laboratory Manual. May, 2013

SCCWRP, 2009. Sediment Quality Assessment Draft Technical Support Manual.

Tang A., J.G. Kalocai, S. Santos, B. Jamil, J. Stewart. (1997). Sensitivity of blue mussel and purple sea urchin larvae to ammonia. Poster presentation at *Society of Environmental Toxicology and Chemistry*, 18th Annual Meeting, San Francisco, CA.

Tidepool Scientific Software. 2012. CETIS Comprehensive Toxicity Data Analysis and Database Software, Version 1.8.4.23.

USEPA 1994. Methods for Assessing the Toxicity of Sediment-associated Contaminants with Estuarine and Marine Amphipods. June 1994. Environmental Protection Agency, Office of Research and Development. EPA 600/R-94/025.

USEPA 1995. Short-term methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms. August 1995. Environmental Protection Agency, Office of Water. EPA 600/R-95/136.

USEPA 2000. Guidance for Data Quality Assessment. EPA 600/R-96/084. Office of Environmental Information, Washington D.C. July.

Appendix A

Chain of Custody Forms and Sample Receipt Information

Nautilus Environmental
4340 Vandever Avenue
San Diego, CA 92120

Sediment Sample
Check-In Information

Client: AMEC

Test IDs: 1307-S070 through 1307-S099

Project: POLA/POLA Bight '13 (Test Batch #1)

Test Type(s): *Eohaustorius* 10-day survival, 48-hr bivalve SWI

Nautilus Log-in# 13-xxxx	Sample ID	Collection Date & Time	Receipt Date & Time	Receipt Temp. (°C)	No. Containers	Container Type	Approx. Total Volume Received (L)	Sample Description	Tech Intials
3122	B13-8326	7/10/2013 8:56	7/11/2013 9:00	4.5	5	1-L plastic bottle	5	sediment	AG
3123	B13-8349	7/10/2013 10:17		4.8	5	1-L plastic bottle	5	"	AG
3124	B13-8382	7/10/2013 11:31		4.5	5	1-L plastic bottle	5	"	AG
3125	B13-8371	7/10/2013 12:30		2.1	5	1-L plastic bottle	5	"	AG
3126	B13-8363	7/10/2013 14:00		2.1	5	1-L plastic bottle	5	"	AG
3127	B13-8374	7/10/2013 14:53		1.1	5	1-L plastic bottle	5	"	AG
3128	B13-8360	7/10/2013 15:59		3.1	5	1-L plastic bottle	5	"	AG
3130	B13-8310	7/11/2013 18:05	7/12/2013 21:30	4.9	5	1-L plastic bottle	5	"	AC
3131	B13-8308	7/11/2013 17:25		4.2	5	1-L plastic bottle	5	"	AC
3132	B13-8304	7/11/2013 16:43		4.5	5	1-L plastic bottle	5	"	AC
3147	B13-8347	7/12/2013 17:24	7/12/2013 21:30	3.7	5	1-L plastic bottle	5	"	PA
3148	B13-8333	7/13/2013 7:58	7/13/2013 18:14	11.5	5	1-L plastic bottle	5	"	AC
3150	B13-8356	7/13/2013 9:37		12.6	5	1-L plastic bottle	5	"	AC
3151	B13-8322	7/13/2013 10:25		10.3	5	1-L plastic bottle	5	"	AC
3152	B13-8318	7/13/2013 11:10		4.8	5	1-L plastic bottle	5	"	AC

Samples Shipped Via: hand delivered

COC Present? Y

Sieving Required? Y Screen Size: 1.0 mm

Lab Control Sediment: Eoh home sediment

Sub-samples for additional chemistry:

Collect Porewater Tech Initials PA

Other _____ Tech Initials_____

Other _____ Tech Initials_____

Test Organism:	*Eohaustorius*	Bivalve			
Supplier:	NWAS	Taylor			
Receipt Date:	7/11/2013	7/16/2013			
Condition:	good	good			

Comments: _____

QC Check: AC 1/10/14

Final Review : JZ 1/16/14

Nautilus Environmental
4340 Vandever Avenue
San Diego, CA 92120

Sediment Sample Check-In Information

Client: AMEC

Test IDs: 1307-S159 through 1307-S188

Project: POLA/POLA Bight '13 (Test Batch #2)

Test Type(s): *Eohaustorius* 10-day survival, 48-hr bivalve SWI

Nautilus Log-in# 13-xxxx	Sample ID	Collection Date & Time	Receipt Date & Time	Receipt Temp. (°C)	No. Containers	Container Type	Approx. Total Volume Received (L)	Sample Description	Tech Intials
3133	B13-8367	7/11/2013 14:30	7/12/2013 21:30	4.4	5	1-L plastic bottle	5	sediment	AC
3134	TMDL-2FH	7/11/2013 15:44		4.6	5	1-L plastic bottle	5	"	AC
3135	B13-8306	7/11/2013 13:18		4.7	5	1-L plastic bottle	5	"	AC
3136	TMDL-1CH	7/11/2013 12:24		2.7	5	1-L plastic bottle	5	"	AC
3137	B13-8316	7/11/2013 10:45		4.5	5	1-L plastic bottle	5	"	AC
3138	B13-8302	7/11/2013 9:55		4.8	5	1-L plastic bottle	5	"	AC
3139	B13-8340	7/12/2013 8:36	7/12/2013 21:30	4.9	5	1-L plastic bottle	5	"	PA
3140	B13-8384	7/12/2013 9:29		4.2	5	1-L plastic bottle	5	"	PA
3141	B13-8396	7/11/2013 17:25		3.9	5	1-L plastic bottle	5	"	PA
3142	B13-8397	7/11/2013 16:43		4.8	5	1-L plastic bottle	5	"	PA
3143	TMDL-4CS	7/12/2013 12:35		3.3	5	1-L plastic bottle	5	"	PA
3144	B13-8399	7/12/2013 14:07	7/12/2013 21:30	5.2	5	1-L plastic bottle	5	"	PA
3145	B13-8401	7/12/2013 14:58		4.0	5	1-L plastic bottle	5	"	PA
3146	TMDL-3TB	7/12/2013 15:55		4.1	5	1-L plastic bottle	5	"	PA
3149	B13-8365	7/13/2013 8:53	7/13/2013 18:14	12.2	5	1-L plastic bottle	5	"	AC

Samples Shipped Via: hand delivered

COC Present? Y

Sieving Required? Y Screen Size: 1.0 mm

Lab Control Sediment: Eoh home sediment

Sub-samples for additional chemistry:

Collect Porewater Tech Initials PA

Other _____ Tech Initials_____

Other _____ Tech Initials_____

Test Organism:	*Eohaustorius*	Bivalve			
Supplier:	NWAS	Taylor			
Receipt Date:	7/18/2013	7/18/2013			
Condition:	good	good			

Comments:

QC Check: AC 1/10/14

Final Review : VS 1/16/14

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:
AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:
Nautilus Environmental
Attn: Adrienne Cibor
4340 Vandever Avenue
San Diego, California 92120
Phone: 858-587-7333 Fax: 858-587-6769

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count	°C
B13-8326	7/10/13	0856	Toxicity	Grab	1 L Plastic	None	5	4.5
B13-8349	7/10/13	1017	Toxicity	Grab	1 L Plastic	None	5	4.8
B13-8382	7/10/13	1131	Toxicity	Grab	1 L Plastic	None	5	4.5
B13-8371	7/10/13	1230	Toxicity	Grab	1 L Plastic	None	5	2.1
B13-8363	7/10/13	1400	Toxicity	Grab	1 L Plastic	None	5	2.1
B13-8374	7/10/13	1453	Toxicity	Grab	1 L Plastic	None	5	1.1
B13-8360	7/10/13	1559	Toxicity	Grab	1 L Plastic	None	5	3.1
			Toxicity	Grab	1 L Plastic	None	5	~~4.9~~

Sampler's Initials: JR

Relinquished By: [signature] Date/Time: 7/11/13 0900 Received By: [signature] Date/Time: 7/11/13 0900

Relinquished By: ______ Date/Time: ______ Received By: ______ Date/Time: ______

13-3122 - 13-3128

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Nautilus Environmental
Attn: Adrienne Cibor
4340 Vandever Avenue
San Diego, California 92120
Phone: 858-587-7333 Fax: 858-587-6769

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count	°C
B13-8310	7/11/13	1805	Toxicity	Grab	1 L Plastic	None	5	4.9
B13-8308	7/11/13	1725	Toxicity	Grab	1 L Plastic	None	5	4.2
B13-8304	7/11/13	1643	Toxicity	Grab	1 L Plastic	None	5	4.5
B13-8367	7/11/13	1430	Toxicity	Grab	1 L Plastic	None	5	4.4
TMDL2-FH	7/11/13	1544	Toxicity	Grab	1 L Plastic	None	5	4.6
B13-8306	7/11/13	1318	Toxicity	Grab	1 L Plastic	None	5	4.7
TMDL1-CH	7/11/13	1224	Toxicity	Grab	1 L Plastic	None	5	2.7
B13-8316	7/11/13	1045	Toxicity	Grab	1 L Plastic	None	5	4.5

Sampler's Initials: JR

Relinquished By: (J. Brand) Date/Time: 7/12/13 2130 Received By: Adrienne Cibor Date/Time: 7/12/13 2130

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

13-3130 - 3137

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Nautilus Environmental
Attn: Adrienne Cibor
4340 Vandever Avenue
San Diego, California 92120
Phone: 858-587-7333 Fax: 858-587-6769

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count	°C
B13-8302	7/11/13	0955	Toxicity	Grab	1 L Plastic	None	5	4.8
			Toxicity	Grab	1 L Plastic	None	5	
			Toxicity	Grab	1 L Plastic	None	5	
			Toxicity	Grab	1 L Plastic	None	5	
			Toxicity	Grab	1 L Plastic	None	5	
			Toxicity	Grab	1 L Plastic	None	5	
			Toxicity	Grab	1 L Plastic	None	5	
			Toxicity	Grab	1 L Plastic	None	5	

Sampler's Initials: JR

Relinquished By: (J. Burns) Date/Time: 7/12/13 2130 Received By: Adrienne Cibor Date/Time: 7/12/13 2130

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

13-3138

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Nautilus Environmental
Attn: Adrienne Cibor
4340 Vandever Avenue
San Diego, California 92120
Phone: 858-587-7333 Fax: 858-587-6769

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count	°C
B13-8340	7/12/13	0836	Toxicity	Grab	1 L Plastic	None	5	4.9
B13-8384	7/12/13	0929	Toxicity	Grab	1 L Plastic	None	5	4.2
B13-8396	7/12/13	1010	Toxicity	Grab	1 L Plastic	None	5	3.9
B13-8397	7/12/13	1136	Toxicity	Grab	1 L Plastic	None	5	4.8
TMDL4-C5	7/12/13	1235	Toxicity	Grab	1 L Plastic	None	5	3.3
B13-8399	7/12/13	1407	Toxicity	Grab	1 L Plastic	None	5	5.2
B13-8401	7/12/13	1458	Toxicity	Grab	1 L Plastic	None	5	4.0
TMDL3-TB	7/12/13	1555	Toxicity	Grab	1 L Plastic	None	5	4.1

Sampler's Initials: JR

Relinquished By: (J. Burns) Date/Time: 7/12/13 2130 Received By: Adrienne Cibor Date/Time: 7/12/13 2130

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

13-3139-S1416

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Nautilus Environmental
Attn: Adrienne Cibor
4340 Vandever Avenue
San Diego, California 92120
Phone: 858-587-7333 Fax: 858-587-6769

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8347	7/12/13	1724	Toxicity	Grab	1 L Plastic	None	5 3.7
			Toxicity	Grab	1 L Plastic	None	5
			Toxicity	Grab	1 L Plastic	None	5
			Toxicity	Grab	1 L Plastic	None	5
			Toxicity	Grab	1 L Plastic	None	5
			Toxicity	Grab	1 L Plastic	None	5
			Toxicity	Grab	1 L Plastic	None	5
			Toxicity	Grab	1 L Plastic	None	5

Sampler's Initials: JR

Relinquished By: (J. Bueno) Date/Time: 7/12/13 2130 Received By: Adrienne Cibor Date/Time: 7/12/13 2130

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

13-3147

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Nautilus Environmental
Attn: Adrienne Cibor
4340 Vandever Avenue
San Diego, California 92120
Phone: 858-587-7333 Fax: 858-587-6769

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8333	7/13/13	0758	Toxicity	Grab	1 L Plastic	None	5 11.5
B13-8365	7/13/13	0853	Toxicity	Grab	1 L Plastic	None	5 12.2
B13-8356	7/13/13	0937	Toxicity	Grab	1 L Plastic	None	5 12.6
B13-8322	7/13/13	1025	Toxicity	Grab	1 L Plastic	None	5 10.3
B13-8318	7/13/13	1110	Toxicity	Grab	1 L Plastic	None	5 4.8
			Toxicity	Grab	1 L Plastic	None	5
			Toxicity	Grab	1 L Plastic	None	5
			Toxicity	Grab	1 L Plastic	None	5

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1814 Received By: Adrienne Cibor Date/Time: 7/13/13 1814

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

13-3148 to 3152

Southern California Coastal Water Research Project

3535 Harbor Blvd. Suite 110
Costa Mesa, CA 92626-1437
(714) 755-3200 Fax (714) 755-3299

Chain of Custody

Date 7-4 15, 2013 Page 1 of 1

Sample Collection By: AMEC | Project Name: B'19 | Project Number:

Sample ID	Date	Time	Matrix	Container Type	Number of Containers	Comments	Analysis
Grain Size Cont.	7-9-13		Sed	1 Liter	12		Toxicity (Amphipod) temp °C 4.1

Relinquished By		Relinquished By		Relinquished By	
(Signature)	(Date) 7-15-13	(Signature)	(Date)	(Signature)	(Date)
(Printed Name) Darrin Greenstein	(Time) 1000	(Printed Name)	(Time)	(Printed Name)	(Time)
(Company) SCCWRP		(Company)		(Company)	
Received By		**Received By**		**Received By**	
(Signature) Adrienne Cibar	(Date) 7/15/13	(Signature)	(Date)	(Signature)	(Date)
(Printed Name) adrienne cibar	(Time) 10:00	(Printed Name)	(Time)	(Printed Name)	(Time)
(Company) Nautilus		(Company)		(Company)	

13-3153

Appendix B

Statistical Analyses and Raw Data Packages
Solid Phase Testing
10-day *Eohaustorius estuarius* Survival

Appendix Table B-1. *Eohaustorius estuarius* 10-day Survival

AMEC POLA/POLB Bight '13

Batch #1 Test Initiation: July 16, 2013

Site ID	Rep	Random No.	# Alive	Percent Survival	Mean Percent Survival	Standard Deviation	Site ID	Rep	Random No.	# Alive	Percent Survival	Mean Percent Survival	Standard Deviation
Lab Control #1	A	64	20	100	98	2.7	**B13-8363**	A	68	20	100	94	6.5
	B	33	19	95				B	43	18	90		
	C	61	20	100				C	27	20	100		
	D	54	19	95				D	53	19	95		
	E	56	20	100				E	47	17	85		
Fine Grain Size Control	A	42	19	95	99	2.2	**B13-8360**	A	36	20	100	98	2.7
	B	46	20	100				B	50	19	95		
	C	48	20	100				C	69	20	100		
	D	65	20	100				D	62	19	95		
	E	30	20	100				E	34	20	100		
B13-8374	A	57	20	100	88	12	**B13-8356**	A	59	18	90	95	5.0
	B	41	15	75				B	37	20	100		
	C	66	16	80				C	39	18	90		
	D	25	20	100				D	35	20	100		
	E	31	17	85				E	40	19	95		
B13-8371	A	26	19	95	96	2.2	**B13-8347**	A	28	19	95	**85***	11
	B	52	20	100				B	63[a]	14	70		
	C	44	19	95				C	49	19	95		
	D	45	19	95				D	55	16	80		
	E	67	19	95				E	38	17	85		
B13-8382	A	58	20	100	97	2.7							
	B	32	19	95									
	C	51	20	100									
	D	29	19	95									
	E	60	19	95									

***A bold asterisk** indicates a statistically significant decrease from the lab control ($p < 0.05$).

[a] Dead amphipods observed; small, tube forming polychaete worms present.

Appendix Table B-1 (continued). *Eohaustorius estuarius* 10-day Survival

AMEC POLA/POLB Bight '13

Batch #1 Test Initiation: July 16, 2013

Site ID	Rep	Random No.	# Alive	Percent Survival	Mean Percent Survival	Standard Deviation	Site ID	Rep	Random No.	# Alive	Percent Survival	Mean Percent Survival	Standard Deviation
Lab Control #2	A	110	19	95	99	2.2	B13-8318	A	73	20	100	**93***	5.7
	B	84	20	100				B	72	17	85		
	C	75	20	100				C	112	19	95		
	D	107	20	100				D	85	18	90		
	E	106	20	100				E	78	19	95		
B13-8333	A	80	20	100	98	2.7	B13-8310	A	90	16	80	**92***	6.7
	B	92	19	95				B	95	19	95		
	C	82	20	100				C	96	19	95		
	D	105	20	100				D	111	19	95		
	E	102	19	95				E	113	19	95		
B13-8322	A	76	16	80	**89***	7.4	B13-8304	A	81	19	95	**92***	4.5
	B	86	20	100				B	79	18	90		
	C	103	18	90				C	83	17	85		
	D	88	17	85				D	101	19	95		
	E	91	18	90				E	109	19	95		
B13-8349	A	77	19	95	**91***	6.5	B13-8308	A	74	18	90	**93***	2.7
	B	89	17	85				B	70	19	95		
	C	100	18	90				C	99	19	95		
	D	87	17	85				D	104	19	95		
	E	94	20	100				E	71	18	90		
B13-8326	A	93	19	95	**96***	2.2							
	B	114	19	95									
	C	97	19	95									
	D	98	19	95									
	E	108	20	100									

***A bold asterisk** indicates a statistically significant decrease from the lab control ($p < 0.05$).

Appendix Table B-2. *Eohaustorius estuarius* 10-day Survival

AMEC POLA/POLB Bight '13

Batch #2 Test Initiation: July 23, 2013

Site ID	Rep	Random No.	# Alive	Percent Survival	Mean Percent Survival	Standard Deviation	Site ID	Rep	Random No.	# Alive	Percent Survival	Mean Percent Survival	Standard Deviation
Lab Control #1	A	127	20	100	98	4.5	**B13-8397**	A	125	16	80	**91***	6.5
	B	119	20	100				B	131	19	95		
	C	138	18	90				C	130	19	95		
	D	128	20	100				D	149	19	95		
	E	157	20	100				E	155	18	90		
Fine Grain Size Control	A	153	19	95	97	2.7	**TMDL-4CS**	A	121	17	85	**83***	5.7
	B	159	20	100				B	151	18	90		
	C	156	19	95				C	137	16	80		
	D	158	20	100				D	134	17	85		
	E	147	19	95				E	133	15	75		
B13-8401	A	129	17	85	**86***	7.4	**B13-8396**	A	145	17	85	**91***	6.5
	B	143	19	95				B	116	17	85		
	C	154	18	90				C	120	19	95		
	D	135	17	85				D	126	20	100		
	E	136	15	75				E	115	18	90		
B13-8399	A	141	20	100	97	4.5	**B13-8384**	A	117	19	95	96	4.2
	B	122	19	95				B	142	20	100		
	C	124	20	100				C	132	18	90		
	D	118	18	90				D	152	19	95		
	E	139	20	100				E	146	20	100		
TMDL-3TB	A	140	19	95	**94***	2.2							
	B	144	18	90									
	C	123	19	95									
	D	148	19	95									
	E	150	19	95									

***A bold asterisk** indicates a statistically significant decrease from the lab control ($p < 0.05$).

Appendix Table B-2 (continued). *Eohaustorius estuarius* 10-day Survival

AMEC POLA/POLB Bight '13

Batch #2 Test Initiation: July 23, 2013

Site ID	Rep	Random No.	# Alive	Percent Survival	Mean Percent Survival	Standard Deviation	Site ID	Rep	Random No.	# Alive	Percent Survival	Mean Percent Survival	Standard Deviation
Lab Control #2	A	179	20	100	99	2.2	B13-8302	A	189	17	85	**84***	4.2
	B	165	20	100				B	193	18	90		
	C	184	20	100				C	182	17	85		
	D	185	20	100				D	202	16	80		
	E	180	19	95				E	171	16	80		
B13-8340	A	176	18	90	**87***	4.5	B13-8365	A	166	17	85	**87***	2.7
	B	188	16	80				B	168	17	85		
	C	183	18	90				C	192	17	85		
	D	169	18	90				D	178	18	90		
	E	174	17	85				E	203	18	90		
B13-8367	A	196	20	100	97	4.5	B13-8306	A	190	18	90	**89***	5.5
	B	194	20	100				B	198	18	90		
	C	172	18	90				C	187	19	95		
	D	177	19	95				D	181	16	80		
	E	195	20	100				E	197	18	90		
TMDL-2FH	A	191	18	90	**89***	6.5	TMDL-1CH	A	163	13	65	**77***	8.4
	B	173	19	95				B	160	17	85		
	C	199	17	85				C	200	15	75		
	D	167	19	95				D	204	17	85		
	E	161	16	80				E	201	15	75		
B13-8316	A	175	20	100	94	8.2							
	B	164	19	95									
	C	162	19	95									
	D	186	16	80									
	E	170	20	100									

***A bold asterisk** indicates a statistically significant decrease from the lab control ($p < 0.05$).

Appendix Table B-3. Statistical Analysis Results of *Eohaustorius estuarius* 10-day Survival
AMEC POLA/POLB Bight '13

Batch #1 Site ID	Statistically Significant (Y/N)	p-value		Batch #2 Site ID	Statistically Significant (Y/N)	p-value
B13-8374	N	0.1548		**B13-8401**	**Y**	**0.0047**
B13-8371	N	0.1548		B13-8399	N	0.3563
B13-8382	N	0.3452		**TMDL-3TB**	**Y**	**0.0419**
B13-8363	N	0.2103		**B13-8397**	**Y**	**0.0290**
B13-8360	N	0.5000		**TMDL-4CS**	**Y**	**0.0006**
B13-8356	N	0.2103		**B13-8396**	**Y**	**0.0411**
B13-8347	**Y**	**0.0159**		B13-8384	N	0.2268
B13-8333	N	0.2724		**B13-8340**	**Y**	**0.0001**
B13-8322	**Y**	**0.0088**		B13-8367	N	0.2045
B13-8349	**Y**	**0.0150**		**TMDL-2FH**	**Y**	**0.0031**
B13-8326	**Y**	**0.0333**		B13-8316	N	0.1045
B13-8318	**Y**	**0.0262**		**B13-8302**	**Y**	**<0.0001**
B13-8310	**Y**	**0.0151**		**B13-8365**	**Y**	**<0.0001**
B13-8304	**Y**	**0.0042**		**B13-8306**	**Y**	**0.0011**
B13-8308	**Y**	**0.0021**		**TMDL-1CH**	**Y**	**<0.0001**

Sites in bold indicate a statistically significant reduction in survival relative to the corresponding lab control ($p<0.05$).

Marine Sediment Bioassay **Organism Survival**

Client: AMEC **Test Species:** *Eohaustorius estuarius*

Project ID: POLA/POLB Bight '13 **Start Date/Time:** 7/16/2013 1400

Test No.: 1307-S070 through 1307-S076 **End Date/Time:** 7/26/2013 1040

Initial No. Organisms: 20/rep

Random Number	Number Alive	10% QC Check of final counts
25	20	20
26	19	
27	20	
28	19	
29	~~20~~ 19	
30	20	20
31	17	
32	19	
33	19	
34	20	
35	20	
36	20	
37	20	
38	17	
39	18	18
40	19	
41	15	
42	19	
43	18	
44	19	19
45	19	
46	20	
47	17	
48	20	
49	19	19
Tech Initials:	BG/PA/BK	CL

Random Number	Number Alive	10% QC Check of final counts
50	19	19
51	20	
52	20	
53	19	
54	19	
55	~~17~~ 16	16
56	20	
57	20	
58	20	
59	18	
60	19	19
61	20	
62	19	
63	14	
64	20	
65	20	20
66	16	
67	19	
68	20	
69	20	
BB-8374 surr	19	
BB-8347 surr	17	
Tech Initials:	BG/PA/BK	CL

Initiation QC Check Initials:

Counts BK/AD/ML All Jars initiated BG Air BG Lights (24hr) BG

T_0 pore water WQ (pH, salinity, ammonia) BK/BG All pore water ammonia below NH3 threshold BG

(NH3 Threshold: *Eohaustorius* 60 mg/L)

Termination QC Check Initials:

T_f ~~pore~~ water WQ (pH, salinity, ammonia) BG

Animal Source/Date Received: Northwestern Aquatic Sciences 7/11/13 **Size at Initiation:** 3-5mm

Comments:

QC Check: BG 7/30/13 **Final Review:** AC 8/29/13

Marine Sediment Bioassay **Organism Survival**

Client: AMEC **Test Species:** *Eohaustorius estuarius*

Project ID: POLA/POLB Bight '13 **Start Date/Time:** 7/16/2013 1400

Test No.: 1307-S077 through 1307-S084 **End Date/Time:** 7/26/2013 1000

Initial No. Organisms: 20/rep

Random Number	Number Alive	10% QC Check of final counts	Random Number	Number Alive	10% QC Check of final counts
70	19	19	95	19	19
71	18		96	19	
72	17		97	19	
73	20		98	19	
74	18		99	19	
75	20	20	100	18	18 ~~100~~ a
76	16		101	19	
77	19		102	19	
78	19		103	18	
79	18		104	19	
80	20		105	20	20
81	19		106	20	
82	20		107	20	
83	17		108	20	
84	20	20	109	19	
85	18	18	110	19	19
86	20		111	19	
87	17		112	19	
88	17		113	19	
89	17		114	19	
90	16	16			
91	18		BB 8374 surr	19	
92	19		BB 8347 surr	17	
93	19				
94	20				
Tech Initials:	BG/PA/BK	CL	Tech Initials:	BG/PA/BK	CL

Initiation QC Check Initials:

Counts BK/AD/ML All Jars initiated BG Air BG Lights (24hr) BG

T_0 pore water WQ (pH, salinity, ammonia) BK/BG All pore water ammonia below NH3 threshold BG

(NH3 Threshold: *Eohaustorius* 60 mg/L)

Termination QC Check Initials:

T_f pore water WQ (pH, salinity, ammonia) BG

BK Overnight

Animal Source/Date Received: Northwestern Aquatic Sciences 7/11/13 **Size at Initiation:** 3.5mm

Comments:

QC Check: BG 7/30/13 **Final Review:** AC 8/29/13

AMEC POLA/POLB Bight'13
10-Day *Eohaustorius* Survival Bioassay
Random Number Assignment
Test Batch #1
Test Initiation Date: 7/16/13

Site	Rep	Rand #
Lab Control #1 (Eoh home sediment)	A	64
	B	33
	C	61
	D	54
	E	56
Fine Grain Size Control	A	42
	B	46
	C	48
	D	65
	E	30
B13-8374	A	57
	B	41
	C	66
	D	25
	E	31
B13-8371	A	26
	B	52
	C	44
	D	45
	E	67
B13-8382	A	58
	B	32
	C	51
	D	29
	E	60
B13-8363	A	68
	B	43
	C	27
	D	53
	E	47
B13-8360	A	36
	B	50
	C	69
	D	62
	E	34
B13-8356	A	59
	B	37
	C	39
	D	35
	E	40
B13-8347	A	28
	B	63
	C	49
	D	55
	E	38

25-69

Site	Rep	Rand #
Lab Control #2 (Eoh home sediment)	A	110
	B	84
	C	75
	D	107
	E	106
B13-8333	A	80
	B	92
	C	82
	D	105
	E	102
B13-8322	A	76
	B	86
	C	103
	D	88
	E	91
B13-8349	A	77
	B	89
	C	100
	D	87
	E	94
B13-8326	A	93
	B	114
	C	97
	D	98
	E	108
B13-8318	A	73
	B	72
	C	112
	D	85
	E	78
B13-8310	A	90
	B	95
	C	96
	D	111
	E	113
B13-8304	A	81
	B	79
	C	83
	D	101
	E	109
B13-8308	A	74
	B	70
	C	99
	D	104
	E	71

70-114

QC: K
final review: AC 8/29/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13
Test Species: *Eohaustorius estuarius*
Sample ID: Lab Control #1
Start Date/Time: 7/16/2013 1400
Test No.: 1307-S070 through 1307-S076
End Date/Time: 7/26/2013 1000

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.9	31.8	8.4	7.97	AG	√BK Collect Ammonia
1	15.1	31.6	8.1	7.94	AG	
2	15.2	31.4	8.1	7.98	LN	
3	14.7	31.5	8.2	7.96	BK	
4	14.8	31.2	8.2	7.94	LN	
5	15.1	31.4	8.1	8.04	LN	
6	14.8	31.3	8.0	7.96	LN	
7	14.1	31.3	8.9	4 7. 8.00	CL	
8	14.0	31.3	8.4	7.93	ML	
9	15.5	31.4	8.0	7.97	AG	
10	14.6	31.4	8.5	8.09	BG	√BG Collect Ammonia

QC Check: BG 7/30/13
Final Review: AC 8/29/13

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10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13
Test Species: *Eohaustorius estuarius*
Sample ID: Fine Grain Size Control
Start Date/Time: 7/16/2013 1400
Test No.: 1307-S070 through 1307-S084
End Date/Time: 7/26/2013 1000

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.8	32.6	~~8.40~~ AG 8.4	8.03	AG	√BK Collect Ammonia
1	15.4	32.4	8.0	8.03	AG	
2	15.3	32.2	7.9	8.06	LN	
3	14.8	32.4	8.0	8.01	BK	
4	14.8	32.1	7.9	8.00	LN	
5	15.1	32.5	8.0	8.09	LN	
6	14.4	32.2	7.9	8.01	LN	
7	14.2	32.4	8.6	8.05	CL	1 emerged
8	14.0	32.3	8.2	7.98	ML	
9	15.6	32.5	7.6	7.94	AG	
10	14.7	32.6	8.3	8.09	BG	√BG Collect Ammonia

QC Check: BG 7/30/13
Final Review: AC 8/29/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13
Test Species: *Eohaustorius estuarius*
Sample ID: B13-8374
Start Date/Time: 7/16/2013 1400
Test No.: 1307-5070
End Date/Time: 7/26/2013 1000

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.6	32.5	8.0	7.96	AG	√BK Collect Ammonia
1	15.6	32.3	7.6	7.98	AG	
2	15.4	32.2	7.9	8.01	LN	
3	15.0	32.3	7.9	7.95	BK	
4	15.0	32.1	7.8	7.95	~~LN~~ LN	
5	15.3	32.5	7.8	8.04	LN	
6	14.6	32.2	7.9	7.96	LN	
7	14.4	32.4	8.5	7.96	CL	
8	14.2	32.3	8.1	7.91	ML	
9	15.8	32.4	7.7	7.93	AG	
10	15.0	32.9	8.1	8.02	BG	1 surfacing Collect Ammonia √BG

QC Check: BG 7/30/13
Final Review: AC 8/29/13

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10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: B13-8371 **Start Date/Time:** 7/16/2013 1400

Test No.: 1307-8071 **End Date/Time:** 7/26/2013 1000

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.8	32.6	8.3	7.93	AG	✓BK Collect Ammonia
1	15.2	32.3	7.9	7.99	AG	
2	15.0	32.2	8.0	8.02	LN	
3	15.1	BK ~~32.5~~ 32.3	8.0	8.03	W ~~LN~~ BK	
4	15.3	31.9	8.0	7.99	LN	
5	15.1	32.3	8.1	8.09	LN	
6	14.4	32.1	8.0	8.03	LN	
7	14.3	32.2	8.6	8.04	CL	
8	14.6	31.4	8.0	8.01	ML	
9	15.7	32.3	7.7	7.99	AG	
10	15.0	32.6	8.1	8.08	BG	1 surfacing Collect Ammonia ✓BG

QC Check: BG 7/30/13

Final Review: AC 8/29/13

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10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 | Test Species: *Eohaustorius estuarius*

Sample ID: B13-8382 | Start Date/Time: 7/16/2013 1400

Test No.: 1307-5072 | End Date/Time: 7/26/2013 1000

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.9	32.7	8.4	7.98	AG	√BK Collect Ammonia
1	15.3	32.4	8.0	8.04	AG	
2	15.2	32.3	7.9	8.03	LN	
3	15.2	32.6	7.8	8.04	BK	
4	15.2	32.2	7.9	8.03	LN	
5	15.3	32.5	7.9	8.13	LN	
6	14.6	32.3	7.9	8.09	LN	
7	14.5	32.4	8.5	8.08	CL	
8	14.6	32.2	8.0	8.04	ML	
9	15.5	32.4	7.7	8.07	AG	
10	15.3	32.8	8.0	8.10	BG	√BG Collect Ammonia

QC Check: BG 7/30/13

Final Review: AC 8/29/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13
Test Species: *Eohaustorius estuarius*
Sample ID: B13-8363
Start Date/Time: 7/16/2013 1400
Test No.: 1307-5073
End Date/Time: 7/26/2013 1000

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	15.0	32.6	8.3	7.97	AG	✓BK Collect Ammonia
1	15.3	32.4	8.0	8.01	AG	
2	19.5	32.3	7.7	8.03	LN	
3	15.4	32.6	7.7	7.99	BK	
4	15.4	32.1	7.7	7.94	LN	
5	15.6	32.5	7.7	8.00	LN	
6	14.9	32.3	7.4	7.94	LN	
7	14.8	32.4	8.2	7.92	CL	
8	14.8	32.2	7.8	7.89	ML	
9	15.7	32.4	7.6	7.91	AG	
10	15.6	32.5	7.9	8.02	BG	✓BH Collect Ammonia

QC Check: BG 7/30/13
Final Review: AC 8/29/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13
Test Species: *Eohaustorius estuarius*
Sample ID: B13-8360
Start Date/Time: 7/16/2013 1400
Test No.: 1307-S074
End Date/Time: 7/26/2013 1000

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.9	32.6	8.4	8.00	AG	√BK Collect Ammonia
1	15.8	32.4	7.9	8.05	AG	
2	15.9	32.4	7.8	8.08	LN	
3	15.9	32.6	7.7	8.02	BK	
4	15.9	32.0	7.8	8.01	LN	
5	16.0	32.5	7.8	8.08	LN	
6	15.6	32.3	7.6	8.02	LN	
7	15.3	32.3	8.3	8.03	CL	
8	15.3	32.1	8.0	8.03	ML	
9	15.9	32.3	7.7	8.02	AG	
10	15.8	32.5	8.0	8.05	BG	√BG Collect Ammonia

QC Check: BG 7/30/13
Final Review: AC 8/29/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 | Test Species: *Eohaustorius estuarius*

Sample ID: B13-8356 | Start Date/Time: 7/16/2013 1400

Test No.: 1307-S075 | End Date/Time: 7/26/2013 1000

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	15.1	32.6	8.2	7.97	AG	✓BL Collect Ammonia
1	15.8	32.4	7.8	8.04	AG	
2	16.0	32.4	7.6	8.06	LN	
3	16.0	32.6	7.8	8.01	BK	
4	16.0	32.1	7.7	8.03	LN	
5	16.1	32.5	7.7	8.12	LN	Q1
6	15.7	32.3	7.7	8.04	LN	
7	15.6	32.3	8.3	8.06	CL	
8	15.5	32.3	8.0	8.02	ML	
9	16.3	32.4	7.5	8.07	AG	Q1
10	15.9	32.4	8.1	8.10	BG	✓BG Collect Ammonia

QC Check: BG 7/30/13

Final Review: AC 8/29/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 | Test Species: *Eohaustorius estuarius*

Sample ID: B13-8347 | Start Date/Time: 7/16/2013 1400

Test No.: 1307-5076 | End Date/Time: 7/26/2013 1000

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.9	32.6	8.1	8.00	AG	✓BK Collect Ammonia
1	15.9	32.5	7.9	8.05	AG	
2	16.0	32.4	7.6	8.06	LN	
3	16.0	32.5	7.6	8.01	BK	
4	16.0	32.2	7.7	8.02	LN	
5	16.2	32.6	7.7	8.10	LN	Q1
6	15.7	32.4	7.7	8.02	LN	
7	15.7	32.4	8.3	8.05	CL	
8	15.4	32.3	8.0	8.01	ML	
9	16.3	32.7	7.4	8.04	AG	Q1
10	15.9	32.5	8.1	8.09	BG	✓BG Collect Ammonia

QC Check: BG 7/30/13

Final Review: AC 8/29/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13
Test Species: *Eohaustorius estuarius*
Sample ID: Lab Control #2
Start Date/Time: 7/16/2013 1400
Test No.: 1307-S077 through 1307-S084
End Date/Time: 7/26/2013 1000

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.6	32.1	8.5	7.95	AG	√BK Collect Ammonia
1	14.7	31.8	8.1	8.04	AG	
2	14.8	31.4	8.2	8.04	LN	
3	14.6	31.6	8.1	8.03	BK	
4	14.4	31.3	8.2	8.02	LN	
5	14.9	31.5	8.2	8.11	LN	
6	14.5	31.2	8.1	8.07	LN	
7	14.0	31.4	8.9	8.04	CL	
8	14.4	31.1	8.5	ML 8.796	ML	
9	15.3	31.5	8.1	7.97	AG	
10	14.6	31.5	8.5	8.11	BG	√BG Collect Ammonia

QC Check: BG 7/30/13
Final Review: AC 8/29/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: B13-8333 **Start Date/Time:** 7/16/2013 1400

Test No.: 1307-SO77 **End Date/Time:** 7/26/2013 1000

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.5	32.4	~~7.99~~ AG 8.3	7.99	AG	✓BK Collect Ammonia
1	14.8	32.3	7.9	8.02	AG	
2	14.8	32.2	8.0	8.02	LN	
3	14.7	32.2	7.9	7.99	BK	
4	14.6	32.1	7.7	7.97	LN	
5	14.9	32.3	7.9	8.03	LN	
6	14.2	32.1	8.0	7.97	LN	
7	14.1	32.2	8.6	7.97	CL	
8	14.0	32.1	8.2	7.90	ML	
9	15.4	32.4	8.0	7.91	AG	
10	14.6	32.4	8.1	8.01	BG	✓BG Collect Ammonia

QC Check: BG 7/30/13 **Final Review:** AC 8/29/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13
Test Species: *Eohaustorius estuarius*
Sample ID: B13-8322
Start Date/Time: 7/16/2013 1400
Test No.: 1307-8078
End Date/Time: 7/26/2013 1000

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.5	32.4	8.4	7.99	AG	✓ Collect Ammonia
1	14.9	32.3	7.9	8.00	AG	
2	14.9	32.2	7.8	8.00	LN	
3	14.9	32.3	8.0	7.96	BK	
4	14.7	32.4	7.8	7.95	LN	
5	14.9	32.4	7.8	8.02	LN	
6	14.2	32.2	7.9	7.97	LN	
7	14.1	32.3	8.6	7.96	CL	
8	14.1	32.1	8.1	7.91	ML	
9	15.5	32.4	7.7	7.91	AG	
10	14.6	32.4	8.1	8.01	BG	✓ Collect Ammonia

QC Check: BG 7/30/13
Final Review: AC 8/29/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13
Test Species: *Eohaustorius estuarius*
Sample ID: B13-8349
Start Date/Time: 7/16/2013 1400
Test No.: 1307-5079
End Date/Time: 7/26/2013 1000

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.5	32.4	8.3	7.97	AG	✓ Collect Ammonia
1	14.8	32.2	8.0	8.04	AG	
2	14.8	32.3	7.9	8.04	LN	
3	14.8	32.5	8.0	7.99	BK	
4	15.0	32.0	8.0	7.97	LN	
5	15.0	32.4	8.0	8.07	LN	
6	14.2	32.3	7.9	7.98	LN	
7	14.2	32.3	8.0	8.01	CL	
8	14.1	ML 32.2	8.2	7.96	ML	
9	15.4	32.5	7.9	7.94	AG	
10	14.9	32.4	8.2	8.03	BG	✓ Collect Ammonia

QC Check: BG 7/30/13
Final Review: AC 8/29/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13
Test Species: *Eohaustorius estuarius*
Sample ID: B13-8326
Start Date/Time: 7/16/2013 1400
Test No.: 1307-S080
End Date/Time: 7/26/2013 1000

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.5	32.4	8.4	8.01	AG	✓BT Collect Ammonia
1	15.0	32.3	8.0	8.04	AG	
2	14.9	32.3	8.0	8.05	LN	
3	14.9	32.5	7.9	8.00	BK	
4	14.8	32.1	8.1	7.98	LN	
5	15.1	32.5	8.1	8.06	LN	
6	14.3	32.3	8.0	7.99	LN	
7	14.3	32.4	8.6	8.00	CL	
8	14.3	32.2	8.3	7.95	ML	
9	15.7	32.6	7.9	7.97	AG	
10	15.0	32.5	8.2	8.06	BG	✓BT Collect Ammonia

QC Check: BG 7/30/13
Final Review: AC 8/29/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13
Test Species: *Eohaustorius estuarius*
Sample ID: B13-8318
Start Date/Time: 7/16/2013 1400
Test No.: 1307-S081
End Date/Time: 7/26/2013 1000

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.8	32.3	8.2	8.00	AG	✓BK Collect Ammonia
1	14.9	32.2	7.9	8.03	AG	
2	15.0	32.3	8.0	8.05	LN	
3	15.1	32.4	7.9	8.02	BK	
4	15.0	32.0	7.9	7.99	LN	
5	15.1	32.4	8.0	8.07	LN	
6	14.4	32.3	7.9	8.03	LN	
7	14.4	32.3	8.6	8.02	CL	
8	14.4	32.0	8.2	7.98	ML	
9	15.7	32.4	7.8	7.96	AG	
10	15.1	32.4	8.2	8.07	BG	✓BG Collect Ammonia

QC Check: BG 7/30/13
Final Review: AC 8/29/13

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10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: B13-8310 **Start Date/Time:** 7/16/2013 1400

Test No.: 1307-3082 **End Date/Time:** 7/26/2013 1000

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.7	32.4	8.2	7.97	AG	✓ Collect Ammonia
1	15.2	32.3	7.8	7.98	AG	
2	15.1	32.3	7.9	8.01	LN	
3	15.1	32.4	8.1	7.94	BK	
4	15.0	32.2	7.9	7.95	LN	
5	15.1	32.5	7.9	8.01	LN	
6	14.4	32.3	7.7	7.97	LN	
7	14.5	32.4	8.4	7.94	CL	
8	14.5	32.2	8.0	7.98	ML	1 emerged
9	15.7	32.4	7.8	7.91	AG	
10	15.1	32.7	8.0	8.02	BG	✓ Collect Ammonia

QC Check: BG 7/30/13 **Final Review:** AC 8/29/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: B13-8304 **Start Date/Time:** 7/16/2013 1400

Test No.: 1307-5083 **End Date/Time:** 7/26/2013 1000

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.6	32.5	8.3	8.01	AG	✓ BK Collect Ammonia
1	15.1	32.3	7.9	8.00	AG	
2	15.1	32.4	7.9	8.02	LN	
3	15.1	32.5	7.8	7.97	BK	
4	15.0	32.2	7.8	7.97	LN	
5	15.2	32.5	7.8	8.04	LN	
6	14.4	32.3	7.7	7.99	LN	
7	14.5	32.4	8.4	7.99	CC	
8	14.5	32.2	8.0	7.94	ML	
9	15.7	32.4	7.8	7.98	AG	
10	15.4	32.4	8.1	8.05	BG	✓ BG Collect Ammonia

QC Check: BG 7/30/13 **Final Review:** AC 8/29/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: B13-8308 **Start Date/Time:** 7/16/2013 1400

Test No.: 1307-3084 **End Date/Time:** 7/26/2013 1000

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.9	32.4	8.1	7.98	AG	✓ BL Collect Ammonia
1	15.1	32.3	8.0	8.00	AG	
2	15.0	32.3	7.9	8.04	LN	
3	15.1	32.4	7.9	7.99	BK	
4	14.9	32.1	7.9	8.00	LN	
5	15.1	32.5	7.9	8.06	LN	
6	14.4	32.3	7.9	8.01	LN	
7	14.5	32.4	8.5	7.99	CL	
8	14.4	32.3	8.1	7.93	ML	
9	15.6	32.5	7.7	7.96	AG	
10	15.0	32.5	8.1	8.05 ~~8.08~~ BG	BG	✓ BG Collect Ammonia

QC Check: BG 7/30/13 **Final Review:** AC 8/29/13

Sediment Bioassay **Daily Observations**

Client: AMEC **Test Species:** *Eohaustorius estuarius*

Project ID: POLA/POLB Bight '13 **Start Date/Time:** 7/16/2013 1400

Test No.: 1307-S070 through 1307-S084 **End Date/Time:** 7/26/2013 1000

Random Number	Daily Observations (Use Codes Provided)									
	1	2	3	4	5	6	7	8	9	10
25	N	N	N	N	N	N	N	N	N	N
26	N	N	N	N	N	N	N	N	N	N
27	N	N	N	N	N	N	N	N	N	N
28	IS	N	N	N	N	N	N	N	N	N
29	N	N	N	N	IS	N	N	IS	N	N
30	N	N	N	N	N	N	N	N	N	N
31	N	N	N	N	N	N	IS	N	N	N
32	N	N	IS	N	N	N	N	N	IS	N
33	IE	N	N	IE	IE	N	N	N	N	N
34	N	N	N	N	N	N	N	N	N	N
35	N	N	N	N	N	N	N	N	N	N
36	N	N	N	N	N	N	N	N	N	N
37	N	N	N	N	N	N	A (DO = 0.3)	N	N	N
38	N	N	N	IS	IS	N	N	N	N	N
39	N	N	N	N	N	N	N	N	N	N
40	N	N	N	N	N	N	N	N	N	N
41	N	N	N	N	N	N	N	N	N	IB
42	N	N	N	N	N	N	N	N	N	N
43	N	N	N	N	N	N	N	N	N	N
44	N	3S	N	N	IS	N	N	N	N	N
45	N	N	N	N	N	N	N	N	N	N
46	N	N	N	N	N	N	N	N	N	IE
47	N	N	N	N	N	N	IS	N	N	N
48	N	N	N	N	N	N	N	N	N	N
49	N	N	N	N	N	N	N	N	N	N
50	N	N	N	N	N	N	N	N	N	N
51	N	N	N	N	N	N	N	N	N	N
52	N	N	N	N	N	N	N	N	N	N
53	IS	N	N	N	N	N	N	N	N	N
54	N	N	N	N	N	N	N	N	N	N

Observations Key:

E = Emerged, specify number S = Trapped on surface, specify number
N = Normal G = Abnormal growth on or discoloration of sediment surface
A = No/low aeration B = Body or molt on sediment surface, specify number

QC Check: BG 7/30/13 **Final Review:** AC 8/29/13

Sediment Bioassay **Daily Observations**

Client: AMEC **Test Species:** *Eohaustorius estuarius*

Project ID: POLA/POLB Bight '13 **Start Date/Time:** 7/16/2013 1400

Test No.: 1307-S070 through 1307-S084 **End Date/Time:** 7/26/2013 1000

Random Number	Daily Observations (Use Codes Provided)									
	1	2	3	4	5	6	7	8	9	10
55	N	IS	IS	IS	2S	IS	IS	N	N	N
56	N	N	N	N	N	N	N	N	N	N
57	N	N	N	N	N	N	N	N	N	N
58	N	N	N	N	N	N	N	N	N	1E
59	N	N	N	N	N	N	N	N	N	N
60	IS	N	N	IS	N	N	N	N	IS	N
61	N	N	N	N	N	N	N	N	N	N
62	N	N	N	N	N	N	N	N	N	N
63	N	N	2S	N	N	N	IS	N	IS	N
64	N	N	N	N	N	N	N	N	N	N
65	N	N	N	N	N	N	N	N	N	N
66	N	N	N	N	N	N	N	N	N	N
67	N	N	N	N	N	N	N	N	N	N
68	N	N	N	N	N	N	N	N	N	N
69	N	N	IS	IS	N	N	N	N	N	N
70	N	N	N	N	N	IS	N	N	N	N
71	N	N	N	N	N	N	N	MK IS	N	N
72	N	N	1E	LN A 1E	IS	N	N	N	N	N
73	N	N	N	N	N	IS	N	N	N	N
74	N	N	N	N	N	N	N	IS	N	1E
75	N	N	N	N	N	N	N	N	N	N
76	N	N	N	N	N	N	2S	N	N	N
77	N	N	N	N	N	N	1E	N	N	N
78	N	N	N	N	N	N	N	N	N	N
79	N	N	2S	A: N A	N	N	N	N	N	N
80	N	N	N	N	N	N	N	N	N	N
81	N	N	N	N	N	N	N	N	N	N
82	N	N	N	N	N	N	N	N	N	N
83	N	N	N	N	N	N	N	N	N	N
84	N	N	N	N	N	N	N	N	N	N

Observations Key:

E = Emerged, specify number S = Trapped on surface, specify number
N = Normal G = Abnormal growth on or discoloration of sediment surface
A = No/low aeration B = Body or molt on sediment surface, specify number

QC Check: BG 7/30/13 **Final Review:** AC 8/29/13

Sediment Bioassay **Daily Observations**

Client: AMEC **Test Species:** *Eohaustorius estuarius*

Project ID: POLA/POLB Bight '13 **Start Date/Time:** 7/16/2013 1400

Test No.: 1307-S070 through 1307-S084 **End Date/Time:** 7/26/2013 1000

Random Number	Daily Observations (Use Codes Provided)									
	1	2	3	4	5	6	7	8	9	10
85	N	N	N	N	N	N	3S	N	2S	N
86	N	N	N	N	N	N	N	N	N	N
87	N	N	2S	1S	1S	N	N	N	N	N
88	N	1E	N	N	N	N	3S	N	N	N
89	N	N	N	N	N	N	N	N	N	N
90	N	N	N	N	N	N	N	N	N	N
91	N	N	N	N	N	N	N	N	N	N
92	N	N	N	N	N	N	N	N	N	N
93	N	N	N	N	N	N	N	N	N	N
94	N	N	N	N	N	N	N	N	N	N
95	N	N	N	N	N	N	N	N	N	N
96	N	N	N	N	N	N	N	N	N	N
97	N	N	N	N	N	N	N	N	N	N
98	N	N	N	N	N	N	N	N	N	N
99	N	N	N	N	N	N	N	N	N	N
100	N	N	N	N	N	N	N	N	N	N
101	N	N	N	N	N	N	N	N	N	N
102	N	N	N	N	N	N	N	N	N	N
103	N	1S	N	1S	N	N	2S	N	1S	1S
104	N	N	N	N	N	N	N	N	N	N
105	N	N	N	N	N	N	N	N	N	N
106	N	N	N	N	N	N	N	N	N	N
107	N	N	N	N	N	N	N	N	N	N
108	N	N	N	N	N	N	1S	N	N	N
109	N	N	N	N	N	N	N	N	N	N
110	N	N	N	N	N	N	N	N	N	N
111	N	N	N	N	N	N	1S	N	N	N
112	N	N	N	N	N	N	N	N	N	N
113	N	N	N	N	N	N	N	N	N	N
114	N	N	N	N	N	N	N	N	N	N

Observations Key:

E = Emerged, specify number S = Trapped on surface, specify number
N = Normal G = Abnormal growth on or discoloration of sediment surface
A = No/low aeration B = Body or molt on sediment surface, specify number

QC Check: BG 7/30/13 **Final Review:** AC 8/29/13

Marine Sediment Bioassay **Organism Survival**

Client: AMEC **Test Species:** *Eohaustorius estuarius*

Project ID: POLA/POLB Bight '13 (Batch #2) **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-S159 to S165 **End Date/Time:** 8/2/2013 0800

Initial No. Organisms: 20/rep

Random Number	Number Alive	10% QC Check of final counts	Random Number	Number Alive	10% QC Check of final counts
115	18		140	19	19
116	17		141	20	
117	19		142	20	
118	18		143	19	
119	20		144	18	18
120	19		145	17	
121	17	17	146	20	
122	19		147	17	
123	19	19	148	19	19
124	20		149	19	
125	16		150	19	19
126	20		151	18	~~18~~ 18
127	20		152	19	
128	20		153	19	
129	17		154	18	
130	19		155	~~18~~ 18	
131	19		156	19	
132	18		157	20	
133	15	15	158	20	
134	17	17	159	20	
135	17				
136	15				
137	16	16			
138	18				
139	20				
Tech Initials:	LA/AC	JW	Tech Initials:	LA/AC	JW

Initiation QC Check Initials:

Counts ML/BG All Jars initiated PA/AC Air BG Lights (24hr) BG

T_0 pore water WQ (pH, salinity, ammonia) BG All pore water ammonia below NH3 threshold ✓ LA

(NH3 Threshold: *Eohaustorius* 60 mg/L)

Termination QC Check Initials:

T_f ~~pore~~ water WQ (pH, salinity, ammonia) ~~DNF~~ LA

overlying

Animal Source/Date Received: Northwestern Aquatic Sciences 7/18/13 **Size at Initiation:** 3-5mm

Comments:

QC Check: KL 9/17/13 **Final Review:** SD 9/23/13

Marine Sediment Bioassay **Organism Survival**

Client: AMEC **Test Species:** *Eohaustorius estuarius*

Project ID: POLA/POLB Bight '13 (Batch#2) **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-S166 to S173 **End Date/Time:** 8/2/2013 0800

Initial No. Organisms: 20/rep

Random Number	Number Alive	10% QC Check of final counts	Random Number	Number Alive	10% QC Check of final counts
160	17		185	20	
161	16	16	186	16	
162	19		187	19	19
163	~~12~~ 13		188	16	
164	19		189	17	
165	20		190	18	18
166	17		191	18	
167	19		192	17	
168	17	17	193	19	
169	18		194	20	
170	20		195	20	
171	16		196	20	20
172	18		197	18	
173	19	19	198	18	
174	17		199	17	
175	20		200	15	
176	19		201	15	
177	19		202	16	
178	18		203	18	
179	20	20	204	17	17
180	19	19			
181	~~14~~ 16				
182	17				
183	18				
184	20				
Tech Initials:	~~M~~/AC	JW	Tech Initials:		JW

Initiation QC Check Initials:

Counts CL/BL All Jars initiated PA/AC Air BG Lights (24hr) BG

T_0 pore water WQ (pH, salinity, ammonia) BG All pore water ammonia below NH3 threshold ✓

(NH3 Threshold: *Eohaustorius* 60 mg/L)

Termination QC Check Initials:

T_f ~~pore~~ water WQ (pH, salinity, ammonia) ~~TA~~ AG

Animal Source/Date Received: Northwestern Aquatic Sciences 7/18/13 **Size at Initiation:** 3-5mm

Comments:

QC Check: KL 9/17/13 **Final Review:** SO 9/23/13

AMEC POLA/POLB Bight'13
10-Day *Eohaustorius* Survival Bioassay
Random Number Assignment
Test Batch #2
Test Initiation Date: 7/23/13

Site	Rep	Rand #
Lab Control #1 (Eoh home sediment)	A	127
	B	119
	C	138
	D	128
	E	157
Fine Grain Size Control	A	153
	B	159
	C	156
	D	158
	E	147
B13-8401	A	129
	B	143
	C	154
	D	135
	E	136
TMDL-~~4TB~~ 3TB Ac	A	141
	B	122
	C	124
	D	118
	E	139
B13-8399	A	140
	B	144
	C	123
	D	148
	E	150
B13-8397	A	125
	B	131
	C	130
	D	149
	E	155
TMDL-~~3CS~~ 4CS Ac	A	121
	B	151
	C	137
	D	134
	E	133
B13-8396	A	145
	B	116
	C	120
	D	126
	E	115
B13-8384	A	117
	B	142
	C	132
	D	152
	E	146

115-159

Site	Rep	Rand #
Lab Control #2 (Eoh home sediment)	A	179
	B	165
	C	184
	D	185
	E	180
B13-8340	A	176
	B	188
	C	183
	D	169
	E	174
B13-8367	A	196
	B	194
	C	172
	D	177
	E	195
TMDL-2FH	A	191
	B	173
	C	199
	D	167
	E	161
B13-8316	A	175
	B	164
	C	162
	D	186
	E	170
B13-8302	A	189
	B	193
	C	182
	D	202
	E	171
~~B13-8309~~ B13 8305 Ac	A	166
	B	168
	C	192
	D	178
	E	203
B13-8306	A	190
	B	198
	C	187
	D	181
	E	197
TMDL-~~1CM~~ 1CH Ac	A	163
	B	160
	C	200
	D	204
	E	201

160-204

QC: BG

Sediment Bioassay **Daily Observations**

Client: AMEC **Test Species:** *Eohaustorius estuarius*

Project ID: POLA/POLB Bight '13 (Batch#2) **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-S0159 to S173 **End Date/Time:** 8/2/2013 0800

KL

Random Number	Daily Observations (Use Codes Provided)									
	1	2	3	4	5	6	7	8	9	10
115	N	N	N	N	N	N	N	N	N	N
116	N	N	2S	1S	N	N	N	N	N	N
117	N	~~A~~E1	1S	1S	N	1E,1S	N	N	N	N
118	N	N	N	N	N	1S	N	N	N	N
119	N	N	N	N	N	N	N	N	N	N
120	N	N	N	N	N	N	N	N	N	N
121	E 4	~~S~~E3	5S	6S,1E	1E	10S	5E	N	6S	4E
122	N	N	N	3S	1S	N	N	N	N	N
123	N	N	N	N	N	N	N	N	N	N
124	N	~~S~~E2	3S	N	N	1S	N	N	N	~~S~~ 1S
125	E 1	~~S~~E3	2S	N	N	N	N	N	N	N
126	E 1	N	N	N	N	N	N	N	N	N
127	N	N	N	N	N	N	N	N	N	N
128	N	N	N	N	N	N	N	N	N	N
129	E 1	N	N	2S	1S	N	N	3S	N	N
130	N	~~AC~~ ~~NE~~6	3S	1S	1S	2S	1S	N	1E	1E
131	N	N	N	N	N	N	N	N	N	N
132	N	~~S~~E1	N	1S	N	1E	N	N	N	N
133	E 5	~~N~~ ~~E~~12	2S	1S	1S	N	1S	N	N	~~S~~ 2E
134	E 3	~~N~~E8	0S	1E	1E	8S	4E	N	N	~~S~~ 3E
135	N	N	N	1S	N	N	N	N	1S	N
136	N	~~S~~E1	2S	1S	2S	3S	N	N	2S	N
137	E 6	~~S~~ ~~N~~ E10	8S	6S	2S	11S	5E	N	1S	3E
138	N	N	1E	N	1E	N	1B	N	N	1B
139	N	N	1S	N	N	1S	N	N	N	N
140	N	N	N	N	N	N	N	N	N	N
141	N	N	1S	N	N	N	N	N	N	N
142	N	N	N	N	N	N	N	N	N	N
143	N	N	N	N	N	1S	1S	N	1S	N
144	N	N	N	N	N	1S	N	N	N	N

Surr. Day1 TMOL CS (7) E
8401 (1) E
8397 (3) E
8340 (1) E

Observations Key:

E = Emerged, specify number S = Trapped on surface, specify number
N = Normal G = Abnormal growth on or discoloration of sediment surface
A = No/low aeration B = Body or molt on sediment surface, specify number

QC Check: KL 9/17/13 **Final Review:** SD 9/20/13

Sediment Bioassay **Daily Observations**

Client: AMEC **Test Species:** *Eohaustorius estuarius*

Project ID: POLA/POLB Bight '13 (Batch #2) **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-S159 to S173 **End Date/Time:** 8/2/2013 0800

Random Number	Daily Observations (Use Codes Provided)									
	1	2	3	4	5	6	7	8	9	10
145	N	N	N	N	N	N	N	N	N	N
146	N	N	N	N	N	N	N	N	N	N
147	E1	N	N	N	N	N	N	N	N	N
148	N	N	N	N	N	N	N	N	N	N
149	N	N	N	N	N	N	N	N	N	N
150	E1	N	N	N	N	N	N	N	N	N
151	E6	~~A~~ E6	2S	7S	4S	5S	3S	N	4S	5G
152	N	N	N	N	N	N	N	N	N	N
153	N	~~A~~ E1	N	N	N	N	N	N	N	N
154	E2	~~A~~ E2	3S	3S	N	N	N	1S	1S	N
155	E1	N	2S	2S	7S	7S	~~A~~ 4S	1S	2S	1S
156	N	N	N	N	N	N	N	N	N	N
157	N	N	N	N	N	N	N	N	N	N
158	N	~~A~~ E2	N	N	N	N	N	N	N	N
159	N	~~A~~ E3	1S	~~A~~ 3N	N	N	N	N	N	N
160	N	N	N	~~A~~ 3N 3S	2S	N	N	N	N	N
161	E1	N	4S	N	N	2S	N	N	N	N
162	N	~~A~~ E1	N	N	N	N	N	N	N	N
163	N	~~A~~ E2	1S	1E	1E	2S	~~A~~ N 1S	N	N	N
164	E2	~~A~~ E2	N	N	N	N	N	N	N	N
165	N	N	N	N	N	N	N	N	N	N
166	N	~~A~~ E2	N	N	N	1S	N	N	N	N
167	N	~~A~~ E1	1S	2S	1S	4S	1E	N	1S	1E
168	N	N	3S	1S	2S	N	1S	N	1S	N
169	N	N	N	2S	2S	1S	1S	N	N	N
170	N	N	N	N	N	N	N	N	N	N
171	N	~~A~~ E1	3S	2S	1S	2S	2S	N	N	N
172	N	N	N	N	N	N	N	N	N	1B
173	N	N	3S	1S	N	1S	N	N	N	1E
174	N	N	N	N	N	N	N	N	N	N

Observations Key:

E = Emerged, specify number S = Trapped on surface, specify number
N = Normal G = Abnormal growth on or discoloration of sediment surface
A = No/low aeration B = Body or molt on sediment surface, specify number

QC Check: KL 9/17/13 **Final Review:** SO 9/20/13

Sediment Bioassay **Daily Observations**

Client: AMEC **Test Species:** *Eohaustorius estuarius*

Project ID: POLA/POLB Bight '13 (Batch #2) **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-S159 to S173 **End Date/Time:** 8/2/2013 0800

Random Number	Daily Observations (Use Codes Provided)									
	1	2	3	4	5	6	7	8	9	10
175	N	N	2S	4S	4S	1S	IE	N	IE	N
176	N	N	N	N	N	N	N	N	N	N
177	N	N	N	N	N	1S	N	N	N	N
178	N	N	N	N	N	N	1S	N	N	N
179	E 1	N	N	N	N	N	N	N	N	N
180	N	N	N	N	N	N	N	N	N	N
181	N	~~AC~~NE1	N	N	1E	N	N	N	N	N
182	N	N	2S	3S	2S	N	N	N	1S	N
183	E 1	N	N	N	N	N	N	N	N	N
184	N	N	N	N	N	N	N	N	N	N
185	N	N	N	N	N	N	N	N	N	N
186	N	N	N	2S	2S	N	N	N	2S	1B
187	N	N	N	N	N	N	N	N	N	N
188	N	N	N	N	N	N	N	N	N	N
189	N	N	1S	N	N	N	2S/1B	N	N	N
190	N	~~AC~~NE1	N	N	1E	N	~~N~~ 1B	~~M~~ 1B	1B	1B
191	E 1	~~AC~~NE1	N	N	N	1S	1S	N	3S	1S
192	N	N	N	N	N	N	N	N	N	N
193	N	N	N	N	N	N	N	N	N	N
194	N	N	N	N	N	N	N	N	N	N
195	N	N	N	N	N	N	N	N	N	N
196	E 1	N	N	N	N	N	N	N	N	N
197	N	~~AC~~NE1	N	N	N	N	N	N	N	N
198	N	N	N	N	N	N	N	N	N	N
199	N	~~AC~~NE1	2S	N	1S	N	N	N	N	1E
200	N	~~AC~~NE1	N	N	N	1S	N	N	N	N
201	N	N	1S	N	N	N	N	N	N	N
202	E 2	~~AC~~NE2	N	1E	N	5S	N	N	N	N
203	N	N	1S	N	N	N	N	N	N	N
204	N	N	N	N	N	N	N	N	N	N

Observations Key:

E = Emerged, specify number S = Trapped on surface, specify number
N = Normal G = Abnormal growth on or discoloration of sediment surface
A = No/low aeration B = Body or molt on sediment surface, specify number

QC Check: KL 9/17/13 **Final Review:** SD 9/20/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: Lab Control #1 **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-S159 to ~~S173~~ S165 AL **End Date/Time:** 8/2/2013 0800

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.2	31.8	8.9	8.01	CL	BG ✓ Collect Ammonia
1	14.5	31.8	8.4	7.98	ML	
2	15.4	32.1	8.1	7.83	AG	
3	15.2	32.0	8.2	8.04	BG	
4	15.1	32.0	8.5	8.06	~~AD~~	
5	15.0	31.5	8.5	8.01	LN	
6	14.9	31.8	8.3	8.05	BG	
7	15.0	31.8	8.3	8.06	CL	
8	14.8	32.4	8.3	8.04	ML	
9	14.7	32.2	8.2	8.12	CL	
10	14.8	32.5	8.2	8.06	ML	Collect Ammonia ✓ BK

QC Check: AC 8/26/13 **Final Review:** KL 9/17/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: Fine Grain Size Control **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-S159 to S173 **End Date/Time:** 8/2/2013 0900

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.4	32.0	8.5	7.94	CL	BG ✓ Collect Ammonia
1	14.6	32.1	7.9	7.88	ML	
2	15.6	32.4	7.6	7.74	AG	
3	15.1	32.4	7.9	7.97	BG	2 surfacing
4	15.1	32.4	8.1	7.96	~~AD~~	1 surfacing
5	15.4	31.9	7.8	7.96	LW	2 surfacing
6	15.1	32.3	8.0	7.96	BG	1 surfacing
7	15.3	32.3	7.9	7.96	CL	
8	15.1	33.0	7.8	7.96	ML	~~1 surfacing~~ ML
9	14.9	32.6	7.9	8.03	CL	1 surfacing
10	15.1	32.9	ML ~~7.~~ 8.0	8.01	ML	Collect Ammonia ✓ BK

QC Check: AC 8/26/13 **Final Review:** KL 9/17/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: B13-8401 **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-S159 **End Date/Time:** 8/2/2013 0800

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.7	32.1	8.4	7.97	CL	BG ✓ Collect Ammonia
1	14.7	32.1	8.0	7.91	ML	
2	15.5	32.4	7.7	7.83	AG	
3	15.5	32.4	8.0	8.01	BG	1 surfacing
4	15.2	32.5	8.1	8.01	~~AD~~	
5	15.3	~~31.0~~ LN 32.0	8.0	8.01	LN	
6	15.2	32.3	8.0	7.98	BG	1 surfacing
7	15.4	32.3	7.9	7.96	CL	
8	15.3	33.0	7.7	7.97	ML	1 surfacing
9	15.2	32.6	7.8	8.05	CL	
10	15.3	32.9	8.0	8.02	ML	Collect Ammonia BK

QC Check: ~~AC~~ 8/26/13 **Final Review:** KL 9/17/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: B13-8399 **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-SR60 **End Date/Time:** 8/2/2013 0900

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.5	32.2	8.6	8.04	CL	BG ✓Collect Ammonia
1	ML ~~15.0~~ 14.8	32.0	8.1	7.94	ML	
2	15.6	32.4	7.8	7.82	AG	
3	15.3	32.2	8.2	8.05	BG	
4	15.0	32.4	8.3	8.05	AD	
5	15.5	31.9	8.1	8.01	LN	
6	15.4	32.2	8.0	8.02	BG	1 surfacing
7	15.4	32.1	8.1	8.00	CL	
8	15.3	32.9	8.0	7.97	ML	
9	15.2	32.5	8.0	8.07	CL	
10	15.3	32.9	8.1	8.08	ML	✓Collect Ammonia BK

QC Check: AC 8/26/13 **Final Review:** KL 9/17/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: TMDL ~~4TB~~ AC 3TB **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-S161 **End Date/Time:** 8/2/2013 0800

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.7	32.1	8.6	8.03	CL	BG ✓Collect Ammonia
1	14.9	ML ~~31.4~~ 32.0	8.0	7.96	ML	
2	15.7	32.3	7.8	7.82	AG	
3	15.3	32.3	8.0	8.02	BG	
4	15.1	32.6	8.1	8.02	AD	
5	15.4	32.1	8.0	7.99	LN	
6	15.6	32.1	7.9	7.97	BG	
7	15.4	32.1	8.0	7.94	CL	
8	15.3	32.8	7.9	7.91	ML	
9	15.2	32.5	7.8	8.01	CL	
10	15.2	32.8	8.0	8.06	ML	Collect Ammonia BK

QC Check: AC 8/26/13 **Final Review:** KL 9/17/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: B13-8397 **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-S162 **End Date/Time:** 8/2/2013 0900

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.8	32.1	8.5	7.99	CL	BG ✓Collect Ammonia
1	15.0	32.1	8.0	7.93	ML	
2	15.7	32.4	7.7	7.82	AG	
3	15.4	32.4	8.0	8.03	BG	
4	15.3	32.8	8.1	8.02	AD	
5	15.5	32.2	7.9	8.01	LN	
6	15.6	32.3	8.0	7.98	BG	
7	15.6	32.3	8.0	7.97	CL	
8	15.6	32.9	8.0	7.95	ML	
9	15.3	32.7	7.9	8.06	CL	
10	15.1	33.0	8.0	~~ML 8.~~ 7.96	ML	one surfacing ✓ Collect Ammonia DK

QC Check: AC 8/26/13 **Final Review:** KL 9/17/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: TMDL-~~3CS~~ AC 4CS **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-S163 **End Date/Time:** 8/2/2013 0800

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.4	32.1	8.4	7.97	CL	BG ✓Collect Ammonia
1	14.7	32.1	8.1	7.88	ML	
2	15.7	32.4	7.6	7.85	AG	
3	15.3	32.5	8.0	8.01	BG	1 emerged
4	15.1	32.6	8.0	7.98.	AD	8 surfacing
5	15.1	32.1	7.7	8.00	LN	3 surfacing
6	15.4	32.2	7.7	8.01	BG	4 surfacing
7	15.2	32.1	7.7	8.05	CL	
8	15.5	32.7	7.6	8.06	ML	2 surfacing
9	15.1	32.5	7.4	8.23	CL	1 emerged
10	15.2	32.6	7.9	8.20	ML	Collect Ammonia ✓ BK

QC Check: AC 8/26/13 **Final Review:** KL 9/17/13

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: B13-8396 **Start Date/Time:** 7/23/2013 1400

Test No.: 1307 - S164 **End Date/Time:** 8/2/2013 0800

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.4	32.1	8.0	8.02	CL	BG Collect Ammonia
1	14.8	32.0	8.0	7.98	ML	
2	15.7	32.4	7.7	7.96	AG	
3	15.2	32.0	8.3	8.11	BG	
4	15.1	32.5	8.2	8.06	AD	
5	15.1	32.1	8.2	8.10	LN	
6	15.4	32.2	8.2	8.06	BG	
7	15.3	32.1	8.1	8.03	CL	
8	15.5	32.7	8.0	ML ~~8.02~~ 7.97	ML	
9	15.2	32.5	7.8	8.10	CL	
10	15.2	32.4	8.0	8.08	ML	BK Collect Ammonia

QC Check: AC 8/26/13 **Final Review:** KL 9/17/13

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: B13-8384 **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-5165 **End Date/Time:** 8/2/2013 0800

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.5	32.1	8.6	8.02	CL	BG Collect Ammonia
1	14.7	32.1	8.0	7.94	ML	
2	15.8	32.4	7.6	7.89	AG	
3	15.3	32.6	8.1	8.03	BG	
4	15.1	32.6	8.2	8.03	AD	
5	15.1	32.2	7.7	8.05	LN	1 surfacing
6	15.4	32.3	8.0	8.00	BG	
7	15.3	32.1	8.0	7.98	CL	
8	15.4	32.6	8.0	7.95	ML	
9	15.3	32.5	7.8	8.07	CL	
10	15.2	32.7	8.0	8.10	ML	BK Collect Ammonia

QC Check: AC 8/26/13 **Final Review:** KL 9/17/13

Nautilus Environmental. 4340 Vandever Avenue. San Diego, CA 92120.

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: Lab Control #2 **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-S166+0S173 **End Date/Time:** 8/2/2013 0900

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.1	32.0	8.8	8.05	CL	BG ✓ Collect Ammonia
1	14.1	31.9	8.4	7.99	ML	
2	15.1	32.3	7.9	7.97	AG	
3	14.8	32.3	8.1	8.06	BG	
4	15.0	32.1	8.4	8.07	AD	+ AD
5	15.1	31.8	8.3	8.10	LN	
6	14.8	32.1	8.2	8.09	BG	
7	15.1	31.9	8.2	8.07	CL	
8	15.1	32.4	8.2	8.03	ML	
9	14.7	32.3	8.0	8.15	CL	
10	15.2	32.4	8.2	8.09	ML	Collect Ammonia ✓ BK

QC Check: AC 8/26/13 **Final Review:** KL 9/17/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: B13-8340 **Start Date/Time:** 7/23/2013 1400

Test No.: 1307 - S166 **End Date/Time:** 8/2/2013 0800

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.3	32.1	8.4	7.98	CL	1357 ✓ Collect Ammonia
1	14.3	32.1	7.7	7.88	ML	
2	15.4	32.4	6.7	7.78	AG	
3	15.1	32.6	7.0	7.82	BG	1 surfacing
4	15.1	32.5	8.2	8.00	KP	1 surfacing
5	14.9	32.1	8.0	8.02	LN	
6	14.9	32.3	7.9	8.00	BG	1 surfacing
7	15.2	32.2	7.9	7.95	CL	
8	15.1	32.7	7.9	7.92	ML	
9	14.8	32.6	7.8	8.01	CL	
10	15.1	32.9	8.1	8.01	ML	✓ BK Collect Ammonia

QC Check: AC 8/26/13 **Final Review:** KL 9/17/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: B13-8367 **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-S167 **End Date/Time:** 8/2/2013 0800

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.5	32.2	8.6	8.06	CL	BG ✓ Collect Ammonia
1	14.6	32.1	8.1	7.96	ML	
2	15.6	32.4	7.7	7.94	AG	
3	15.4	32.4	8.0	8.07	BG	
4	15.3	32.4	8.3	8.07	AD	~~4 Surfa AD~~
5	15.1	32.1	7.9	8.09	LN	
6	15.2	32.2	8.0	8.06	BG	
7	15.5	32.1	8.0	8.04	CL	
8	15.5	32.5	7.9	8.00	ML	
9	15.1	32.5	7.9	8.11	CL	
10	15.3	32.6	8.1	8.08	ML	BK ✓ Collect Ammonia

QC Check: AC 8/26/13 **Final Review:** KL 9/17/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: TMDL-2FH **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-S168 **End Date/Time:** 8/2/2013 0800

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.6	32.2	8.1	7.90	CL	BG Collect Ammonia
1	14.6	32.0	7.6	7.83	ML	
2	15.7	32.4	7.4	7.82	AG	
3	15.2	32.4	7.7	7.95	BG	1 surfacing
4	15.1	32.4	7.7	7.97	AD	4 surfacing
5	15.2	32.1	7.4	8.01	LN	
6	15.3	32.3	7.4	8.01	BG	2 surfacing
7	15.6	32.1	7.4	8.02	CL	
8	15.3	32.6	7.8	8.03	ML	
9	14.9	32.8	7.7	8.16	CL	2 surfacing
10	15.2	32.7	7.7	8.15	ML	1 surfacing BK Collect Ammonia

QC Check: AC 8/26/13 **Final Review:** KL 9/17/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: B13-8316 **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-S169 **End Date/Time:** 8/2/2013 0800

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.8	31.6	8.3	8.00	CL	BG/Collect Ammonia
1	14.7	31.6	7.9	7.91	ML	
2	15.7	32.0	7.5	7.86	AG	
3	15.3	32.0	7.9	8.01	BG	1 emerged
4	15.2	31.9	8.0	7.98	~~AD~~	
5	15.4	31.8	7.7	8.01	LN	
6	15.5	31.8	7.9	7.98	BG	
7	15.7	31.7	7.8	7.96	CL	
8	15.3	32.2	7.9	7.93	ML	
9	15.0	32.4	7.8	8.04	CL	1 surfacing
10	15.2	32.2	7.7	8.01	ML	1 surfacing, 1 molt onset, Collect Ammonia ~~AK~~ surface

QC Check: AC 8/26/13 **Final Review:** KL 9/17/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: B13-8302 **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-S170 **End Date/Time:** 8/2/2013 0800

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.9	31.6	8.0	7.96	CL	BG/Collect Ammonia
1	14.8	31.6	7.8	7.89	ML	
2	15.7	31.9	7.4	7.91	AG	
3	15.5	32.0	7.8	7.97	BG	
4	15.5	31.9	7.9	7.96	ND	2 surfacing
5	15.6	31.8	7.6	8.00	LN	
6	15.7	31.8	7.6	7.97	BG	1 surfacing
7	15.8	31.8	7.6	7.95	CL	1 emerged
8	15.5	32.0	7.7	7.97	ML	
9	15.3	32.2	7.6	8.11	CL	
10	15.4	32.0	7.9	8.13	ML	Collect Ammonia ✓ BK

QC Check: AC 8/26/13 **Final Review:** KL 9/17/13

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10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: B13-~~8309~~ AC 8365 **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-S171 **End Date/Time:** 8/2/2013 0900

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.6	31.5	8.4	7.99	CL	BG ✓ Collect Ammonia
1	14.6	31.3	8.1	7.90	ML	
2	15.7	31.7	7.5	7.90	AG	
3	15.2	31.8	7.9	7.98	BG	2 emerged
4	15.1	31.7	8.1	7.98	AD	
5	15.4	31.4	7.8	7.96	LN	
6	15.4	31.5	7.8	7.95	BG	
7	15.1	31.6	7.8	7.93	CL	1 surfacing
8	15.5	31.8	7.8	7.90	ML	1 surfacing
9	15.2	32.1	7.6	8.02	CL	
10	15.2	31.9	7.9	7.98	ML	Collect Ammonia ✓ BK

QC Check: AC 8/26/13 **Final Review:** KL 9/17/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: B13-8306 **Start Date/Time:** 7/23/2013 1400

Test No.: 1307 - 5172 **End Date/Time:** 8/2/2013 0800

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.5	31.6	8.1	7.98	CL	BG √ Collect Ammonia
1	14.5	31.5	7.9	7.87	ML	
2	15.7	31.9	7.3	7.86	AG	
3	15.2	31.8	7.7	7.93	BG	1 surfacing
4	14.9	31.8	7.9	7.92	AD	
5	15.1	31.7	7.8	7.94	LN	
6	15.3	31.7	7.9	7.95	BG	
7	15.1	31.7	8.1	7.97	CL	
8	15.3	32.0	8.1	7.97	ML	
9	15.3	32.2	8.2	8.15	CL	
10	15.2	32.0	8.3	8.18	ML	Collect Ammonia √ DK

QC Check: AC 8/26/13 **Final Review:** KL 9/17/13

10-Day Marine Sediment Bioassay
Static Conditions

Water Quality Measurements

Client/Project ID: AMEC POLA/POLB Bight '13 **Test Species:** *Eohaustorius estuarius*

Sample ID: TMDL-~~ICM~~ ICH **Start Date/Time:** 7/23/2013 1400

Test No.: 1307-5173 **End Date/Time:** 8/2/2013 0800

Test Day	Temperature (°C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH (units)	Technician Initials	Comments
0	14.5	31.8	8.3	7.94	CL	BG ✓ Collect Ammonia
1	14.5	31.8	7.8	7.84	ML	
2	15.8	32.1	7.5	7.85	AG	
3	15.0	31.9	7.8	7.94	BG	1 surfacing
4	14.9	32.0	8.0	~~7.8~~ 7.95	AD	
5	14.9	31.8	7.7	7.94	LN	
6	15.2	31.8	7.6	7.92	BG	2 surfacing
7	15.0	31.8	7.8	7.90	CL	
8	15.2	32.1	7.7	7.88	ML	
9	15.1	32.3	7.6	7.99	CL	
10	15.0	32.1	8.0	7.99	ML	Collect Ammonia ✓ DK

QC Check: AL 8/26/13 **Final Review:** KL 9/17/13

Appendix C

Statistical Analyses and Raw Data Packages for Sediment-Water Interface Testing *(Mytilus)*

Appendix Table C-1. *Mytilus galloprovincialis* 48-Hour Larval Survival & Development Results

AMEC POLA/POLB Bight '13

Batch #1 Test Initiation: July 16, 2013

Site ID	Rep	Rand #	# Counted	# Normal	Percent Normal Alive	Mean Percent Normal Alive	SD	Site ID	Rep	Rand #	# Counted	# Normal	Percent Normal Alive	Mean Percent Normal Alive	SD
Lab Control #1	A	66	239	201	80.1	70.6	6.7	**B13-8363**	A	60	206	187	74.5	72.8	5.0
	B	71	198	176	70.1				B	55	209	185	73.7		
	C	46	226	183	72.9				C	75	230	200	79.7		
	D	38	219	171	68.1				D	72	184	175	69.7		
	E	51	188	155	61.8				E	47	182	167	66.5		
B13-8374	A	49	183	137	54.6	**60.6***	5.5	**B13-8360**	A	39	156	137	54.6	67.8	10
	B	65	177	145	57.8				B	53	209	185	73.7		
	C	63	195	171	68.1				C	62	249	203	80.9		
	D	42	188	162	64.5				D	69	192	157	62.5		
	E	58	161	146	58.2				E	59	178	169	67.3		
B13-8371	A	50	188	151	60.2	**58.1***	13	**B13-8356**	A	57	189	169	67.3	66.9	9.3
	B	36	182	167	66.5				B	40	227	194	77.3		
	C	41	200	174	69.3				C	43	146	130	51.8		
	D[a]	64	93	93	37.1				D	61	200	171	68.1		
	E	70	158	144	57.4				E	45	196	175	69.7		
B13-8382	A	73	188	166	66.1	**62.9***	10	**B13-8347**	A	37	150	115	45.8	**58.1***	10
	B	68	193	152	60.6				B	52	157	124	49.4		
	C	56	211	188	74.9				C	54	178	163	64.9		
	D	74	182	167	66.5				D	67	178	150	59.8		
	E	48	139	117	46.6				E	44	210	177	70.5		

Initial mean density per vial = 251 embryos

***A bold asterisk** indicates a significant statistical reduction compared to the Lab Control (unequal variance t-test $p<0.05$, untransformed data per SCCWRP Bight instructions).

[a] Replicate was calculated as a statistical outlier using Dixon's test, but not excluded from analysis.

Appendix Table C-1 (continued). *Mytilus galloprovincialis* 48-Hour Larval Survival & Development Results

AMEC POLA/POLB Bight '13

Batch #1 Test Initiation: July 16, 2013

Site ID	Rep	Rand #	# Counted	# Normal	Percent Normal Alive	Mean Percent Normal Alive	SD
Lab Control #2	A	106	184	145	57.8	70.7	8.0
	B	98	207	184	73.3		
	C	96	199	173	68.9		
	D	94	225	196	78.1		
	E	103	209	189	75.3		
B13-8333	A	76	204	174	69.3	69.1	8.7
	B	101	210	187	74.5		
	C	117	205	189	75.3		
	D	81	172	136	54.2		
	E	97	215	181	72.1		
B13-8322	A	102	206	182	72.5	65.0	11
	B	109	200	186	74.1		
	C	84	183	148	59.0		
	D	95	202	180	71.7		
	E	93	129	120	47.8		
B13-8349	A	78	185	154	61.4	**62.7***	2.1
	B	110	170	156	62.2		
	C	105	185	165	65.7		
	D	104	178	152	60.6		
	E	113	193	160	63.7		
B13-8326	A	82	218	178	70.9	67.0	7.5
	B	99	152	141	56.2		
	C	114	234	188	74.9		
	D	85	186	157	62.5		
	E	120	191	177	70.5		

Site ID	Rep	Rand #	# Counted	# Normal	Percent Normal Alive	Mean Percent Normal Alive	SD
B13-8318	A	86	235	205	81.7	70.5	8.3
	B	100	184	158	62.9		
	C	111	230	193	76.9		
	D	83	205	164	65.3		
	E	115	178	165	65.7		
B13-8310	A	91	215	195	77.7	63.6	10
	B	79	181	172	68.5		
	C	80	146	124	49.4		
	D	112	182	155	61.8		
	E	77	200	152	60.6		
B13-8304	A	119	201	181	72.1	60.2	19
	B	90	79	70	27.9		
	C	107	169	145	57.8		
	D	108	190	165	65.7		
	E	92	207	194	77.3		
B13-8308	A	116	170	146	58.2	**59.5***	6.2
	B	87	187	164	65.3		
	C	118	153	138	55.0		
	D	89	160	132	52.6		
	E	88	195	167	66.5		

Initial mean density per vial = 251 embryos

***A bold asterisk** indicates a significant statistical reduction compared to the Lab Control (unequal variance t-test $p<0.05$, untransformed data per SCCWRP Bight instructions).

Appendix Table C-2. *Mytilus galloprovincialis* 48-Hour Larval Survival & Development Results

AMEC POLA/POLB Bight '13

Batch #2 Test Initiation: July 20, 2013

Site ID	Rep	Rand #	# Counted	# Normal	Percent Normal Alive	Mean Percent Normal Alive	SD	Site ID	Rep	Rand #	# Counted	# Normal	Percent Normal Alive	Mean Percent Normal Alive	SD
Lab Control #1	A	149	271	258	82.4	75.0	5.4	**B13-8397**	A	125	269	257	82.1	82.8	11
	B	132	247	231	73.8				B	136	232	220	70.3		
	C	133	256	244	78.0				C	146	302	296	94.6		
	D	158	232	213	68.1				D	147	243	228	72.8		
	E	121	242	228	72.8				E	139	311	295	94.2		
B13-8401	A[b]	145	88	80	25.6	60.3	20	**TMDL-4CS**	A	154	355	338	108.0	90.2	12
	B	131	254	236	75.4				B	138[a]	543	512	81.8		
	C	129	213	187	59.7				C	148	269	256	81.8		
	D	151	236	227	72.5				D	141	273	257	82.1		
	E	157	231	214	68.4				E	155	325	305	97.4		
B13-8399	A	124	259	241	77.0	79.1	13	**B13-8396**	A	140	176	168	53.7	75.2	15
	B	160	295	277	88.5				B	135	271	267	85.3		
	C	127	238	228	72.8				C	143	299	288	92.0		
	D	150	209	195	62.3				D	142	227	214	68.4		
	E	130	309	297	94.9				E	122	275	240	76.7		
TMDL-3TB	A	123	258	247	78.9	70.3	16	**B13-8384**	A	156	241	237	75.7	84.7	11
	B	126	242	225	71.9				B	128	237	220	70.3		
	C	134	203	190	60.7				C	152	305	294	93.9		
	D	137	295	282	90.1				D	153	309	289	92.3		
	E[a]	159	172	156	49.8				E	144	299	285	91.1		

Initial mean density per vial = 313 embryos

***A bold asterisk** indicates a significant statistical reduction compared to the Lab Control (unequal variance t-test $p<0.05$, untransformed data per SCCWRP Bight instructions).

[a] Replicate initiated twice; initial density doubled in the calculation to account for added embryos.

[b] Replicate was calculated as a statistical outlier using Dixon's test, but not excluded from analysis.

Appendix Table C-2 (continued). *Mytilus galloprovincialis* 48-Hour Larval Survival & Development Results
AMEC POLA/POLB Bight '13
Batch #2 Test Initiation: July 20, 2013

Site ID	Rep	Rand #	# Counted	# Normal	Percent Normal Alive	Mean Percent Normal Alive	SD
Lab Control #2	A	191	273	259	83.5	74.8	22
	B	162	198	184	59.4		
	C	168	306	292	94.2		
	D	192	298	285	91.9		
	E	167	148	139	44.8		
B13-8340	A	205	252	238	76.8	72.5	8.6
	B	203	240	230	74.2		
	C	190	250	234	75.5		
	D[b]	179	187	178	57.4		
	E	180	257	243	78.4		
B13-8367	A	204	258	254	81.9	84.0	12
	B	173	218	210	67.7		
	C	183	329	318	102.6		
	D	178	269	257	82.9		
	E	185	279	263	84.8		
TMDL-2FH	A	196	266	259	83.5	88.5	7.8
	B	169	264	253	81.6		
	C	199	297	292	94.2		
	D	175	318	308	99.4		
	E	193	273	260	83.9		
B13-8316	A	166	211	202	65.2	76.5	17
	B	194	289	280	90.3		
	C	163	194	181	58.4		
	D	181	301	286	92.3		
	E[a]	172	--	--	--		
B13-8302	A	201	222	213	68.7	82.8	13
	B	197	329	310	100.0		
	C	170	264	249	80.3		
	D	174	246	230	74.2		
	E	186	288	282	91.0		
B13-8365	A	177	307	296	95.5	95.4	7.2
	B	176	279	268	86.5		
	C	184	318	295	95.2		
	D	195	303	289	93.2		
	E	187	346	330	106.5		
B13-8306	A	165	262	249	80.3	68.1	19
	B[b]	202	115	110	35.5		
	C	198	270	253	81.6		
	D	164	229	214	69.0		
	E	189	241	230	74.2		
TMDL-1CH	A	161	194	175	56.5	67.4	12
	B	171	178	162	52.3		
	C	182	257	241	77.7		
	D	188	253	236	76.1		
	E	200	251	231	74.5		

Initial mean density per vial =310 embryos

***A bold asterisk** indicates a significant statistical reduction compared to the Lab Control (unequal variance t-test $p<0.05$, untransformed data per SCCWRP Bight instructions).

[a] Replicate not initiated; excluded from analysis

[b] Replicate was calculated as a statistical outlier using Dixon's test, but not excluded from analysis.

Appendix Table B-3. Statistical Analysis Results of *Eohaustorius estuarius* 10-day Survival
AMEC POLA/POLB Bight '13

Batch #1 Site ID	Statistically Significant (Y/N)	p-value		Batch #2 Site ID	Statistically Significant (Y/N)	p-value
B13-8374	**Y**	**0.0185**		B13-8401	N	0.0963
B13-8371	**Y**	**0.0495**		B13-8399	N	0.2714
B13-8382	N	0.1086		TMDL-3TB	N	0.2786
B13-8363	N	0.2858		B13-8397	N	0.1143
B13-8360	N	0.3121		TMDL-4CS	N	>0.05[a]
B13-8356	N	0.2434		B13-8396	N	0.4893
B13-8347	**Y**	**0.0319**		B13-8384	N	0.0680
B13-8333	N	0.3847		B13-8340	N	0.4171
B13-8322	N	0.1957		B13-8367	N	0.2205
B13-8349	**Y**	**0.0478**		TMDL-2FH	N	0.1198
B13-8326	N	0.2383		B13-8316	N	0.4474
B13-8318	N	0.4865		B13-8302	N	0.2495
B13-8310	N	0.1335		B13-8365	N	0.0569
B13-8304	N	0.1569		B13-8306	N	0.3109
B13-8308	**Y**	**0.0211**		TMDL-1CH	N	0.2664

Sites in **bold** are significant reduced in percent normal-alive relative to the corresponding lab control ($p<0.05$).

[a] Sample TMDL-4CS was significantly greater than the control ($p = 0.0247$), not significantly reduced from control.

Embryo Larval Bioassay

48-hour Development

Client: AMEC

Test Species: *M. galloprovincialis*

Project ID: POLA/POLB Bight '13

Start Date/Time: 7/16/2013 1630

End Date/Time: 7/18/2013 1430

Random #	Number Counted	Number Normal	Technician Initials
36	182	~~176~~ 167	~~AC~~
37	150	115	BK
38	219	171	~~AC~~
39	156	137	BK
40	227	194	~~AC~~
41	200	174	BK
42	188	162	~~AC~~
43	146	130	BK
44	~~177~~ BK 210	~~210~~ BK 177	~~AC~~
45	196	175	BK
46	226	183	KS
47	182	167	~~BK~~
48	139	117	AB
49	183	137	AB
50	188	151	AB
51	188	155	~~AC~~
52	157	124	AB
53	209,	185	~~KS~~
54	178	163	~~AC~~
55	209	185	~~AC~~
56	211	188	~~AC~~
57	189	169	~~AC~~
58	161	146	~~AC~~
59	~~162~~ * 178	~~150~~ * 169	~~AC~~
60	206	187	~~AC~~
61	200	171	KS
62	249	203	KS
63	195	171	KS
64	~~178~~ 93	~~150~~ 93 *	~~AC~~ ~~AC~~
65	177	145	KS
66	~~201~~ 239	201	~~AC~~
67	~~158~~ 178	~~144~~ 150	~~AC~~
68	193	152	~~AC~~
69	192	157	~~AC~~
70	158	144	~~AC~~

10% QC (AC)

169/217 ✓

185/232 ✓

160/198 ✓
~~154/188~~ AC

136/174 ~

* low density. Sample split due to heavy debris. ~~Excluded~~ Not calculated as an outlier

QC Check: ~~AC~~ 8/21/13

Final Review: AC 8/29/13

Embryo Larval Bioassay

48-hour Development

Client: AMEC

Test Species: *M. galloprovincialis*

Project ID: POLA/POLB Bight '13

Start Date/Time: 7/16/2013 1630

End Date/Time: 7/18/2013 1430

Random #	Number Counted	Number Normal	Technician Initials	10% QC Check (AC)
71	198	176	KS	
72	184	175	"	
73	188	166	"	
74	182	167	"	
75	230	200	"	
76	204	174	AB	185/206 ✓
77	200	152	AB	
78	185	154	AB	
79	181	172	"	
80	146	124	AB	
81	172	136	AB	
82	218	178	AB	
83	205	164	AB	
84	183	148	AB	
85	186	157	"	
86	235	205	~~AB~~ AB AB	
87	187	164	AB	
88	195	167	"	
89	160	~~AB 129~~ 132	AB	
90*	79	70	~~"~~	
91	215	195	"	
92	207	194	"	
93	129	120	"	112/121 ✓
94	225	196	KS	
95	202	180	"	
96	199	173	KS	
97	215	181	"	
98	207	184	"	
99	152	141	"	151/176 ✓
100	184	158	"	
101	~~187~~ 210	~~[illegible]~~ 187	"	
102	206	182	"	
103	209	189	KS	
104	178	152	"	
105	185	165	"	

* not calculated as an outlier.

QC Check: " 8/21/13

Final Review: AC 8/29/13

Embryo Larval Bioassay

48-hour Development

Client: AMEC

Test Species: *M. galloprovincialis*

Project ID: POLA/POLB Bight '13

Start Date/Time: 7/16/2013 1630

End Date/Time: 7/18/2013 1470

Random #	Number Counted	Number Normal	Technician Initials
106	184	145	S
107	169	145	S
108	190	165	S
109	200	186	S
110	170	156	S
111	230	193	S
112	182	155	S
113	193	160	S
114	234	188	S
115	178	165	S
116	170	146	S
117	205	189	S
118	153	138	S
119	201	181	S
120	191	177	S

10% QC Check CAC

189/224 ✓

160/192 ✓

QC Check: KS 8/21/13

Final Review: AC 8/29/13

AMEC POLA/POLB Bight'13
48-Hour Bivalve Larval Survival & Development Bioassay
Random Number Assignment
Test Batch #1
Test Initiation Date: 7/16/13

Site	Rep	Rand #
Lab Control #1	A	66 201/239
	B	71 176/198
	C	46 183/226
	D	38 171/219
	E	51 155/169
B13-8374	A	49
	B	65
	C	63
	D	42 162/188
	E	58
B13-8371	A	50
	B	36 167/182
	C	41
	D	64
	E	70
B13-8382	A	73
	B	68 152/193
	C	56
	D	74
	E	48
B13-8363	A	60
	B	55 185/209
	C	75
	D	72
	E	47
B13-8360	A	39
	B	53
	C	62
	D	69 157/192
	E	59
B13-8356	A	57
	B	40 194/227
	C	43
	D	61
	E	45
B13-8347	A	37
	B	52
	C	54
	D	67
	E	44 177/210

36-75

QC: [redacted]

Final renew: AC 8/26/13

Site	Rep	Rand #
Lab Control #2	A	106
	B	98
	C	96
	D	94
	E	103
B13-8333	A	76
	B	101
	C	117 189/205
	D	81
	E	97
B13-8322	A	102
	B	109
	C	84
	D	95 180/202
	E	93
B13-8349	A	78
	B	110
	C	105 165/185
	D	104
	E	113
B13-8326	A	82
	B	99
	C	114
	D	85 157/186
	E	120
B13-8318	A	86
	B	100
	C	111 193/230
	D	83
	E	115
B13-8310	A	91
	B	79 172/181
	C	80
	D	112
	E	77
B13-8304	A	119
	B	90
	C	107
	D	108 165/190
	E	92
B13-8308	A	116
	B	87
	C	118
	D	89
	E	88 167/195

76-120

Marine Chronic Bioassay

Sediment Water Interface (SWI)

Client: AMEC

Project ID: POLA/POLB Bight '13

Test No.: 1307-3085 to 3091

Water Quality Measurements

Test Species: *M. galloprovincialis*

Start Date/Time: 7/16/2013 1630

End Date/Time: 7/18/2013 1430

Sample ID	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Lab Control #1	31.4	31.2	31.1	14.6	14.6	14.6	8.5	8.3	8.2	8.04	7.99	8.06
B13-8374	31.6	31.5	31.7	14.6	14.8	14.8	7.9	7.8	7.6	7.92	7.89	7.99
B13-8371	31.5	31.4	31.6	14.7	15.0	15.0	7.9	7.9	7.9	7.95	7.96	8.03
B13-8382	31.6	31.6	31.8	14.7	14.9	15.0	8.1	7.7	7.4	7.99	7.91	8.00
B13-8363	31.6	31.6	31.7	14.8	14.9	15.0	8.1	7.3	7.1	7.99	7.91	7.91
B13-8360	31.8	31.8	31.7	14.8	14.9	15.1	8.0	7.9	7.9	7.99	7.98	8.03
B13-8356	31.7	31.6	31.6	14.9	14.7	14.8	7.1	7.8	7.8	7.98	7.95	7.99
B13-8347	31.8	31.5	31.7	14.7	14.6	14.8	7.1	7.7	7.7	7.92	7.90	7.94

	0	24	48
Technician Initials: WQ Readings:	AG	AG	LN
Collect NH_3 Subsample (overlying water):	BK		BK

Comments:

0 hrs:

24 hrs:

48 hrs:

QC Check: 8/21/13

Final Review: AC 8/26/13

Marine Chronic Bioassay

Sediment Water Interface (SWI)

Client: AMEC

Project ID: POLA/POLB Bight '13

Test No.: 1307-5092 to 5099

Water Quality Measurements

Test Species: *M. galloprovincialis*

Start Date/Time: 7/16/2013 1630

End Date/Time: 7/18/2013 1430

Sample ID	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Lab Control #2	31.4	31.1	31.3	14.7	14.5	14.7	7.3	7.7	8.2	8.03	8.03	8.06
B13-8333	31.9	31.7	31.9	14.3	14.8	14.7	7.5	7.8	8.0	7.98	7.98	8.01
B13-8322	31.6	31.7	31.8	14.4	15.0	14.9	8.2	7.7	7.7	7.97	7.93	7.95
B13-8349	31.5	31.6	31.9	14.4	15.0	15.0	8.2	7.7	7.8	8.00	7.98	8.00
B13-8326	31.5	31.6	31.6	14.4	14.5	14.5	8.2	7.3	7.1	7.90	7.91	7.95
B13-8318	31.5	31.6	31.9	14.5	14.5	14.4	8.0	7.9	7.7	7.90	7.96	7.96
B13-8310	31.5	31.6	31.9	14.5	14.5	14.5	8.1	7.7	7.8	7.93	7.91	7.94
B13-8304	31.6	31.7	31.9	14.5	14.5	14.5	8.0	7.4	7.8	7.83	7.95	7.98
B13-8308	31.6	31.6	31.7	14.5	14.5	14.6	8.0	7.7	7.8	7.94	7.94	7.96

Technician Initials:	0	24	48
WQ Readings:	AO	AG	LN
Collect NH_3 Subsample (overlying water):	BK		BK

Comments:

0 hrs:

24 hrs:

48 hrs:

QC Check: 8/21/13

Final Review: AC 8/24/13

Marine Chronic Bioassay | **Larval Development Worksheet**

Client/Project ID: AMEC POLA/POLB Bight '13
Test No.: 1307-5085 to 5099
Test Species: M. galloprovincialis
Animal Source: Taylor Shellfish farms
Date Received: 7/16/13
Test Chambers: ~~Shell vials~~ 1L glass
Sample Volume: ~~10mLS~~ 4Cm sediment, 300mLS seawater
KL

Start Date/Time: 7/16/13 1630
End Date/Time: 7/18/13 1430
Technician Initials: PA

Spawn Information

First Gamete Release Time: 1215

Sex	Number Spawning
Male	6
Female	3

Gamete Selection

Sex	Beaker Number(s)	Condition (sperm motility, egg density, color, shape, etc.)
Male	1, 3, 4	Good density, excellent motility
Female 1	1	Fair density, uniform shape, some color variation, no fert
Female 2	2	Good density, uniform size, shape, color, no fert
Female 3	3	High density, uniform size, shape, color, no fert

Egg Fertilization Time: 1330

Embryo Stock Selection

Stock Number	% of embryos at 2-cell division stage
Female 1	87
Female 2	99
Female 3	97

Stock(s) chosen for testing: 2

Embryo Inoculum Preparation

Target count on Sedgwick-Rafter slide for desired density is 7-8 embryos

Number Counted:			
	5	4	
	9	5	
	7	5	
	7	6	
	4	6	

Mean: 5.8

Mean 5.8 X 50 = 290 embryos/ml

Initial Density: 290 = 0.96 (dilution factor)
Desired Final Density: 300
(to inoculate with 0.5 ml)

Prepare the embryo inoculum according to the calculated dilution factor. For example, if the dilution factor is 2.25, use 100 ml of existing stock (1 part) and 125 ml of dilution water (1.25 parts).

Time Zero Control Counts

Rand. No.	No. Dividing	Total	% Dividing	Mean % Dividing
2 a	249	250	99.6	99.7
2 b	263	264	99.6	
2 c	248	249	99.6	
2 d	246	246	100	
2 e	248	249	99.6	

48-h QC: 96/105 91.9%

Comments: $\bar{x}$ = 251

QC Check: 8/21/13

Final Review: AC 8/22/13

Embryo Larval Bioassay

48-hour Development

Client: AMEC

Test Species: *M. galloprovincialis*

Project ID: POLA/POLB Bight '13 (Batch #2)

Start Date/Time: 7/20/2013 1600

End Date/Time: 7/22/2013 1430

Random #	Number Counted	Number Normal	Technician Initials
121	AC ~~242~~ 242	228	AC (33 unfert eggs)
122	275 ~~229~~ AB	AB ~~193~~ 240	AB
123	258 ~~329~~ AB	AB ~~252~~ 247	AB
124	259 ~~276~~ AB	AB ~~219~~ 241	AB
125	~~273 247~~ AB 269	AB ~~247~~ 257	AB
126	242	225	AB
127	238	228	✓
128	237	220	AB
129	213	187	✓
130	AB ~~209~~ 309	297	AB
131	254	236	AB
132	247	231	AC
133	256	244	✓
134	203	190	✓
135	~~AB 79~~ 271	267	AB
136	232	220	AB
137	295	282	AB
138 ✱	543	512	AB
139	311	295	AB
140	176	168	AB
141	273	257	AB
142	227	214	AB
143	299	288	✓
144	299	285	AB
145	88 ~~88~~ AB ~~259~~ AB	80 ~~80~~ AB ~~253~~ AB	AB
146	302	296	✓
147	243	228	AB
148	269	256	✓
149	271	258	AC
150	209	195	AB
151	236	227	AB
152	305	294	✓
153	309	289	AB
154	355	338	AB
155	325	305	AB

ID/QC check (AC)

229/245 ✓

207/216 ✓

77/79 ✓

297/310 ✓

QC Check: ✓ 8/29/13

Final Review: KL 9/17/13

✱ Replicate doubles inoculated at test initiation ✓

Embryo Larval Bioassay

48-hour Development

Client: AMEC

Project ID: POLA/POLB Bight '13 (Batch #2)

Test Species: *M. galloprovincialis*

Start Date/Time: 7/20/2013 1600

End Date/Time: 7/22/2013 1430

Random #	Number Counted	Number Normal	Technician Initials	10% QC check (CAC)
156	241	237	SD	
157	231	214	SD	
158	232	213	SD	
159	~~SD~~ ~~HR~~ 172	156	SD	154/165 ✓
160	~~SD~~ ~~296~~ 295	277	SD	
161	~~SD~~ ~~194~~ 194	~~181~~ 175	SD heavy debris	173/181 ✓
162	198	184	~~AC~~	
163	194	181	SD	
164	229	214	SD	
165	262	249	SD	
166	~~SD~~ ~~TTT~~ 211	~~208~~	SD	
167	148	139	AC	
168	306	292	AC	
169	264	253	SD	
170	264	249	SD	
171	178	162	SD	165/171 ✓
172	~~SD~~ 2 (A)	(A)	-	
173	218	210	SD	
174	246	230	SD	
175	318	308	SD	
176	279	268	SD	
177	~~SD~~ 307	294	AC	
178	269	257	SD	
179	187	178	SD	168/172 ✓
180	257	243	SD	
181	~~AB 301~~ 301	286	AB	
182	257	241	~~SD~~	
183	329	318	~~SD~~	
184	318	295	AB	
185	279	263	AB	
186	288	282	AB	
187	346	330	AB	
188	253	236	AB	
189	241	230	AB	
190	250	234	AB	

QC Check: 8/29/13

Final Review: KL 9/17/13

(A) Replicate not inoculated

Embryo Larval Bioassay

48-hour Development

Client: AMEC

Test Species: *M. galloprovincialis*

Project ID: POLA/POLB Bight '13 (Batch #2)

Start Date/Time: 7/20/2013 1600

End Date/Time: 7/22/2013 1430

Random #	Number Counted	Number Normal	Technician Initials	10% QC Check (PA)
191	273	259	[illegible]	
192	298	285	[illegible]	
193	273	260	AB	
194	289	280	AB	
195	303	289	AB	
196	AB ~~259~~ 266	259	AB	
197	329	310	AB	316/304 [illegible]
198	270	253	AB	
199	297	292	[illegible]	
200	251	231	AB	
201	[illegible] ~~222~~ 222	213	[illegible]	
202	115	110	[illegible]	
203	240	230	[illegible]	
204	258	254	[illegible]	
205	[illegible] ~~238~~ 252	[illegible] ~~252~~ 238	[illegible]	
B13-8325 A	249	~~249~~ AB 234	AB	
B	275	264	AB	
C	278	259	AB	
D	204	186	AB	210/193 [illegible]
E	268	258	AB	
B13-9197 A	283	269	AB	
B	265	250	AB	
C	302	292	AB	
D	~~AB~~ 256	245	AB	
E	258	250	AB	

QC Check: [illegible] 7/29/13

Final Review: [illegible] 8/7/13

AMEC POLA/POLB Bight'13
48-Hour Bivalve Larval Survival & Development Bioassay
Random Number Assignment
Test Batch #2
Test Initiation Date: 7/20/13

Site	Rep	Rand #
Lab Control #1	A	149
	B	132
	C	133
	D	158
	E	121
B13-8401	A	145
	B	131
	C	129
	D	151
	E	157
B13-8399	A	124
	B	160
	C	127
	D	150
	E	130
TMDL-~~4TB~~ 3TB (AC)	A	123
	B	126
	C	134
	D	137
	E	159
B13-8397	A	125
	B	136
	C	146
	D	147
	E	139
TMDL-~~3CS~~ 4CS (AC) (H)	A	154
	B	138
	C	148
	D	141
	E	155
B13-8396	A	140
	B	135
	C	143
	D	142
	E	122
B13-8384	A	156
	B	128
	C	152
	D	153
	E	144

121-160

Site	Rep	Rand #
Lab Control #2	A	191
	B	162
	C	168
	D	192
	E	167
B13-8340	A	205
	B	203
	C	190
	D	179
	E	180
B13-8367	A	204
	B	173
	C	183
	D	178
	E	185
TMDL-2FH (H)	A	196
	B	169
	C	199
	D	175
	E	193
B13-8316	A	166
	B	194
	C	163
	D	181
	E	172
B13-8302	A	201
	B	197
	C	170
	D	174
	E	186
B13-~~8309~~ 8365 (AC)	A	177
	B	176
	C	184
	D	195
	E	187
B13-8306	A	165
	B	202
	C	198
	D	164
	E	189
TMDL-~~1CM~~ 1CH (+C)	A	161
	B	171
	C	182
	D	188
	E	200

161-205

QC: 89

Marine Chronic Bioassay
Sediment Water Interface (SWI)

Water Quality Measurements

Client: AMEC

Project ID: POLA/POLB Bight '13 (Batch #2)

Test No.: 1307-5174 to 5180

Test Species: *M. galloprovincialis*

Start Date/Time: 7/20/2013 1600

End Date/Time: 7/22/2013 1430

Sample ID	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Lab Control #1	31.3	31.4	31.2	14.8	14.8	14.2	8.1	8.3	8.3	7.96	7.99	8.00
B13-8401	31.8	31.6	31.8	14.9	14.8	14.3	7.2	7.2	7.7	7.86	7.93	7.92
B13-8399	31.8	32.0	31.8	15.0	14.8	14.5	7.8	8.0	7.9	7.93	8.00	7.96
TMDL ~~4TB~~ 3TB (AC)	31.5	32.1	31.4	15.9	14.9	14.5	7.0	7.8	7.8	7.93	7.96	7.90
B13-8397	31.7	32.0	32.0	15.1	15.1	14.7	6.5	7.2	7.5	7.84	7.82	7.83
TMDL ~~3CS~~ 4CS (AC)	32.0	32.0	31.8	15.2	15.2	14.5	7.4	7.4	7.3	7.82	7.85	7.85
B13-8396	31.7	32.0	31.7	14.7	14.8	14.2	7.8	7.8	7.8	7.92	7.98	7.94
B13-8384	31.5	32.1	31.8	14.8	14.8	14.3	7.3	7.8	7.7	7.89	7.94	7.90

Technician Initials:	0	24	48
WQ Readings:	LN	LN	LN
Collect NH_3 Subsample (overlying water):	~~AC~~		AC

Comments:

0 hrs:

24 hrs:

48 hrs:

QC Check: 8/29/13

Final Review: KL 9/17/13

Marine Chronic Bioassay

Sediment Water Interface (SWI)

Client: AMEC

Project ID: POLA/POLB Bight '13 (Batch #2)

Test No.: 1307-5181 to 5184

Water Quality Measurements

Test Species: *M. galloprovincialis*

Start Date/Time: 7/20/2013 1600

End Date/Time: 7/22/2013 1430

Sample ID	Salinity (ppt)			Temperature (°C)			Dissolved Oxygen (mg/L)			pH (pH units)		
	0	24	48	0	24	48	0	24	48	0	24	48
Lab Control #2	31.4	31.3	31.2	14.6	14.7	14.5	8.0	8.3	8.2	8.01	8.05	7.97
B13-8340	31.6	32.2	31.8	14.8	14.7	14.3	7.7	8.0	7.9	7.92	8.00	7.90
B13-8367	31.8	32.0	31.7	14.9	14.9	14.5	7.7	7.7	7.8	7.94	7.98	7.93
TMDL-2FH	31.7	32.0	31.8	15.1	14.9	14.3	7.6	7.8	7.8	7.83	8.00	7.97
B13-8316	31.6	32.1	31.9	15.1	15.1	14.4	7.0	7.2	7.4	7.93	7.84	7.88
B13-8302	31.7	32.0	32.0	15.2	15.1	14.6	7.3	7.6	7.4	7.86	7.93	7.89
B13-~~8309~~ 8305 (AC)	31.9	31.7	31.9	15.1	14.9	14.4	7.6	7.6	7.7	7.89	7.85	7.95
B13-8306	31.6	32.2	31.5	14.9	14.8	14.4	7.7	7.8	7.9	7.93	7.98	7.94
TMDL-~~1CM~~ 1CH (AC)	31.6	31.9	31.8	14.8	14.8	14.3	7.6	7.2	7.7	7.92	7.98	7.86

Technician Initials:	0	24	48
WQ Readings:	LN	LN	LN
Collect NH_3 Subsample (overlying water):	AC		AC

Comments:

0 hrs:

24 hrs:

48 hrs:

QC Check: 8/20/13

Final Review: KL 9/17/13

Marine Chronic Bioassay | **Larval Development Worksheet**

Client/Project ID: AMEC POLA/POLB Bight '13
Test No.: 1307-5174 to 5180
Test Species: M. galloprovincialis
Animal Source: Taylor Shellfish
Date Received: 7/18/13
Test Chambers: screen tubes
Sample Volume: 4-5 cm sediment

Start Date/Time: 7/20/13 1600
End Date/Time: 7/22/13 1430
Technician Initials: [illegible]

Spawn Information

First Gamete Release Time: 1230

Sex	Number Spawning
Male	4
Female	2

Gamete Selection

Sex	Beaker Number(s)	Condition (sperm motility, egg density, color, shape, etc.)
Male	1, 2, 3, 4	Fair density, good motility
Female 1	1	Uniform size, shape, color, high density, ive test
Female 2	2	Uniform size, color, various shapes, low density
Female 3		

Egg Fertilization Time: 1310

Embryo Stock Selection

Stock Number	% of embryos at 2-cell division stage
Female 1	90
Female 2	92
Female 3	—

Stock(s) chosen for testing: 1

Embryo Inoculum Preparation

Target count on Sedgwick-Rafter slide for desired density is 7-8 embryos

Number Counted:		
	6	6
	4	10
	7	8
	7	5
	4	3

Mean: 6.0

Mean 6 X 50 = 300 embryos/ml

Initial Density: 306 = 1.0 (dilution factor)
Desired Final Density: 300
(to inoculate with 0.5 ml)

Prepare the embryo inoculum according to the calculated dilution factor. For example, if the dilution factor is 2.25, use 100 ml of existing stock (1 part) and 125 ml of dilution water (1.25 parts).

Time Zero Control Counts (10 reps) LC Batch #1

Rand. No.	No. Dividing	Total	% Dividing	Mean % Dividing
T0:1/T0:6	323 / 314	373 / 363	87 / 87	87.8
T0:1/T0:8	336 / 294	373 / 336	91 / 88	
T0:1/T0:10	337 / 299	371 / 340	91 / 88	
T0:1/T0:4	312 / 309	355 / 357	88 / 87	
T0:1/T0:5	271 / 335	319 / 381	85 / 88	

48-h QC: 270/286 = 94.4%

Comments: x̄ = 316, 310 → x̄ = 313
3132/3568. 87.8

QC Check: VS 8/29/13

Final Review: VL 9/17/13

Marine Chronic Bioassay — **Larval Development Worksheet**

Client/Project ID: AMEC POLA/POLB Bight '13
Test No.: 1307-5181 to 5188
Test Species: M. galloprovincialis
Animal Source: Taylor Shellfish
Date Received: 7/18/13
Test Chambers: Screen tubes
Sample Volume: 4-5 cm sediment, 300mLS seawater

Start Date/Time: 7/20/13 1600
End Date/Time: 7/22/13 1430
Technician Initials: [illegible]

Spawn Information

First Gamete Release Time: 1230

Sex	Number Spawning
Male	4
Female	2

Gamete Selection

Sex	Beaker Number(s)	Condition (sperm motility, egg density, color, shape, etc.)
Male	1, 2, 3, 4	Fair density, good motility
Female 1	1	Uniform size, shape, color, high density, ova tent
Female 2	2	Uniform size, color, various shapes, low density
Female 3		

Egg Fertilization Time: 1310

Embryo Stock Selection

Stock Number	% of embryos at 2-cell division stage
Female 1	90
Female 2	92
Female 3	

Stock(s) chosen for testing: 1

Embryo Inoculum Preparation

Target count on Sedgwick-Rafter slide for desired density is 7-8 embryos

Number Counted:	
6	6
4	10
7	8
7	5
4	3

Mean: 6.0

Mean 6 X 50 = 300 embryos/ml

Initial Density: 300 = 1.0 (dilution factor)
Desired Final Density: 300
(to inoculate with 0.5 ml)

Prepare the embryo inoculum according to the calculated dilution factor. For example, if the dilution factor is 2.25, use 100 ml of existing stock (1 part) and 125 ml of dilution water (1.25 parts).

Time Zero Control Counts (10 reps, LC Batch #2)

Rand. No.	No. Dividing	Total	% Dividing	Mean % Dividing
TD:/TD:	319 / 320	360 / 360	89 / 89	88.7
TD:/TD:	303 / 300	341 / 331	89 / 91	
TD:/TD:	296 / 308	334 / 343	89 / 90	
TD:/TD:	325 / 314	365 / 362	89 / 87	
TD:/TD:	306 / 302	347 / 345	88 / 88	

48-h QC: 270/286 = 94.4 %

Comments: $\bar{x}$ = 310, 309 → $\bar{x}$ = 310
~~AC 3298~~ 3095/3488 = 88.7%

QC Check: 8/29/13

Final Review: KL 9/4/13

Appendix D

Laboratory Qualifier Codes

Nautilus Environmental

Glossary of Qualifier Codes:

Laboratory Procedures

Q1 - Temperatures out of recommended range; corrective action taken and recorded in Test Temperature Correction Log

Q2 - Temperatures out of recommended range; no action taken, test terminated same day

Q3 - Sample aerated prior to initiation or renewal due to dissolved oxygen (D.O.) levels below 6.0 mg/L

Q4 - Test aerated; D.O. levels dropped below 4.0 mg/L

Q5 - Test initiated with aeration due to an anticipated drop in D.O.

Q6 - Airline obstructed or fell out of replicate and replaced; drop in D.O. occurred

Q7 - Salinity out of recommended range; refer to QA section of report

Q8 - Spilled test chamber/ Unable to recover test organism(s)

Q9 - Inadequate sample volume remaining, 50% renewal performed

Q10 - Inadequate sample volume remaining, no renewal performed

Q11 - Sample out of holding time; refer to QA section of report

Q12 - Replicate(s) not initiated; excluded from data analysis

Q13 - Survival counts not recorded due to poor visibility or heavy debris

Q14 - D.O. percent saturation was checked and was ≤ 110%

Data Analysis/Reporting

Q15 - Did not meet minimum test acceptability criteria. Refer to QA section of report.

Q16 - Percent minimum significant difference (PMSD) was below the lower bound limit for acceptability. This indicates that statistics may be over-sensitive in detecting a difference from the control due to low variability in the data set.

Q17 - Percent minimum significant difference (PMSD) was above the upper bound limit for acceptability. This indicates that statistics may be under-sensitive in detecting a difference from the control due to high variability in the data set.

Q18 - Reference toxicant test warning and control limits were recalculated based on 75th percentile inter-laboratory coefficient of variation, as defined in EPA 833-R-00-003, due to higher than recommended variability among LC_{50}/EC_{50}/IC_{50} data points included in the control chart.

Appendix E

Ammonia Tables and Raw Data

Appendix Table E-1. Total and Un-ionized Ammonia Concentrations in Sediment Porewater at Test Initiation

Batch #1/ Sample ID	Total Ammonia (mg/L)	Un-ionized Ammonia (mg/L)	Batch #2/ Sample ID	Total Ammonia (mg/L)	Un-ionized Ammonia (mg/L)
Lab Control #1	<0.5	<0.004	**Lab Control #1**	<0.5	<0.006
Fine Grain Control	6.0	0.048	**Fine Grain Control**	6.8	0.029
B13-8374	2.3	0.012	**B13-8401**	5.5	0.021
B13-8371	7.0	0.033	**B13-8399**	3.4	0.014
B13-8382	6.0	0.028	**TMDL-3TB**	3.2	0.024
B13-8363	3.7	0.018	**B13-8397**	3.2	0.016
B13-8360	5.1	0.029	**TMDL-4CS**	4.6	0.021
B13-8356	2.2	0.011	**B13-8396**	4.0	0.018
B13-8347	2.4	0.011	**B13-8384**	2.8	0.010
Lab Control #2	NM	NM	**Lab Control #2**	<0.5	<0.006
B13-8333	5.2	0.032	**B13-8340**	3.3	0.011
B13-8322	2.2	0.013	**B13-8367**	3.7	0.022
B13-8349	3.1	0.015	**TMDL-2FH**	3.0	0.011
B13-8326	2.7	0.012	**B13-8316**	4.5	0.016
B13-8318	2.6	0.012	**B13-8302**	5.5	0.022
B13-8310	2.8	0.015	**B13-8365**	5.0	0.019
B13-8304	2.9	0.015	**B13-8306**	5.6	0.031
B13-8308	2.8	0.012	**TMDL-1CH**	3.9	0.018

Threshold Effect Levels		
Species	Ammonia NOEC (mg/L)	
	Total	Un-ionized
Eohaustorius[a]	60	0.8

[a] No Observed Effect Concentration (NOEC) values from EPA 1994 & Kohn et al. 1994.

NM = not measured

Appendix Table E-2. Total and Un-ionized Ammonia Concentrations in Solid-Phase Amphipod Toxicity Tests – Overlying Water

Test Batch	Sample	Total Ammonia (mg/L)		Un-ionized Ammonia (mg/L)	
		Day 0	Day 10	Day 0	Day 10
Batch #1	Lab Control #1	<0.5	<0.5	<0.010	<0.013
	Fine Grain Control	0.6	1.0	0.014	0.026
	B13-8374	<0.5	<0.5	<0.010	<0.011
	B13-8371	0.9	<0.5	0.017	<0.013
	B13-8382	0.6	<0.5	0.012	<0.014
	B13-8363	<0.5	<0.5	<0.010	<0.012
	B13-8360	1.0	<0.5	0.022	<0.013
	B13-8356	0.6	<0.5	0.012	<0.015
	B13-8347	1.0	<0.5	0.022	<0.014
	Lab Control #2	0.7	<0.5	0.013	<0.014
	B13-8333	0.5	<0.5	0.010	<0.011
	B13-8322	<0.5	<0.5	<0.010	<0.011
	B13-8349	0.6	<0.5	0.012	<0.012
	B13-8326	0.7	<0.5	0.015	<0.013
	B13-8318	0.6	<0.5	0.013	<0.013
	B13-8310	1.0	<0.5	0.020	<0.012
	B13-8304	<0.5	<0.5	<0.011	<0.013
	B13-8308	0.5	<0.5	0.010	<0.012
Batch #2	Lab Control #1	<0.5	<0.5	<0.011	<0.012
	Fine Grain Control	0.7	1.2	0.013	0.027
	B13-8401	0.6	<0.5	0.012	<0.012
	B13-8399	<0.5	<0.5	<0.012	<0.013
	TMDL-3TB	<0.5	<0.5	<0.011	<0.013
	B13-8397	<0.5	<0.5	<0.011	<0.010
	TMDL-4CS	1.1	1.1	0.022	0.038
	B13-8396	<0.5	<0.5	<0.011	<0.013
	B13-8384	0.6	<0.5	0.013	<0.014
	Lab Control #2	<0.5	<0.5	<0.011	<0.014
	B13-8340	0.5	<0.5	0.010	<0.011
	B13-8367	0.9	1.1	0.022	0.030
	TMDL-2FH	<0.5	<0.5	<0.011	<0.016
	B13-8316	<0.5	0.5	<0.011	0.011
	B13-8302	0.7	<0.5	0.014	<0.015
	B13-8365	0.6	0.6	0.013	0.013
	B13-8306	0.5	<0.5	0.010	<0.017
	TMDL-1CH	0.5	<0.5	0.011	<0.011

	***Eohaustorius* Threshold Effect Levels[a]**
Ammonia NOEC (mg/L)	
Total	Un-ionized
60	0.8

[a] NOEC values from EPA 1994 & Kohn et al 1994

Appendix Table E-3. Total and Un-ionized Ammonia Concentrations in Sediment-Water Interface Toxicity Tests – Overlying Water

Test Batch	Sample	Total Ammonia (mg/L)		Un-ionized Ammonia (mg/L)	
		Day 0	Day 2	Day 0	Day 2
Batch #1	Lab Control #1	<0.5	<0.5	<0.010	<0.012
	B13-8374	1.3	<0.5	0.023	<0.011
	B13-8371	1.2	1.6	0.023	0.038
	B13-8382	1.2	2.0	0.025	0.044
	B13-8363	1.0	0.7	0.021	0.013
	B13-8360	1.5	2.1	0.032	0.050
	B13-8356	0.7	<0.5	0.015	<0.011
	B13-8347	<0.5	<0.5	<0.010	<0.009
	Lab Control #2	<0.5	<0.5	<0.010	<0.012
	B13-8333	1.1	1.2	0.022	0.026
	B13-8322	1.1	<0.5	0.022	<0.010
	B13-8349	1.3	0.7	0.027	0.015
	B13-8326	1.0	0.9	0.017	0.017
	B13-8318	0.7	<0.5	0.012	<0.010
	B13-8310	1.2	<0.5	0.022	<0.009
	B13-8304	1.1	0.7	0.016	0.014
	B13-8308	1.0	0.6	0.018	0.012
Batch #2	Lab Control #1	<0.5	<0.5	<0.011	<0.012
	B13-8401	0.6	<0.5	0.012	<0.012
	B13-8399	<0.5	<0.5	<0.012	<0.013
	TMDL-3TB	<0.5	<0.5	<0.011	<0.013
	B13-8397	<0.5	<0.5	<0.011	<0.010
	TMDL-4CS	1.1	1.1	0.022	0.038
	B13-8396	<0.5	<0.5	<0.011	<0.013
	B13-8384	0.6	<0.5	0.013	<0.014
	Lab Control #2	<0.5	<0.5	<0.011	<0.014
	B13-8340	0.5	<0.5	0.010	<0.011
	B13-8367	0.9	1.1	0.022	0.030
	TMDL-2FH	<0.5	<0.5	<0.011	<0.016
	B13-8316	<0.5	0.5	<0.011	0.011
	B13-8302	0.7	<0.5	0.014	<0.015
	B13-8365	0.6	0.6	0.013	0.013
	B13-8306	0.5	<0.5	0.010	<0.017
	TMDL-1CH	0.5	<0.5	0.011	<0.011

***Mytilus* Threshold Effect Levels**	
Ammonia NOEC (mg/L)	
Total	Un-ionized
4.0[a]	0.05[b]

[a] Tang et al, 1997

[b] Marine Pollution Studies Laboratory, unpublished data

Unionized Ammonia Calculation

Client:	AMEC POLA POLB Bight '13
Test Type:	10-day Eohaustorius Survival & 48-hour Bivalve Larval Development
Test ID:	1307-5070 - ~~5054~~ 5079
Test Date:	7/16/2013

Sample ID	Test Day	Sample Type	Actual Total Ammonia (mg/L)	Temp (C)	Salinity (ppt)	pH	Temp (K)	I	I Rounded	pK	Unionized Ammonia (mg/L)
B13-8374	-1	Porewater	1.5	15	32.5	7.10	288.16	7.19509	7	9.33	0.004
B13-8371	-1	Porewater	3.5	15	33.2	7.34	288.16	7.34427	7	9.33	0.017
B13-8382	-1	Porewater	3.7	15	33.3	7.26	288.16	7.3656	7	9.33	0.015
B13-8363	-1	Porewater	1.1	15	32.6	7.26	288.16	7.21639	7	9.33	0.004
B13-8360	-1	Porewater	3.3	15	32.8	7.49	288.16	7.259	7	9.33	0.023
B13-8356	-1	Porewater	1	15	33.3	7.59	288.16	7.3656	7	9.33	0.009
B13-8347	-1	Porewater	1	15	32.6	7.45	288.16	7.21639	7	9.33	0.006
B13-8333	-1	Porewater	0.7	15	33.2	7.43	288.16	7.34427	7	9.33	0.004
B13-8322	-1	Porewater	1.2	15	33.0	7.40	288.16	7.30163	7	9.33	0.007
B13-8349	-1	Porewater	1.5	15	33.1	7.13	288.16	7.32295	7	9.33	0.005
B13-8326	-1	Porewater	1.3	15	33.3	7.36	288.16	7.3656	7	9.33	0.007
B13-8318	-1	Porewater	1.3	15	33.2	7.32	288.16	7.34427	7	9.33	0.006
B13-8310	-1	Porewater	0.7	15	32.6	7.45	288.16	7.21639	7	9.33	0.004
B13-8304	-1	Porewater	1.8	15	32.8	7.39	288.16	7.259	7	9.33	0.010
B13-8308	-1	Porewater	1.3	15	32.5	7.38	288.16	7.19509	7	9.33	0.007
							273.16	0.5	1	9.26	0.000
							273.16	0.5	1	9.26	0.000

SO
~~Entry~~:
Entry: ~~QC~~: KL 9/13/13
QC: SO 9/27/13

Unionized Ammonia Calculation

Client:	AMEC POLA POLB Bight '13
Test Type:	10-day Eohaustorius Survival
Test ID:	1307 -8070 -5084
Test Date:	7/16/2013

Sample ID	Test Day	Sample Type	Actual Total Ammonia (mg/L)	Temp (C)	Salinity (ppt)	pH	Temp (K)	I	I Rounded	pK	Unionized Ammonia (mg/L)
Lab Control #1	0	Porewater	<0.5	15	31.7	7.56	288.16	7.02487	7	9.33	<0.004
Fine Grain Size Control	0	Porewater	6	15	32.1	7.56	288.16	7.10994	7	9.33	0.048
B13-8374	0	Porewater	2.3	15	32.7	7.36	288.16	7.23769	7	9.33	0.012
B13-8371	0	Porewater	7	15	32.2	7.32	288.16	7.13122	7	9.33	0.033
B13-8382	0	Porewater	6	15	32.4	7.32	288.16	7.1738	7	9.33	0.028
B13-8363	0	Porewater	3.7	15	32.7	7.33	288.16	7.23769	7	9.33	0.018
B13-8360	0	Porewater	5.1	15	32.4	7.41	288.16	7.1738	7	9.33	0.029
B13-8356	0	Porewater	2.2	15	32.3	7.36	288.16	7.15251	7	9.33	0.011
B13-8347	0	Porewater	2.4	15	32.7	7.30	288.16	7.23769	7	9.33	0.011
Lab Control #2	0	Porewater	NC	15	31.7	7.56	288.16	7.02487	7	9.33	NC
B13-8333	0	Porewater	5.2	15	31.7	7.44	288.16	7.02487	7	9.33	0.032
B13-8322	0	Porewater	2.2	15	32.3	7.42	288.16	7.15251	7	9.33	0.013
B13-8349	0	Porewater	3.1	15	32.3	7.35	288.16	7.15251	7	9.33	0.015
B13-8326	0	Porewater	2.7	15	32.6	7.31	288.16	7.21639	7	9.33	0.012
B13-8318	0	Porewater	2.6	15	32.6	7.32	288.16	7.21639	7	9.33	0.012
B13-8310	0	Porewater	2.8	15	32.5	7.39	288.16	7.19509	7	9.33	0.015
B13-8304	0	Porewater	2.9	15	32.4	7.37	288.16	7.1738	7	9.33	0.015
B13-8308	0	Porewater	2.8	15	32.6	7.28	288.16	7.21639	7	9.33	0.012

NC = Not Collected

Entry: KL 9/13/13
Q/C: SD 9/27/13

Unionized Ammonia Calculation

Client:	AMEC POLA POLB Bight '13
Test Type:	10-day Eohaustorius Survival
Test ID:	13077 - 5070 - 5084
Test Date:	7/16/2013

Sample ID	Test Day	Sample Type	Actual Total Ammonia (mg/L)	Temp (C)	Salinity (ppt)	pH	Temp (K)	I	I Rounded	pK	**Unionized Ammonia (mg/L)**
Lab Control #1	0	Overlying Water	<0.5	14.9	31.8	7.97	288.06	7.04613	7	9.33	<0.010
Fine Grain Size Control	0	Overlying Water	0.6	14.8	32.6	8.03	287.96	7.21639	7	9.33	0.014
B13-8374	0	Overlying Water	<0.5	14.6	32.5	7.96	287.76	7.19509	7	9.33	<0.010
B13-8371	0	Overlying Water	0.9	14.8	32.6	7.93	287.96	7.21639	7	9.33	0.017
B13-8382	0	Overlying Water	0.6	14.9	32.7	7.98	288.06	7.23769	7	9.33	0.012
B13-8363	0	Overlying Water	<0.5	15	32.6	7.97	288.16	7.21639	7	9.33	<0.010
B13-8360	0	Overlying Water	1	14.9	32.6	8.00	288.06	7.21639	7	9.33	0.022
B13-8356	0	Overlying Water	0.6	15.1	32.6	7.97	288.26	7.21639	7	9.33	0.012
B13-8347	0	Overlying Water	1.0	14.9	32.6	8.00	288.06	7.21639	7	9.33	0.022
Lab Control #2	0	Overlying Water	0.7	14.6	32.1	7.95	287.76	7.10994	7	9.33	0.013
B13-8333	0	Overlying Water	0.5	14.5	32.4	7.99	287.66	7.1738	7	9.33	0.010
B13-8322	0	Overlying Water	<0.5	14.5	32.4	7.99	287.66	7.1738	7	9.33	<0.010
B13-8349	0	Overlying Water	0.6	14.5	32.4	7.97	287.66	7.1738	7	9.33	0.012
B13-8326	0	Overlying Water	0.7	14.5	32.4	8.01	287.66	7.1738	7	9.33	0.015
B13-8318	0	Overlying Water	0.6	14.8	32.3	8.00	287.96	7.15251	7	9.33	0.013
B13-8310	0	Overlying Water	1.0	14.7	32.4	7.97	287.86	7.1738	7	9.33	0.020
B13-8304	0	Overlying Water	<0.5	14.6	32.5	8.01	287.76	7.19509	7	9.33	<0.011
B13-8308	0	Overlying Water	0.5	14.9	32.4	7.98	288.06	7.1738	7	9.33	0.010

Entry: KL 9/13/13
Q/C: SD 9/27/13

Unionized Ammonia Calculation

Client:	AMEC POLA POLB Bight '13
Test Type:	10-day Eohaustorius Survival
Test ID:	1307-5070-8004
Test Date:	7/16/2013

Sample ID	Test Day	Sample Type	Actual Total Ammonia (mg/L)	Temp (C)	Salinity (ppt)	pH	Temp (K)	I	I Rounded	pK	**Unionized Ammonia (mg/L)**
Lab Control #1	10	Overlying Water	<0.5	14.6	31.4	8.09	287.76	6.9611	7	9.33	<0.013
Fine Grain Size Control	10	Overlying Water	1	14.7	32.6	8.09	287.86	7.21639	7	9.33	0.026
B13-8374	10	Overlying Water	<0.5	15	32.9	8.02	288.16	7.28031	7	9.33	<0.011
B13-8371	10	Overlying Water	<0.5	15	32.6	8.08	288.16	7.21639	7	9.33	<0.013
B13-8382	10	Overlying Water	<0.5	15.3	32.8	8.10	288.46	7.259	7	9.33	<0.014
B13-8363	10	Overlying Water	<0.5	15.6	32.5	8.02	288.76	7.19509	7	9.33	<0.012
B13-8360	10	Overlying Water	<0.5	15.8	32.5	8.05	288.96	7.19509	7	9.33	<0.013
B13-8356	10	Overlying Water	<0.5	15.9	32.4	8.10	289.06	7.1738	7	9.33	<0.015
B13-8347	10	Overlying Water	<0.5	15.9	32.5	8.09	289.06	7.19509	7	9.33	<0.014
Lab Control #2	10	Overlying Water	<0.5	14.6	31.5	8.11	287.76	6.98235	7	9.33	<0.014
B13-8333	10	Overlying Water	<0.5	14.6	32.4	8.01	287.76	7.1738	7	9.33	<0.011
B13-8322	10	Overlying Water	<0.5	14.6	32.4	8.01	287.76	7.1738	7	9.33	<0.011
B13-8349	10	Overlying Water	<0.5	14.9	32.4	8.03	288.06	7.1738	7	9.33	<0.012
B13-8326	10	Overlying Water	<0.5	15	32.5	8.06	288.16	7.19509	7	9.33	<0.013
B13-8318	10	Overlying Water	<0.5	15.1	32.4	8.07	288.26	7.1738	7	9.33	<0.013
B13-8310	10	Overlying Water	<0.5	15.1	32.7	8.02	288.26	7.23769	7	9.33	<0.012
B13-8304	10	Overlying Water	<0.5	15.4	32.4	8.05	288.56	7.1738	7	9.33	<0.013
B13-8308	10	Overlying Water	<0.5	15	32.5	8.05	288.16	7.19509	7	9.33	<0.012

Entry: KL 9/13/13
Q/C: SO 9/27/13

Unionized Ammonia Calculation

Client:	AMEC POLA POLB Bight '13
Test Type:	48-hour Bivalve Larval Development
Test ID:	1307-5053-8099
Test Date:	7/16/2013

Sample ID	Test Day	Sample Type	Actual Total Ammonia (mg/L)	Temp (C)	Salinity (ppt)	pH	Temp (K)	I	I Rounded	pK	**Unionized Ammonia (mg/L)**
Lab Control #1	0	Overlying Water	<0.5	14.6	31.4	8.04	287.76	6.9611	7	9.33	<0.012
B13-8374	0	Overlying Water	1.3	14.6	31.6	7.92	287.76	7.00361	7	9.33	0.023
B13-8371	0	Overlying Water	1.2	14.7	31.5	7.95	287.86	6.98235	7	9.33	0.023
B13-8382	0	Overlying Water	1.2	14.7	31.6	7.99	287.86	7.00361	7	9.33	0.025
B13-8363	0	Overlying Water	1	14.8	31.6	7.99	287.96	7.00361	7	9.33	0.021
B13-8360	0	Overlying Water	1.5	14.8	31.8	7.99	287.96	7.04613	7	9.33	0.032
B13-8356	0	Overlying Water	0.7	14.9	31.7	7.98	288.06	7.02487	7	9.33	0.015
B13-8347	0	Overlying Water	<0.5	14.7	31.8	7.92	287.86	7.04613	7	9.33	<0.009
Lab Control #2	0	Overlying Water	<0.5	14.7	31.4	8.03	287.86	6.9611	7	9.33	<0.011
B13-8333	0	Overlying Water	1.1	14.3	31.9	7.98	287.46	7.0674	7	9.33	0.022
B13-8322	0	Overlying Water	1.1	14.4	31.6	7.97	287.56	7.00361	7	9.33	0.022
B13-8349	0	Overlying Water	1.3	14.4	31.5	8.00	287.56	6.98235	7	9.33	0.027
B13-8326	0	Overlying Water	1.0	14.4	31.5	7.90	287.56	6.98235	7	9.33	0.017
B13-8318	0	Overlying Water	0.7	14.5	31.5	7.90	287.66	6.98235	7	9.33	0.012
B13-8310	0	Overlying Water	1.2	14.5	31.5	7.93	287.66	6.98235	7	9.33	0.022
B13-8304	0	Overlying Water	1.1	14.5	31.6	7.83	287.66	7.00361	7	9.33	0.016
B13-8308	0	Overlying Water	1.0	14.5	31.6	7.94	287.66	7.00361	7	9.33	0.018

Entry: KL 9/16/13
Q/C: SD 9/27/13

Unionized Ammonia Calculation

Client:	AMEC POLA POLB Bight '13
Test Type:	48-hour Bivalve Larval Development
Test ID:	1307-5085-5099
Test Date:	7/16/2013

Sample ID	Test Day	Sample Type	Actual Total Ammonia (mg/L)	Temp (C)	Salinity (ppt)	pH	Temp (K)	I	I Rounded	pK	Unionized Ammonia (mg/L)
Lab Control #1	2	Overlying Water	<0.5	14.6	31.1	8.06	287.76	6.89738	7	9.33	<0.012
B13-8374	2	Overlying Water	<0.5	14.8	31.7	7.99	287.96	7.02487	7	9.33	<0.011
B13-8371	2	Overlying Water	1.6	15	31.6	8.03	288.16	7.00361	7	9.33	0.038
B13-8382	2	Overlying Water	2	15	31.8	8.00	288.16	7.04613	7	9.33	0.044
B13-8363	2	Overlying Water	0.7	15	31.7	7.91	288.16	7.02487	7	9.33	0.013
B13-8360	2	Overlying Water	2.1	15.1	31.7	8.03	288.26	7.02487	7	9.33	0.050
B13-8356	2	Overlying Water	<0.5	14.8	31.6	7.99	287.96	7.00361	7	9.33	<0.011
B13-8347	2	Overlying Water	<0.5	14.8	31.7	7.94	287.96	7.02487	7	9.33	<0.009
Lab Control #2	2	Overlying Water	<0.5	14.7	31.3	8.06	287.86	6.93986	7	9.33	<0.012
B13-8333	2	Overlying Water	1.2	14.7	31.9	8.01	287.86	7.0674	7	9.33	0.026
B13-8322	2	Overlying Water	<0.5	14.9	31.8	7.95	288.06	7.04613	7	9.33	<0.010
B13-8349	2	Overlying Water	0.7	15	31.9	8.00	288.16	7.0674	7	9.33	0.015
B13-8326	2	Overlying Water	0.9	14.5	31.6	7.95	287.66	7.00361	7	9.33	0.017
B13-8318	2	Overlying Water	<0.5	14.4	31.9	7.96	287.56	7.0674	7	9.33	<0.010
B13-8310	2	Overlying Water	<0.5	14.5	31.9	7.94	287.66	7.0674	7	9.33	<0.009
B13-8304	2	Overlying Water	0.7	14.5	31.9	7.98	287.66	7.0674	7	9.33	0.014
B13-8308	2	Overlying Water	0.6	14.6	31.7	7.96	287.76	7.02487	7	9.33	0.012

Entry: KL 9/16/13
Q/C: SD 9/27/13

Total Ammonia Analysis
Marine

Pore Water

Client: AMEC
Project: POLA/POLB Bight '13 (Batch #1)
Test Type: *E. estuarius* 10-day Survival and *M.galloprovincialis* 48-h Larval Survival & Development

DI Blank: 0.0
SW Blank: 0.0
Test Start Date: 7/16/2013
Analyst: BG
Analysis Date: 7/15/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	pH (units)	Salinity (ppt)	NH3-N (mg/L)	Ammonia (mg/L)
Blank Spike (10 mg/L NH_3)		NA	NA	NA	NA	7.3	8.9
B13-8374	1	7/12/13	PW	7.10	32.5	1.2	1.5
B13-8371	2	7/11/13	PW	7.34	33.2	2.9	3.5
B13-8382	3	7/11/13	PW	7.20	33.3	3.0	3.7
B13-8363	4	7/12/13	PW	7.26	32.6	0.9	1.1
B13-8360	5	7/12/13	PW	7.49	32.8	2.7	3.3
B13-8356	6	7/14/13	PW	7.59	33.3	0.8	1.0
B13-8347	7	7/13/13	PW	7.45	32.6	0.8	1.0
B13-8333	8	7/14/13	PW	7.43	33.2	0.6	0.7
B13-8322	9	7/14/13	PW	7.40	33.0	1.0	1.2
B13-8349	10	7/11/13	PW	7.13	33.1	1.2	1.5
Spike Check (10 mg/L NH_3)		NA	NA	NA	NA	7.3	8.9
B13-8326	11	7/11/13	PW	7.30	33.3	1.1	1.3
B13-8318	12	7/14/13	PW	7.32	33.2	1.1	1.3
B13-8310	13	7/13/13	PW	7.45	32.6	0.6	0.7
B13-8304	14	7/13/13	PW	7.39	32.8	1.5	1.8
B13-8308	15	7/13/13	PW	7.38	32.5	1.1	1.3
Sample Duplicate[a]		NA	NA	NA	NA	1.0	1.2
Sample Duplicate + Spike[a]		NA	NA	NA	NA	8.9	10.9
Spike Check (10 mg/L NH_3)		NA	NA	NA	NA	7.3	8.9

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) / [average ammonia] (mg/L) x 100 — **Acceptable Range: 0-20%**

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) / nominal [spike] (mg/L) x 100 — **Acceptable Range: 80-120%[b]**

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	8.9	10	NA	89
B13-8308	1.3	1.2	10.9	10	8	96

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] RPD calculation not performed due to one or more values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: BG 8/19/13

Final Review: KL 8/22/13

Total Ammonia Analysis
Marine

Pore Water

Client: AMEC
Project: POLA/POLB Bight '13
Test Type: *E. estuarius* 10-day Survival

DI Blank: 0.0 **Test Start Date:** 7/16/2013 **Analyst:** ML
SW Blank: 0.0 **Analysis Date:** 9/5/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	pH (units)	Salinity (ppt)	NH3-N (mg/L)	Ammonia (mg/L)
Blank Spike (10 mg/L NH_3)		NA	NA	NA	NA	6.6	8.1
Lab Control #1	197	7/16/2013	Day 0 PW	7.56	31.7	0.2	<0.5
Fine Grain Control	198	7/16/2013	Day 0 PW	7.56	32.1	4.9	6.0
B13-8374	199	7/16/2013	Day 0 PW	7.36	32.7	1.9	2.3
B13-8371	200	7/16/2013	Day 0 PW	7.32	32.2	5.7	7.0
B13-8382	201	7/16/2013	Day 0 PW	7.32	32.4	4.9	6.0
B13-8363	202	7/16/2013	Day 0 PW	7.33	32.7	3.0	3.7
B13-8360	203	7/16/2013	Day 0 PW	7.41	32.4	4.2	5.1
B13-8356	204	7/16/2013	Day 0 PW	7.36	32.3	1.8	2.2
B13-8347	205	7/16/2013	Day 0 PW	7.30	32.7	2.0	2.4
Lab Control #2	206	7/16/2013	Day 0 PW	7.56	31.7	NC	NC
Spike Check (10 mg/L NH_3)		NA	NA	NA	NA	6.6	8.1
B13-8333	207	7/16/2013	Day 0 PW	7.44	31.7	4.3	5.2
B13-8322	208	7/16/2013	Day 0 PW	7.42	32.3	1.8	2.2
B13-8349	209	7/16/2013	Day 0 PW	7.35	32.3	2.5	3.1
B13-8326	210	7/16/2013	Day 0 PW	7.31	32.6	2.2	2.7
B13-8318	211	7/16/2013	Day 0 PW	7.32	32.6	2.1	2.6
B13-8310	212	7/16/2013	Day 0 PW	7.39	32.5	2.3	2.8
B13-8304	213	7/16/2013	Day 0 PW	7.37	32.4	2.4	2.9
B13-8308	214	7/16/2013	Day 0 PW	7.20	32.6	2.3	2.8
Sample Duplicate[a]		NA	NA	NA	NA	2.1	2.6
Sample Duplicate + Spike[a]		NA	NA	NA	NA	10.4	12.7
Spike Check (10 mg/L NH_3)		NA	NA	NA	NA	6.5	7.9

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) / [average ammonia] (mg/L) x 100 — **Acceptable Range: 0-20%**

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) / nominal [spike] (mg/L) x 100 — **Acceptable Range: 80-120%[b]**

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	8.1	10	NA	81
B13-8308	2.8	2.6	12.7	10	7.4	99

Comments: NC=not collected

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] Calculation not performed due to one or more values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: KL 9/13/13 **Final Review:** 9/27/13

Total Ammonia Analysis
Marine

Overlying Water

Client: AMEC
Project: POLA/POLB Bight '13 (Batch #1)
Test Type: *Eohaustorius estuarius* 10-day Survival

DI Blank: 0.0
SW Blank: 0.0
Test Start Date: 7/16/2013
Analyst: AB
Analysis Date: 7/30/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L)
Blank Spike (10 mg/L NH_3)		NA	NA	8.1	9.9
Lab Control #1	16	7/16/2013	0	BR ~~0.0~~ 0.0	<0.5
Fine Grain Size Control	17	7/16/2013	0	0.5	0.6
B13-8374	18	7/16/2013	0	0.2	<0.5
B13-8371	19	7/16/2013	0	0.7	0.9
B13-8382	20	7/16/2013	0	0.5	0.6
B13-8363	21	7/16/2013	0	0.2	<0.5
B13-8360	22	7/16/2013	0	0.8	1.0
B13-8356	23	7/16/2013	0	0.5	0.6
B13-8347	24	7/16/2013	0	0.8	1.0
Lab Control #2	25	7/16/2013	0	0.6	0.7
Spike Check (10 mg/L NH_3)		NA	NA	8.1	9.9
B13-8333	26	7/16/2013	0	0.4	~~<0.5~~
B13-8322	27	7/16/2013	0	0.2	<0.5
B13-8349	28	7/16/2013	0	0.5	0.6
B13-8326	29	7/16/2013	0	0.6	0.7
B13-8318	30	7/16/2013	0	0.5	0.6
B13-8310	31	7/16/2013	0	0.8	1.0
B13-8304	32	7/16/2013	0	0.3	<0.5
B13-8308	33	7/16/2013	0	0.4	~~<0.5~~
Sample Duplicate[a]		NA	NA	0.8	1.0
Sample Duplicate + Spike[a]		NA	NA	8.2	10.0
Spike Check (10 mg/L NH_3)		NA	NA	8.1	9.9

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) x 100
[average ammonia] (mg/L)

Acceptable Range: 0-20%

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) x 100
nominal [spike] (mg/L)

Acceptable Range: 80-120%[b]

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	9.9	10	NA	99
B13-8308 #33	~~<0.5~~	1.0	10.0	10	~~66.7~~ [c] (66.7 [d])	~~95~~ [c] 95

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

[d] RPD artifactually high due to low values close to the detection limit

QC Check: BG 8/19/13

Final Review: KL 9/22/13

Total Ammonia Analysis
Marine

Overlying Water

Client: AMEC
Project: POLA/POLB Bight '13
Test Type: *Eohaustorius estuarius*

DI Blank: 0.0
SW Blank: 0.0

Test Start Date: 7/16/2013

Analyst: AB
Analysis Date: 8/8/13 KL

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L) N x 1.22
Blank Spike (10 mg/L NH_3)		NA	NA	8.1	9.9
Lab Control #1	34	7/26/2013	10	0.0	<0.5
Fine Grain Size Control	35	7/26/2013	10	0.8	1.0
B13-8374	36	7/26/2013	10	0.0	<0.5
B13-8371	37	7/26/2013	10	0.0	<0.5
B13-8382	38	7/26/2013	10	0.0	<0.5
B13-8363	39	7/26/2013	10	0.0	<0.5
B13-8360	40	7/26/2013	10	0.0	<0.5
B13-8356	41	7/26/2013	10	0.0	<0.5
B13-8347	42	7/26/2013	10	0.0	<0.5
Lab Control #2	43	7/26/2013	10	0.0	<0.5
Spike Check (10 mg/L NH_3)		NA	NA	8.1	9.9
B13-8333	44	7/26/2013	10	0.0	<0.5
B13-8322	45	7/26/2013	10	0.0	<0.5
B13-8349	46	7/26/2013	10	0.0	<0.5
B13-8326	47	7/26/2013	10	0.0	<0.5
B13-8318	48	7/26/2013	10	0.0	<0.5
B13-8310	49	7/26/2013	10	0.0	<0.5
B13-8304	50	7/26/2013	10	0.0	<0.5
B13-8308	51	7/26/2013	10	0.0	<0.5
Sample Duplicate[a]		NA	NA	0.0	<0.5
Sample Duplicate + Spike[a]		NA	NA	7.4	9.0
Spike Check (10 mg/L NH_3)		NA	NA	8.1	9.9

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) / [average ammonia] (mg/L) x 100 — **Acceptable Range: 0-20%**

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) / nominal [spike] (mg/L) x 100 — **Acceptable Range: 80-120%[b]**

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	9.9	10	NA	99
B13-8308 (51)	<0.5	<0.5	9.0	10	C	C

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] Calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: KL 9/13/13

Final Review: SD 9/27/13

Total Ammonia Analysis
Marine

Overlying Water

Client: AMEC
Project: POLA/POLB Bight '13
Test Type: *Mytilus galloprovincialis* 48-h Larval Survival and Development

DI Blank: 0.0
SW Blank: 0.0

Test Start Date: 7/16/2013

Analyst: EC
Analysis Date: 7/25/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L)
Blank Spike (10 mg/L NH_3)		NA	NA	6.8	8.3
Lab Control #1	115	7/16/2013	0	0.0	~~<0.05~~ EC <0.5
B13-8374	116	7/16/2013	0	1.1	1.3
B13-8371	117	7/16/2013	0	1.0	~~1.2~~ EC
B13-8382	118	7/16/2013	0	1.0	1.2
B13-8363	119	7/16/2013	0	0.8	1.0 BG
B13-8360	120	7/16/2013	0	1.2	~~1.4~~ BG 1.5
B13-8356	121	7/16/2013	0	0.6	0.7
B13-8347	122	7/16/2013	0	0.3	~~0.4~~ EC ~~<0.05~~ BG <0.5
Lab Control #2	123	7/16/2013	0	0.2	~~0.2~~ EC ~~<0.05~~ BG <0.5
B13-8333	124	7/16/2013	0	0.9	1.1
Spike Check (10 mg/L NH_3)		NA	NA	6.7	8.2
B13-8322	125	7/16/2013	0	0.9	1.1
B13-8349	126	7/16/2013	0	1.1	1.3
B13-8326	127	7/16/2013	0	0.8	1.0
B13-8318	128	7/16/2013	0	0.6	0.7
B13-8310	129	7/16/2013	0	1.0	1.2
B13-8304	130	7/16/2013	0	0.9	1.1
B13-8308	131	7/16/2013	0	0.8	1.0
Sample Duplicate[a]		NA	NA	0.8	1.0
Sample Duplicate + Spike[a]		NA	NA	9.1	11.1
Spike Check (10 mg/L NH_3)		NA	NA	6.8	8.3

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) x 100
[average ammonia] (mg/L)

Acceptable Range: 0-20%

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) x 100
nominal [spike] (mg/L)

Acceptable Range: 80-120%[b]

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	8.3	10	NA	83
131	1.0	1.0	11.1	10	0	101

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: BG 7/30/13

Final Review: KL 9/16/13

Total Ammonia Analysis
Marine

Overlying Water

Client: AMEC
Project: POLA/POLB Bight '13
Test Type: *Mytilus galloprovincialis* 48-h Larval Survival and Development (Batch #1)

DI Blank: 0.0
SW Blank: 0.0

Test Start Date: 7/16/2013

Analyst: AB
Analysis Date: 8/13/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L)
Blank Spike (10 mg/L NH_3)		NA	NA	8.0	9.8
Lab Control #1	132	7/18/2013	2	~~0.3~~ 0.0	<0.5
B13-8374	133	7/18/2013	2	0.1	<0.5
B13-8371	134	7/18/2013	2	1.3	1.6
B13-8382	135	7/18/2013	2	1.6	2.0
B13-8363	136	7/18/2013	2	0.6	0.7
B13-8360	137	7/18/2013	2	1.7	2.1
B13-8356	138	7/18/2013	2	0.1	<0.5
B13-8347	139	7/18/2013	2	0.2	<0.5
Lab Control #2	140	7/18/2013	2	0.2	<0.5
B13-8333	141	7/18/2013	2	1.0	1.2
Spike Check (10 mg/L NH_3)		NA	NA	8.0	9.8
B13-8322	142	7/18/2013	2	0.2	<0.5
B13-8349	143	7/18/2013	2	0.6	0.7
B13-8326	144	7/18/2013	2	0.7	0.9
B13-8318	145	7/18/2013	2	0.0	<0.5
B13-8310	146	7/18/2013	2	0.2	<0.5
B13-8304	147	7/18/2013	2	0.6	0.7
B13-8308	148	7/18/2013	2	~~0.4~~ 0.5 AB	0.6
Sample Duplicate[a]		NA	NA	0.5	0.6
Sample Duplicate + Spike[a]		NA	NA	7.9	9.6
Spike Check (10 mg/L NH_3)		NA	NA	8.1	9.9

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) x 100
[average ammonia] (mg/L)

Acceptable Range: 0-20%

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) x 100
nominal [spike] (mg/L)

Acceptable Range: 80-120%[b]

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	9.8	10	NA	98
B13-8308 (#148)	0.6	0.6	9.6	10	0	90

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: BG 8/19/13

Final Review: KL 8/22/13

Unionized Ammonia Calculation

Client:	AMEC POLA POLB Bight '13
Test Type:	10-day Eohaustorius Survival & 48-hour Bivalve Larval Development
Test ID:	1307-5159 -5173
Test Date:	7/23/2013

Sample ID	Test Day	Sample Type	Actual Total Ammonia (mg/L)	Temp (C)	Salinity (ppt)	pH	Temp (K)	I	I Rounded	pK	**Unionized Ammonia (mg/L)**
B13-8401	-1	Porewater	4.8	15	33.1	7.18	288.16	7.32295	7	9.33	0.016
B13-8399	-1	Porewater	0.9	15	33.2	7.67	288.16	7.34427	7	9.33	0.009
TMDL-3TB	-1	Porewater	1.1	15	32.3	7.78	288.16	7.15251	7	9.33	0.015
B13-8397	-1	Porewater	2.2	15	33.2	7.41	288.16	7.34427	7	9.33	0.013
TMDL-4CS	-1	Porewater	6.8	15	33.3	7.33	288.16	7.3656	7	9.33	0.032
B13-8396	-1	Porewater	<0.5	15	32.5	7.53	288.16	7.19509	7	9.33	<0.004
B13-8384	-1	Porewater	0.7	15	32.5	7.24	288.16	7.19509	7	9.33	0.003
B13-8340	-1	Porewater	0.9	15	32.5	7.30	288.16	7.19509	7	9.33	0.004
B13-8367	-1	Porewater	1.2	15	32.7	7.27	288.16	7.23769	7	9.33	0.005
TMDL-2FH	-1	Porewater	2.4	15	32.4	7.36	288.16	7.1738	7	9.33	0.012
B13-8316	-1	Porewater	3.2	15	33.3	7.45	288.16	7.3656	7	9.33	0.020
B13-8302	-1	Porewater	1.5	15	32.4	7.36	288.16	7.1738	7	9.33	0.008
B13-8365	-1	Porewater	1.7	15	33.6	7.60	288.16	7.42962	7	9.33	0.015
B13-8306	-1	Porewater	1.5	15	32.5	7.28	288.16	7.19509	7	9.33	0.006
TMDL-1CH	-1	Porewater	3.7	15	33.5	7.39	288.16	7.40827	7	9.33	0.020
							273.16	0.5	1	9.26	0.000
							273.16	0.5	1	9.26	0.000

Entry: KL 9/17/13
Q/C: SD 9/23/13

Unionized Ammonia Calculation

Client:	AMEC POLA POLB Bight '13
Test Type:	10-day Eohaustorius Survival
Test ID:	1307-5159 -5173
Test Date:	7/23/2013

Sample ID	Test Day	Sample Type	Actual Total Ammonia (mg/L)	Temp (C)	Salinity (ppt)	pH	Temp (K)	I	I Rounded	pK	**Unionized Ammonia (mg/L)**
Lab Control #1	0	Porewater	<0.5	15	31.0	7.75	288.16	6.87615	7	9.33	<0.006
Fine Grain Size Control	0	Porewater	6.8	15	32.7	7.28	288.16	7.23769	7	9.33	0.029
B13-8401	0	Porewater	5.5	15	31.7	7.24	288.16	7.02487	7	9.33	0.021
B13-8399	0	Porewater	3.4	15	31.9	7.27	288.16	7.0674	7	9.33	0.014
TMDL-3TB	0	Porewater	3.2	15	31.7	7.53	288.16	7.02487	7	9.33	0.024
B13-8397	0	Porewater	3.2	15	32.3	7.34	288.16	7.15251	7	9.33	0.016
TMDL-4CS	0	Porewater	4.6	15	32.1	7.30	288.16	7.10994	7	9.33	0.021
B13-8396	0	Porewater	4	15	31.0	7.30	288.16	6.87615	7	9.33	0.018
B13-8384	0	Porewater	2.8	15	31.2	7.22	288.16	6.91862	7	9.33	0.010
Lab Control #2	0	Porewater	<0.5	15	31.0	7.75	288.16	6.87615	7	9.33	<0.006
B13-8340	0	Porewater	3.3	15	31.6	7.17	288.16	7.00361	7	9.33	0.011
B13-8367	0	Porewater	3.7	15	31.3	7.42	288.16	6.93986	7	9.33	0.022
TMDL-2FH	0	Porewater	3.0	15	32.0	7.22	288.16	7.08867	7	9.33	0.011
B13-8316	0	Porewater	4.5	15	31.8	7.19	288.16	7.04613	7	9.33	0.016
B13-8302	0	Porewater	5.5	15	32.0	7.26	288.16	7.08867	7	9.33	0.022
B13-8365	0	Porewater	5.0	15	31.7	7.23	288.16	7.02487	7	9.33	0.019
B13-8306	0	Porewater	5.6	15	32.4	7.40	288.16	7.1738	7	9.33	0.031
TMDL-1CH	0	Porewater	3.9	15	32.3	7.31	288.16	7.15251	7	9.33	0.018

Entry: KL 9/19/13
Q/C: SO 9/20/13

Unionized Ammonia Calculation

Client:	AMEC POLA POLB Bight '13
Test Type:	10-day Eohaustorius Survival
Test ID:	1307-5159 -5173
Test Date:	7/23/2013

Sample ID	Test Day	Sample Type	Actual Total Ammonia (mg/L)	Temp (C)	Salinity (ppt)	pH	Temp (K)	I	I Rounded	pK	**Unionized Ammonia (mg/L)**
Lab Control #1	0	Overlying Water	<0.5	14.2	31.8	8.01	287.36	7.04613	7	9.33	<0.011
Fine Grain Size Control	0	Overlying Water	0.7	14.4	32.0	7.94	287.56	7.08867	7	9.33	0.013
B13-8401	0	Overlying Water	0.6	14.7	32.1	7.97	287.86	7.10994	7	9.33	0.012
B13-8399	0	Overlying Water	<0.5	14.5	32.2	8.04	287.66	7.13122	7	9.33	<0.012
TMDL-3TB	0	Overlying Water	<0.5	14.7	32.1	8.03	287.86	7.10994	7	9.33	<0.011
B13-8397	0	Overlying Water	<0.5	14.8	32.1	7.99	287.96	7.10994	7	9.33	<0.011
TMDL-4CS	0	Overlying Water	1.1	14.4	32.1	7.97	287.56	7.10994	7	9.33	0.022
B13-8396	0	Overlying Water	<0.5	14.4	32.1	8.02	287.56	7.10994	7	9.33	<0.011
B13-8384	0	Overlying Water	0.6	14.5	32.1	8.02	287.66	7.10994	7	9.33	0.013
Lab Control #2	0	Overlying Water	<0.5	14.1	32.0	8.05	287.26	7.08867	7	9.33	<0.012
B13-8340	0	Overlying Water	0.5	14.3	32.1	7.98	287.46	7.10994	7	9.33	0.010
B13-8367	0	Overlying Water	0.9	14.5	32.2	8.06	287.66	7.13122	7	9.33	0.022
TMDL-2FH	0	Overlying Water	<0.5	14.6	32.2	7.90	287.76	7.13122	7	9.33	<0.009
B13-8316	0	Overlying Water	<0.5	14.8	31.6	8.00	287.96	7.00361	7	9.33	<0.011
B13-8302	0	Overlying Water	0.7	14.9	31.6	7.96	288.06	7.00361	7	9.33	0.014
B13-8365	0	Overlying Water	0.6	14.6	31.5	7.99	287.76	6.98235	7	9.33	0.013
B13-8306	0	Overlying Water	0.5	14.5	31.6	7.98	287.66	7.00361	7	9.33	0.010
TMDL-1CH	0	Overlying Water	0.6	14.5	31.8	7.94	287.66	7.04613	7	9.33	0.011

Entry: KL 9/19/13
Q/C: BO 9/20/13

Unionized Ammonia Calculation

Client:	AMEC POLA POLB Bight '13
Test Type:	10-day Eohaustorius Survival
Test ID:	1307-5159 - SM3
Test Date:	7/23/2013

Sample ID	Test Day	Sample Type	Actual Total Ammonia (mg/L)	Temp (C)	Salinity (ppt)	pH	Temp (K)	I	I Rounded	pK	**Unionized Ammonia (mg/L)**
Lab Control #1	10	Overlying Water	<0.5	14.8	32.5	8.06	287.96	7.19509	7	9.33	<0.012
Fine Grain Size Control	10	Overlying Water	1.2	15.1	32.9	8.01	288.26	7.28031	7	9.33	0.027
B13-8401	10	Overlying Water	<0.5	15.3	32.9	8.02	288.46	7.28031	7	9.33	<0.012
B13-8399	10	Overlying Water	<0.5	15.3	32.9	8.08	288.46	7.28031	7	9.33	<0.013
TMDL-3TB	10	Overlying Water	<0.5	15.2	32.8	8.06	288.36	7.259	7	9.33	<0.013
B13-8397	10	Overlying Water	<0.5	15.1	33.0	7.96	288.26	7.30163	7	9.33	<0.010
TMDL-4CS	10	Overlying Water	1.1	15.2	32.6	8.20	288.36	7.21639	7	9.33	0.038
B13-8396	10	Overlying Water	<0.5	15.2	32.6	8.08	288.36	7.21639	7	9.33	<0.013
B13-8384	10	Overlying Water	<0.5	15.2	32.7	8.10	288.36	7.23769	7	9.33	<0.014
Lab Control #2	10	Overlying Water	<0.5	15.2	32.4	8.09	288.36	7.1738	7	9.33	<0.014
B13-8340	10	Overlying Water	<0.5	15.1	32.9	8.01	288.26	7.28031	7	9.33	<0.011
B13-8367	10	Overlying Water	1.1	15.3	32.6	8.08	288.46	7.21639	7	9.33	0.030
TMDL-2FH	10	Overlying Water	<0.5	15.2	32.7	8.15	288.36	7.23769	7	9.33	<0.016
B13-8316	10	Overlying Water	0.5	15.2	32.2	8.01	288.36	7.13122	7	9.33	0.011
B13-8302	10	Overlying Water	<0.5	15.4	32.0	8.13	288.56	7.08867	7	9.33	<0.015
B13-8365	10	Overlying Water	0.6	15.2	31.9	7.98	288.36	7.0674	7	9.33	0.013
B13-8306	10	Overlying Water	<0.5	15.2	32.0	8.18	288.36	7.08867	7	9.33	<0.017
TMDL-1CH	10	Overlying Water	<0.5	15	32.1	7.99	288.16	7.10994	7	9.33	<0.011

Entry: KL 9/17/13
Q/C: SO 9/20/13

Unionized Ammonia Calculation

Client:	AMEC POLA POLB Bight '13
Test Type:	48-hour Bivalve Larval Development
Test ID:	1307-S174-S188
Test Date:	7/23/2013

Sample ID	Test Day	Sample Type	Actual Total Ammonia (mg/L)	Temp (C)	Salinity (ppt)	pH	Temp (K)	I	I Rounded	pK	**Unionized Ammonia (mg/L)**
Lab Control #1	0	Overlying Water	0.6	14.8	31.3	7.96	287.96	6.93986	7	9.33	0.012
B13-8401	0	Overlying Water	1.3	14.9	31.8	7.86	288.06	7.04613	7	9.33	0.021
B13-8399	0	Overlying Water	0.5	15	31.8	7.93	288.16	7.04613	7	9.33	0.009
TMDL-3TB	0	Overlying Water	0.9	15.9	31.5	7.93	289.06	6.98235	7	9.33	0.018
B13-8397	0	Overlying Water	0.6	15.1	31.7	7.84	288.26	7.02487	7	9.33	0.009
TMDL-4CS	0	Overlying Water	1.1	15.2	32.0	7.82	288.36	7.08867	7	9.33	0.016
B13-8396	0	Overlying Water	0.7	14.7	31.7	7.92	287.86	7.02487	7	9.33	0.013
B13-8384	0	Overlying Water	0.7	14.8	31.5	7.89	287.96	6.98235	7	9.33	0.012
Lab Control #2	0	Overlying Water	<0.5	14.6	31.4	8.01	287.76	6.9611	7	9.33	<0.011
B13-8340	0	Overlying Water	0.7	14.8	31.6	7.92	287.96	7.00361	7	9.33	0.013
B13-8367	0	Overlying Water	1.7	14.9	31.8	7.94	288.06	7.04613	7	9.33	0.032
TMDL-2FH	0	Overlying Water	0.9	15.1	31.7	7.83	288.26	7.02487	7	9.33	0.014
B13-8316	0	Overlying Water	1.0	15.1	31.6	7.93	288.26	7.00361	7	9.33	0.019
B13-8302	0	Overlying Water	1.3	15.2	31.7	7.86	288.36	7.02487	7	9.33	0.021
B13-8365	0	Overlying Water	1.2	15.1	31.9	7.89	288.26	7.0674	7	9.33	0.021
B13-8306	0	Overlying Water	1.3	14.9	31.6	7.93	288.06	7.00361	7	9.33	0.024
TMDL-1CH	0	Overlying Water	1.1	14.8	31.6	7.92	287.96	7.00361	7	9.33	0.020

Entry: KL 9/19/13
Q/C: SO 9/20/13

Unionized Ammonia Calculation

Client:	AMEC POLA POLB Bight '13
Test Type:	48-hour Bivalve Larval Development
Test ID:	1307-5174-5188
Test Date:	7/23/2013

Sample ID	Test Day	Sample Type	Actual Total Ammonia (mg/L)	Temp (C)	Salinity (ppt)	pH	Temp (K)	I	I Rounded	pK	**Unionized Ammonia (mg/L)**
Lab Control #1	2	Overlying Water	<0.5	14.2	31.2	8.00	287.36	6.91862	7	9.33	<0.010
B13-8401	2	Overlying Water	2.2	14.3	31.8	7.92	287.46	7.04613	7	9.33	0.038
B13-8399	2	Overlying Water	<0.5	14.5	31.8	7.96	287.66	7.04613	7	9.33	<0.010
TMDL-3TB	2	Overlying Water	0.7	14.5	31.4	7.90	287.66	6.9611	7	9.33	0.012
B13-8397	2	Overlying Water	<0.5	14.7	32.0	7.83	287.86	7.08867	7	9.33	<0.007
TMDL-4CS	2	Overlying Water	2.1	14.5	31.8	7.85	287.66	7.04613	7	9.33	0.032
B13-8396	2	Overlying Water	1	14.2	31.7	7.94	287.36	7.02487	7	9.33	0.018
B13-8384	2	Overlying Water	0.6	14.3	31.8	7.90	287.46	7.04613	7	9.33	0.010
Lab Control #2	2	Overlying Water	<0.5	14.5	31.2	7.97	287.66	6.91862	7	9.33	<0.010
B13-8340	2	Overlying Water	<0.5	14.3	31.8	7.90	287.46	7.04613	7	9.33	<0.008
B13-8367	2	Overlying Water	1.3	14.5	31.7	7.93	287.66	7.02487	7	9.33	0.023
TMDL-2FH	2	Overlying Water	<0.5	14.3	31.8	7.97	287.46	7.04613	7	9.33	<0.010
B13-8316	2	Overlying Water	1.0	14.4	31.9	7.88	287.56	7.0674	7	9.33	0.016
B13-8302	2	Overlying Water	1.3	14.6	32.0	7.89	287.76	7.08867	7	9.33	0.022
B13-8365	2	Overlying Water	1.0	14.4	31.9	7.95	287.56	7.0674	7	9.33	0.019
B13-8306	2	Overlying Water	2.0	14.4	31.5	7.94	287.56	6.98235	7	9.33	0.037
TMDL-1CH	2	Overlying Water	1.5	14.3	31.8	7.86	287.46	7.04613	7	9.33	0.023

Entry: KL 9/19/13
Q/C: SO 9/25/13

Total Ammonia Analysis
Marine

Pore Water

Client: AMEC
Project: POLA/POLB Bight '13 / Batch #2)
Test Type: *E. estuarius* 10-day Survival and *M.galloprovincialis* 48-h Larval Survival & Development

DI Blank: 0.0
SW Blank: 0.0
Test Start Date: (Bivalve) 7/20/13 and 7/23/2013 (Eohaustorius)
Analyst: EC
Analysis Date: 7/18/13

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	pH (units)	Salinity (ppt)	NH3-N (mg/L)	Ammonia (mg/L) N x 1.22	
Blank Spike (10 mg/L NH_3)		NA	NA	NA	NA	7.5	9.2	
B13-8401	52	7/18/13	PW	7.18	33.1	3.9	4.8	
B13-8399	53	7/13/13	PW	~~7.51~~ 7.67	33.2	0.7	0.9	
TMDL-4~~FB~~ CS BG	54	7/18/13	PW	7.33	33.3	5.6	6.8	
B13-8397	55	7/13/13	PW	7.41	33.2	1.8	2.2	
TMDL-3~~CS~~ FB BG	56	7/13/13	PW	7.78	32.3	0.9	1.1	
B13-8396	57	7/13/13	PW	7.53	32.5	0.3	~~0.4~~ BG	<0.5
B13-8384	58	7/13/13	PW	7.24	32.5	0.6	~~0.8~~ BG	0.7
B13-8340	59	7/13/13	PW	7.30	32.5	0.7	0.9	
B13-8367	60	7/13/13	PW	7.27	32.7	1.0	1.22	
TMDL-2FH	61	7/13/13	PW	7.36	32.4	2.0	2.4	
Spike Check (10 mg/L NH_3)		NA	NA	NA	NA	7.4	9.0	
B13-8316	62	7/18/13	PW	7.45	33.3	2.6	3.2	
B13-8302	63	7/13/13	PW	7.36	32.4	1.2	1.5	
~~B13-8309~~ B13-8365	64	7/14/13	PW	7.60	33.6	1.4	1.7	
B13-8306	65	7/13/13	PW	7.28	32.5	1.2	1.5	
TMDL-1C~~M~~ H BG	66	7/18/13	PW	7.39	33.5	3.0	3.7	
Sample Duplicate[a]		NA	NA	NA	NA	2.9	3.5	
Sample Duplicate + Spike[a]		NA	NA	NA	NA	11.4	13.9	
Spike Check (10 mg/L NH_3)		NA	NA	NA	NA	7.5	9.2	

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) / [average ammonia] (mg/L) x 100 — **Acceptable Range: 0-20%**

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) / nominal [spike] (mg/L) x 100 — **Acceptable Range: 80-120%[b]**

QC Sample ID	$[NH_3]$	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	9.2	10	NA EC	92
66	3.7	3.5	13.9	10	~~0.06~~ ~~0.04~~ EC 5.6	~~109~~ BG 102

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] RPD calculation not performed due to one or more values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: BG 7/18/13

Final Review: VL 8/22/13

Total Ammonia Analysis
Marine

Pore Water

Client: AMEC
Project: POLA/POLB Bight '13 - Batch #2
Test Type: *E. estuarius* 10-day Survival

DI Blank: 0.0
SW Blank: 0.0
Test Start Date: 7/23/2013
Analyst: TS
Analysis Date: 9/16/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	pH (units)	Salinity (ppt)	NH3-N (mg/L)	Ammonia (mg/L)
Blank Spike (10 mg/L NH_3)		NA	NA	NA	NA	7.8	9.5
Lab Control #1	215	7/23/2013	Day 0 PW	7.75	31.0	0.3	<0.5
Fine Grain Control	216	7/23/2013	Day 0 PW	7.28	32.7	5.6	6.8
B13-8401	217	7/23/2013	Day 0 PW	7.24	31.7	4.5	5.5
B13-8399	218	7/23/2013	Day 0 PW	7.27	31.9	2.8	3.4
TMDL-~~4TB~~ 3TB	219	7/23/2013	Day 0 PW	7.53	31.7	2.6	3.2
B13-8397	220	7/23/2013	Day 0 PW	7.34	32.3	2.6	3.2
TMDL-~~3CS~~ 4CS	221	7/23/2013	Day 0 PW	7.30	32.1	3.8	4.6
B13-8396	222	7/23/2013	Day 0 PW	7.30	31.0	3.3	4.0
B13-8384	223	7/23/2013	Day 0 PW	7.22	31.2	2.3	2.8
Lab Control #2	224	7/23/2013	Day 0 PW	7.75	31.0	~~7.8~~ 0.3	~~9.5~~ <0.5
Spike Check (10 mg/L NH_3)		NA	NA	NA	NA	7.8	9.5
B13-8340	225	7/23/2013	Day 0 PW	7.17	31.6	2.7	3.3
B13-8367	226	7/23/2013	Day 0 PW	7.42	31.3	3.0	3.7
TMDL-2FH	227	7/23/2013	Day 0 PW	7.22	32.0	2.4	3.0
B13-8316	228	7/23/2013	Day 0 PW	7.19	31.8	3.7	4.5 x 5/5
B13-8302	229	7/23/2013	Day 0 PW	7.26	32.0	4.5	5.5
B13-~~8309~~ 8365	230	7/23/2013	Day 0 PW	7.23	31.7	4.1	5.0
B13-8306	231	7/23/2013	Day 0 PW	7.40	32.4	4.6	5.6
TMDL-~~1CH~~ 1CH	232	7/23/2013	Day 0 PW	7.31	32.3	3.2	~~4.0~~ 3.9
B13-8325 Split		7/23/13	Day 0 PW	7.26	32.6	3.3	4.0
B13-9197 Split		7/23/13	Day 0 PW	7.20	32.7	3.5	4.3
Sample Duplicate[a]		NA	NA	NA	NA	3.7	4.5
Sample Duplicate + Spike[a]		NA	NA	NA	NA	11.2	13.7
Spike Check (10 mg/L NH_3)		NA	NA	NA	NA	7.8	9.5

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) / [average ammonia] (mg/L) x 100

Acceptable Range: 0-20%

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) / nominal [spike] (mg/L) x 100

Acceptable Range: 80-120%[b]

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	9.5	10	NA	95
B13-9197 Split	4.3	4.5	13.7	10	~~6~~ 5	94

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] RPD calculation not performed due to one or more values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: KL 9/19/13

Final Review: 9/20/13

Total Ammonia Analysis
Marine

Overlying Water

Client: AMEC
Project: POLA/POLB Bight '13 - Batch #2
Test Type: *Eohaustorius estuarius* 10-day Survival

DI Blank: 0.0
SW Blank: 0.0

Test Start Date: 7/23/2013

Analyst: TS
Analysis Date: 9/10/13

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L) N x 1.22
Blank Spike (10 mg/L NH_3)		NA	NA	7.6	9.3
Lab Control #1	67	7/23/2013	0	0.0	<0.5
Fine Grain Size Control	68	7/23/2013	0	0.6	0.7
B13-8401	69	7/23/2013	0	0.5	0.6
B13-8399	70	7/23/2013	0	0.2	~~<0.5~~ <0.5
TMDL-~~4TB~~ 3TB	71	7/23/2013	0	0.3	~~<0.5~~ <0.5
B13-8397	72	7/23/2013	0	0.2	~~<0.5~~ <0.5
TMDL-~~3CS~~ 4CS	73	7/23/2013	0	0.9	1.1
B13-8396	74	7/23/2013	0	0.2	~~<0.5~~ <0.5
B13-8384	75	7/23/2013	0	0.5	0.6
Lab Control #2	76	7/23/2013	0	0.2	~~<0.5~~ <0.5
Spike Check (10 mg/L NH_3)		NA	NA	7.6	9.3
B13-8340	77	7/23/2013	0	0.4	~~<0.5~~ <0.5 0.5
B13-8367	78	7/23/2013	0	0.7	0.9
TMDL-2FH	79	7/23/2013	0	0.0	~~<0.5~~ <0.5
B13-8316	80	7/23/2013	0	0.3	<0.5
B13-8302	81	7/23/2013	0	0.6	0.7
B13-~~8309~~ 8366	82	7/23/2013	0	0.5	0.6
B13-8306	83	7/23/2013	0	0.4	~~<0.5~~ KL 0.5
TMDL-~~1CM~~ 1CH	84	7/23/2013	0	0.5	0.6
B13-8325 split		7/23/13	0	0.4	~~<0.5~~ 0.5
B13-9197 split		7/23/13	0	0.4	~~<0.5~~ KL 0.5
Sample Duplicate[a]		NA	NA	0.4	~~<0.5~~ 0.5
Sample Duplicate + Spike[a]		NA	NA	8.0	9.8
Spike Check (10 mg/L NH_3)		NA	NA	7.6	9.3

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) / [average ammonia] (mg/L) x 100 — **Acceptable Range: 0-20%**

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) / nominal [spike] (mg/L) x 100 — **Acceptable Range: 80-120%[b]**

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	9.3	10	NA	93
B13-9197 Split	<0.5	~~<0.5~~	8.0	10	C	C

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

QC Check: KL 9/19/13

Final Review: SO 9/20/13

Total Ammonia Analysis
Marine

Overlying Water

Client: AMEC
Project: POLA/POLB Bight '13
Test Type: *Eohaustorius estuarius* 10-day Survival (Batch #2)

DI Blank: 0.0
SW Blank: 0.0

Test Start Date: 7/23/2013

Analyst: ML
Analysis Date: 8/15/13

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L) N x 1.22
Blank Spike (10 mg/L NH_3)		NA	NA	6.8	8.3
Lab Control #1	85	8/2/2013	10	0.2	<0.5
Fine Grain Size Control	86	8/2/2013	10	1.0	1.2
B13-8401	87	8/2/2013	10	0.0	<0.5
B13-8399	88	8/2/2013	10	0.0	<0.5
TMDL-~~4TB~~ 3TB	89	8/2/2013	10	0.0	<0.5
B13-8397	90	8/2/2013	10	0.0	<0.5
TMDL-~~3CS~~ 4CS	91	8/2/2013	10	0.9	1.1
B13-8396	92	8/2/2013	10	0.2	<0.5
B13-8384	93	8/2/2013	10	0.2	<0.5
Lab Control #2	94	8/2/2013	10	0.0	<0.5
Spike Check (10 mg/L NH_3)		NA	NA	6.7	8.2
B13-8340	95	8/2/2013	10	0.1	<0.5
B13-8367	96	8/2/2013	10	0.9	1.1
TMDL-2FH	97	8/2/2013	10	0.2	<0.5
B13-8316	98	8/2/2013	10	0.4	ML ~~<0.5~~ 0.5
B13-8302	99	8/2/2013	10	0.2	<0.5
B13-~~8309~~ 8365	100	8/2/2013	10	0.5	0.6
B13-8306	101	8/2/2013	10	0.3	<0.5
TMDL-~~1CM~~ 1CH	102	8/2/2013	10	0.3	ML ~~0.4~~ <0.5
B13-8305*					
B13-9197*					
Sample Duplicate[a]		NA	NA	0.3	ML ~~0.4~~ <0.5
Sample Duplicate + Spike[a]		NA	NA	8.4	10.2
Spike Check (10 mg/L NH_3)		NA	NA	6.8	8.3

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) / [average ammonia] (mg/L) x 100

Acceptable Range: 0-20%

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) / nominal [spike] (mg/L) x 100

Acceptable Range: 80-120%[b]

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	8.3	10	NA	83
TMDL-1CH	~~0.4~~ <0.5 ML	<0.5 ~~0.4~~ ML	10.2	10	ML ~~82~~ C	~~98~~ C

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L * Not collected.

QC Check: BG 8/19/13

Final Review: KLB 8/22/13

Total Ammonia Analysis
Marine

Overlying Water

Client: AMEC
Project: POLA/POLB Bight '13
Test Type: *Mytilus galloprovincialis* 48-h Larval Survival and Development

DI Blank: 0.0
SW Blank: 0.0

Test Start Date: 7/20/2013

Analyst: TS
Analysis Date: 9/18/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L)
Blank Spike (10 mg/L NH_3)		NA	NA	7.8	9.5
Lab Control #1	149	7/20/2013	0	0.5	0.6
B13-8401	150	7/20/2013	0	1.1	1.3
B13-8399	151	7/20/2013	0	0.4	~~<0.5~~ 0.5
TMDL-~~4TB~~ 3TB	152	7/20/2013	0	0.7	~~0.8~~ 0.9
B13-8397	153	7/20/2013	0	0.5	0.6
TMDL-~~3CS~~ 4CS	154	7/20/2013	0	0.9	1.1
B13-8396	155	7/20/2013	0	0.6	0.7
B13-8384	156	7/20/2013	0	0.6	0.7
Lab Control #2	157	7/20/2013	0	0.3	<0.5
B13-8340	158	7/20/2013	0	0.6	0.7
Spike Check (10 mg/L NH_3)		NA	NA	7.8	9.5
B13-8367	159	7/20/2013	0	1.4	1.7
TMDL-2FH	160	7/20/2013	0	0.7	0.9
B13-8316	161	7/20/2013	0	0.8	~~0.8~~ 1.0
B13-8302	162	7/20/2013	0	1.1	1.3
B13-~~8309~~ 8305	163	7/20/2013	0	1.0	1.2
B13-8306	164	7/20/2013	0	1.1	1.3
TMDL-~~1GM~~ 1CH	165	7/20/2013	0	0.9	1.1
B13-8325 *					
B13-9197 *					
Sample Duplicate[a]		NA	NA	0.7	0.9
Sample Duplicate + Spike[a]		NA	NA	8.5	10.4
Spike Check (10 mg/L NH_3)		NA	NA	7.8	9.5

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) x 100
[average ammonia] (mg/L)

Acceptable Range: 0-20%

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) x 100
nominal [spike] (mg/L)

Acceptable Range: 80-120%[b]

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	9.5	10	NA	95
TMDL-1CH	1.1	0.9	10.4	10	20	93

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L

* not collected

QC Check: KL 9/19/13

Final Review: SO 9/20/13

Total Ammonia Analysis **Overlying Water**
Marine

Client: AMEC
Project: POLA/POLB Bight '13
Test Type: *Mytilus galloprovincialis* 48-h Larval Survival and Development

DI Blank: 0.0 **Test Start Date:** 7/20/2013 **Analyst:** AB
SW Blank: ~~0.0~~ AB 0.0 **Analysis Date:** 8/14/13

N x 1.22

Sample ID	Nautilus ID	Sub-Sample Date	Test Day	NH3-N (mg/L)	Ammonia (mg/L)
Blank Spike (10 mg/L NH_3)		NA	NA	~~8.0~~ 7.5	~~9.8~~ 9.2
Lab Control #1	166	7/22/2013	2	~~0.2~~ 0.0	<0.5
B13-8401	167	7/22/2013	2	1.8	2.2
B13-8399	168	7/22/2013	2	0.3	<0.5
TMDL-~~4FB~~ 3FB	169	7/22/2013	2	0.6	~~0.7~~ 0.7
B13-8397	170	7/22/2013	2	0.3	<0.5
TMDL-~~3CS~~ 4CS	171	7/22/2013	2	1.7	2.1
B13-8396	172	7/22/2013	2	0.8	1.0
B13-8384	173	7/22/2013	2	0.5	0.6
Lab Control #2	174	7/22/2013	2	~~0.3~~ 0.0	<0.5
B13-8340	175	7/22/2013	2	0.3	<0.5
Spike Check (10 mg/L NH_3)		NA	NA	8.0	9.8
B13-8367	176	7/22/2013	2	1.1	1.3
TMDL-2FH	177	7/22/2013	2	0.3	<0.5
B13-8316	178	7/22/2013	2	0.8	1.0
B13-8302	179	7/22/2013	2	1.1	1.3
B13-~~8309~~ 8365	180	7/22/2013	2	0.8	1.0
B13-8306	181	7/22/2013	2	1.6	2.0
TMDL-~~TCM~~ ICH	182	7/22/2013	2	~~0.9~~ 1.2	~~1.1~~ 1.5
B13-8325 *					
B13-9197 *					
Sample Duplicate[a]		NA	NA	~~1.4~~ 1.1	~~1.7~~ 1.3
Sample Duplicate + Spike[a]		NA	NA	~~8.9~~ 8.3	~~10.9~~ 10.1
Spike Check (10 mg/L NH_3)		NA	NA	~~8.1~~ 7.5	~~9.9~~ 9.2

Relative Percent Difference (RPD) = [sample] (mg/L) - [sample duplicate] (mg/L) x 100
[average ammonia] (mg/L)

Acceptable Range: 0-20%

Percent Recovery = [spiked sample] (mg/L) - [sample] (mg/L) x 100
nominal [spike] (mg/L)

Acceptable Range: 80-120%[b]

QC Sample ID	[NH_3]	[Sample Dup]	Measured [Spike]	Nominal [Spike]	RPD	% Recovery
Blank	0.0	NA	~~9.8~~ 9.2	10	NA	~~98~~ 92
~~B13-8306~~ AB	~~1.1~~ 1.5	~~1.7~~ 1.3	~~10.9~~ 10.1	10	~~12.9~~ 14.3	~~99~~ 86

TMDL-ICH (4182)

Comments:

Notes: [a] Unless otherwise noted, the last sample listed on the datasheet is used for duplicate and duplicate + spike QC check.

[b] Acceptable range for % recovery applies only to the blank spike. Spike recoveries in samples may vary based on sample matrix and are for information only.

[c] RPD calculation not performed due to one or both values below the method detection limit.

Method Detection Limit (MDL) = 0.5 mg/L * Not Collected

QC Check: KL 9/19/13 **Final Review:** SO 9/25/13

Appendix F

Reference Toxicant Information

CETIS Summary Report

Acute Amphipod Survival Test — Nautilus Environmental (CA)

Batch ID:	19-8921-7511	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	16 Jul-13 15:30	**Protocol:**	EPA/600/R-94/025 (1994)	**Diluent:**	Diluted Natural Seawater
Ending Date:	20 Jul-13 13:35	**Species:**	Eohaustorius estuarius	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Northwestern Aquatic Science, OR Size Age: AC 3-5mm		

Sample ID:	15-5788-3937	**Code:**	130716eeraNH	**Client:**	Internal
Sample Date:	16 Jul-13	**Material:**	Total Ammonia	**Project:**	
Receive Date:	16 Jul-13	**Source:**	Reference Toxicant		
Sample Age:	16h	**Station:**	Total Ammonia (measured)		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
18-6440-0290	96h Survival Rate	116.8	239.4	167.2	10.6%		Steel Many-One Rank Sum Test

Point Estimate Summary

Analysis ID	Endpoint	Level	mg/L	95% LCL	95% UCL	TU	Method
13-6124-1070	96h Survival Rate	EC50	192	171.4	215		Trimmed Spearman-Kärber

96h Survival Rate Summary

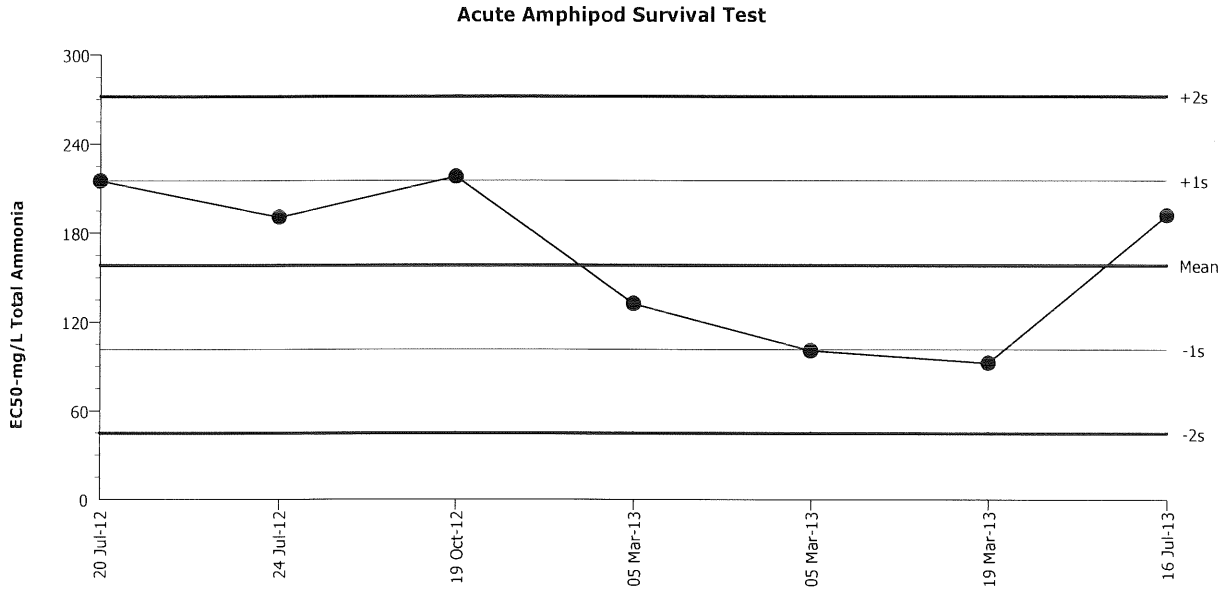
C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	1	1	1	1	1	0	0	0.0%	0.0%
14.5		4	1	1	1	1	1	0	0	0.0%	0.0%
30		4	0.95	0.9284	0.9716	0.9	1	0.02887	0.05774	6.08%	5.0%
58.3		4	1	1	1	1	1	0	0	0.0%	0.0%
116.8		4	0.95	0.9127	0.9873	0.8	1	0.05	0.1	10.53%	5.0%
239.4		4	0.3	0.2472	0.3528	0.1	0.4	0.07071	0.1414	47.14%	70.0%

96h Survival Rate Detail

C-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	1	1	1	1
14.5		1	1	1	1
30		1	0.9	0.9	1
58.3		1	1	1	1
116.8		1	0.8	1	1
239.4		0.1	0.4	0.4	0.3

Acute Amphipod Survival Test | Nautilus Environmental (CA)

Test Type:	Survival (96h)	**Organism:**	Eohaustorius estuarius (Amphipod)	**Material:**	Total Ammonia
Protocol:	EPA/600/R-94/025 (1994)	**Endpoint:**	96h Survival Rate	**Source:**	Reference Toxicant-REF



Mean:	158.4	**Count:**	6	**-1s Warning Limit:**	101.6	**-2s Action Limit:**	44.76
Sigma:	56.82	**CV:**	35.90%	**+1s Warning Limit:**	215.2	**+2s Action Limit:**	272

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2012	Jul	20	215.2	56.85	1	(+)		13-4887-9475	19-0227-0347
2			24	190.8	32.4	0.5703			06-0022-0875	18-3343-8257
3		Oct	19	218	59.61	1.049	(+)		11-9001-8810	19-5920-6961
4	2013	Mar	5	132.6	-25.79	-0.4539			02-8576-9591	02-0123-6764
5			5	100.9	-57.52	-1.012	(-)		05-0400-3106	15-3478-2725
6			19	92.58	-65.82	-1.158	(-)		02-8887-7708	16-4451-4042
7		Jul	16	192	33.57	0.5907			14-9711-0096	13-6124-1070

CETIS Summary Report

Acute Amphipod Survival Test					Nautilus Environmental (CA)
Batch ID:	19-2212-5416	Test Type:	Survival (96h)	Analyst:	
Start Date:	16 Jul-13 15:30	Protocol:	EPA/600/R-94/025 (1994)	Diluent:	Diluted Natural Seawater
Ending Date:	20 Jul-13 13:35	Species:	Eohaustorius estuarius	Brine:	Not Applicable
Duration:	94h	Source:	Northwestern Aquatic Science, OR	Age:	3-5mm
Sample ID:	16-9718-1787	Code:	130716eeraUN	Client:	Internal
Sample Date:	16 Jul-13	Material:	Un-ionized Ammonia	Project:	
Receive Date:	16 Jul-13	Source:	Reference Toxicant		
Sample Age:	16h	Station:	Un-ionized Ammonia		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
09-0704-8141	96h Survival Rate	1.591	2.249	1.892	10.6%		Steel Many-One Rank Sum Test

Point Estimate Summary

Analysis ID	Endpoint	Level	mg/L	95% LCL	95% UCL	TU	Method
19-9109-5789	96h Survival Rate	EC50	2.022	1.914	2.135		Trimmed Spearman-Kärber

96h Survival Rate Summary

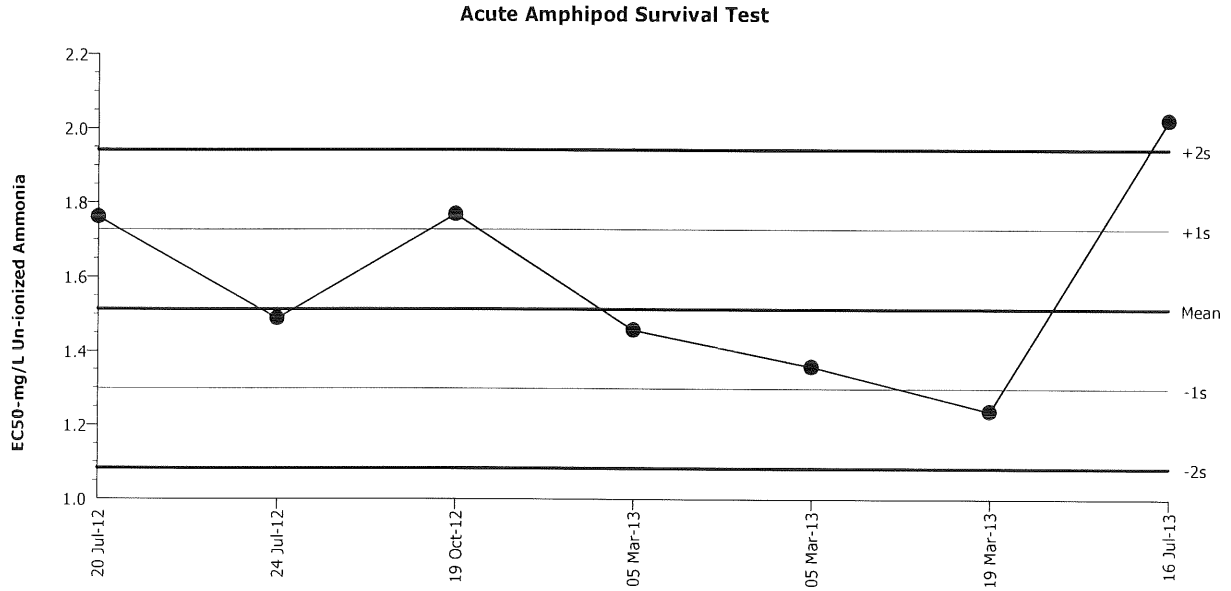
C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	1	1	1	1	1	0	0	0.0%	0.0%
0.306		4	1	1	1	1	1	0	0	0.0%	0.0%
0.583		4	0.95	0.9284	0.9716	0.9	1	0.02887	0.05774	6.08%	5.0%
1.012		4	1	1	1	1	1	0	0	0.0%	0.0%
1.591		4	0.95	0.9127	0.9873	0.8	1	0.05	0.1	10.53%	5.0%
2.249		4	0.3	0.2472	0.3528	0.1	0.4	0.07071	0.1414	47.14%	70.0%

96h Survival Rate Detail

C-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	1	1	1	1
0.306		1	1	1	1
0.583		1	0.9	0.9	1
1.012		1	1	1	1
1.591		1	0.8	1	1
2.249		0.1	0.4	0.4	0.3

Acute Amphipod Survival Test — Nautilus Environmental (CA)

Test Type:	Survival (96h)	**Organism:**	Eohaustorius estuarius (Amphipod)	**Material:**	Un-ionized Ammonia
Protocol:	EPA/600/R-94/025 (1994)	**Endpoint:**	96h Survival Rate	**Source:**	Reference Toxicant-REF



Mean:	1.513	**Count:**	6	**-1s Warning Limit:**	1.298	**-2s Action Limit:**	1.084
Sigma:	0.2146	**CV:**	14.20%	**+1s Warning Limit:**	1.728	**+2s Action Limit:**	1.942

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2012	Jul	20	1.762	0.2491	1.161	(+)		19-2524-1167	12-1912-3053
2			24	1.489	-0.02417	-0.1126			21-1436-1426	13-8288-4140
3		Oct	19	1.769	0.2559	1.193	(+)		20-4126-0861	05-8512-9075
4	2013	Mar	5	1.458	-0.05501	-0.2563			01-9965-9797	07-7378-2736
5			5	1.359	-0.1542	-0.7185			09-5310-4026	12-1247-7332
6			19	1.239	-0.2744	-1.279	(-)		02-6497-1700	02-2723-5232
7		Jul	16	2.022	0.5088	2.371	(+)	(+)	16-3184-8229	19-9109-5789

CETIS Summary Report

Acute Amphipod Survival Test — **Nautilus Environmental (CA)**

Batch ID:	18-7661-5476	Test Type:	Survival (96h)	Analyst:	
Start Date:	23 Jul-13 16:40	Protocol:	EPA/600/R-94/025 (1994)	Diluent:	Diluted Natural Seawater
Ending Date:	27 Jul-13 14:50	Species:	Eohaustorius estuarius	Brine:	Not Applicable
Duration:	94h	Source:	Northwestern Aquatic Science, OR	Size Age:	3-5 mm

Sample ID:	07-9537-0753	Code:	130723eeraNH	Client:	Internal
Sample Date:	23 Jul-13	Material:	Total Ammonia	Project:	
Receive Date:	23 Jul-13	Source:	Reference Toxicant		
Sample Age:	17h	Station:	Total Ammonia (measured)		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
02-5428-2799	96h Survival Rate	102.1	170.6	132	12.4%		Dunnett Multiple Comparison Test

Point Estimate Summary

Analysis ID	Endpoint	Level	mg/L	95% LCL	95% UCL	TU	Method
15-9548-6258	96h Survival Rate	EC25	138.5	127.3	149.1		Linear Interpolation (ICPIN)
		EC50	>170.6	N/A	N/A		

96h Survival Rate Summary

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	0.925	0.8892	0.9608	0.8	1	0.04787	0.09574	10.35%	0.0%
11.1		4	0.875	0.8563	0.8937	0.8	0.9	0.025	0.05	5.71%	5.41%
23.4		4	0.975	0.9563	0.9937	0.9	1	0.025	0.05	5.13%	-5.41%
44.7		4	0.95	0.9127	0.9873	0.8	1	0.05	0.1	10.53%	-2.7%
102.1		4	1	1	1	1	1	0	0	0.0%	-8.11%
170.6		4	0.5	0.4695	0.5305	0.4	0.6	0.04082	0.08165	16.33%	45.95%

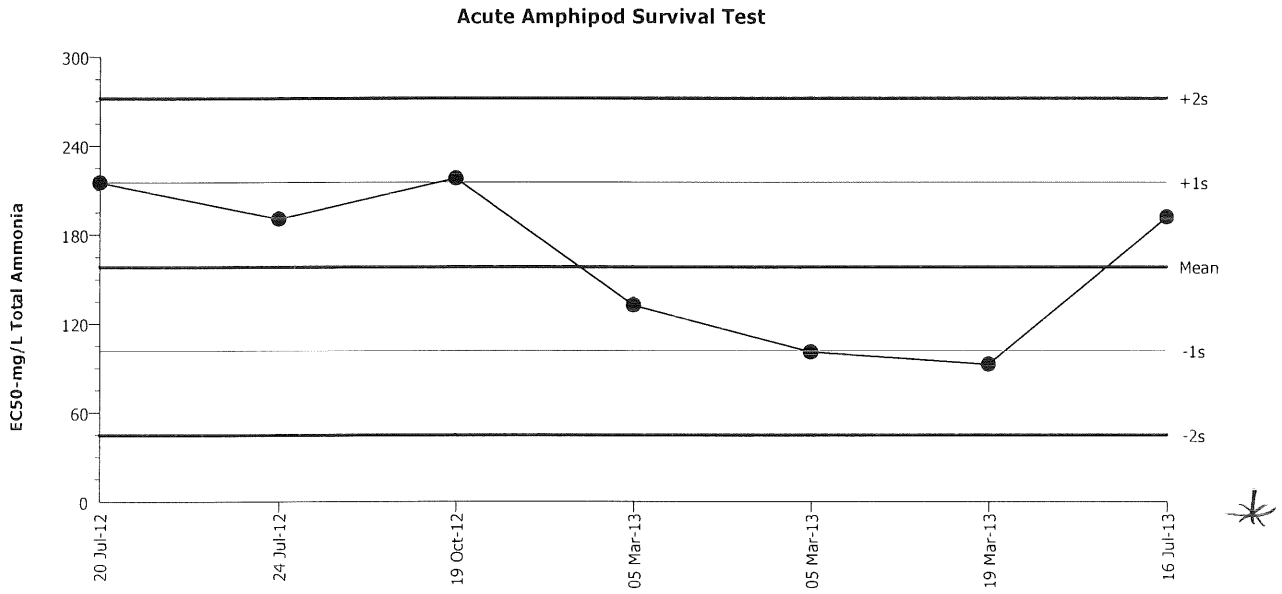
96h Survival Rate Detail

C-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	0.8	1	1	0.9
11.1		0.9	0.9	0.9	0.8
23.4		1	0.9	1	1
44.7		0.8	1	1	1
102.1		1	1	1	1
170.6		0.5	0.4	0.5	0.6

CETIS QC Plot

Report Date: 05 Aug-13 17:20 (1 of 1)

Acute Amphipod Survival Test					Nautilus Environmental (CA)
Test Type:	Survival (96h)	**Organism:**	Eohaustorius estuarius (Amphipod)	**Material:**	Total Ammonia
Protocol:	EPA/600/R-94/025 (1994)	**Endpoint:**	96h Survival Rate	**Source:**	Reference Toxicant-REF



Mean:	158.4	**Count:**	6	**-1s Warning Limit:**	101.6	**-2s Action Limit:**	44.76
Sigma:	56.82	**CV:**	35.90%	**+1s Warning Limit:**	215.2	**+2s Action Limit:**	272

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2012	Jul	20	215.2	56.85	1	(+)		13-4887-9475	19-0227-0347
2			24	190.8	32.4	0.5703			06-0022-0875	18-3343-8257
3		Oct	19	218	59.61	1.049	(+)		11-9001-8810	19-5920-6961
4	2013	Mar	5	132.6	-25.79	-0.4539			02-8576-9591	02-0123-6764
5			5	100.9	-57.52	-1.012	(-)		05-0400-3106	15-3478-2725
6			19	92.58	-65.82	-1.158	(-)		02-8887-7708	16-4451-4042
7		Jul	16	192	33.57	0.5907			14-9711-0096	13-6124-1070

* 7/23/13 EC50 not on control chart; result greater than highest concentration tested

CETIS Summary Report

Acute Amphipod Survival Test — **Nautilus Environmental (CA)**

Batch ID:	02-8489-4079	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	23 Jul-13 16:40	**Protocol:**	EPA/600/R-94/025 (1994)	**Diluent:**	Diluted Natural Seawater
Ending Date:	27 Jul-13 14:50	**Species:**	Eohaustorius estuarius	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Northwestern Aquatic Science, OR	**Age:**	3-5mm

Size AC

Sample ID:	18-7489-3659	**Code:**	130723eeraUN	**Client:**	Internal
Sample Date:	23 Jul-13	**Material:**	Un-ionized Ammonia	**Project:**	
Receive Date:	23 Jul-13	**Source:**	Reference Toxicant		
Sample Age:	17h	**Station:**	Un-ionized Ammonia		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
16-7389-4266	96h Survival Rate	1.294	1.572	1.426	12.4%		Dunnett Multiple Comparison Test

Point Estimate Summary

Analysis ID	Endpoint	Level	mg/L	95% LCL	95% UCL	TU	Method
02-7403-3707	96h Survival Rate	EC25	1.442	1.394	1.483		Linear Interpolation (ICPIN)
		EC50	>1.572	N/A	N/A		

96h Survival Rate Summary

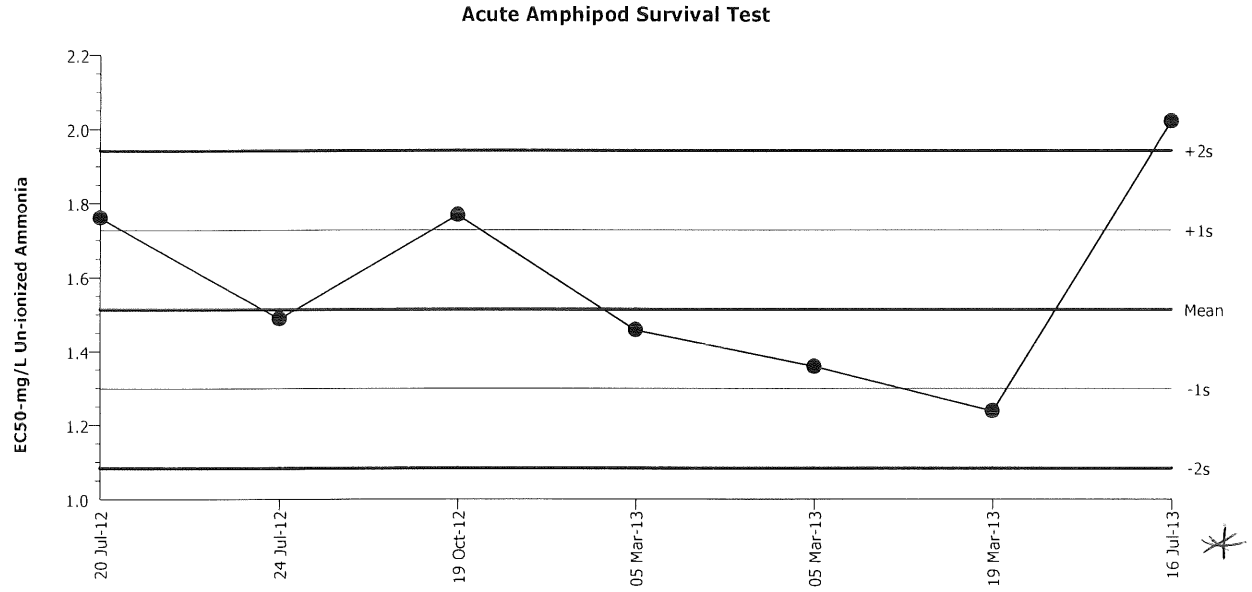
C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	0.925	0.8892	0.9608	0.8	1	0.04787	0.09574	10.35%	0.0%
0.213		4	0.875	0.8563	0.8937	0.8	0.9	0.025	0.05	5.71%	5.41%
0.426		4	0.975	0.9563	0.9937	0.9	1	0.025	0.05	5.13%	-5.41%
0.711		4	0.95	0.9127	0.9873	0.8	1	0.05	0.1	10.53%	-2.7%
1.294		4	1	1	1	1	1	0	0	0.0%	-8.11%
1.572		4	0.5	0.4695	0.5305	0.4	0.6	0.04082	0.08165	16.33%	45.95%

96h Survival Rate Detail

C-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	0.8	1	1	0.9
0.213		0.9	0.9	0.9	0.8
0.426		1	0.9	1	1
0.711		0.8	1	1	1
1.294		1	1	1	1
1.572		0.5	0.4	0.5	0.6

Acute Amphipod Survival Test — Nautilus Environmental (CA)

Test Type:	Survival (96h)	**Organism:**	Eohaustorius estuarius (Amphipod)	**Material:**	Un-ionized Ammonia
Protocol:	EPA/600/R-94/025 (1994)	**Endpoint:**	96h Survival Rate	**Source:**	Reference Toxicant-REF



Mean:	1.513	**Count:**	6	**-1s Warning Limit:**	1.298	**-2s Action Limit:**	1.084
Sigma:	0.2146	**CV:**	14.20%	**+1s Warning Limit:**	1.728	**+2s Action Limit:**	1.942

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2012	Jul	20	1.762	0.2491	1.161	(+)		19-2524-1167	12-1912-3053
2			24	1.489	-0.02417	-0.1126			21-1436-1426	13-8288-4140
3		Oct	19	1.769	0.2559	1.193	(+)		20-4126-0861	05-8512-9075
4	2013	Mar	5	1.458	-0.05501	-0.2563			01-9965-9797	07-7378-2736
5			5	1.359	-0.1542	-0.7185			09-5310-4026	12-1247-7332
6			19	1.239	-0.2744	-1.279	(-)		02-6497-1700	02-2723-5232
7		Jul	16	2.022	0.5088	2.371	(+)	(+)	16-3184-8229	19-9109-5789

*7/23/13 EC_{50} not on control chart; result greater than highest concentration tested.

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Batch ID:	05-3605-8992	Test Type:	Development-Survival	Analyst:	
Start Date:	16 Jul-13 16:30	Protocol:	ASTM E724-98 (1999) /EPA 1995	Diluent:	Diluted Natural Seawater
Ending Date:	18 Jul-13 15:20	Species:	Mytilus galloprovincialis	Brine:	Not Applicable
Duration:	47h	Source:	Taylor Shellfish, WA	Age:	

Sample ID:	16-1603-2362	Code:	130716msnh	Client:	Internal
Sample Date:	16 Jul-13	Material:	Total Ammonia	Project:	
Receive Date:	16 Jul-13	Source:	Reference Toxicant		
Sample Age:	16h	Station:	Total Ammonia (measured)		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
03-6713-2944	Combined Development Ra	10.5	19.6	14.35	11.8%		Bonferroni Adj t Test
10-0170-1135	Development Rate	6.2	7.4	6.773	6.91%		Bonferroni Adj t Test
14-4143-4812		3.9	6.2	4.917	6.56%		Dunnett Multiple Comparison Test
18-9646-7210	Survival Rate	19.6	>19.6	NA	15.6%		Dunnett Multiple Comparison Test

Point Estimate Summary

Analysis ID	Endpoint	Level	mg/L	95% LCL	95% UCL	TU	Method
03-3327-0679	Combined Development Ra	EC25	12.18	11.11	12.87		Linear Interpolation (ICPIN)
		EC50	14.66	13.94	15.11		
16-0266-5785	Development Rate	EC25	12.02	11.24	12.64		Linear Interpolation (ICPIN)
		EC50	14.54	14.03	14.96		
10-6276-3434	Survival Rate	EC25	>19.6	N/A	N/A		Linear Interpolation (ICPIN)
		EC50	>19.6	N/A	N/A		

Combined Development Rate Summary

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.7251	0.6961	0.7541	0.6375	0.8167	0.03476	0.07771	10.72%	0.0%
3.2		5	0.7044	0.6854	0.7234	0.6335	0.7769	0.02276	0.0509	7.23%	2.86%
3.9		5	0.7068	0.6937	0.7199	0.6733	0.753	0.01567	0.03503	4.96%	2.53%
6.2		5	0.6014	0.5484	0.6516	0.3625	0.7131	0.06178	0.1381	23.02%	17.25%
7.4		5	0.6653	0.6466	0.6841	0.6215	0.749	0.02247	0.05024	7.55%	8.24%
10.5		5	0.6773	0.6559	0.6987	0.5896	0.749	0.0256	0.05725	8.45%	6.59%
19.6		5	0	0	0	0	0	0	0		100.0%

Development Rate Summary

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.8376	0.8135	0.8617	0.77	0.9152	0.02883	0.06447	7.7%	0.0%
3.2		5	0.7877	0.7765	0.7989	0.7361	0.8128	0.01344	0.03005	3.82%	5.96%
3.9		5	0.7897	0.7816	0.7979	0.7545	0.8147	0.009797	0.02191	2.77%	5.72%
6.2		5	0.7751	0.7628	0.7873	0.728	0.8042	0.01466	0.03278	4.23%	7.47%
7.4		5	0.7609	0.7439	0.7778	0.7067	0.8174	0.02032	0.04544	5.97%	9.16%
10.5		5	0.7553	0.7442	0.7664	0.7191	0.7866	0.0133	0.02974	3.94%	9.82%
19.6		5	0	0	0	0	0	0	0		100.0%

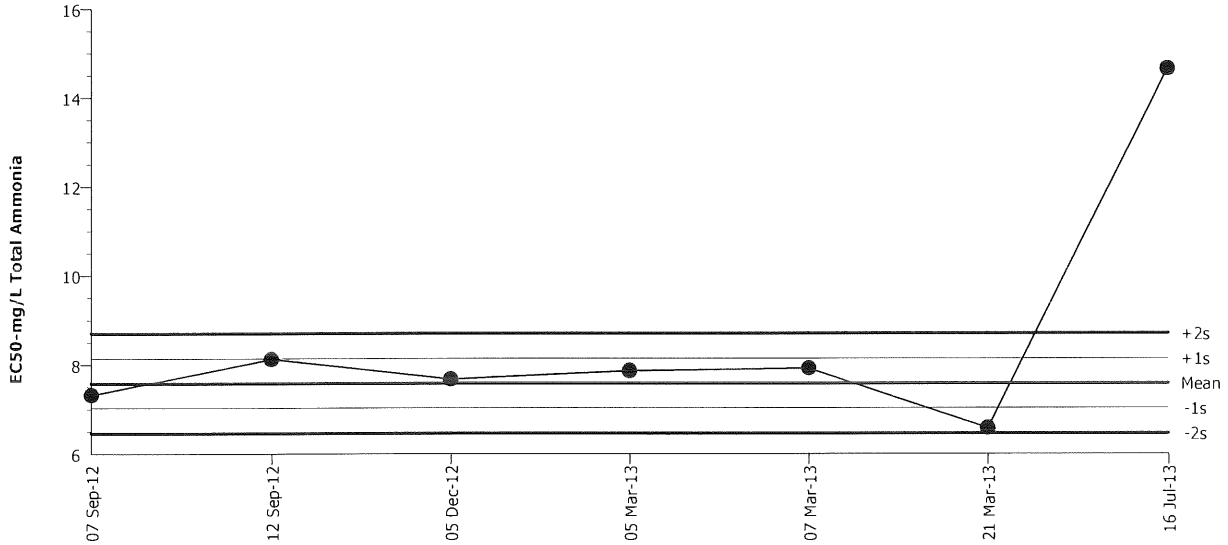
Survival Rate Summary

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.8645	0.8486	0.8805	0.8207	0.9243	0.01911	0.04272	4.94%	0.0%
3.2		5	0.894	0.875	0.9131	0.8606	0.9841	0.02284	0.05107	5.71%	-3.41%
3.9		5	0.8948	0.8828	0.9068	0.8526	0.9283	0.01434	0.03207	3.58%	-3.5%
6.2		5	0.7705	0.7102	0.8309	0.498	0.8884	0.07226	0.1616	20.97%	10.88%
7.4		5	0.8749	0.8568	0.893	0.7968	0.9163	0.02162	0.04835	5.53%	-1.2%
10.5		5	0.8972	0.8694	0.9251	0.7769	0.9522	0.03334	0.07456	8.31%	-3.78%
19.6		5	0.8606	0.8317	0.8894	0.7888	0.9841	0.03455	0.07725	8.98%	0.46%

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Test Type:	Development-Survival	**Organism:**	Mytilus galloprovincialis (Bay Mussel	**Material:**	Total Ammonia
Protocol:	All Protocols	**Endpoint:**	Combined Development Rate	**Source:**	Reference Toxicant-REF

Bivalve Larval Survival and Development Test



Mean:	7.581	**Count:**	6	**-1s Warning Limit:**	7.022	**-2s Action Limit:**	6.463
Sigma:	0.559	**CV:**	7.37%	**+1s Warning Limit:**	8.14	**+2s Action Limit:**	8.699

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2012	Sep	7	7.323	-0.2584	-0.4623			08-7896-7540	02-1099-3560
2			12	8.126	0.5454	0.9756			05-0618-8667	04-4991-0223
3		Dec	5	7.672	0.0912	0.1632			19-0351-3456	01-5143-3157
4	2013	Mar	5	7.863	0.2816	0.5037			18-3041-3263	05-0903-6031
5			7	7.918	0.3365	0.6021			06-3787-3158	00-9993-7668
6			21	6.582	-0.9986	-1.786	(-)		16-9258-5008	02-0736-3818
7		Jul	16	14.66	7.075	12.66	(+)	(+)	00-3133-9313	03-3327-0679

Analyst: _____ QA: 9/12/13

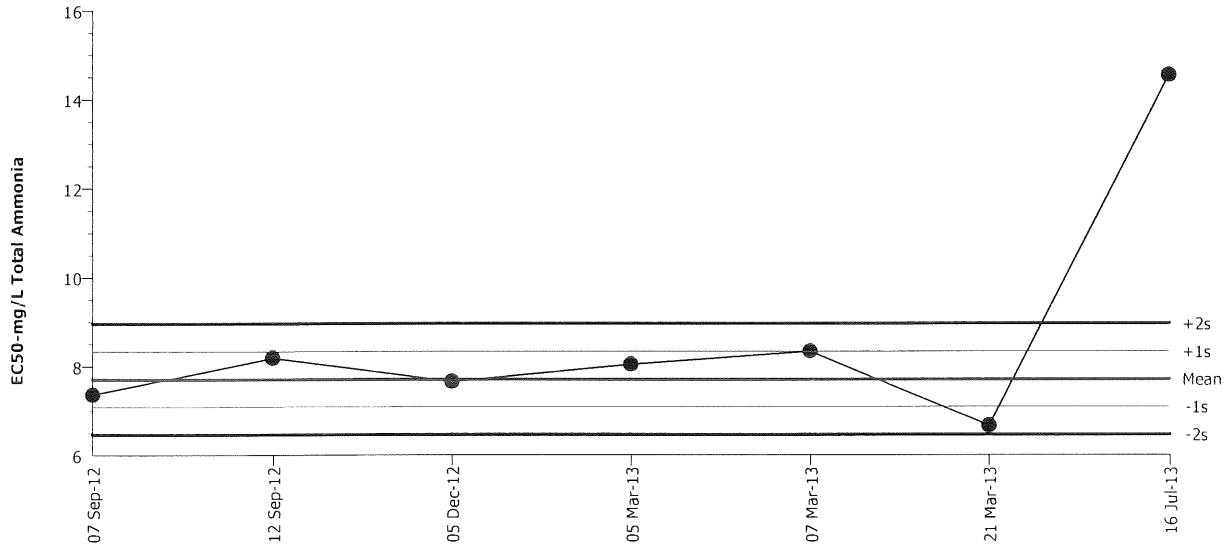
CETIS QC Plot

Report Date: 14 Aug-13 11:28 (1 of 1)

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Test Type:	Development-Survival	**Organism:**	Mytilus galloprovincialis (Bay Mussel	**Material:**	Total Ammonia
Protocol:	All Protocols	**Endpoint:**	Development Rate	**Source:**	Reference Toxicant-REF

Bivalve Larval Survival and Development Test



Mean:	7.709	**Count:**	6	**-1s Warning Limit:**	7.085	**-2s Action Limit:**	6.461
Sigma:	0.6239	**CV:**	8.09%	**+1s Warning Limit:**	8.333	**+2s Action Limit:**	8.957

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2012	Sep	7	7.361	-0.3477	-0.5572			08-7896-7540	04-0591-6084
2			12	8.187	0.4785	0.7669			05-0618-8667	03-6995-7527
3		Dec	5	7.657	-0.05176	-0.08297			19-0351-3456	20-1669-9662
4	2013	Mar	5	8.046	0.3366	0.5394			18-3041-3263	12-4788-9091
5			7	8.338	0.6285	1.007	(+)		06-3787-3158	17-1747-4725
6			21	6.667	-1.042	-1.67	(-)		16-9258-5008	03-0138-2986
7		Jul	16	14.54	6.836	10.96	(+)	(+)	00-3133-9313	16-0266-5785

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Batch ID:	10-9107-8076	Test Type:	Development-Survival	Analyst:	
Start Date:	16 Jul-13 16:30	Protocol:	ASTM E724-98 (1999) EPA 1995	Diluent:	Diluted Natural Seawater
Ending Date:	18 Jul-13 14:30	Species:	Mytilus galloprovincialis	Brine:	Not Applicable
Duration:	46h	Source:	~~Carlsbad Aquafarms~~ Taylor Shellfish WA	Age:	

Sample ID:	02-6841-5952	Code:	130716msUNNH3	Client:	Internal
Sample Date:	16 Jul-13	Material:	~~Total Ammonia~~ Un-Ionized Ammonia	Project:	
Receive Date:	16 Jul-13	Source:	Reference Toxicant		
Sample Age:	16h	Station:	Un-ionized Ammonia		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
10-0621-7618	Combined Development Ra	0.227	0.387	0.2964	11.8%		Bonferroni Adj t Test
04-1237-2228	Development Rate	0.09	0.143	0.1134	6.56%		Dunnett Multiple Comparison Test
14-4365-0647	Survival Rate	0.387	>0.387	NA	15.6%		Dunnett Multiple Comparison Test

Point Estimate Summary

Analysis ID	Endpoint	Level	mg/L	95% LCL	95% UCL	TU	Method
08-1350-9804	Combined Development Ra	EC25	0.2566	0.2373	0.2681		Linear Interpolation (ICPIN)
		EC50	0.3001	0.2872	0.3077		
19-6079-1031	Development Rate	EC25	0.2537	0.2393	0.266		Linear Interpolation (ICPIN)
		EC50	0.2981	0.2885	0.3063		
08-3755-8061	Survival Rate	EC25	>0.387	N/A	N/A		Linear Interpolation (ICPIN)
		EC50	>0.387	N/A	N/A		

Combined Development Rate Summary

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.7251	0.6961	0.7541	0.6375	0.8167	0.03476	0.07771	10.72%	0.0%
0.072		5	0.7044	0.6854	0.7234	0.6335	0.7769	0.02276	0.0509	7.23%	2.86%
0.09		5	0.7068	0.6937	0.7199	0.6733	0.753	0.01567	0.03503	4.96%	2.53%
0.143		5	~~0.6594~~ 0.6594	0.5484	0.6516	0.3625	0.7131	0.06178	0.1381	23.02%	17.25%
0.164		5	0.6653	0.6466	0.6841	0.6215	0.749	0.02247	0.05024	7.55%	8.24%
0.227		5	0.6773	0.6559	0.6987	0.5896	0.749	0.0256	0.05725	8.45%	6.59%
0.387		5	0	0	0	0	0	0	0		100.0%

Development Rate Summary

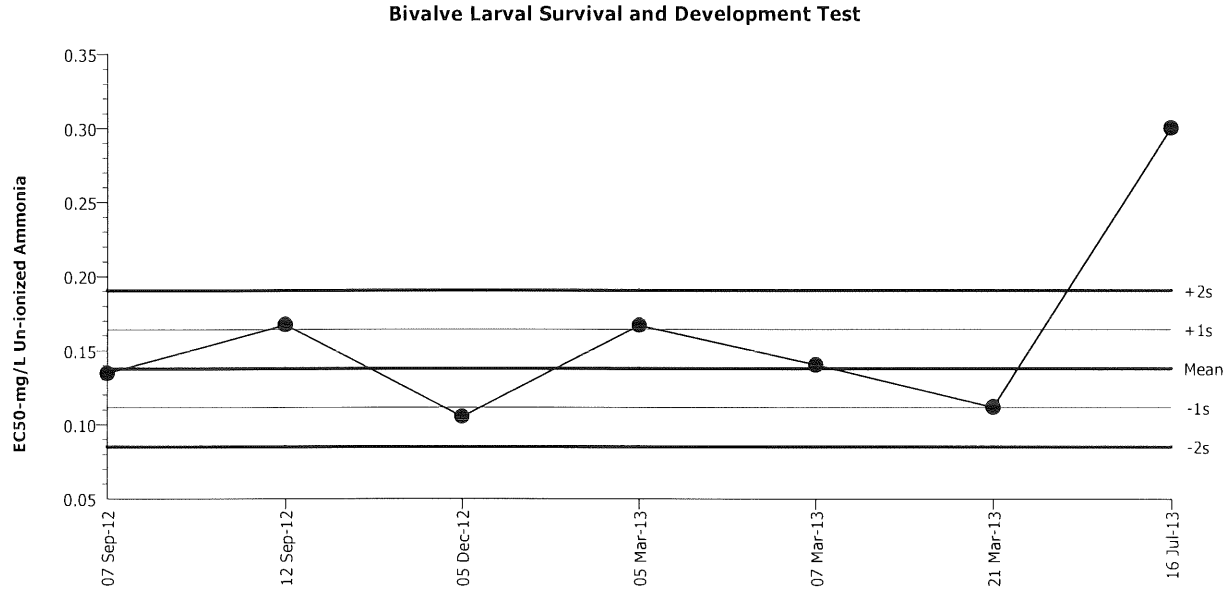
C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.8376	0.8135	0.8617	0.77	0.9152	0.02883	0.06447	7.7%	0.0%
0.072		5	0.7877	0.7765	0.7989	0.7361	0.8128	0.01344	0.03005	3.82%	5.96%
0.09		5	0.7897	0.7816	0.7979	0.7545	0.8147	0.009797	0.02191	2.77%	5.72%
0.143		5	0.7751	0.7628	0.7873	0.728	0.8042	0.01466	0.03278	4.23%	7.47%
0.164		5	0.7609	0.7439	0.7778	0.7067	0.8174	0.02032	0.04544	5.97%	9.16%
0.227		5	0.7553	0.7442	0.7664	0.7191	0.7866	0.0133	0.02974	3.94%	9.82%
0.387		5	0	0	0	0	0	0	0		100.0%

Survival Rate Summary

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.8645	0.8486	0.8805	0.8207	0.9243	0.01911	0.04272	4.94%	0.0%
0.072		5	0.894	0.875	0.9131	0.8606	0.9841	0.02284	0.05107	5.71%	-3.41%
0.09		5	0.8948	0.8828	0.9068	0.8526	0.9283	0.01434	0.03207	3.58%	-3.5%
0.143		5	0.7705	0.7102	0.8309	0.498	0.8884	0.07226	0.1616	20.97%	10.88%
0.164		5	0.8749	0.8568	0.893	0.7968	0.9163	0.02162	0.04835	5.53%	-1.2%
0.227		5	0.8972	0.8694	0.9251	0.7769	0.9522	0.03334	0.07456	8.31%	-3.78%
0.387		5	0.8606	0.8317	0.8894	0.7888	0.9841	0.03455	0.07725	8.98%	0.46%

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Test Type:	Development-Survival	**Organism:**	Mytilus galloprovincialis (Bay Mussel	**Material:**	Un-ionized Ammonia
Protocol:	All Protocols	**Endpoint:**	Combined Development Rate	**Source:**	Reference Toxicant-REF



Mean:	0.1378	**Count:**	6	**-1s Warning Limit:**	0.1115	**-2s Action Limit:**	0.0852
Sigma:	0.0263	**CV:**	19.10%	**+1s Warning Limit:**	0.1641	**+2s Action Limit:**	0.1904

Quality Control Data

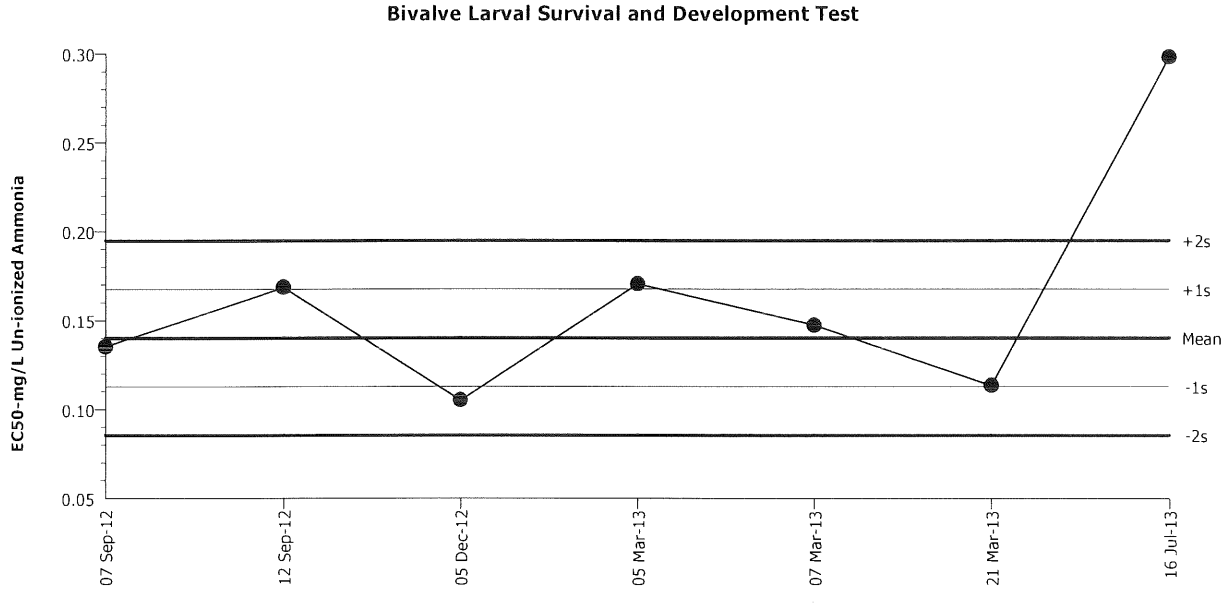
Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2012	Sep	7	0.1347	-0.00309	-0.1175			18-5070-0768	16-1300-4862
2			12	0.1675	0.02969	1.129	(+)		20-0885-2300	12-4955-8199
3		Dec	5	0.1054	-0.03237	-1.231	(-)		14-3416-5739	03-3839-8670
4	2013	Mar	5	0.1669	0.02914	1.108	(+)		21-1662-9142	02-6167-4338
5			7	0.1403	0.002491	0.09473			10-0429-0109	19-5386-5173
6			21	0.112	-0.02576	-0.9794			12-4487-8167	17-2281-9807
7		Jul	16	0.3001	0.1623	6.17	(+)	(+)	06-1861-9765	08-1350-9804

CETIS QC Plot

Report Date: 14 Aug-13 11:14 (1 of 1)

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Test Type:	Development-Survival	**Organism:**	Mytilus galloprovincialis (Bay Mussel	**Material:**	Un-ionized Ammonia
Protocol:	All Protocols	**Endpoint:**	Development Rate	**Source:**	Reference Toxicant-REF



Mean:	0.1401	**Count:**	6	**-1s Warning Limit:**	0.1127	**-2s Action Limit:**	0.08536
Sigma:	0.02737	**CV:**	19.50%	**+1s Warning Limit:**	0.1675	**+2s Action Limit:**	0.1948

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2012	Sep	7	0.1354	-0.00474	-0.1733			18-5070-0768	11-6989-8472
2			12	0.1688	0.02868	1.048	(+)		20-0885-2300	10-0195-4236
3		Dec	5	0.1052	-0.03485	-1.273	(-)		14-3416-5739	00-0145-2063
4	2013	Mar	5	0.1705	0.0304	1.111	(+)		21-1662-9142	00-4095-0506
5			7	0.1473	0.007163	0.2617			10-0429-0109	08-4080-7172
6			21	0.1135	-0.02665	-0.9737			12-4487-8167	07-8584-5738
7		Jul	16	0.2981	0.158	5.773	(+)	(+)	06-1861-9765	19-6079-1031

CETIS Summary Report

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Batch ID:	14-6015-6110	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	20 Jul-13 16:00	**Protocol:**	ASTM E724-98 (1999) /EPA 1995	**Diluent:**	Diluted Natural Seawater
Ending Date:	22 Jul-13 14:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	46h	**Source:**	Taylor Shellfish	**Age:**	

Sample ID:	20-0754-1694	**Code:**	130720msnh	**Client:**	Internal
Sample Date:	20 Jul-13	**Material:**	Total Ammonia	**Project:**	
Receive Date:	20 Jul-13	**Source:**	Reference Toxicant		
Sample Age:	16h	**Station:**	Total Ammonia (measured)		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
00-5377-8478	Combined Development Ra	7.8	16	11.17	9.14%		Dunnett Multiple Comparison Test
16-2740-1915	Development Rate	6	7.8	6.841	4.05%		Steel Many-One Rank Sum Test
08-0473-2507	Survival Rate	16	>16	NA	8.45%		Steel Many-One Rank Sum Test

Point Estimate Summary

Analysis ID	Endpoint	Level	mg/L	95% LCL	95% UCL	TU	Method
21-2621-8999	Combined Development Ra	EC25	9.851	9.461	9.881		Linear Interpolation (ICPIN)
		EC50	11.91	11.66	11.96		
15-0467-7026	Development Rate	EC25	9.597	9.345	9.719		Linear Interpolation (ICPIN)
		EC50	11.74	11.57	11.85		
03-7374-8418	Survival Rate	EC25	>16	N/A	N/A		Linear Interpolation (ICPIN)
		EC50	>16	N/A	N/A		

Combined Development Rate Summary

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.9168	0.9019	0.9317	0.8645	0.9516	0.01786	0.03993	4.36%	0.0%
2.2		5	0.8967	0.8752	0.9181	0.8226	0.9548	0.02568	0.05743	6.4%	2.19%
3.3		5	0.8813	0.8404	0.9222	0.6871	0.9452	0.04899	0.1095	12.43%	3.87%
4.5		5	0.9239	0.9112	0.9366	0.8935	0.9774	0.01519	0.03396	3.68%	-0.77%
6		5	0.9374	0.9302	0.9446	0.9097	0.9631	0.008639	0.01932	2.06%	-2.25%
7.8		5	0.9368	0.9218	0.9518	0.8806	0.9839	0.01795	0.04014	4.28%	-2.18%
16		5	0.004516	0.000745	0.008287	0	0.02258	0.004516	0.0101	223.6%	99.51%

Development Rate Summary

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.9753	0.9695	0.9811	0.9608	1	0.006962	0.01557	1.6%	0.0%
2.2		5	0.9507	0.9484	0.9529	0.9416	0.9573	0.002683	0.005999	0.63%	2.52%
3.3		5	0.9077	0.8676	0.9478	0.7172	0.9767	0.04801	0.1074	11.83%	6.93%
4.5		5	0.9511	0.9462	0.9559	0.9309	0.9654	0.005833	0.01304	1.37%	2.48%
6		5	0.956	0.9503	0.9617	0.9369	0.9731	0.006789	0.01518	1.59%	1.97%
7.8		5	0.9359	0.9314	0.9404	0.9228	0.9545	0.005395	0.01206	1.29%	4.03%
16		5	0.004361	0.00072	0.008003	0	0.02181	0.004361	0.009752	223.6%	99.55%

Survival Rate Summary

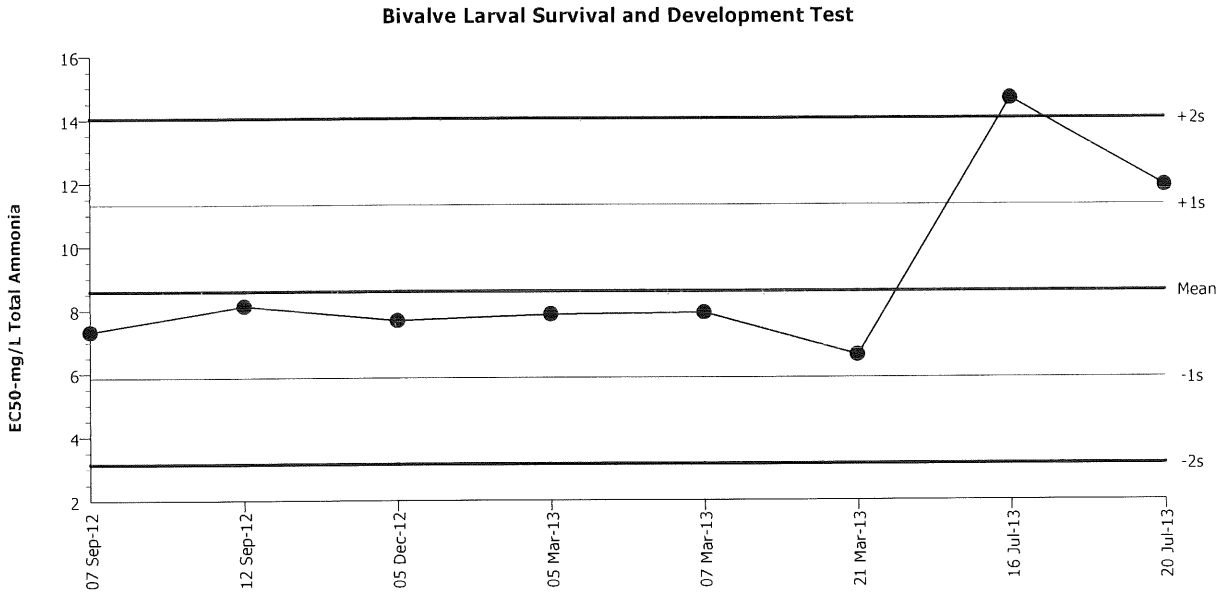
C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.94	0.926	0.954	0.8903	0.9871	0.01675	0.03745	3.98%	0.0%
2.2		5	0.9419	0.9198	0.964	0.8645	1	0.02646	0.05917	6.28%	-0.21%
3.3		5	0.9703	0.9654	0.9752	0.9581	0.9871	0.005895	0.01318	1.36%	-3.23%
4.5		5	0.9665	0.9545	0.9784	0.9323	1	0.0143	0.03198	3.31%	-2.81%
6		5	0.9806	0.9737	0.9876	0.9581	1	0.00835	0.01867	1.9%	-4.32%
7.8		5	0.9826	0.97	0.9952	0.9226	1	0.01512	0.0338	3.44%	-4.53%
16		5	1	1	1	1	1	0	0	0.0%	-6.38%

CETIS QC Plot

Report Date: 04 Sep-13 11:44 (1 of 1)

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Test Type: Development-Survival **Organism:** Mytilus galloprovincialis (Bay Mussel **Material:** Total Ammonia
Protocol: All Protocols **Endpoint:** Combined Development Rate **Source:** Reference Toxicant-REF



Mean:	8.591	**Count:**	7	**-1s Warning Limit:**	5.868	**-2s Action Limit:**	3.145
Sigma:	2.723	**CV:**	31.70%	**+1s Warning Limit:**	11.31	**+2s Action Limit:**	14.04

Quality Control Data

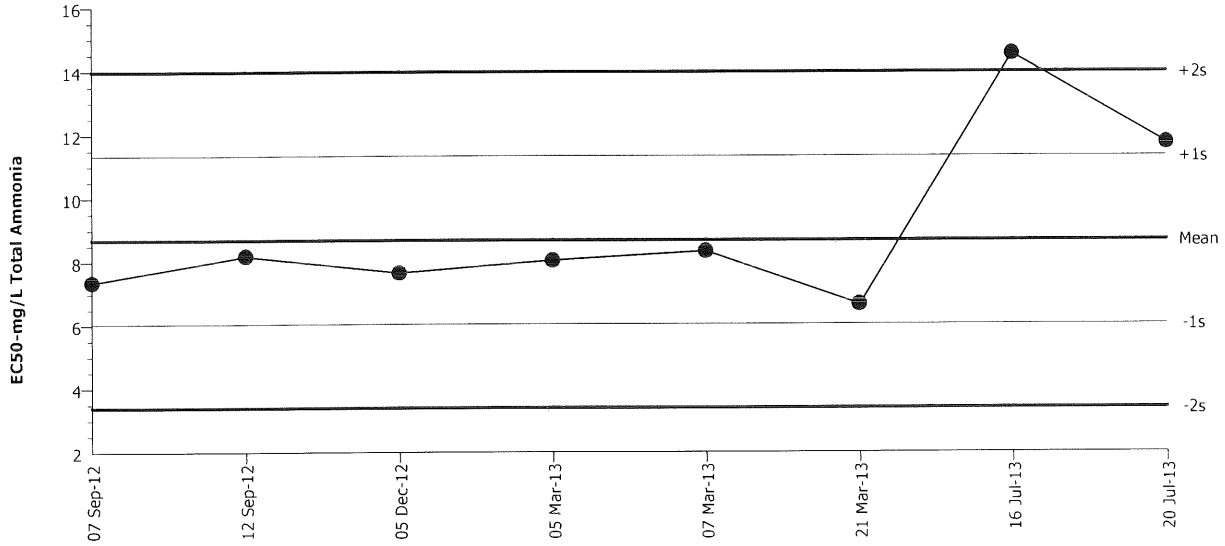
Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2012	Sep	7	7.323	-1.268	-0.4658			08-7896-7540	02-1099-3560
2			12	8.126	-0.4646	-0.1706			05-0618-8667	04-4991-0223
3		Dec	5	7.672	-0.9188	-0.3374			19-0351-3456	01-5143-3157
4	2013	Mar	5	7.863	-0.7284	-0.2675			18-3041-3263	05-0903-6031
5			7	7.918	-0.6735	-0.2473			06-3787-3158	00-9993-7668
6			21	6.582	-2.009	-0.7376			16-9258-5008	02-0736-3818
7		Jul	16	14.66	6.065	2.227	(+)	(+)	00-3133-9313	03-3327-0679
8			20	11.91	3.323	1.22	(+)		20-9101-7945	21-2621-8999

CETIS QC Plot

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Test Type:	Development-Survival	**Organism:**	Mytilus galloprovincialis (Bay Mussel	**Material:**	Total Ammonia
Protocol:	All Protocols	**Endpoint:**	Development Rate	**Source:**	Reference Toxicant-REF

Bivalve Larval Survival and Development Test



Mean:	8.686	**Count:**	7	**-1s Warning Limit:**	6.04	**-2s Action Limit:**	3.394
Sigma:	2.646	**CV:**	30.50%	**+1s Warning Limit:**	11.33	**+2s Action Limit:**	13.98

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2012	Sep	7	7.361	-1.325	-0.5006			08-7896-7540	04-0591-6084
2			12	8.187	-0.4985	-0.1884			05-0618-8667	03-6995-7527
3		Dec	5	7.657	-1.029	-0.3888			19-0351-3456	20-1669-9662
4	2013	Mar	5	8.046	-0.6404	-0.242			18-3041-3263	12-4788-9091
5			7	8.338	-0.3485	-0.1317			06-3787-3158	17-1747-4725
6			21	6.667	-2.019	-0.763			16-9258-5008	03-0138-2986
7		Jul	16	14.54	5.859	2.214	(+)	(+)	00-3133-9313	16-0266-5785
8			20	11.74	3.058	1.156	(+)		20-9101-7945	15-0467-7026

Analyst: SD QA: VB 9/12/13

CETIS Summary Report

Bivalve Larval Survival and Development Test — **Nautilus Environmental (CA)**

Batch ID:	16-2244-1364	**Test Type:**	Development-Survival	**Analyst:**	
Start Date:	20 Jul-13 16:00	**Protocol:**	ASTM E724-98 (1999)/EPA 1995	**Diluent:**	Diluted Natural Seawater
Ending Date:	22 Jul-13 14:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable
Duration:	46h	**Source:**	Taylor Shellfish	**Age:**	

Sample ID:	17-0018-3512	**Code:**	130720msUNNH3	**Client:**	Internal
Sample Date:	20 Jul-13	**Material:**	~~Total Ammonia~~ UN - Ionized Ammonia	**Project:**	
Receive Date:	20 Jul-13	**Source:**	Reference Toxicant		
Sample Age:	16h	**Station:**	Un-ionized Ammonia		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
09-4603-9511	Combined Development Ra	0.17	0.334	0.2383	9.14%		Dunnett Multiple Comparison Test
01-3283-9626	Development Rate	0.131	0.17	0.1492	4.05%		Steel Many-One Rank Sum Test
13-9847-0229	Survival Rate	0.334	>0.334	NA	8.45%		Steel Many-One Rank Sum Test

Point Estimate Summary

Analysis ID	Endpoint	Level	mg/L	95% LCL	95% UCL	TU	Method
09-2575-7518	Combined Development Ra	EC25	0.211	0.2029	0.2116		Linear Interpolation (ICPIN)
		EC50	0.2523	0.2469	0.2533		
19-9321-7611	Development Rate	EC25	0.2059	0.2003	0.2083		Linear Interpolation (ICPIN)
		EC50	0.2489	0.2451	0.2507		
06-3688-8160	Survival Rate	EC25	>0.334	N/A	N/A		Linear Interpolation (ICPIN)
		EC50	>0.334	N/A	N/A		

Combined Development Rate Summary

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.9168	0.9019	0.9317	0.8645	0.9516	0.01786	0.03993	4.36%	0.0%
0.052		5	0.8967	0.8752	0.9181	0.8226	0.9548	0.02568	0.05743	6.4%	2.19%
0.076		5	0.8813	0.8404	0.9222	0.6871	0.9452	0.04899	0.1095	12.43%	3.87%
0.101		5	0.9239	0.9112	0.9366	0.8935	0.9774	0.01519	0.03396	3.68%	-0.77%
0.131		5	0.9374	0.9302	0.9446	0.9097	0.9631	0.008639	0.01932	2.06%	-2.25%
0.17		5	0.9368	0.9218	0.9518	0.8806	0.9839	0.01795	0.04014	4.28%	-2.18%
0.334		5	0.004516	0.000745	0.008287	0	0.02258	0.004516	0.0101	223.6%	99.51%

Development Rate Summary

C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.9753	0.9695	0.9811	0.9608	1	0.006962	0.01557	1.6%	0.0%
0.052		5	0.9507	0.9484	0.9529	0.9416	0.9573	0.002683	0.005999	0.63%	2.52%
0.076		5	0.9077	0.8676	0.9478	0.7172	0.9767	0.04801	0.1074	11.83%	6.93%
0.101		5	0.9511	0.9462	0.9559	0.9309	0.9654	0.005833	0.01304	1.37%	2.48%
0.131		5	0.956	0.9503	0.9617	0.9369	0.9731	0.006789	0.01518	1.59%	1.97%
0.17		5	0.9359	0.9314	0.9404	0.9228	0.9545	0.005395	0.01206	1.29%	4.03%
0.334		5	0.004361	0.00072	0.008003	0	0.02181	0.004361	0.009752	223.6%	99.55%

Survival Rate Summary

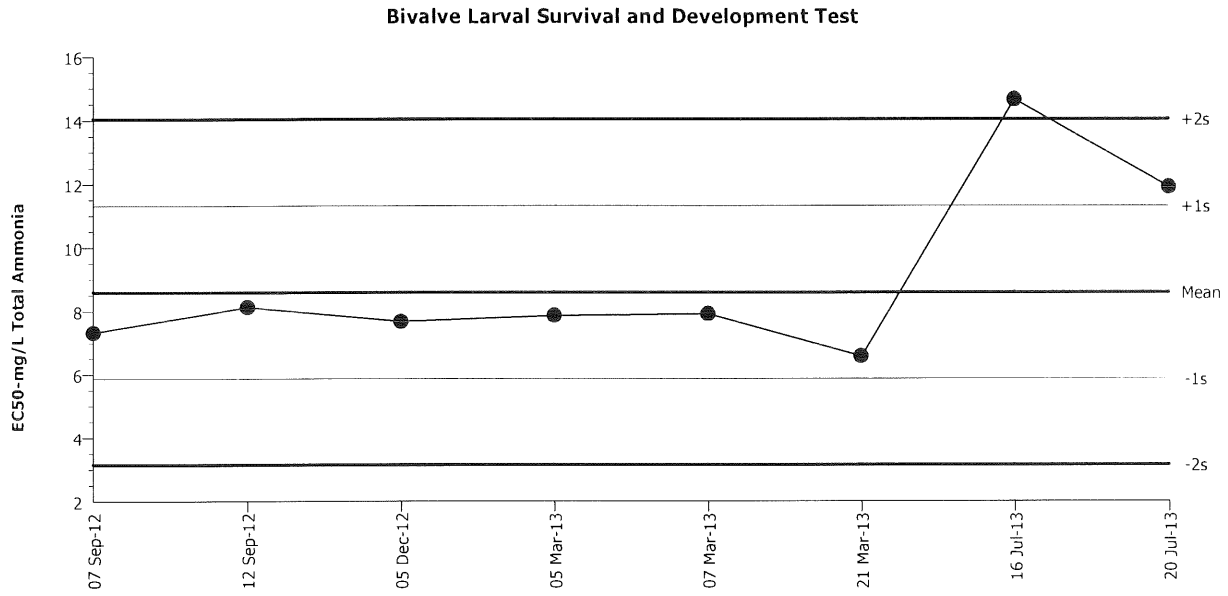
C-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	5	0.94	0.926	0.954	0.8903	0.9871	0.01675	0.03745	3.98%	0.0%
0.052		5	0.9419	0.9198	0.964	0.8645	1	0.02646	0.05917	6.28%	-0.21%
0.076		5	0.9703	0.9654	0.9752	0.9581	0.9871	0.005895	0.01318	1.36%	-3.23%
0.101		5	0.9665	0.9545	0.9784	0.9323	1	0.0143	0.03198	3.31%	-2.81%
0.131		5	0.9806	0.9737	0.9876	0.9581	1	0.00835	0.01867	1.9%	-4.32%
0.17		5	0.9826	0.97	0.9952	0.9226	1	0.01512	0.0338	3.44%	-4.53%
0.334		5	1	1	1	1	1	0	0	0.0%	-6.38%

CETIS QC Plot

Report Date: 04 Sep-13 13:07 (1 of 1)

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Test Type:	Development-Survival	**Organism:**	Mytilus galloprovincialis (Bay Mussel	**Material:**	Total Ammonia
Protocol:	All Protocols	**Endpoint:**	Combined Development Rate	**Source:**	Reference Toxicant-REF



Mean:	8.591	**Count:**	7	**-1s Warning Limit:**	5.868	**-2s Action Limit:**	3.145
Sigma:	2.723	**CV:**	31.70%	**+1s Warning Limit:**	11.31	**+2s Action Limit:**	14.04

Quality Control Data

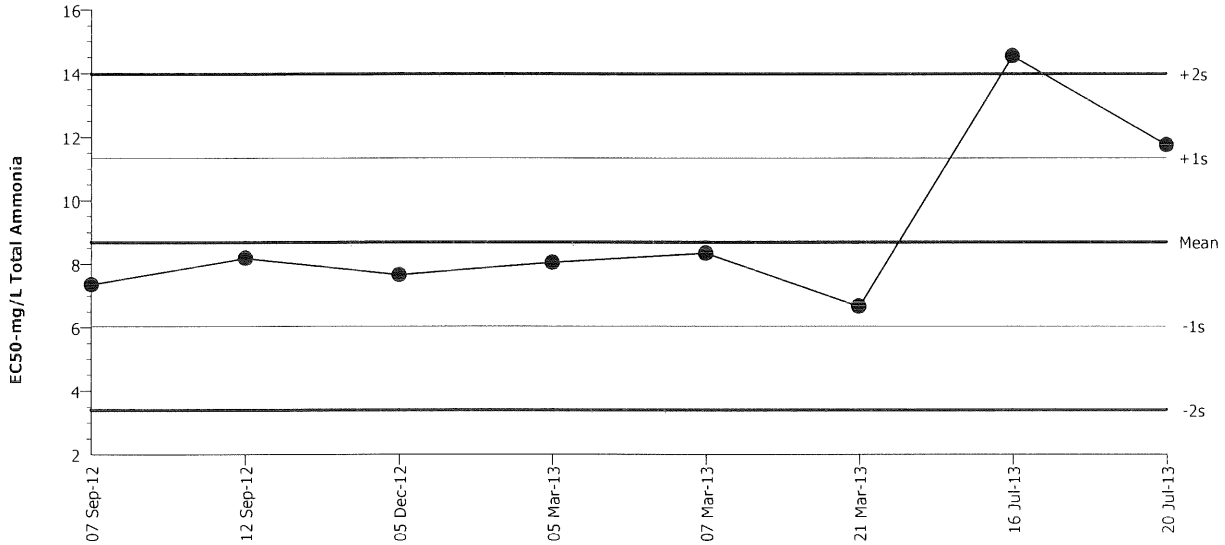
Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2012	Sep	7	7.323	-1.268	-0.4658			08-7896-7540	02-1099-3560
2			12	8.126	-0.4646	-0.1706			05-0618-8667	04-4991-0223
3		Dec	5	7.672	-0.9188	-0.3374			19-0351-3456	01-5143-3157
4	2013	Mar	5	7.863	-0.7284	-0.2675			18-3041-3263	05-0903-6031
5			7	7.918	-0.6735	-0.2473			06-3787-3158	00-9993-7668
6			21	6.582	-2.009	-0.7376			16-9258-5008	02-0736-3818
7		Jul	16	14.66	6.065	2.227	(+)	(+)	00-3133-9313	03-3327-0679
8			20	11.91	3.323	1.22	(+)		20-9101-7945	21-2621-8999

Analyst: SD QA: KL 9/26/13

Bivalve Larval Survival and Development Test — Nautilus Environmental (CA)

Test Type:	Development-Survival	**Organism:**	Mytilus galloprovincialis (Bay Mussel	**Material:**	Total Ammonia
Protocol:	All Protocols	**Endpoint:**	Development Rate	**Source:**	Reference Toxicant-REF

Bivalve Larval Survival and Development Test



Mean:	8.686	**Count:**	7	**-1s Warning Limit:**	6.04	**-2s Action Limit:**	3.394
Sigma:	2.646	**CV:**	30.50%	**+1s Warning Limit:**	11.33	**+2s Action Limit:**	13.98

Quality Control Data

Point	Year	Month	Day	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2012	Sep	7	7.361	-1.325	-0.5006			08-7896-7540	04-0591-6084
2			12	8.187	-0.4985	-0.1884			05-0618-8667	03-6995-7527
3		Dec	5	7.657	-1.029	-0.3888			19-0351-3456	20-1669-9662
4	2013	Mar	5	8.046	-0.6404	-0.242			18-3041-3263	12-4788-9091
5			7	8.338	-0.3485	-0.1317			06-3787-3158	17-1747-4725
6			21	6.667	-2.019	-0.763			16-9258-5008	03-0138-2986
7		Jul	16	14.54	5.859	2.214	(+)	(+)	00-3133-9313	16-0266-5785
8			20	11.74	3.058	1.156	(+)		20-9101-7945	15-0467-7026

amec foster wheeler

APPENDIX H

BENTHIC COMMUNITY DATA SUMMARIES (DANCING COYOTE)

amec foster wheeler

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StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8302	1	11/Jul/2013	Alienacanthomysis macropsis	None	2	Yes	DCE	1.0	MM	2		Initial	Pasko, D	
B13-8302	1	11/Jul/2013	Amphicteis scaphobranchiata	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Amphiodia urtica	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8302	1	11/Jul/2013	Amphiuridae	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8302	1	11/Jul/2013	Ancistrosyllis hamata	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Aphelochaeta glandaria Cmplx	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Aphelochaeta monilaris	None	9	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Aricidea (Acmira) horikoshii	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Axinopsida serricata	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8302	1	11/Jul/2013	Bipalponephtys cornuta	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Cirratulidae	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Compsomyax subdiaphana	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8302	1	11/Jul/2013	Cossura candida	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Cossura sp A	None	11	Yes	DCE	1.0	MM	3		Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Euchone limnicola	None	6	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Euclymeninae sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Glycera americana	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Glycinde armigera	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Heptacarpus stimpsoni	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8302	1	11/Jul/2013	Heteronemertea sp SD2	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8302	1	11/Jul/2013	Kurtiella compressa	None	4	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8302	1	11/Jul/2013	Kurtiella tumida	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8302	1	11/Jul/2013	Laonice cirrata	None	4	Yes	DCE	1.0	MM	3		Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Laonice sp	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Leitoscoloplos sp A	None	3	Yes	DCE	1.0	MM	3		Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Listriella goleta	None	10	Yes	DCE	1.0	MM	5		Initial	Pasko, D	
B13-8302	1	11/Jul/2013	Listriolobus pelodes	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8302	1	11/Jul/2013	Macoma yoldiformis	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8302	1	11/Jul/2013	Malmgreniella macginitiei	None	7	Yes	DCE	1.0	MM	3		Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Malmgreniella sanpedroensis	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Mediomastus sp	None	9	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Monticellina cryptica	None	7	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Neotrypaea gigas	None	3	Yes	DCE	1.0	MM	3		Initial	Pasko, D	
B13-8302	1	11/Jul/2013	Neotrypaea sp	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8302	1	11/Jul/2013	Nereis sp A	None	6	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Ninoe tridentata	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Notomastus hemipodus	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Nuculana taphria	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8302	1	11/Jul/2013	Opisthobranchia	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8302	1	11/Jul/2013	Paramage scutata	None	4	Yes	DCE	1.0	MM	2		Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Paraprionospio alata	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Periploma discus	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8302	1	11/Jul/2013	Philine auriformis	None	4	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8302	1	11/Jul/2013	Philine sp A	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8302	1	11/Jul/2013	Phyllochaetopterus prolifica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Pinnixa franciscana	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8302	1	11/Jul/2013	Pinnotheridae	None	10	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8302	1	11/Jul/2013	Pista brevibranchiata	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Pista wui	None	4	Yes	DCE	1.0	MM	3		Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Poecilochaetus martini	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Poecilochaetus sp	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Prionospio (Minuspio) multibranchiata	None	4	Yes	DCE	1.0	MM	4		Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Prionospio (Prionospio) jubata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Rhamphidonta retifera	None	2	Yes	DCE	1.0	MM	1		Initial	Phillips, T	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8302	1	11/Jul/2013	Rictaxis punctocaelatus	None	6	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8302	1	11/Jul/2013	Saxicavella nybakkeni	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8302	1	11/Jul/2013	Schizocardium sp	None	1	No	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8302	1	11/Jul/2013	Scoletoma sp	None	3	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Scoletoma sp B	None	2	Yes	DCE	1.0	MM	2		Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Scoletoma tetraura Cmplx	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Sigambra setosa	None	3	Yes	DCE	1.0	MM	3		Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Spiophanes duplex	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Tellina cadieni	None	3	Yes	DCE	1.0	MM	2		Initial	Phillips, T	
B13-8302	1	11/Jul/2013	Terebellides californica	None	2	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8302	1	11/Jul/2013	Theora lubrica	None	6	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8302	1	11/Jul/2013	Thyasira flexuosa	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8302	1	11/Jul/2013	Tubulanus polymorphus	None	4	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8302	1	11/Jul/2013	Volvulella panamica	None	7	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8304	1	11/Jul/2013	Amphicteis scaphobranchiata	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Amphiodia sp	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8304	1	11/Jul/2013	Amphiodia urtica	None	17	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8304	1	11/Jul/2013	Aphelochaeta monilaris	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Aricidea (Acmira) horikoshii	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Bipalponephtys cornuta	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Cirratulidae	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Cossura sp A	None	9	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Crangon sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8304	1	11/Jul/2013	Diopatra tridentata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Drilonereis sp	None	2	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Euclymeninae sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Gadila aberrans	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8304	1	11/Jul/2013	Glycera americana	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Gnathiidae	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8304	1	11/Jul/2013	Heterophoxus oculatus	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8304	1	11/Jul/2013	Kurtiella compressa	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8304	1	11/Jul/2013	Laonice cirrata	None	20	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Listriella goleta	None	8	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8304	1	11/Jul/2013	Listriella sp	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8304	1	11/Jul/2013	Listriolobus pelodes	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8304	1	11/Jul/2013	Malmgreniella macginitiei	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Malmgreniella sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Mediomastus sp	None	15	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Metasychis disparidentatus	None	2	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Monticellina cryptica	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Monticellina siblina	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Nematoda	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8304	1	11/Jul/2013	Neotrypaea gigas	None	5	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8304	1	11/Jul/2013	Neotrypaea sp	None	4	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8304	1	11/Jul/2013	Nephtys ferruginea	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Nereis sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Notomastus hemipodus	None	6	Yes	DCE	1.0	MM	6		Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Nuculana taphria	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8304	1	11/Jul/2013	Paramage scutata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Paraprionospio alata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Parvilucina tenuisculpta	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8304	1	11/Jul/2013	Pectinaria californiensis	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Petaloclymene pacifica	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Philine auriformis	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8304	1	11/Jul/2013	Phoronida	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8304	1	11/Jul/2013	Phoronis sp	None	2	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8304	1	11/Jul/2013	Phyllodoce sp	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Pinnixa franciscana	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8304	1	11/Jul/2013	Pinnotheridae	None	12	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8304	1	11/Jul/2013	Pista brevibranchiata	None	7	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Pista wui	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Podarkeopsis sp A	None	4	Yes	DCE	1.0	MM	2		Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Praxillella pacifica	None	2	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Prionospio (Minuspio) multibranchiata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Rhamphidonta retifera	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8304	1	11/Jul/2013	Rictaxis punctocaelatus	None	5	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8304	1	11/Jul/2013	Saxicavella nybakkeni	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8304	1	11/Jul/2013	Schizocardium sp	None	5	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8304	1	11/Jul/2013	Scoletoma sp	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Scoletoma sp B	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Sigambra setosa	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Sphaerosyllis californiensis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Spiophanes berkeleyorum	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Spiophanes duplex	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Streblosoma sp	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Emprosthopharynx gracilis	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8304	1	11/Jul/2013	Terebellides californica	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8304	1	11/Jul/2013	Theora lubrica	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8304	1	11/Jul/2013	Thyasira flexuosa	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8304	1	11/Jul/2013	Tubulanus cingulatus	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8304	1	11/Jul/2013	Tubulanus polymorphus	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8304	1	11/Jul/2013	Volvulella panamica	None	12	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8306	1	11/Jul/2013	Acteocina sp	None	1	No	DCE	1.0	MM			Initial	Phillips, T	
B13-8306	1	11/Jul/2013	Alpheus californiensis	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Amphideutopus oculatus	None	45	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Amphiodia urtica	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8306	1	11/Jul/2013	Apoprionospio pygmaea	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8306	1	11/Jul/2013	Cancridae	None	2	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Caprella californica	None	72	Yes	DCE	1.0	MM	22		Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Cossura sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8306	1	11/Jul/2013	Cryptomya californica	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8306	1	11/Jul/2013	Eochelidium sp A	None	10	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Ericthonius brasiliensis	None	21	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Euchone limnicola	None	14	Yes	DCE	1.0	MM	5		Initial	Lovell, L.	
B13-8306	1	11/Jul/2013	Euclymeninae sp A	None	37	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8306	1	11/Jul/2013	Euphilomedes carcharodonta	None	7	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Heterophoxus cf ellisi	None	16	Yes	DCE	1.0	MM		8	Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Kurtiella tumida	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8306	1	11/Jul/2013	Laevicardium substriatum	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8306	1	11/Jul/2013	Leptochelia dubia Cmplx	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Leptopecten latiauratus	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8306	1	11/Jul/2013	Leptosynapta sp	None	1	No	DCE	1.0	MM			Initial	Phillips, T	
B13-8306	1	11/Jul/2013	Listriella goleta	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Macoma nasuta	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8306	1	11/Jul/2013	Macoma yoldiformis	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8306	1	11/Jul/2013	Mactrotoma californica	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8306	1	11/Jul/2013	Mediomastus acutus	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8306	1	11/Jul/2013	Mediomastus sp	None	34	Yes	DCE	1.0	MM	7		Initial	Lovell, L.	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8306	1	11/Jul/2013	Monocorophium acherusicum	None	4	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Nasageneia quinsana	None	5	Yes	DCE	1.0	MM	5		Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Notomastus hemipodus	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8306	1	11/Jul/2013	Notomastus tenuis	None	12	Yes	DCE	1.0	MM	5		Initial	Lovell, L.	
B13-8306	1	11/Jul/2013	Nutricola tantilla	None	8	Yes	DCE	1.0	MM	2		Initial	Phillips, T	
B13-8306	1	11/Jul/2013	Oligochaeta	None	31	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8306	1	11/Jul/2013	Oxyurostylis pacifica	None	6	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Paramicrodeutopus schmitti	None	5	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Pectinaria californiensis	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8306	1	11/Jul/2013	Phoronis sp	None	2	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Photidae	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Photis brevipes	None	13	Yes	DCE	1.0	MM	6		Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Platynereis bicanaliculata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8306	1	11/Jul/2013	Prionospio (Minuspio) multibranchiata	None	19	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8306	1	11/Jul/2013	Pseudopolydora paucibranchiata	None	88	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8306	1	11/Jul/2013	Rudilemboides stenopropodus	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Siliqua lucida	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8306	1	11/Jul/2013	Sinocorophium heteroceratum	None	319	Yes	DCE	1.0	MM	8	7	Initial	Pasko, D	
B13-8306	1	11/Jul/2013	Solen sicarius	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8306	1	11/Jul/2013	Spiophanes berkeleyorum	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8306	1	11/Jul/2013	Spiophanes duplex	None	21	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8306	1	11/Jul/2013	Tagelus affinis	None	7	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8306	1	11/Jul/2013	Tellina modesta	None	7	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8306	1	11/Jul/2013	Theora lubrica	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8308	1	11/Jul/2013	Ampelisca brevisimulata	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8308	1	11/Jul/2013	Ampelisca cristata microdentata	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8308	1	11/Jul/2013	Amphicteis scaphobranchiata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Amphideutopus oculatus	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8308	1	11/Jul/2013	Amphiodia digitata	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8308	1	11/Jul/2013	Amphiodia sp	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8308	1	11/Jul/2013	Amphiodia urtica	None	12	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8308	1	11/Jul/2013	Amphiuridae	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8308	1	11/Jul/2013	Aphelochaeta monilaris	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Aricidea (Acmira) horikoshii	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Bipalponephtys cornuta	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Cirratulidae	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Cossura candida	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Cossura sp A	None	18	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Drilonereis sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Euchone limnicola	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Eumida tubiformis	None	2	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Glycera americana	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Goniada maculata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Kurtiella compressa	None	1	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8308	1	11/Jul/2013	Kurtiella tumida	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8308	1	11/Jul/2013	Laonice cirrata	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Leitoscoloplos sp A	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Listriella eriopisa	None	2	Yes	DCE	1.0	MM	2		Initial	Pasko, D	
B13-8308	1	11/Jul/2013	Listriella goleta	None	9	Yes	DCE	1.0	MM		3	Initial	Pasko, D	
B13-8308	1	11/Jul/2013	Lumbrineris sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Macoma yoldiformis	None	2	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8308	1	11/Jul/2013	Malmgreniella macginitiei	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Marphysa disjuncta	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Mediomastus sp	None	7	No	DCE	1.0	MM			Initial	Lovell, L.	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8308	1	11/Jul/2013	Monticellina cryptica	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Neotrypaea gigas	None	7	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8308	1	11/Jul/2013	Neotrypaea sp	None	5	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8308	1	11/Jul/2013	Notomastus hemipodus	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Nuculana taphria	None	4	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8308	1	11/Jul/2013	Paramage scutata	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Paraprionospio alata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Pectinaria californiensis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Pinnixa franciscana	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8308	1	11/Jul/2013	Pinnotheridae	None	11	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8308	1	11/Jul/2013	Pista brevibranchiata	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Pista wui	None	9	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Podarkeopsis sp A	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Poecilochaetus martini	None	10	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Praxillella pacifica	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Prionospio (Minuspio) multibranchiata	None	8	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Rictaxis punctocaelatus	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8308	1	11/Jul/2013	Schizocardium sp	None	3	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8308	1	11/Jul/2013	Scleroplax granulata	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8308	1	11/Jul/2013	Scoletoma sp A	None	2	Yes	DCE	1.0	MM	2		Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Scoletoma sp	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Sigambra setosa	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Spiochaetopterus costarum Cmplx	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Spiophanes berkeleyorum	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Terebellides californica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8308	1	11/Jul/2013	Theora lubrica	None	2	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8308	1	11/Jul/2013	Tubulanus polymorphus	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8308	1	11/Jul/2013	Tubulanus sp A	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8308	1	11/Jul/2013	Volvulella panamica	None	10	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8310	1	11/Jul/2013	Ampharete labrops	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Ampharetidae	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Amphicteis scaphobranchiata	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Amphiodia sp	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8310	1	11/Jul/2013	Amphiodia urtica	None	8	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8310	1	11/Jul/2013	Amphiuridae	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8310	1	11/Jul/2013	Anobothrus gracilis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Aphelochaeta glandaria Cmplx	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Aphelochaeta monilaris	None	16	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Chaetozone corona	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Chaetozone hartmanae	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Cossura candida	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Cossura sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Cossura sp A	None	25	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Cryptomya californica	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8310	1	11/Jul/2013	Cryptonemertes actinophila	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8310	1	11/Jul/2013	Cylichna diegensis	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8310	1	11/Jul/2013	Euphilomedes carcharodonta	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8310	1	11/Jul/2013	Glycera nana	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Heterophoxus oculatus	None	3	Yes	DCE	1.0	MM	3		Initial	Pasko, D	
B13-8310	1	11/Jul/2013	Kurtiella tumida	None	4	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8310	1	11/Jul/2013	Laonice cirrata	None	7	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Leitoscoloplos sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Lineidae	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8310	1	11/Jul/2013	Listriella eriopisa	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8310	1	11/Jul/2013	Listriella goleta	None	11	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8310	1	11/Jul/2013	Listriolobus pelodes	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8310	1	11/Jul/2013	Lumbrineris japonica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Marphysa disjuncta	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Mediomastus sp	None	16	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Metasychis disparidentatus	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Monticellina siblina	None	6	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Neotrypaea gigas	None	16	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8310	1	11/Jul/2013	Neotrypaea sp	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8310	1	11/Jul/2013	Notomastus hemipodus	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Nuculana taphria	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8310	1	11/Jul/2013	Paramage scutata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Periploma discus	None	3	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8310	1	11/Jul/2013	Phoronida	None	4	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8310	1	11/Jul/2013	Phoronis sp	None	6	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8310	1	11/Jul/2013	Phoronis sp SD1	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8310	1	11/Jul/2013	Phoronopsis sp	None	3	No	DCE	1.0	MM	3		Initial	Pasko, D	
B13-8310	1	11/Jul/2013	Pinnixa franciscana	None	5	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8310	1	11/Jul/2013	Pinnixa sp	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8310	1	11/Jul/2013	Pinnotheridae	None	5	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8310	1	11/Jul/2013	Pista brevibranchiata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Pista wui	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Praxillella pacifica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Prionospio (Minuspio) multibranchiata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Rhamphidonta retifera	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8310	1	11/Jul/2013	Rictaxis punctocaelatus	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8310	1	11/Jul/2013	Schizocardium sp	None	2	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8310	1	11/Jul/2013	Scleroplax granulata	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8310	1	11/Jul/2013	Scoletoma sp	None	7	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Sigambra setosa	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Solen sicarius	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8310	1	11/Jul/2013	Spiochaetopterus costarum Cmplx	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Spiophanes berkeleyorum	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Spiophanes duplex	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Streblosoma crassibranchia	None	2	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Streblosoma sp B	None	8	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Tellina sp	None	1	No	DCE	1.0	MM			Initial	Phillips, T	
B13-8310	1	11/Jul/2013	Thyasira flexuosa	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8310	1	11/Jul/2013	Tubulanus polymorphus	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8310	1	11/Jul/2013	Typosyllis hyperioni	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8310	1	11/Jul/2013	Volvulella panamica	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8316	1	11/Jul/2013	Amaeana occidentalis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Ampelisca brevisimulata	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8316	1	11/Jul/2013	Amphiodia sp	None	11	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8316	1	11/Jul/2013	Amphiodia urtica	None	12	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8316	1	11/Jul/2013	Amphiuridae	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8316	1	11/Jul/2013	Aphelochaeta glandaria Cmplx	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Aphelochaeta monilaris	None	7	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Bipalponephtys cornuta	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Cirratulidae	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Cossura candida	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Cossura sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Cossura sp A	None	7	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Crangon alaskensis	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8316	1	11/Jul/2013	Cylichna diegensis	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8316	1	11/Jul/2013	Diopatra tridentata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Glycera americana	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Kurtiella tumida	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8316	1	11/Jul/2013	Laonice cirrata	None	13	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Leitoscoloplos sp A	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Levinsenia sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Lumbrineridae	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Listriella diffusa	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8316	1	11/Jul/2013	Listriella goleta	None	10	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8316	1	11/Jul/2013	Malmgreniella macginitiei	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Malmgreniella sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Mediomastus sp	None	9	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Metasychis disparidentatus	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Monticellina cryptica	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Monticellina siblina	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Neotrypaea gigas	None	11	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8316	1	11/Jul/2013	Nereis sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Ninoe tridentata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Notomastus hemipodus	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Nuculana taphria	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8316	1	11/Jul/2013	Paramage scutata	None	12	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Paranemertes californica	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8316	1	11/Jul/2013	Paraprionospio alata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Pectinaria californiensis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Periploma discus	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8316	1	11/Jul/2013	Petaloclymene pacifica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Phoronis sp SD1	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8316	1	11/Jul/2013	Pinnixa franciscana	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8316	1	11/Jul/2013	Pinnotheridae	None	20	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8316	1	11/Jul/2013	Pista brevibranchiata	None	7	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Pista moorei	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Pista wui	None	14	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Poecilochaetus martini	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Poecilochaetus sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Prionospio (Minuspio) multibranchiata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Rhamphidonta retifera	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8316	1	11/Jul/2013	Rictaxis punctocaelatus	None	5	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8316	1	11/Jul/2013	Schizocardium sp	None	3	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8316	1	11/Jul/2013	Scleroplax granulata	None	4	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8316	1	11/Jul/2013	Spiochaetopterus costarum Cmplx	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Spiophanes berkeleyorum	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Spiophanes duplex	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Sthenelais tertiaglabra	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Streblosoma sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Tenonia priops	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Terebellides reishi	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8316	1	11/Jul/2013	Theora lubrica	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8316	1	11/Jul/2013	Thyasira flexuosa	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8316	1	11/Jul/2013	Tubulanus polymorphus	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8316	1	11/Jul/2013	Volvulella panamica	None	7	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8316	1	11/Jul/2013	Westwoodilla tone	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8318	1	13/Jul/2013	Ampelisca brachycladus	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8318	1	13/Jul/2013	Ampelisca brevisimulata	None	3	Yes	DCE	1.0	MM	3		Initial	Pasko, D	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8318	1	13/Jul/2013	Ampelisca sp	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8318	1	13/Jul/2013	Ampharetidae	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Amphicteis scaphobranchiata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Amphiodia sp	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8318	1	13/Jul/2013	Amphiodia urtica	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8318	1	13/Jul/2013	Amphiuridae	None	4	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8318	1	13/Jul/2013	Aphelochaeta monilaris	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Cossura candida	None	1	Yes	DCE	1.0	MM			Initial		
B13-8318	1	13/Jul/2013	Cossura sp A	None	12	Yes	DCE	1.0	MM			Initial		
B13-8318	1	13/Jul/2013	Cryptomya californica	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8318	1	13/Jul/2013	Cyathodonta pedroana	None	1	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8318	1	13/Jul/2013	Cylichna diegensis	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8318	1	13/Jul/2013	Diopatra sp	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Glycera americana	None	6	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Laonice cirrata	None	9	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Leitoscoloplos sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Listriella goleta	None	15	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8318	1	13/Jul/2013	Listriolobus pelodes	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8318	1	13/Jul/2013	Lumbrineris cruzensis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Malmgreniella macginitiei	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Marphysa disjuncta	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Mediomastus sp	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Nematoda	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8318	1	13/Jul/2013	Neotrypaea gigas	None	6	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8318	1	13/Jul/2013	Neotrypaea sp	None	5	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8318	1	13/Jul/2013	Notomastus hemipodus	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Nuculana taphria	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8318	1	13/Jul/2013	Paramage scutata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Paraprionospio alata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Parvilucina tenuisculpta	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8318	1	13/Jul/2013	Pectinaria californiensis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Philine sp A	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8318	1	13/Jul/2013	Pholoe glabra	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Phoronida	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8318	1	13/Jul/2013	Phoronis sp	None	2	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8318	1	13/Jul/2013	Phoronis sp SD1	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8318	1	13/Jul/2013	Pinnixa franciscana	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8318	1	13/Jul/2013	Pinnixa sp	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8318	1	13/Jul/2013	Pinnotheridae	None	6	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8318	1	13/Jul/2013	Pista brevibranchiata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Pista wui	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Poecilochaetus martini	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Poecilochaetus sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Rictaxis punctocaelatus	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8318	1	13/Jul/2013	Scleroplax granulata	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8318	1	13/Jul/2013	Scoletoma tetraura Cmplx	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Sigambra setosa	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Spiochaetopterus costarum Cmplx	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Spiophanes berkeleyorum	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Tenonia priops	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Terebellides californica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8318	1	13/Jul/2013	Theora lubrica	None	10	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8318	1	13/Jul/2013	Tubulanus polymorphus	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8318	1	13/Jul/2013	Vitrinella oldroydi	None	1	Yes	DCE	1.0	MM	1		Initial	Phillips, T	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8318	1	13/Jul/2013	Volvulella panamica	None	4	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8318	1	13/Jul/2013	Westwoodilla tone	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8322	1	13/Jul/2013	Ampelisca cristata microdentata	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8322	1	13/Jul/2013	Amphicteis scaphobranchiata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Amphiodia urtica	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8322	1	13/Jul/2013	Aphelochaeta monilaris	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Cossura candida	None	7	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Cossura sp A	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Diopatra tridentata	None	2	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Dorvillea (Dorvillea) sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Ennucula tenuis	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8322	1	13/Jul/2013	Glycera americana	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Goniada maculata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Kurtiella tumida	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8322	1	13/Jul/2013	Laonice cirrata	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Leitoscoloplos sp A	None	6	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Lineidae	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8322	1	13/Jul/2013	Listriella diffusa	None	2	Yes	DCE	1.0	MM	2		Initial	Pasko, D	
B13-8322	1	13/Jul/2013	Listriella goleta	None	6	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8322	1	13/Jul/2013	Lumbrineris japonica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Macoma yoldiformis	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8322	1	13/Jul/2013	Malmgreniella macginitiei	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Metasychis disparidentatus	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Monticellina cryptica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Neotrypaea gigas	None	12	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8322	1	13/Jul/2013	Neotrypaea sp	None	5	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8322	1	13/Jul/2013	Ninoe tridentata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Notomastus hemipodus	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Nuculana taphria	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8322	1	13/Jul/2013	Paramage scutata	None	6	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Paraprionospio alata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Periploma discus	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8322	1	13/Jul/2013	Petaloclymene pacifica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Pinnixa franciscana	None	5	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8322	1	13/Jul/2013	Pinnixa sp	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8322	1	13/Jul/2013	Pinnotheridae	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8322	1	13/Jul/2013	Pista brevibranchiata	None	10	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Pista wui	None	13	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Praxillella pacifica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Prionospio (Minuspio) multibranchiata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Rhamphidonta retifera	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8322	1	13/Jul/2013	Rictaxis punctocaelatus	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8322	1	13/Jul/2013	Schizocardium sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8322	1	13/Jul/2013	Scleroplax granulata	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8322	1	13/Jul/2013	Scoletoma sp	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Spiochaetopterus costarum Cmplx	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8322	1	13/Jul/2013	Tellina sp	None	1	No	DCE	1.0	MM			Initial	Phillips, T	
B13-8322	1	13/Jul/2013	Theora lubrica	None	4	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8322	1	13/Jul/2013	Thyasira flexuosa	None	3	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8322	1	13/Jul/2013	Tubulanus polymorphus	None	5	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8322	1	13/Jul/2013	Vitrinella oldroydi	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8322	1	13/Jul/2013	Volvulella panamica	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8326	1	10/Jul/2013	Ampelisca brachycladus	None	7	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8326	1	10/Jul/2013	Ampelisca brevisimulata	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8326	1	10/Jul/2013	Ampelisca cristata cristata	None	3	Yes	DCE	1.0	MM	3		Initial	Pasko, D	
B13-8326	1	10/Jul/2013	Amphideutopus oculatus	None	3	Yes	DCE	1.0	MM	3		Initial	Pasko, D	
B13-8326	1	10/Jul/2013	Amphiodia urtica	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8326	1	10/Jul/2013	Aphelochaeta monilaris	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Betaeus sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8326	1	10/Jul/2013	Caecognathia crenulatifrons	None	3	Yes	DCE	1.0	MM	3		Initial	Pasko, D	
B13-8326	1	10/Jul/2013	Cooperella subdiaphana	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8326	1	10/Jul/2013	Cossura candida	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Cossura sp A	None	31	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Diopatra tridentata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Dipolydora sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Euclymeninae	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Eusarsiella thominx	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8326	1	10/Jul/2013	Glycera americana	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Laonice cirrata	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Leitoscoloplos sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Listriella eriopisa	None	1	Yes	DCE	1.0	MM		1	Initial	Pasko, D	
B13-8326	1	10/Jul/2013	Listriella goleta	None	2	Yes	DCE	1.0	MM		2	Initial	Pasko, D	
B13-8326	1	10/Jul/2013	Lumbrineris japonica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Macoma nasuta	None	2	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8326	1	10/Jul/2013	Macoma yoldiformis	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8326	1	10/Jul/2013	Magelona berkeleyi	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Marphysa disjuncta	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Mediomastus sp	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Metasychis disparidentatus	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Monticellina siblina	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Neotrypaea gigas	None	4	Yes	DCE	1.0	MM	2		Initial	Pasko, D	
B13-8326	1	10/Jul/2013	Paraprionospio alata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Periploma discus	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8326	1	10/Jul/2013	Petaloclymene pacifica	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Phoronis sp	None	2	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8326	1	10/Jul/2013	Pinnixa franciscana	None	7	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8326	1	10/Jul/2013	Pinnixa sp	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8326	1	10/Jul/2013	Pinnotheridae	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8326	1	10/Jul/2013	Pista brevibranchiata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Podarkeopsis sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Poecilochaetus martini	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Prionospio (Minuspio) multibranchiata	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Scleroplax granulata	None	7	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8326	1	10/Jul/2013	Scoletoma sp	None	13	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Sigambra setosa	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Solen sicarius	None	1	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8326	1	10/Jul/2013	Spiochaetopterus costarum Cmplx	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Spiophanes berkeleyorum	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Spiophanes duplex	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Streblosoma sp B	None	3	Yes	DCE	1.0	MM	2		Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Tenonia priops	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8326	1	10/Jul/2013	Theora lubrica	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8326	1	10/Jul/2013	Tubulanus polymorphus	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8326	1	10/Jul/2013	Volvulella panamica	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8333	1	13/Jul/2013	Amaeana occidentalis	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Ampelisca brachycladus	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8333	1	13/Jul/2013	Ampelisca brevisimulata	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8333	1	13/Jul/2013	Ampharete labrops	None	3	Yes	DCE	1.0	MM	3		Initial	Lovell, L.	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8333	1	13/Jul/2013	Amphicteis scaphobranchiata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Amphideutopus oculatus	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8333	1	13/Jul/2013	Amphiodia sp	None	1	No	DCE	1.0	MM			Initial	Phillips, T	
B13-8333	1	13/Jul/2013	Aphelochaeta monilaris	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Aphelochaeta sp	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Arcteobia sp LA1	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Aricidea (Aricidea) wassi	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Balanidae	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8333	1	13/Jul/2013	Cirratulidae	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Conus californicus	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8333	1	13/Jul/2013	Cossura sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Cossura sp A	None	6	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Cylichna diegensis	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8333	1	13/Jul/2013	Dipolydora bidentata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Dipolydora socialis	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Euclymeninae sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Euphilomedes carcharodonta	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8333	1	13/Jul/2013	Gadila aberrans	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8333	1	13/Jul/2013	Goniada maculata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Hartmanodes hartmanae	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8333	1	13/Jul/2013	Hippolytidae	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8333	1	13/Jul/2013	Kurtiella tumida	None	4	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8333	1	13/Jul/2013	Leptosynapta sp	None	1	No	DCE	1.0	MM			Initial	Phillips, T	
B13-8333	1	13/Jul/2013	Lineidae	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8333	1	13/Jul/2013	Listriella goleta	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8333	1	13/Jul/2013	Mactrotoma californica	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8333	1	13/Jul/2013	Mediomastus sp	None	2	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Monticellina cryptica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Monticellina siblina	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Nereis sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Ninoe tridentata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Paradialychone paramollis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Paramage scutata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Paraprionospio alata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Periploma discus	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8333	1	13/Jul/2013	Petaloclymene pacifica	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Phoronis sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8333	1	13/Jul/2013	Pinnotheridae	None	2	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8333	1	13/Jul/2013	Polydora sp	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Prionospio (Minuspio) multibranchiata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Prionospio (Prionospio) jubata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Rictaxis punctocaelatus	None	5	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8333	1	13/Jul/2013	Scoletoma sp	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Scoletoma sp B	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Solen sicarius	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8333	1	13/Jul/2013	Spiophanes duplex	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Sternaspis affinis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Streblosoma crassibranchia	None	2	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Stylatula elongata	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8333	1	13/Jul/2013	Tellina modesta	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8333	1	13/Jul/2013	Tellina sp B	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8333	1	13/Jul/2013	Theora lubrica	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8333	1	13/Jul/2013	Thyasira flexuosa	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8333	1	13/Jul/2013	Tubulanidae	None	3	No	DCE	1.0	MM			Initial	Pasko, D	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8333	1	13/Jul/2013	Typosyllis hyperioni	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8333	1	13/Jul/2013	Volvulella panamica	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8333	1	13/Jul/2013	Westwoodilla tone	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8340	1	13/Jul/2013	Aphelochaeta monilaris	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Aphelochaeta sp	None	6	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Bivalvia	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8340	1	13/Jul/2013	Chaetozone corona	None	2	Yes	DCE	1.0	MM	2		Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Cirratulidae	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Cossura sp A	None	34	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Cryptomya californica	None	5	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8340	1	13/Jul/2013	Cyathodonta pedroana	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8340	1	13/Jul/2013	Euchone limnicola	None	25	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Laonice cirrata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Leitoscoloplos sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Lineidae	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8340	1	13/Jul/2013	Listriella goleta	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8340	1	13/Jul/2013	Macoma nasuta	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8340	1	13/Jul/2013	Malmgreniella macginitiei	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Mediomastus sp	None	15	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Monticellina cryptica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Monticellina siblina	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Neotrypaea gigas	None	7	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8340	1	13/Jul/2013	Neotrypaea sp	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8340	1	13/Jul/2013	Odostomia sp	None	1	No	DCE	1.0	MM			Initial	Phillips, T	
B13-8340	1	13/Jul/2013	Paramage scutata	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Paranemertes californica	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8340	1	13/Jul/2013	Paraprionospio alata	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Periploma discus	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8340	1	13/Jul/2013	Phoronis sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8340	1	13/Jul/2013	Pinnixa sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8340	1	13/Jul/2013	Pinnotheridae	None	9	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8340	1	13/Jul/2013	Pista brevibranchiata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Pista wui	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Prionospio (Minuspio) multibranchiata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Scleroplax granulata	None	4	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8340	1	13/Jul/2013	Scoletoma sp	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Scoletoma tetraura Cmplx	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Sigambra setosa	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Spiophanes berkeleyorum	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Streblosoma sp B	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8340	1	13/Jul/2013	Theora lubrica	None	14	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8340	1	13/Jul/2013	Thyasira flexuosa	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8347	1	13/Jul/2013	Amphicteis scaphobranchiata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Amphiodia sp	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8347	1	13/Jul/2013	Amphiodia urtica	None	9	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8347	1	13/Jul/2013	Amphiuridae	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8347	1	13/Jul/2013	Aphelochaeta glandaria Cmplx	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Aphelochaeta monilaris	None	14	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Bipalponephtys cornuta	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Cerebratulus marginatus	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8347	1	13/Jul/2013	Chaetozone sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Compsomyax subdiaphana	None	1	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8347	1	13/Jul/2013	Cossura candida	None	12	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Cossura sp	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8347	1	13/Jul/2013	Cossura sp A	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Dorvillea (Schistomeringos) sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Euclymeninae sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Gadila aberrans	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8347	1	13/Jul/2013	Glycera americana	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Kurtiella tumida	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8347	1	13/Jul/2013	Laonice cirrata	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Leitoscoloplos sp A	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Levinsenia sp B	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Lineus bilineatus	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8347	1	13/Jul/2013	Listriella goleta	None	4	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8347	1	13/Jul/2013	Listriolobus pelodes	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8347	1	13/Jul/2013	Macoma yoldiformis	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8347	1	13/Jul/2013	Marphysa disjuncta	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Mediomastus sp	None	12	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Melinna oculata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Metasychis disparidentatus	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Monticellina cryptica	None	8	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Neomysis kadiakensis	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8347	1	13/Jul/2013	Neotrypaea gigas	None	12	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8347	1	13/Jul/2013	Neotrypaea sp	None	6	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8347	1	13/Jul/2013	Nereis sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Ninoe tridentata	None	2	Yes	DCE	1.0	MM	2		Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Nuculana taphria	None	4	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8347	1	13/Jul/2013	Paramage scutata	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Pectinaria californiensis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Periploma discus	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8347	1	13/Jul/2013	Philine auriformis	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8347	1	13/Jul/2013	Phoronis sp	None	3	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8347	1	13/Jul/2013	Pinnixa franciscana	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8347	1	13/Jul/2013	Pinnixa sp	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8347	1	13/Jul/2013	Pinnotheridae	None	7	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8347	1	13/Jul/2013	Pista brevibranchiata	None	6	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Pista wui	None	14	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Podarkeopsis sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Poecilochaetus martini	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Polycirrus sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Prionospio (Minuspio) multibranchiata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Rhamphidonta retifera	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8347	1	13/Jul/2013	Rictaxis punctocaelatus	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8347	1	13/Jul/2013	Scleroplax granulata	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8347	1	13/Jul/2013	Scoletoma sp	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Scoletoma tetraura Cmplx	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Sigambra setosa	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Spiophanes berkeleyorum	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Spiophanes duplex	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Stereobalanus sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8347	1	13/Jul/2013	Streblosoma sp B	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8347	1	13/Jul/2013	Theora lubrica	None	5	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8347	1	13/Jul/2013	Tubulanus cingulatus	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8347	1	13/Jul/2013	Tubulanus polymorphus	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8347	1	13/Jul/2013	Tubulanus sp A	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8347	1	13/Jul/2013	Volvulella panamica	None	6	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8349	1	13/Jul/2013	Ampelisca brevisimulata	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8349	1	13/Jul/2013	Ampharetidae	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8349	1	13/Jul/2013	Amphideutopus oculatus	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8349	1	13/Jul/2013	Amphiodia sp	None	13	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8349	1	13/Jul/2013	Amphiodia urtica	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8349	1	13/Jul/2013	Amphiuridae	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8349	1	13/Jul/2013	Aphelochaeta monilaris	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8349	1	13/Jul/2013	Betaeus sp	None	3	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8349	1	13/Jul/2013	Bipalponephtys cornuta	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8349	1	13/Jul/2013	Cossura candida	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8349	1	13/Jul/2013	Cossura sp A	None	9	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8349	1	13/Jul/2013	Euphilomedes carcharodonta	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8349	1	13/Jul/2013	Gadila aberrans	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8349	1	13/Jul/2013	Glycera americana	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8349	1	13/Jul/2013	Hippolytidae	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8349	1	13/Jul/2013	Laonice cirrata	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8349	1	13/Jul/2013	Listriella goleta	None	14	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8349	1	13/Jul/2013	Listriolobus pelodes	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8349	1	13/Jul/2013	Malmgreniella macginitiei	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8349	1	13/Jul/2013	Mediomastus sp	None	3	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8349	1	13/Jul/2013	Neotrypaea gigas	None	14	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8349	1	13/Jul/2013	Neotrypaea sp	None	7	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8349	1	13/Jul/2013	Nereis sp A	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8349	1	13/Jul/2013	Paraprionospio alata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8349	1	13/Jul/2013	Periploma discus	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8349	1	13/Jul/2013	Philine auriformis	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8349	1	13/Jul/2013	Phoronis sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8349	1	13/Jul/2013	Pinnixa franciscana	None	11	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8349	1	13/Jul/2013	Pinnixa sp	None	5	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8349	1	13/Jul/2013	Pinnotheridae	None	8	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8349	1	13/Jul/2013	Pista wui	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8349	1	13/Jul/2013	Prionospio (Minuspio) multibranchiata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8349	1	13/Jul/2013	Rhamphidonta retifera	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8349	1	13/Jul/2013	Rictaxis punctocaelatus	None	4	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8349	1	13/Jul/2013	Scaphopoda	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8349	1	13/Jul/2013	Scleroplax granulata	None	10	Yes	DCE	1.0	MM	5		Initial	Pasko, D	
B13-8349	1	13/Jul/2013	Scoletoma sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8349	1	13/Jul/2013	Sinocorophium heteroceratum	None	5	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8349	1	13/Jul/2013	Spiochaetopterus costarum Cmplx	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8349	1	13/Jul/2013	Streblosoma sp	None	2	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8349	1	13/Jul/2013	Tellina modesta	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8349	1	13/Jul/2013	Theora lubrica	None	33	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8349	1	13/Jul/2013	Tubulanus polymorphus	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8349	1	13/Jul/2013	Tubulanus sp A	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8349	1	13/Jul/2013	Volvulella panamica	None	5	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8356	1	13/Jul/2013	Amphideutopus oculatus	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8356	1	13/Jul/2013	Amphiodia urtica	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8356	1	13/Jul/2013	Aphelochaeta glandaria Cmplx	None	2	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Aphelochaeta monilaris	None	5	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Axinopsida serricata	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8356	1	13/Jul/2013	Baseodiscus sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8356	1	13/Jul/2013	Compsomyax subdiaphana	None	1	Yes	DCE	1.0	MM			Initial		
B13-8356	1	13/Jul/2013	Cossura candida	None	16	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Cossura sp A	None	51	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Drilonereis falcata	None	2	Yes	DCE	1.0	MM	2		Initial	Lovell. L.	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8356	1	13/Jul/2013	Euclymeninae	None	1	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Euphilomedes carcharodonta	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8356	1	13/Jul/2013	Gymnonereis crosslandi	None	1	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Heptacarpus stimpsoni	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8356	1	13/Jul/2013	Kurtiella tumida	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8356	1	13/Jul/2013	Laonice nuchala	None	1	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Leitoscoloplos sp A	None	2	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Lineidae	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8356	1	13/Jul/2013	Listriella goleta	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8356	1	13/Jul/2013	Listriolobus pelodes	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8356	1	13/Jul/2013	Lumbrineridae	None	1	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Lumbrineris cruzensis	None	1	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Lumbrineris japonica	None	2	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Macoma yoldiformis	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8356	1	13/Jul/2013	Majoidea	None	2	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8356	1	13/Jul/2013	Malmgreniella sp	None	2	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Marphysa disjuncta	None	18	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Mediomastus sp	None	7	No	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Melinna oculata	None	1	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Monticellina cryptica	None	5	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Monticellina siblina	None	3	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Nematoda	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8356	1	13/Jul/2013	Neotrypaea gigas	None	10	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8356	1	13/Jul/2013	Neotrypaea sp	None	4	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8356	1	13/Jul/2013	Nereis sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Ninoe tridentata	None	3	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Onuphidae	None	1	No	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Pachycerianthus sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8356	1	13/Jul/2013	Paramage scutata	None	7	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Parvilucina tenuisculpta	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8356	1	13/Jul/2013	Periploma discus	None	4	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8356	1	13/Jul/2013	Petaloclymene pacifica	None	1	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Philine auriformis	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8356	1	13/Jul/2013	Pholoe glabra	None	1	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Phoronida	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8356	1	13/Jul/2013	Pinnixa sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8356	1	13/Jul/2013	Pinnotheridae	None	8	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8356	1	13/Jul/2013	Pista brevibranchiata	None	8	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Pista wui	None	4	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Podarkeopsis sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Poecilochaetus martini	None	1	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Praxillella gracilis	None	1	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Prionospio (Minuspio) multibranchiata	None	3	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Prionospio (Prionospio) jubata	None	2	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Rictaxis punctocaelatus	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8356	1	13/Jul/2013	Schizocardium sp	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8356	1	13/Jul/2013	Scolanthus triangulus	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8356	1	13/Jul/2013	Scoletoma sp	None	10	No	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Sigambra setosa	None	2	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Spiochaetopterus costarum Cmplx	None	3	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Streblosoma crassibranchia	None	1	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Streblosoma sp B	None	3	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Tagelus affinis	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8356	1	13/Jul/2013	Theora lubrica	None	19	Yes	DCE	1.0	MM			Initial	Phillips, T	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8356	1	13/Jul/2013	Thyasira flexuosa	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8356	1	13/Jul/2013	Tubulanus polymorphus	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8356	1	13/Jul/2013	Typosyllis hyperioni	None	2	Yes	DCE	1.0	MM			Initial	Lovell. L.	
B13-8356	1	13/Jul/2013	Volvulella panamica	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Ampelisca brachycladus	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Amphideutopus oculatus	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Amphiodia sp	None	5	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Amphiodia urtica	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Aphelochaeta monilaris	None	17	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Arabella sp	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Arcteobia cf anticostiensis	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Axinopsida serricata	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Betaeus sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Boccardiella sp	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Calyptraeidae	None	8	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Ceriantharia	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Conus californicus	None	2	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Cooperella subdiaphana	None	2	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Cossura sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Cossura sp A	None	12	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Crepidula onyx	None	1	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Crepipatella lingulata	None	1	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Cryptomya californica	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Cylichna diegensis	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Diopatra ornata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Dipolydora socialis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Drilonereis sp	None	3	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Enteropneusta	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Ericerodes hemphillii	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Euclymeninae	None	3	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Euphilomedes carcharodonta	None	21	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Foxiphalus similis	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Gadila aberrans	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Gari fucata	None	1	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Glycera americana	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Glycera sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Halianthella sp A	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Haliophasma geminatum	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Hartmanodes hartmanae	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Hesperonoe sp	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Hippolytidae	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Kurtiella grippi	None	8	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Kurtiella tumida	None	15	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Laonice cirrata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Leitoscoloplos sp A	None	12	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Limnactiniidae sp A	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Lineidae	None	3	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Listriella goleta	None	9	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Listriella melanica	None	3	Yes	DCE	1.0	MM		2	Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Listriolobus pelodes	None	8	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Lumbrineridae	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Lumbrineris japonica	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Lysippe sp A	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Macoma nasuta	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8360	1	10/Jul/2013	Macoma yoldiformis	None	9	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Mactromeris sp	None	1	No	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Marphysa disjuncta	None	12	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Mediomastus sp	None	9	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Megabalanus californicus	None	9	Yes	DCE	1.0	MM	2		Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Molgulidae	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Monticellina cryptica	None	7	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Neotrypaea gigas	None	25	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Neotrypaea sp	None	12	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Notomastus hemipodus	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Nuculana taphria	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Odostomia sp	None	1	No	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Owenia collaris	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Oxydromus pugettensis	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Paranemertes californica	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Paraprionospio alata	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Parvilucina tenuisculpta	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Pectinaria californiensis	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Periploma discus	None	24	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Petaloclymene pacifica	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Phoronis sp	None	7	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Phoronopsis sp	None	4	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Photis brevipes	None	5	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Photis sp	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Phyllophoridae	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Pinnixa franciscana	None	4	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Pinnixa sp	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Pinnotheridae	None	14	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Polycirrus sp OC1	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Prionospio (Minuspio) multibranchiata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Prionospio (Prionospio) dubia	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Prionospio (Prionospio) jubata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Procephalothrix sp	None	4	No	DCE	1.0	MM	4		Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Psammotreta obesa	None	1	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Rictaxis punctocaelatus	None	6	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Saxicavella nybakkeni	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Saxidomus nuttalli	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Scalibregma californicum	None	7	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Scleroplax granulata	None	18	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Scoletoma sp	None	9	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Scoletoma sp A	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Scoletoma sp B	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Solamen columbianum	None	1	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Solen sicarius	None	6	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Spiochaetopterus costarum Cmplx	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Spiophanes duplex	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Sthenelais tertiaglabra	None	8	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Sthenelanella uniformis	None	7	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Streblosoma crassibranchia	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Tellina modesta	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Tenonia priops	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Terebellides californica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Theora lubrica	None	10	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Thracia trapezoides	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8360	1	10/Jul/2013	Thyasira flexuosa	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8360	1	10/Jul/2013	Tubulanidae sp C	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Tubulanus polymorphus	None	9	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8360	1	10/Jul/2013	Typosyllis hyperioni	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8360	1	10/Jul/2013	Volvulella panamica	None	6	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8363	1	10/Jul/2013	Ampelisca cristata microdentata	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Ampharete labrops	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Amphicteis scaphobranchiata	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Amphideutopus oculatus	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Amphiodia sp	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8363	1	10/Jul/2013	Aphelochaeta petersenae	None	15	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Arcteobia cf anticostiensis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Arcteobia sp LA1	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Caecognathia crenulatifrons	None	7	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Cerebratulus marginatus	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Chaetozone corona	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Cossura candida	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Cossura sp	None	4	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Cossura sp A	None	8	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Cylichna diegensis	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8363	1	10/Jul/2013	Diopatra tridentata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Dipolydora bidentata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Drilonereis sp	None	2	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Enteropneusta	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Eochelidium sp A	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Euchone limnicola	None	23	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Glycera americana	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Goniada maculata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Hartmanodes hartmanae	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Heteroserolis carinata	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Kurtiella tumida	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8363	1	10/Jul/2013	Laonice cirrata	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Leitoscoloplos sp A	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Listriella goleta	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Listriella melanica	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Listriolobus pelodes	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Lumbrineris japonica	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Lyonsia californica	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8363	1	10/Jul/2013	Macoma yoldiformis	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8363	1	10/Jul/2013	Malmgreniella macginitiei	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Marphysa disjuncta	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Melinna oculata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Metasychis disparidentatus	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Monticellina cryptica	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Monticellina siblina	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Nematoda	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Neotrypaea gigas	None	8	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Neotrypaea sp	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Nereis sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Ninoe tridentata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Paradialychone harrisae	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Paramage scutata	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Paraprionospio alata	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Periploma discus	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8363	1	10/Jul/2013	Petaloclymene pacifica	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Phoronis sp	None	5	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Phyllodoce hartmanae	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Pinnixa sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Pinnotheridae	None	4	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Pista brevibranchiata	None	7	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Pista wui	None	7	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Podarkeopsis sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Rictaxis punctocaelatus	None	5	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8363	1	10/Jul/2013	Scleroplax granulata	None	4	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Scoletoma sp	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Sigambra setosa	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Sinocorophium heteroceratum	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Solen sicarius	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8363	1	10/Jul/2013	Spiophanes berkeleyorum	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Spiophanes duplex	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Streblosoma crassibranchia	None	7	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Streblosoma sp B	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8363	1	10/Jul/2013	Tellina cadieni	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8363	1	10/Jul/2013	Theora lubrica	None	13	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8363	1	10/Jul/2013	Thyasira flexuosa	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8363	1	10/Jul/2013	Tubulanus polymorphus	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8363	1	10/Jul/2013	Volvulella panamica	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8363	1	10/Jul/2013	Westwoodilla tone	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8365	1	13/Jul/2013	Amphiodia sp	None	2	No	DCE	1.0	MM			Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Amphipholis squamata	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Amphiuridae	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Anoplodactylus erectus	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8365	1	13/Jul/2013	Aphelochaeta glandaria Cmplx	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Aphelochaeta monilaris	None	7	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Arcteobia cf anticostiensis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Bivalvia	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Chaetozone corona	None	6	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Chaetozone hartmanae	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Compsomyax subdiaphana	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Cossura sp A	None	23	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Crangon alaskensis	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8365	1	13/Jul/2013	Cyathodonta pedroana	None	6	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Cylichna diegensis	None	1	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Diopatra tridentata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Eochelidium sp A	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8365	1	13/Jul/2013	Glycera americana	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Goniada maculata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Haminoea vesicula	None	1	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Hartmanodes hartmanae	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8365	1	13/Jul/2013	Hemiproto sp A	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8365	1	13/Jul/2013	Hydrozoa	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8365	1	13/Jul/2013	Kurtiella compressa	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Laonice cirrata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Leitoscoloplos sp A	None	10	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Lineidae	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8365	1	13/Jul/2013	Lumbrineris cruzensis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Lyonsia californica	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Macoma nasuta	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8365	1	13/Jul/2013	Macoma sp	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Macoma yoldiformis	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Majoidea	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8365	1	13/Jul/2013	Malmgreniella sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Mediomastus sp	None	2	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Monticellina siblina	None	23	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Neotrypaea gigas	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8365	1	13/Jul/2013	Neotrypaea sp	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8365	1	13/Jul/2013	Nuculana taphria	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Paradiopatra parva	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Paramage scutata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Paraprionospio alata	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Periploma discus	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Petaloclymene pacifica	None	3	Yes	DCE	1.0	MM	3		Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Pherusa neopapillata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Philine sp A	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Phoronida	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8365	1	13/Jul/2013	Phoronis sp	None	2	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8365	1	13/Jul/2013	Phoronis sp SD1	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8365	1	13/Jul/2013	Pista brevibranchiata	None	18	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Pista sp	None	1	Yes	DCE	1.0	MM		1	Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Pista wui	None	7	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Protolaeospira eximia	None	2	Yes	DCE	1.0	MM	2		Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Rhamphidonta retifera	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Rictaxis punctocaelatus	None	3	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Scoletoma sp	None	2	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Solen sicarius	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Spiophanes berkeleyorum	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Spiophanes duplex	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Sthenelanella uniformis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Streblosoma sp B	None	13	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Terebellides californica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8365	1	13/Jul/2013	Theora lubrica	None	16	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Trachycardium quadragenarium	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8365	1	13/Jul/2013	Tubulanus polymorphus	None	5	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8365	1	13/Jul/2013	Tubulanus sp A	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8365	1	13/Jul/2013	Westwoodilla tone	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Amphideutopus oculatus	None	23	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Anoplodactylus erectus	None	5	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Caprella californica	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Caprella sp	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Carinoma mutabilis	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Cossura sp A	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8367	1	11/Jul/2013	Eochelidium sp A	None	6	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Euchone limnicola	None	21	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8367	1	11/Jul/2013	Euclymeninae sp A	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8367	1	11/Jul/2013	Euphilomedes carcharodonta	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Eusarsiella thominx	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Exogone lourei	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8367	1	11/Jul/2013	Goniada littorea	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8367	1	11/Jul/2013	Grandidierella japonica	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Hemiproto sp A	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Heteroserolis carinata	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Laevicardium substriatum	None	4	Yes	DCE	1.0	MM	1		Initial	Phillips, T	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8367	1	11/Jul/2013	Lyonsia californica	None	3	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8367	1	11/Jul/2013	Mactridae	None	4	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8367	1	11/Jul/2013	Mayerella acanthopoda	None	17	Yes	DCE	1.0	MM	4		Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Mediomastus sp	None	4	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8367	1	11/Jul/2013	Molgulidae	None	6	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Monocorophium acherusicum	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Monocorophium sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Musculista senhousia	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8367	1	11/Jul/2013	Neotrypaea gigas	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Neotrypaea sp	None	4	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Nephtys caecoides	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8367	1	11/Jul/2013	Notomastus hemipodus	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8367	1	11/Jul/2013	Notomastus sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8367	1	11/Jul/2013	Paramicrodeutopus schmitti	None	5	Yes	DCE	1.0	MM	4		Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Pectinaria californiensis	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8367	1	11/Jul/2013	Phoronida	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Phoronis sp	None	27	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Phoronis sp SD1	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Phyllodoce hartmanae	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8367	1	11/Jul/2013	Pseudopolydora paucibranchiata	None	967	Yes	DCE	1.0	MM	5		Initial	Lovell, L.	
B13-8367	1	11/Jul/2013	Rudilemboides stenopropodus	None	5	Yes	DCE	1.0	MM	5		Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Scoletoma sp	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8367	1	11/Jul/2013	Sinocorophium heteroceratum	None	11	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8367	1	11/Jul/2013	Spiophanes duplex	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8367	1	11/Jul/2013	Tagelus affinis	None	21	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8367	1	11/Jul/2013	Theora lubrica	None	7	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Alpheus californiensis	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8371	1	10/Jul/2013	Ampelisca cristata microdentata	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8371	1	10/Jul/2013	Amphideutopus oculatus	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8371	1	10/Jul/2013	Amphiuridae	None	1	No	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Ancistrosyllis hamata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Aphelochaeta glandaria Cmplx	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Aphelochaeta monilaris	None	6	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Arcteobia cf anticostiensis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Axinopsida serricata	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Calyptraeidae	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Chaetoderma sp	None	1	No	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Cossura candida	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Cossura sp A	None	25	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Crangon alaskensis	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8371	1	10/Jul/2013	Cyathodonta pedroana	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Cyathodonta pedroana	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Cylichna diegensis	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Diopatra tridentata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Eochelidium sp A	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8371	1	10/Jul/2013	Euchone limnicola	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Euphilomedes carcharodonta	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8371	1	10/Jul/2013	Glycera americana	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Heptacarpus stimpsoni	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8371	1	10/Jul/2013	Kurtiella tumida	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Laonice cirrata	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Leitoscoloplos sp A	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Lineidae	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8371	1	10/Jul/2013	Listriella goleta	None	8	Yes	DCE	1.0	MM			Initial	Pasko, D	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8371	1	10/Jul/2013	Lyonsia californica	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Macoma nasuta	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Macoma yoldiformis	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Malmgreniella macginitiei	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Marphysa disjuncta	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Mediomastus sp	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Metasychis disparidentatus	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Monticellina cryptica	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Monticellina siblina	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Neotrypaea gigas	None	10	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8371	1	10/Jul/2013	Neotrypaea sp	None	12	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8371	1	10/Jul/2013	Nereis sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Notomastus hemipodus	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Paraprionospio alata	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Pectinaria californiensis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Periploma discus	None	4	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Petaloclymene pacifica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Philine auriformis	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Pinnixa franciscana	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8371	1	10/Jul/2013	Pinnixa sp	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8371	1	10/Jul/2013	Pinnotheridae	None	6	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8371	1	10/Jul/2013	Pista wui	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Podarkeopsis sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Pseudomma berkeleyi	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8371	1	10/Jul/2013	Rictaxis punctocaelatus	None	5	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Scleroplax granulata	None	7	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8371	1	10/Jul/2013	Solen sicarius	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Spiochaetopterus costarum Cmplx	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Spiophanes berkeleyorum	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Spiophanes duplex	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Streblosoma crassibranchia	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Streblosoma sp B	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8371	1	10/Jul/2013	Theora lubrica	None	10	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Thyasira flexuosa	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Tubulanus polymorphus	None	6	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8371	1	10/Jul/2013	Tubulanus sp A	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8371	1	10/Jul/2013	Turbonilla sp	None	2	No	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Volvulella panamica	None	7	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8371	1	10/Jul/2013	Xenoleberis californica	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8374	1	10/Jul/2013	Ampharetidae	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Amphicteis scaphobranchiata	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Amphiodia sp	None	1	No	DCE	1.0	MM			Initial	Phillips, T	
B13-8374	1	10/Jul/2013	Amphiuridae	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8374	1	10/Jul/2013	Aphelochaeta monilaris	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Calyptraeidae	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8374	1	10/Jul/2013	Cossura sp A	None	6	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Cyathodonta pedroana	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8374	1	10/Jul/2013	Euclymeninae	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Gadila aberrans	None	4	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8374	1	10/Jul/2013	Gnathiidae	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8374	1	10/Jul/2013	Hartmanodes hartmanae	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8374	1	10/Jul/2013	Heptacarpus stimpsoni	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8374	1	10/Jul/2013	Kurtiella tumida	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8374	1	10/Jul/2013	Laonice cirrata	None	8	Yes	DCE	1.0	MM			Initial	Lovell, L.	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8374	1	10/Jul/2013	Leitoscoloplos sp A	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Listriella goleta	None	4	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8374	1	10/Jul/2013	Listriolobus pelodes	None	4	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8374	1	10/Jul/2013	Macoma nasuta	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8374	1	10/Jul/2013	Maldane sarsi	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Malmgreniella macginitiei	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Megalomma sp	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Neotrypaea gigas	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8374	1	10/Jul/2013	Neotrypaea sp	None	18	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8374	1	10/Jul/2013	Ninoe tridentata	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Nuculana taphria	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8374	1	10/Jul/2013	Paramage scutata	None	6	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Parandalia fauveli	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Paranemertes californica	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8374	1	10/Jul/2013	Petaloclymene pacifica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Philine auriformis	None	3	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8374	1	10/Jul/2013	Pinnixa franciscana	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8374	1	10/Jul/2013	Pinnixa sp	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8374	1	10/Jul/2013	Pinnotheridae	None	8	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8374	1	10/Jul/2013	Pista brevibranchiata	None	9	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Pista wui	None	19	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Poecilochaetus martini	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Prionospio (Minuspio) multibranchiata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Prionospio (Prionospio) jubata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Rictaxis punctocaelatus	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8374	1	10/Jul/2013	Scleroplax granulata	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8374	1	10/Jul/2013	Scolanthus scamiti	None	1	Yes	DCE	1.0	MM		1	Initial	Pasko, D	
B13-8374	1	10/Jul/2013	Scoletoma sp B	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Serpulidae	None	2	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Sigambra setosa	None	1	Yes	DCE	1.0	MM		1	Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Spiophanes berkeleyorum	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Streblosoma sp B	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Tenonia priops	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8374	1	10/Jul/2013	Theora lubrica	None	10	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8374	1	10/Jul/2013	Thyasira flexuosa	None	6	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8374	1	10/Jul/2013	Tubulanus polymorphus	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8374	1	10/Jul/2013	Volvulella panamica	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Achelia echinata	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Ammothea hilgendorfi	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Ampelisca brachycladus	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Amphicteis scaphobranchiata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Amphideutopus oculatus	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Amphipholis squamata	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Aphelochaeta monilaris	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Aphelochaeta petersenae	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Aphelochaeta sp	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Aricidea (Acmira) catherinae	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Bipalponephtys cornuta	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Cancridae	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Carinoma mutabilis	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Compsomyax subdiaphana	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Cossura candida	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Cossura sp	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Cossura sp A	None	235	Yes	DCE	1.0	MM			Initial	Lovell, L.	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8382	1	10/Jul/2013	Crangonidae	None	2	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Cyathodonta pedroana	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Eochelidium sp A	None	5	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Epitonium sawinae	None	1	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Euphilomedes carcharodonta	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Exogone lourei	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Gadila aberrans	None	4	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Glycera americana	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Hartmanodes hartmanae	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Hippolytidae	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Kurtiella compressa	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Laonice cirrata	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Leitoscoloplos sp A	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Listriella goleta	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Lysippe sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Macoma nasuta	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Malacoplax californiensis	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Malmgreniella macginitiei	None	6	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Mediomastus sp	None	14	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Melinna oculata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Monticellina siblina	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Monticellina cryptica	None	11	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Neotrypaea gigas	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Neotrypaea sp	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Nuculana taphria	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Oligochaeta	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Pachycerianthus	None	1	No	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Paraprionospio alata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Pectinaria californiensis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Periploma discus	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Pherusa neopapillata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Philine auriformis	None	4	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Phoronis sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Pinnotheridae	None	4	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Pista brevibranchiata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Pista wui	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Platyodon cancellatus	None	1	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Poecilochaetus martini	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Prionospio (Minuspio) multibranchiata	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Prionospio (Prionospio) jubata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Pyromaia tuberculata	None	2	Yes	DCE	1.0	MM	2		Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Rictaxis punctocaelatus	None	15	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Scleroplax granulata	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Scoletoma sp B	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Solen sicarius	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Streblosoma sp B	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8382	1	10/Jul/2013	Tagelus affinis	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Tellina modesta	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Theora lubrica	None	25	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Thyasira flexuosa	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Tubulanus cingulatus	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Tubulanus polymorphus	None	6	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8382	1	10/Jul/2013	Turbonilla sp	None	1	No	DCE	1.0	MM			Initial	Phillips, T	
B13-8382	1	10/Jul/2013	Westwoodilla tone	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8382	1	10/Jul/2013	Zeuxo normani	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8384	1	12/Jul/2013	Ampharete labrops	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Amphicteis scaphobranchiata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Amphiodia sp	None	2	No	DCE	1.0	MM			Initial	Phillips, T	
B13-8384	1	12/Jul/2013	Aphelochaeta monilaris	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Calyptraeidae	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8384	1	12/Jul/2013	Cossura sp	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Cossura sp A	None	13	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Cryptomya californica	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8384	1	12/Jul/2013	Cyathodonta pedroana	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8384	1	12/Jul/2013	Eochelidium sp A	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8384	1	12/Jul/2013	Euchone limnicola	None	10	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Glycera americana	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Leitoscoloplos sp A	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Listriella goleta	None	13	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8384	1	12/Jul/2013	Malmgreniella macginitiei	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Mediomastus sp	None	4	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Monticellina siblina	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Neotrypaea gigas	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8384	1	12/Jul/2013	Neotrypaea sp	None	10	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8384	1	12/Jul/2013	Ninoe tridentata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Paramage scutata	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Paranemertes californica	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8384	1	12/Jul/2013	Paraprionospio alata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Philine sp A	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8384	1	12/Jul/2013	Pinnixa sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8384	1	12/Jul/2013	Pinnotheridae	None	9	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8384	1	12/Jul/2013	Pista brevibranchiata	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Pista wui	None	8	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Podarkeopsis sp	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Prionospio (Minuspio) multibranchiata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Rictaxis punctocaelatus	None	5	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8384	1	12/Jul/2013	Scleroplax granulata	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8384	1	12/Jul/2013	Scoletoma sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Scoletoma sp A	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Sigambra setosa	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Spiophanes berkeleyorum	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Streblosoma crassibranchia	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Streblosoma sp	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Streblosoma sp B	None	15	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8384	1	12/Jul/2013	Theora lubrica	None	39	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8384	1	12/Jul/2013	Thyasira flexuosa	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8384	1	12/Jul/2013	Tubulanus polymorphus	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8384	1	12/Jul/2013	Volvulella panamica	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8396	1	12/Jul/2013	Anoplodactylus erectus	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Aphelochaeta monilaris	None	18	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Aphelochaeta sp	None	7	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Axinopsida serricata	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8396	1	12/Jul/2013	Bivalvia	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8396	1	12/Jul/2013	Capitella capitata Cmplx	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Caprella sp	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Caprella sp WS1	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Ceriantharia	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Chaetozone corona	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8396	1	12/Jul/2013	Cirratulidae	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Compsomyax subdiaphana	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8396	1	12/Jul/2013	Cossura sp	None	6	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Cossura sp A	None	120	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Crangon alaskensis	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Cyathodonta pedroana	None	5	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8396	1	12/Jul/2013	Dorvillea (Schistomeringos) longicornis	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Eochelidium sp A	None	12	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Ericerodes hemphillii	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Euchone limnicola	None	11	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Eunicidae	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Euphilomedes carcharodonta	None	5	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Exogone lourei	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Glycera americana	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Glycera nana	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Gnathiidae	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Harmothoe hirsuta	None	2	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Heptacarpus stimpsoni	None	6	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Leitoscoloplos sp A	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Levinsenia gracilis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Liljeborgia geminata	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Lumbrineridae	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Macoma yoldiformis	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8396	1	12/Jul/2013	Malmgreniella macginitiei	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Marphysa disjuncta	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Mediomastus sp	None	3	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Melinna oculata	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Mesocrangon munitella	None	2	Yes	DCE	1.0	MM	2		Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Monticellina siblina	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Neotrypaea gigas	None	6	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Neotrypaea sp	None	7	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Paramage scutata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Parandalia fauveli	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Paraprionospio alata	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Periploma discus	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8396	1	12/Jul/2013	Pherusa neopapillata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Philine sp A	None	4	Yes	DCE	1.0	MM	2		Initial	Phillips, T	
B13-8396	1	12/Jul/2013	Phyllodoce pettiboneae	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Pinnixa sp	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Pinnotheridae	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Pista brevibranchiata	None	8	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Pista wui	None	25	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Prionospio (Prionospio) jubata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Rictaxis punctocaelatus	None	3	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8396	1	12/Jul/2013	Scleroplax granulata	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Scoletoma sp	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Sigambra setosa	None	9	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Sinocorophium alienense	None	34	Yes	DCE	1.0	MM	17		Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Spiophanes berkeleyorum	None	9	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Streblosoma sp B	None	12	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8396	1	12/Jul/2013	Theora lubrica	None	76	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8396	1	12/Jul/2013	Thyasira flexuosa	None	5	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8396	1	12/Jul/2013	Tubulanus polymorphus	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8396	1	12/Jul/2013	Tubulanus sp A	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8397	1	12/Jul/2013	Aphelochaeta sp	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Baseodiscus sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8397	1	12/Jul/2013	Boccardiella hamata	None	2	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Capitella capitata Cmplx	None	8	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Caprella californica	None	4	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8397	1	12/Jul/2013	Caprella sp	None	10	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8397	1	12/Jul/2013	Caprella sp WS1	None	11	Yes	DCE	1.0	MM	11		Initial	Pasko, D	
B13-8397	1	12/Jul/2013	Chaetozone hedgpethi	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Cirratulidae	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Cossura sp	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Cossura sp A	None	50	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Deltamysis holmquistae	None	2	Yes	DCE	1.0	MM	2		Initial	Pasko, D	
B13-8397	1	12/Jul/2013	Dorvillea (Schistomeringos) longicornis	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Eochelidium sp A	None	4	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8397	1	12/Jul/2013	Eranno sp	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Euchone limnicola	None	15	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Euphilomedes carcharodonta	None	28	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8397	1	12/Jul/2013	Exogone lourei	None	69	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Grandidierella japonica	None	163	Yes	DCE	1.0	MM	10		Initial	Pasko, D	
B13-8397	1	12/Jul/2013	Laevicardium substriatum	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8397	1	12/Jul/2013	Liljeborgia geminata	None	1	Yes	DCE	1.0	MM		1	Initial	Pasko, D	
B13-8397	1	12/Jul/2013	Lumbrineris limicola	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Mediomastus sp	None	12	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Mediomastus sp 6	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Megalomma pigmentum	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Monocorophium insidiosum	None	4	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8397	1	12/Jul/2013	Nematoda	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8397	1	12/Jul/2013	Oligochaeta	None	164	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Paramicrodeutopus schmitti	None	3	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8397	1	12/Jul/2013	Pista brevibranchiata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Platynereis bicanaliculata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Prionospio (Prionospio) heterobranchia	None	6	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Pseudopolydora paucibranchiata	None	112	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Rudilemboides stenopropodus	None	12	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8397	1	12/Jul/2013	Scyphoproctus oculatus	None	4	Yes	DCE	1.0	MM	3		Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Sphaerosyllis californiensis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Spiophanes duplex	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Theora lubrica	None	5	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8397	1	12/Jul/2013	Timarete luxuriosa	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Typosyllis nipponica	None	1	Yes	DCE	1.0	MM	1		Initial	Lovell, L.	
B13-8397	1	12/Jul/2013	Zeuxo normani Cmplx	None	44	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8399	1	12/Jul/2013	Ampelisca cristata cristata	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8399	1	12/Jul/2013	Ampharete labrops	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Amphicteis scaphobranchiata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Amphiuridae	None	1	No	DCE	1.0	MM			Initial	Phillips, T	
B13-8399	1	12/Jul/2013	Aphelochaeta monilaris	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Aphelochaeta sp	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Caesia fossatus	None	1	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8399	1	12/Jul/2013	Calyptraeidae	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8399	1	12/Jul/2013	Cooperella subdiaphana	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8399	1	12/Jul/2013	Cossura candida	None	11	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Cossura sp	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Cossura sp A	None	14	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Cryptomya californica	None	1	Yes	DCE	1.0	MM	1		Initial	Phillips, T	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8399	1	12/Jul/2013	Cyathodonta pedroana	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8399	1	12/Jul/2013	Diopatra tridentata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Euchone limnicola	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Glycera americana	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Heptacarpus stimpsoni	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8399	1	12/Jul/2013	Laonice cirrata	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Leitoscoloplos sp A	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Listriella goleta	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8399	1	12/Jul/2013	Lumbrineris japonica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Lyonsia californica	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8399	1	12/Jul/2013	Mediomastus sp	None	13	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Monticellina cryptica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Monticellina siblina	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Neotrypaea sp	None	6	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8399	1	12/Jul/2013	Ninoe tridentata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Palaeonemertea sp	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8399	1	12/Jul/2013	Paramage scutata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Paraprionospio alata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Pectinaria californiensis	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Philine auriformis	None	2	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8399	1	12/Jul/2013	Phoronida	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8399	1	12/Jul/2013	Phoronis sp	None	8	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8399	1	12/Jul/2013	Phoronis sp SD1	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8399	1	12/Jul/2013	Pista wui	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Prionospio (Prionospio) jubata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Rictaxis punctocaelatus	None	15	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8399	1	12/Jul/2013	Scalibregma californicum	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Sigambra setosa	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Spiophanes berkeleyorum	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Streblosoma sp B	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8399	1	12/Jul/2013	Theora lubrica	None	16	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8399	1	12/Jul/2013	Tubulanus polymorphus	None	5	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8399	1	12/Jul/2013	Tubulanus sp A	None	2	Yes	DCE	1.0	MM	2		Initial	Pasko, D	
B13-8399	1	12/Jul/2013	Tubulanus sp SD1	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8401	1	12/Jul/2013	Amphideutopus oculatus	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8401	1	12/Jul/2013	Aphelochaeta glandaria Cmplx	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Aphelochaeta monilaris	None	25	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Aphelochaeta petersenae	None	124	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Aphelochaeta sp	None	8	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Apionsoma misakianum	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8401	1	12/Jul/2013	Bipalponephtys cornuta	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Bivalvia	None	11	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8401	1	12/Jul/2013	Brachyura	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8401	1	12/Jul/2013	Caesia fossatus	None	1	Yes	DCE	1.0	MM	1		Initial	Phillips, T	
B13-8401	1	12/Jul/2013	Caprella sp	None	2	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8401	1	12/Jul/2013	Chaetozone corona	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Cirratulidae	None	6	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Cossura candida	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Cossura sp	None	21	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Cossura sp A	None	211	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Cyathodonta pedroana	None	5	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8401	1	12/Jul/2013	Drilonereis sp	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Eochelidium sp A	None	19	Yes	DCE	1.0	MM	5		Initial	Pasko, D	
B13-8401	1	12/Jul/2013	Euchone limnicola	None	30	Yes	DCE	1.0	MM			Initial	Lovell, L.	

StationID	Replicate	SampleDate	Species	Qualifier	Abundance	Exclude	LabCode	SieveSize	SieveSizeUnits	Voucher	PersonalVoucher	AnalysisType	Taxonomist	Comments
B13-8401	1	12/Jul/2013	Euphilomedes carcharodonta	None	24	Yes	DCE	1.0	MM	6		Initial	Pasko, D	
B13-8401	1	12/Jul/2013	Exogone lourei	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Hemiproto sp A	None	4	Yes	DCE	1.0	MM	4		Initial	Pasko, D	
B13-8401	1	12/Jul/2013	Heptacarpus stimpsoni	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8401	1	12/Jul/2013	Heterophoxus ellisi	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8401	1	12/Jul/2013	Laonice cirrata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Leitoscoloplos sp A	None	5	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Lineidae	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8401	1	12/Jul/2013	Lumbrineris japonica	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Malmgreniella macginitiei	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Marphysa disjuncta	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Mediomastus sp	None	18	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Melinna oculata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Mesocrangon munitella	None	1	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8401	1	12/Jul/2013	Monticellina cryptica	None	10	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Monticellina siblina	None	18	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Neotrypaea sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8401	1	12/Jul/2013	Paramage scutata	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Paraprionospio alata	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Pectinaria californiensis	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Periploma discus	None	4	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8401	1	12/Jul/2013	Phoronis sp	None	1	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8401	1	12/Jul/2013	Pinnotheridae	None	4	No	DCE	1.0	MM			Initial	Pasko, D	
B13-8401	1	12/Jul/2013	Pista wui	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Poecilochaetus martini	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Prionospio (Minuspio) multibranchiata	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Pseudopolydora paucibranchiata	None	24	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Sabellidae	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Sabellidae	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Saxidomus nuttalli	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8401	1	12/Jul/2013	Scoletoma sp	None	12	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Scoletoma sp C	None	1	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Serpulidae	None	1	No	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Sigambra setosa	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Sinocorophium alienense	None	2	Yes	DCE	1.0	MM			Initial	Pasko, D	
B13-8401	1	12/Jul/2013	Spiophanes berkeleyorum	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Spiophanes duplex	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Streblosoma crassibranchia	None	3	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Streblosoma sp B	None	4	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Tagelus sp	None	1	No	DCE	1.0	MM			Initial	Phillips, T	
B13-8401	1	12/Jul/2013	Theora lubrica	None	30	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8401	1	12/Jul/2013	Thyasira flexuosa	None	1	Yes	DCE	1.0	MM			Initial	Phillips, T	
B13-8401	1	12/Jul/2013	Typosyllis nipponica	None	2	Yes	DCE	1.0	MM			Initial	Lovell, L.	
B13-8401	1	12/Jul/2013	Zygeupolia rubens	None	1	Yes	DCE	1.0	MM	1		Initial	Pasko, D	

amec foster wheeler

APPENDIX I

CHAIN OF CUSTODY FORMS

amec foster wheeler

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Nautilus Environmental
4340 Vandever Avenue
San Diego, CA 92120

Sediment Sample
Check-In Information

Client: AMEC

Test IDs: 1307-S070 through 1307-S099

Project: POLA/POLA Bight '13 (Test Batch #1)

Test Type(s): *Eohaustorius* 10-day survival, 48-hr bivalve SWI

Nautilus Log-in# 13-xxxx	Sample ID	Collection Date & Time	Receipt Date & Time	Receipt Temp. (°C)	No. Containers	Container Type	Approx. Total Volume Received (L)	Sample Description	Tech Intials
3122	B13-8326	7/10/2013 8:56	7/11/2013 9:00	4.5	5	1-L plastic bottle	5	sediment	AG
3123	B13-8349	7/10/2013 10:17		4.8	5	1-L plastic bottle	5	"	AG
3124	B13-8382	7/10/2013 11:31		4.5	5	1-L plastic bottle	5	"	AG
3125	B13-8371	7/10/2013 12:30		2.1	5	1-L plastic bottle	5	"	AG
3126	B13-8363	7/10/2013 14:00		2.1	5	1-L plastic bottle	5	"	AG
3127	B13-8374	7/10/2013 14:53		1.1	5	1-L plastic bottle	5	"	AG
3128	B13-8360	7/10/2013 15:59		3.1	5	1-L plastic bottle	5	"	AG
3130	B13-8310	7/11/2013 18:05	7/12/2013 21:30	4.9	5	1-L plastic bottle	5	"	AC
3131	B13-8308	7/11/2013 17:25		4.2	5	1-L plastic bottle	5	"	AC
3132	B13-8304	7/11/2013 16:43		4.5	5	1-L plastic bottle	5	"	AC
3147	B13-8347	7/12/2013 17:24	7/12/2013 21:30	3.7	5	1-L plastic bottle	5	"	PA
3148	B13-8333	7/13/2013 7:58	7/13/2013 18:14	11.5	5	1-L plastic bottle	5	"	AC
3150	B13-8356	7/13/2013 9:37		12.6	5	1-L plastic bottle	5	"	AC
3151	B13-8322	7/13/2013 10:25		10.3	5	1-L plastic bottle	5	"	AC
3152	B13-8318	7/13/2013 11:10		4.8	5	1-L plastic bottle	5	"	AC

Samples Shipped Via: hand delivered

COC Present? Y

Sieving Required? Y Screen Size: 1.0 mm

Lab Control Sediment: Eoh home sediment

Sub-samples for additional chemistry:

Collect Porewater Tech Initials PA

Other _____ Tech Initials_____

Other _____ Tech Initials_____

Test Organism:	*Eohaustorius*	Bivalve			
Supplier:	NWAS	Taylor			
Receipt Date:	7/11/2013	7/16/2013			
Condition:	good	good			

Comments: _____

QC Check: AC 1/10/14

Final Review : VZ 1/16/14

Nautilus Environmental
4340 Vandever Avenue
San Diego, CA 92120

Sediment Sample Check-In Information

Client: AMEC

Test IDs: 1307-S159 through 1307-S188

Project: POLA/POLA Bight '13 (Test Batch #2)

Test Type(s): *Eohaustorius* 10-day survival, 48-hr bivalve SWI

Nautilus Log-in# 13-xxxx	Sample ID	Collection Date & Time	Receipt Date & Time	Receipt Temp. (°C)	No. Containers	Container Type	Approx. Total Volume Received (L)	Sample Description	Tech Intials
3133	B13-8367	7/11/2013 14:30	7/12/2013 21:30	4.4	5	1-L plastic bottle	5	sediment	AC
3134	TMDL-2FH	7/11/2013 15:44		4.6	5	1-L plastic bottle	5	"	AC
3135	B13-8306	7/11/2013 13:18		4.7	5	1-L plastic bottle	5	"	AC
3136	TMDL-1CH	7/11/2013 12:24		2.7	5	1-L plastic bottle	5	"	AC
3137	B13-8316	7/11/2013 10:45		4.5	5	1-L plastic bottle	5	"	AC
3138	B13-8302	7/11/2013 9:55		4.8	5	1-L plastic bottle	5	"	AC
3139	B13-8340	7/12/2013 8:36	7/12/2013 21:30	4.9	5	1-L plastic bottle	5	"	PA
3140	B13-8384	7/12/2013 9:29		4.2	5	1-L plastic bottle	5	"	PA
3141	B13-8396	7/11/2013 17:25		3.9	5	1-L plastic bottle	5	"	PA
3142	B13-8397	7/11/2013 16:43		4.8	5	1-L plastic bottle	5	"	PA
3143	TMDL-4CS	7/12/2013 12:35		3.3	5	1-L plastic bottle	5	"	PA
3144	B13-8399	7/12/2013 14:07	7/12/2013 21:30	5.2	5	1-L plastic bottle	5	"	PA
3145	B13-8401	7/12/2013 14:58		4.0	5	1-L plastic bottle	5	"	PA
3146	TMDL-3TB	7/12/2013 15:55		4.1	5	1-L plastic bottle	5	"	PA
3149	B13-8365	7/13/2013 8:53	7/13/2013 18:14	12.2	5	1-L plastic bottle	5	"	AC

Samples Shipped Via: hand delivered

COC Present? Y

Sieving Required? Y Screen Size: 1.0 mm

Lab Control Sediment: Eoh home sediment

Sub-samples for additional chemistry:

Collect Porewater Tech Initials PA

Other _____ Tech Initials_____

Other _____ Tech Initials_____

Test Organism:	*Eohaustorius*	Bivalve			
Supplier:	NWAS	Taylor			
Receipt Date:	7/18/2013	7/18/2013			
Condition:	good	good			

Comments:

QC Check: AC 1/10/14

Final Review : VS 1/16/14

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Nautilus Environmental
Attn: Adrienne Cibor
4340 Vandever Avenue
San Diego, California 92120
Phone: 858-587-7333 Fax: 858-587-6769

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count	°C
B13-8326	7/10/13	0856	Toxicity	Grab	1 L Plastic	None	5	4.5
B13-8349	7/10/13	1017	Toxicity	Grab	1 L Plastic	None	5	4.8
B13-8382	7/10/13	1131	Toxicity	Grab	1 L Plastic	None	5	4.5
B13-8371	7/10/13	1230	Toxicity	Grab	1 L Plastic	None	5	2.1
B13-8363	7/10/13	1400	Toxicity	Grab	1 L Plastic	None	5	2.1
B13-8374	7/10/13	1453	Toxicity	Grab	1 L Plastic	None	5	1.1
B13-8360	7/10/13	1559	Toxicity	Grab	1 L Plastic	None	5	3.1
			Toxicity	Grab	1 L Plastic	None	5	4.9

Sampler's Initials: JR

Relinquished By: [signature] Date/Time: 7/11/13 0900 Received By: [signature] Date/Time: 7/11/13 0900

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

13-3122 - 13-3128

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Nautilus Environmental
Attn: Adrienne Cibor
4340 Vandever Avenue
San Diego, California 92120
Phone: 858-587-7333 Fax: 858-587-6769

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count	°C
B13-8310	7/11/13	1805	Toxicity	Grab	1 L Plastic	None	5	4.9
B13-8308	7/11/13	1725	Toxicity	Grab	1 L Plastic	None	5	4.2
B13-8304	7/11/13	1643	Toxicity	Grab	1 L Plastic	None	5	4.5
B13-8367	7/11/13	1430	Toxicity	Grab	1 L Plastic	None	5	4.4
TMDL2-FH	7/11/13	1544	Toxicity	Grab	1 L Plastic	None	5	4.6
B13-8306	7/11/13	1318	Toxicity	Grab	1 L Plastic	None	5	4.7
TMDL1-CH	7/11/13	1224	Toxicity	Grab	1 L Plastic	None	5	2.7
B13-8316	7/11/13	1045	Toxicity	Grab	1 L Plastic	None	5	4.5

Sampler's Initials: JR

Relinquished By: [signature] Date/Time: 7/12/13 2130 Received By: Adrienne Cibor Date/Time: 7/12/13 2130

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

13-3130 - 3137

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Nautilus Environmental
Attn: Adrienne Cibor
4340 Vandever Avenue
San Diego, California 92120
Phone: 858-587-7333 Fax: 858-587-6769

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count	°C
B13-8302	7/11/13	0955	Toxicity	Grab	1 L Plastic	None	5	4.8
			Toxicity	Grab	1 L Plastic	None	5	
			Toxicity	Grab	1 L Plastic	None	5	
			Toxicity	Grab	1 L Plastic	None	5	
			Toxicity	Grab	1 L Plastic	None	5	
			Toxicity	Grab	1 L Plastic	None	5	
			Toxicity	Grab	1 L Plastic	None	5	
			Toxicity	Grab	1 L Plastic	None	5	

Sampler's Initials: JR

Relinquished By: (J. Burns) Date/Time: 7/12/13 2130 Received By: Adrienne Cibor Date/Time: 7/12/13 2130

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

13-3138

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Nautilus Environmental
Attn: Adrienne Cibor
4340 Vandever Avenue
San Diego, California 92120
Phone: 858-587-7333 Fax: 858-587-6769

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count	°C
B13-8340	7/12/13	0836	Toxicity	Grab	1 L Plastic	None	5	4.9
B13-8384	7/12/13	0929	Toxicity	Grab	1 L Plastic	None	5	4.2
B13-8396	7/12/13	1010	Toxicity	Grab	1 L Plastic	None	5	3.9
B13-8397	7/12/13	1136	Toxicity	Grab	1 L Plastic	None	5	4.8
TMDL4-C5	7/12/13	1235	Toxicity	Grab	1 L Plastic	None	5	3.3
B13-8399	7/12/13	1407	Toxicity	Grab	1 L Plastic	None	5	5.2
B13-8401	7/12/13	1458	Toxicity	Grab	1 L Plastic	None	5	4.0
TMDL3-TB	7/12/13	1555	Toxicity	Grab	1 L Plastic	None	5	4.1

Sampler's Initials: JR

Relinquished By: (J. Burns) Date/Time: 7/12/13 2130 Received By: Adrienne Cibor Date/Time: 7/12/13 2130

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

13-3139-S1416

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Nautilus Environmental
Attn: Adrienne Cibor
4340 Vandever Avenue
San Diego, California 92120
Phone: 858-587-7333 Fax: 858-587-6769

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8347	7/12/13	1724	Toxicity	Grab	1 L Plastic	None	5 3.7
			Toxicity	Grab	1 L Plastic	None	5
			Toxicity	Grab	1 L Plastic	None	5
			Toxicity	Grab	1 L Plastic	None	5
			Toxicity	Grab	1 L Plastic	None	5
			Toxicity	Grab	1 L Plastic	None	5
			Toxicity	Grab	1 L Plastic	None	5
			Toxicity	Grab	1 L Plastic	None	5

Sampler's Initials: JR

Relinquished By: (J. Bueno) Date/Time: 7/12/13 2130 Received By: Adrienne Cibor Date/Time: 7/12/13 2130

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

13-3147

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Nautilus Environmental
Attn: Adrienne Cibor
4340 Vandever Avenue
San Diego, California 92120
Phone: 858-587-7333 Fax: 858-587-6769

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count	
B13-8333	7/13/13	0758	Toxicity	Grab	1 L Plastic	None	5	M.5
B13-8365	7/13/13	0853	Toxicity	Grab	1 L Plastic	None	5	12.7
B13-8356	7/13/13	0937	Toxicity	Grab	1 L Plastic	None	5	12.6
B13-8322	7/13/13	1025	Toxicity	Grab	1 L Plastic	None	5	10.3
B13-8318	7/13/13	1110	Toxicity	Grab	1 L Plastic	None	5	4.8
			Toxicity	Grab	1 L Plastic	None	5	
			Toxicity	Grab	1 L Plastic	None	5	
			Toxicity	Grab	1 L Plastic	None	5	

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1814 Received By: Adrienne Cibor Date/Time: 7/13/13 1814

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

13-3148 to 3152

Southern California Coastal Water Research Project

3535 Harbor Blvd. Suite 110
Costa Mesa, CA 92626-1437
(714) 755-3200 Fax (714) 755-3299

Chain of Custody

Date July 15, 2013 Page 1 of 1

Sample Collection By: AMEC | Project Name: B'D | Project Number:

Sample ID	Date	Time	Matrix	Container Type	Number of Containers	Comments	Analysis
Grain Size Cont.	7-9-13		Sed	1 Liter	12		Toxicity (Amphipod) temp °C 4.1

Relinquished By		Relinquished By		Relinquished By	
(Signature)	(Date) 7-15-13	(Signature)	(Date)	(Signature)	(Date)
(Printed Name) Darrin Greenstein	(Time) 1000	(Printed Name)	(Time)	(Printed Name)	(Time)
(Company) SCCWRP		(Company)		(Company)	
Received By		**Received By**		**Received By**	
(Signature) Adrienne Cibar	(Date) 7/15/13	(Signature)	(Date)	(Signature)	(Date)
(Printed Name) adrienne cibar	(Time) 10:00	(Printed Name)	(Time)	(Printed Name)	(Time)
(Company) Nautilus		(Company)		(Company)	

13-3153

1307001-001

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Physis Environmental Laboratories, Inc.
Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8382	7/10/13	1104	General Chemistry	Grab	8 oz Glass	None	1
B13-8382	7/10/13	1104	Metals	Grab	8 oz Glass	None	1
B13-8382	7/10/13	1104	PBDE	Grab	8 oz Glass	None	1
B13-8382	7/10/13	1104	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8382	7/10/13	1104	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JB

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8374	7/10/13	1428	General Chemistry	Grab	8 oz Glass	None	1
B13-8374	7/10/13	1428	Metals	Grab	8 oz Glass	None	1
B13-8374	7/10/13	1428	PBDE	Grab	8 oz Glass	None	1
B13-8374	7/10/13	1428	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8374	7/10/13	1428	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JB

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

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Analysis Request and Chain of Custody

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8371	7/10/13	1203	General Chemistry	Grab	8 oz Glass	None	1
B13-8371	7/10/13	1203	Metals	Grab	8 oz Glass	None	1
B13-8371	7/10/13	1203	PBDE	Grab	8 oz Glass	None	1
B13-8371	7/10/13	1203	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8371	7/10/13	1203	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8363	7/10/13	1338	General Chemistry	Grab	8 oz Glass	None	1
B13-8363	7/10/13	1338	Metals	Grab	8 oz Glass	None	1
B13-8363	7/10/13	1338	PBDE	Grab	8 oz Glass	None	1
B13-8363	7/10/13	1338	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8363	7/10/13	1338	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8360	7/10/13	1530	General Chemistry	Grab	8 oz Glass	None	1
B13-8360	7/10/13	1530	Metals	Grab	8 oz Glass	None	1
B13-8360	7/10/13	1530	PBDE	Grab	8 oz Glass	None	1
B13-8360	7/10/13	~~1500~~ 1530 JR	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8360	7/10/13	1530	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: [signature] Date/Time: 7/10/13 1300 Received By: [signature] Date/Time: 2/12/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8349	7/10/13	0951	General Chemistry	Grab	8 oz Glass	None	1
B13-8349	7/10/13	0951	Metals	Grab	8 oz Glass	None	1
B13-8349	7/10/13	0951	PBDE	Grab	8 oz Glass	None	1
B13-8349	7/10/13	0951	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8349	7/10/13	0951	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JB

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 12:00

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

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To:

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1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8326	7/10/13	0828	General Chemistry	Grab	8 oz Glass	None	1
B13-8326	7/10/13	0828	Metals	Grab	8 oz Glass	None	1
B13-8326	7/10/13	0828	PBDE	Grab	8 oz Glass	None	1
B13-8326	7/10/13	0828	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8326	7/10/13	0828	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JB

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8367	7/11/13	1410	General Chemistry	Grab	8 oz Glass	None	1
B13-8367	7/11/13	1410	Metals	Grab	8 oz Glass	None	1
B13-8367	7/11/13	1410	PBDE	Grab	8 oz Glass	None	1
B13-8367	7/11/13	1410	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8367	7/11/13	1410	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JB

Relinquished By: [signature] Date/Time: 7/13/13 1300 Received By: [signature] Date/Time: 7/12/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

130700/-001

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

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To:

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Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8302	7/11/13	0929	General Chemistry	Grab	8 oz Glass	None	1
B13-8302	7/11/13	0929	Metals	Grab	8 oz Glass	None	1
B13-8302	7/11/13	0929	PBDE	Grab	8 oz Glass	None	1
B13-8302	7/11/13	0929	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8302	7/11/13	0929	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JT

Relinquished By: [signature] Date/Time: 7/13/13 13:00 Received By: [signature] Date/Time: 7/13/13 13:00

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

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To:

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1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8304	7/11/13	1624	General Chemistry	Grab	8 oz Glass	None	1
B13-8304	7/11/13	1624	Metals	Grab	8 oz Glass	None	1
B13-8304	7/11/13	1624	PBDE	Grab	8 oz Glass	None	1
B13-8304	7/11/13	1624	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8304	7/11/13	1624	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

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To:

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8306	7/11/13	1300	General Chemistry	Grab	8 oz Glass	None	1
B13-8306	7/11/13	1300	Metals	Grab	8 oz Glass	None	1
B13-8306	7/11/13	1306	PBDE	Grab	8 oz Glass	None	1
B13-8306	7/11/13	1306	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8306	7/11/13	1300	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

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To:

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8308	7/11/13	1706	General Chemistry	Grab	8 oz Glass	None	1
B13-8308	7/11/13	1706	Metals	Grab	8 oz Glass	None	1
B13-8308	7/11/13	1706	PBDE	Grab	8 oz Glass	None	1
B13-8308	7/11/13	1706	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8308	7/11/13	1706	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 13:00

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8310	7/11/13	1751	General Chemistry	Grab	8 oz Glass	None	1
B13-8310	7/11/13	1751	Metals	Grab	8 oz Glass	None	1
B13-8310	7/11/13	1751	PBDE	Grab	8 oz Glass	None	1
B13-8310	7/11/13	1751	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8310	7/11/13	1751	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8316	7/11/13	1023	General Chemistry	Grab	8 oz Glass	None	1
B13-8316	7/11/13	1023	Metals	Grab	8 oz Glass	None	1
B13-8316	7/11/13	1023	PBDE	Grab	8 oz Glass	None	1
B13-8316	7/11/13	1023	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8316	7/11/13	1023	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JB

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1340

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
TMDL2-FH	7/11/13	1525	General Chemistry	Grab	8 oz Glass	None	1
TMDL2-FH	7/11/13	1525	Metals	Grab	8 oz Glass	None	1
TMDL2-FH	7/11/13	1525	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analysis list. NOTE: Analytical requirements for these samples differs from the Bight '13 samples.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
TMDL1-CH	7/11/13	1207	General Chemistry	Grab	8 oz Glass	None	1
TMDL1-CH	7/11/13	1207	Metals	Grab	8 oz Glass	None	1
TMDL1-CH	7/11/13	1207	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analysis list. NOTE: Analytical requirements for these samples differs from the Bight '13 samples.

Sampler's Initials: JB

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
TMDL5-DT	7/11/13	1525	General Chemistry	Grab	8 oz Glass	None	1
TMDL5-DT	7/11/13	1525	Metals	Grab	8 oz Glass	None	1
TMDL5-DT	7/11/13	1525	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analysis list. NOTE: Analytical requirements for these samples differs from the Bight '13 samples.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1200 Received By: _____ Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

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To:

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8401	7/12/13	1442	General Chemistry	Grab	8 oz Glass	None	1
B13-8401	7/12/13	1442	Metals	Grab	8 oz Glass	None	1
B13-8401	7/12/13	1442	PBDE	Grab	8 oz Glass	None	1
B13-8401	7/12/13	1442	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8401	7/12/13	1442	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JF

Relinquished By: _____ Date/Time: 7/12/13 1300 Received By: _____ Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

Harbor Toxics TMDL and Bight '13

From:

AMEC Environment & Infrastructure
Attn: Chris Stransky
9210 Sky Park Court, Suite 200
San Diego, CA 92123
Phone: 858-300-4350 Fax: 858-300-4301

To:

Physis Environmental Laboratories, Inc.
Attn: Misty Mercier
1904 East Wright Circle
Anaheim, California 92806
Phone: 714-602-5320 Fax: 714-602-5321

SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8399	7/12/13	1355	General Chemistry	Grab	8 oz Glass	None	1
B13-8399	7/12/13	1355	Metals	Grab	8 oz Glass	None	1
B13-8399	7/12/13	1355	PBDE	Grab	8 oz Glass	None	1
B13-8399	7/12/13	1355	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8399	7/12/13	1355	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JB

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8384	7/12/13	0913	General Chemistry	Grab	8 oz Glass	None	1
B13-8384	7/12/13	0913	Metals	Grab	8 oz Glass	None	1
B13-8384	7/12/13	0913	PBDE	Grab	8 oz Glass	None	1
B13-8384	7/12/13	0913	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8384	7/12/13	0913	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JB

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8397	7/12/13	1120	General Chemistry	Grab	8 oz Glass	None	1
B13-8397	7/12/13	1120	Metals	Grab	8 oz Glass	None	1
B13-8397	7/12/13	1120	PBDE	Grab	8 oz Glass	None	1
B13-8397	7/12/13	1120	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8397	7/12/13	1120	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JB

Relinquished By: [signature] Date/Time: 7/13/13 1300 Received By: [signature] Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8396	7/12/13	0958	General Chemistry	Grab	8 oz Glass	None	1
B13-8396	7/12/13	0958	Metals	Grab	8 oz Glass	None	1
B13-8396	7/12/13	0958	PBDE	Grab	8 oz Glass	None	1
B13-8396	7/12/13	0958	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8396	7/12/13	0958	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JT

Relinquished By: [signature] Date/Time: 7/13/13 1700 Received By: [signature] Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

Analysis Request and Chain of Custody

POLA/POLB

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8340	7/12/13	0819	General Chemistry	Grab	8 oz Glass	None	1
B13-8340	7/12/13	0819	Metals	Grab	8 oz Glass	None	1
B13-8340	7/12/13	0819	PBDE	Grab	8 oz Glass	None	1
B13-8340	7/12/13	0819	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8340	7/12/13	0819	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/12/13 1300 Received By: _____ Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8347	7/12/13	1541	General Chemistry	Grab	8 oz Glass	None	1
B13-8347	7/12/13	1541	Metals	Grab	8 oz Glass	None	1
B13-8347	7/12/13	1541	PBDE	Grab	8 oz Glass	None	1
B13-8347	7/12/13	1541	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8347	7/12/13	1541	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
TMDL6-CP	7/12/13	1541	General Chemistry	Grab	8 oz Glass	None	1
TMDL6-CP	7/12/13	1541	Metals	Grab	8 oz Glass	None	1
TMDL6-CP	7/12/13	1541	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analysis list. NOTE: Analytical requirements for these samples differs from the Bight '13 samples.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
TMDL4-CS	7/12/13	1220	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analysis list.

Sampler's Initials: JR

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
TMDL4-CS	7/12/13	1220	General Chemistry	Grab	8 oz Glass	None	1
TMDL4-CS	7/12/13	1220	Metals	Grab	8 oz Glass	None	1
TMDL4-CS	7/12/13	1220	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analysis list. NOTE: Analytical requirements for these samples differs from the Bight '13 samples.

Sampler's Initials: JB

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
TMDL3-TB	7/12/13	1541	General Chemistry	Grab	8 oz Glass	None	1
TMDL3-TB	7/12/13	1541	Metals	Grab	8 oz Glass	None	1
TMDL3-TB	7/12/13	1541	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analysis list. NOTE: Analytical requirements for these samples differs from the Bight '13 samples.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-~~8309~~ ~~8365~~ 8365	7/13/13	0837	General Chemistry	Grab	8 oz Glass	None	1
B13-~~8309~~ 8365	7/13/13	0837	Metals	Grab	8 oz Glass	None	1
B13-~~8309~~ 8365	7/13/13	0837	PBDE	Grab	8 oz Glass	None	1
B13-~~8309~~ 8365	7/13/13	0837	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-~~8309~~ 8365	7/13/13	0837	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8318	7/13/13	1057	General Chemistry	Grab	8 oz Glass	None	1
B13-8318	7/13/13	1057	Metals	Grab	8 oz Glass	None	1
B13-8318	7/13/13	1057	PBDE	Grab	8 oz Glass	None	1
B13-8318	7/13/13	1057	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8318	7/13/13	1057	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8322	7/13/13	1011	General Chemistry	Grab	8 oz Glass	None	1
B13-8322	7/13/13	1011	Metals	Grab	8 oz Glass	None	1
B13-8322	7/13/13	1011	PBDE	Grab	8 oz Glass	None	1
B13-8322	7/13/13	1011	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8322	7/13/13	1011	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 13:00

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8333	7/13/13	0743	General Chemistry	Grab	8 oz Glass	None	1
B13-8333	7/13/13	0743	Metals	Grab	8 oz Glass	None	1
B13-8333	7/13/13	0743	PBDE	Grab	8 oz Glass	None	1
B13-8333	7/13/13	0743	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8333	7/13/13	0743	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JR

Relinquished By: _____ Date/Time: 7/13/13 1300 Received By: _____ Date/Time: 7/13/13 1300

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SampleID	Date	Time	Analyses	Sample Type	Bottle Size	Preservative	Bottle Count
B13-8356	7/13/13	0922	General Chemistry	Grab	8 oz Glass	None	1
B13-8356	7/13/13	0922	Metals	Grab	8 oz Glass	None	1
B13-8356	7/13/13	0922	PBDE	Grab	8 oz Glass	None	1
B13-8356	7/13/13	0922	PCBs, PAHs, and Chlorinated Hydrocarbons	Grab	8 oz Glass	None	1
B13-8356	7/13/13	0922	Pyrethroid Pesticides	Grab	8 oz Glass	None	1

Comments: See attachment for detailed analytical list.

Sampler's Initials: JTL

Relinquished By: _____ Date/Time: 7/13/13 1000 Received By: _____ Date/Time: 7/13/13 1300

Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____

AMEC - Chemical Analyte List for POLA/POLB Bight '13 Sediment Sampling

26 Bight '13 Samples ONLY

General Chemistry

Analyte	Analysis Method	Sediment Target Reporting Limits
Total Solids	160.3/SM 2540 B	0.10%
Total Organic Carbon	9060	0.01%
Grain Size	SM2560	0.10%
Total Nitrogen	TKN / SM 4500-NO_3 / SM 4500-NO_3	4.0 mg/kg
Total Phosphorus	SM 4500-P B/E(M)	4.0 mg/kg
Ammonia	SM 4500-NH_3	0.2 mg/kg
Sulfide	USEPA 376.2	0.5 mg/kg

PAHs

Analyte	Analysis Method	Sediment Target Reporting Limits
Acenaphthene	8270C/8270D-SIM	20 µg/kg
Acenaphthylene	8270C/8270D-SIM	20 µg/kg
Anthracene	8270C/8270D-SIM	20 µg/kg
Benz[a]anthracene	8270C/8270D-SIM	20 µg/kg
Benzo[a]pyrene	8270C/8270D-SIM	20 µg/kg
Benzo[b]fluoranthene	8270C/8270D-SIM	20 µg/kg
Benzo[e]pyrene	8270C/8270D-SIM	20 µg/kg
Benzo[g,h,i]perylene	8270C/8270D-SIM	20 µg/kg
Benzo[k]fluoranthene	8270C/8270D-SIM	20 µg/kg
Biphenyl	8270C/8270D-SIM	20 µg/kg
Chrysene	8270C/8270D-SIM	20 µg/kg
Dibenz[a,h]anthracene	8270C/8270D-SIM	20 µg/kg
Fluoranthene	8270C/8270D-SIM	20 µg/kg
Fluorene	8270C/8270D-SIM	20 µg/kg
Indeno(1,2,3-c,d)pyrene	8270C/8270D-SIM	20 µg/kg
Naphthalene	8270C/8270D-SIM	20 µg/kg
Perylene	8270C/8270D-SIM	20 µg/kg
Phenanthrene	8270C/8270D-SIM	20 µg/kg
Pyrene	8270C/8270D-SIM	20 µg/kg
2,6-Dimethylnaphthalene	8270C/8270D-SIM	20 µg/kg
1-Methylnapthalene	8270C/8270D-SIM	20 µg/kg
2-Methylnapthalene	8270C/8270D-SIM	20 µg/kg
1-Methylphenanthrene	8270C/8270D-SIM	20 µg/kg
1,6,7-Trimethylnaphthalene	8270C/8270D-SIM	20 µg/kg

Pyrethroid Pesticides

Analyte	Analysis Method	Sediment Target Reporting Limit
Allethrin	EPA 8270 C NCI	2 µg/kg
Bifenthrin	EPA 8270 C NCI	0.5 µg/kg
Cyfluthrin	EPA 8270 C NCI	0.5 µg/kg
Cypermethrin	EPA 8270 C NCI	0.5 µg/kg
Danitol	EPA 8270 C NCI	2 µg/kg
Deltamethrin/Tralomethrin	EPA 8270 C NCI	0.5 µg/kg
Esfenvalerate	EPA 8270 C NCI	0.5 µg/kg
Fenvalerate	EPA 8270 C NCI	2 µg/kg
Fluvalinate	EPA 8270 C NCI	2 µg/kg
L-Cyhalothrin	EPA 8270 C NCI	0.5 µg/kg
Permethrin, cis-	EPA 8270 C NCI	0.5 µg/kg
Permethrin, trans-	EPA 8270 C NCI	0.5 µg/kg
Prallethrin	EPA 8270 C NCI	2 µg/kg
Resmethrin	EPA 8270 C NCI	10 µg/kg

Metals

Analyte	Analysis Method	Sediment Target Reporting Limits
Aluminum	6020/6010B	NA
Antimony	6020/6010B	10 mg/kg
Arsenic	6020/6010B	1.6 mg/kg
Barium	6020/6010B	NA
Beryllium	6020/6010B	0.2 mg/kg
Cadmium	6020/6010B	0.01 mg/kg
Chromium	6020/6010B	0.1 mg/kg
Copper	6020/6010B	0.1 mg/kg
Iron	6020/6010B	NA
Lead	6020/6010B	0.1 mg/kg
Mercury	7471A	0.02 mg/kg
Nickel	6020/6010B	0.1 mg/kg
Selenium	6020/6010B	0.1 mg/kg
Silver	6020/6010B	0.1 mg/kg
Zinc	6020/6010B	0.1 mg/kg

PBDEs

Analyte	Analysis Method	Sediment Target Reporting Limits
BDE-17	8270 C NCI	0.1 µg/kg
BDE-28	8271 C NCI	0.1 µg/kg
BDE-47	8272 C NCI	0.1 µg/kg
BDE-49	8273 C NCI	0.1 µg/kg
BDE-66	8274 C NCI	0.1 µg/kg
BDE-85	8275 C NCI	0.1 µg/kg
BDE-99	8276 C NCI	0.1 µg/kg
BDE-100	8277 C NCI	0.1 µg/kg
BDE-138	8278 C NCI	0.1 µg/kg
BDE-153	8279 C NCI	0.1 µg/kg
BDE-154	8280 C NCI	0.1 µg/kg
BDE-183	8281 C NCI	0.1 µg/kg
BDE-209	8282 C NCI	0.1 µg/kg

Chlorinated Hydrocarbons

Analyte	Analysis Method	Sediment Target Reporting Limit
cis-chlordane	8081A	0.5 µg/kg
trans-chlordane	8081A	0.5 µg/kg
o,p'-DDT	8081A	0.5 µg/kg
p,p'-DDT	8081A	0.5 µg/kg
o,p'-DDD	8081A	0.5 µg/kg
p,p'-DDD	8081A	0.5 µg/kg
o,p'-DDE	8081A	0.5 µg/kg
p,p'-DDE	8081A	0.5 µg/kg
p,p'-DDMU	8081A	0.5 µg/kg
cis-nonachlor	8081A	0.5 µg/kg
trans-nonachlor	8081A	0.5 µg/kg
oxychlordane	8081A	0.5 µg/kg
dieldrin	8081A	0.5 µg/kg
toxaphene	8081A	0.5 µg/kg

PCB Congeners

Analyte	Analysis Method	Sediment Target Reporting Limits
PCB-3	8270C SIM PCB	0.2-10 µg/kg
PCB-5	8270C SIM PCB	0.2-10 µg/kg
PCB- 8	8270C SIM PCB	0.2-10 µg/kg
PCB-15	8270C SIM PCB	0.2-10 µg/kg
PCB-18	8270C SIM PCB	0.2-10 µg/kg
PCB- 27	8270C SIM PCB	0.2-10 µg/kg
PCB-28	8270C SIM PCB	0.2-10 µg/kg
PCB-29	8270C SIM PCB	0.2-10 µg/kg
PCB-31	8270C SIM PCB	0.2-10 µg/kg
PCB-33	8270C SIM PCB	0.2-10 µg/kg
PCB-37	8270C SIM PCB	0.2-10 µg/kg
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PCB-60	8270C SIM PCB	0.2-10 µg/kg
PCB-66	8270C SIM PCB	0.2-10 µg/kg
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PCB-74	8270C SIM PCB	0.2-10 µg/kg
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PCB-99	8270C SIM PCB	0.2-10 µg/kg
PCB-101	8270C SIM PCB	0.2-10 µg/kg
PCB-105	8270C SIM PCB	0.2-10 µg/kg
PCB-110	8270C SIM PCB	0.2-10 µg/kg
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PCB-195	8270C SIM PCB	0.2-10 µg/kg
PCB-200	8270C SIM PCB	0.2-10 µg/kg
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PCB-203	8270C SIM PCB	0.2-10 µg/kg
PCB-206	8270C SIM PCB	0.2-10 µg/kg
PCB-209	8270C SIM PCB	0.2-10 µg/kg

AMEC - Chemical Analyte List for POLA/POLB Bight '13 Sediment Sampling

6 TMDL Sites ONLY

General Chemistry

Analyte	Analysis Method	Sediment Target Reporting Limits
Total Solids	160.3/SM 2540 B	0.10%
Total Organic Carbon	9060	0.01%
Grain Size	SM2560	0.10%
Ammonia	SM 4500-NH_3	0.2 mg/kg
Sulfide	USEPA 376.2	0.5 mg/kg

PAHs

Analyte	Analysis Method	Sediment Target Reporting Limits
Acenaphthene	8270C/8270D-SIM	20 µg/kg
Acenaphthylene	8270C/8270D-SIM	20 µg/kg
Anthracene	8270C/8270D-SIM	20 µg/kg
Benz[a]anthracene	8270C/8270D-SIM	20 µg/kg
Benzo[a]pyrene	8270C/8270D-SIM	20 µg/kg
Benzo[b]fluoranthene	8270C/8270D-SIM	20 µg/kg
Benzo[e]pyrene	8270C/8270D-SIM	20 µg/kg
Benzo[g,h,i]perylene	8270C/8270D-SIM	20 µg/kg
Benzo[k]fluoranthene	8270C/8270D-SIM	20 µg/kg
Biphenyl	8270C/8270D-SIM	20 µg/kg
Chrysene	8270C/8270D-SIM	20 µg/kg
Dibenz[a,h]anthracene	8270C/8270D-SIM	20 µg/kg
Fluoranthene	8270C/8270D-SIM	20 µg/kg
Fluorene	8270C/8270D-SIM	20 µg/kg
Indeno(1,2,3-c,d)pyrene	8270C/8270D-SIM	20 µg/kg
Naphthalene	8270C/8270D-SIM	20 µg/kg
Perylene	8270C/8270D-SIM	20 µg/kg
Phenanthrene	8270C/8270D-SIM	20 µg/kg
Pyrene	8270C/8270D-SIM	20 µg/kg
2,6-Dimethylnaphthalene	8270C/8270D-SIM	20 µg/kg
1-Methylnapthalene	8270C/8270D-SIM	20 µg/kg
2-Methylnapthalene	8270C/8270D-SIM	20 µg/kg
1-Methylphenanthrene	8270C/8270D-SIM	20 µg/kg
1,6,7-Trimethylnaphthalene	8270C/8270D-SIM	20 µg/kg

Pyrethroid Pesticides

Analyte	Analysis Method	Sediment Target Reporting Limit
Allethrin	EPA 8270 C NCI	2 µg/kg
Bifenthrin	EPA 8270 C NCI	0.5 µg/kg
Cyfluthrin	EPA 8270 C NCI	0.5 µg/kg
Cypermethrin	EPA 8270 C NCI	0.5 µg/kg
Danitol	EPA 8270 C NCI	2 µg/kg
Deltamethrin/Tralomethrin	EPA 8270 C NCI	0.5 µg/kg
Esfenvalerate	EPA 8270 C NCI	0.5 µg/kg
Fenvalerate	EPA 8270 C NCI	2 µg/kg
Fluvalinate	EPA 8270 C NCI	2 µg/kg
L-Cyhalothrin	EPA 8270 C NCI	0.5 µg/kg
Permethrin, cis-	EPA 8270 C NCI	0.5 µg/kg
Permethrin, trans-	EPA 8270 C NCI	0.5 µg/kg
Prallethrin	EPA 8270 C NCI	2 µg/kg
Resmethrin	EPA 8270 C NCI	10 µg/kg

For TMDL Site 4-CS ONLY

Metals

Analyte	Analysis Method	Sediment Target Reporting Limits
Aluminum	6020/6010B	NA
Antimony	6020/6010B	10 mg/kg
Arsenic	6020/6010B	1.6 mg/kg
Barium	6020/6010B	NA
Beryllium	6020/6010B	0.2 mg/kg
Cadmium	6020/6010B	0.01 mg/kg
Chromium	6020/6010B	0.1 mg/kg
Copper	6020/6010B	0.1 mg/kg
Iron	6020/6010B	NA
Lead	6020/6010B	0.1 mg/kg
Mercury	7471A	0.02 mg/kg
Nickel	6020/6010B	0.1 mg/kg
Selenium	6020/6010B	0.1 mg/kg
Silver	6020/6010B	0.1 mg/kg
Zinc	6020/6010B	0.1 mg/kg

Chlorinated Hydrocarbons

Analyte	Analysis Method	Sediment Target Reporting Limit
cis-chlordane	8081A	0.5 µg/kg
trans-chlordane	8081A	0.5 µg/kg
o,p'-DDT	8081A	0.5 µg/kg
p,p'-DDT	8081A	0.5 µg/kg
o,p'-DDD	8081A	0.5 µg/kg
p,p'-DDD	8081A	0.5 µg/kg
o,p'-DDE	8081A	0.5 µg/kg
p,p'-DDE	8081A	0.5 µg/kg
p,p'-DDMU	8081A	0.5 µg/kg
cis-nonachlor	8081A	0.5 µg/kg
trans-nonachlor	8081A	0.5 µg/kg
oxychlordane	8081A	0.5 µg/kg
dieldrin	8081A	0.5 µg/kg
toxaphene	8081A	0.5 µg/kg

PCB Congeners

Analyte	Analysis Method	Sediment Target Reporting Limits
PCB-3	8270C SIM PCB	0.2-10 µg/kg
PCB-5	8270C SIM PCB	0.2-10 µg/kg
PCB- 8	8270C SIM PCB	0.2-10 µg/kg
PCB-15	8270C SIM PCB	0.2-10 µg/kg
PCB-18	8270C SIM PCB	0.2-10 µg/kg
PCB- 27	8270C SIM PCB	0.2-10 µg/kg
PCB-28	8270C SIM PCB	0.2-10 µg/kg
PCB-29	8270C SIM PCB	0.2-10 µg/kg
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PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.

PHYSIS PROJECT ID
1307001-001

SAMPLE RECEIPT SUMMARY

CLIENT: AMEC Date Received: 7/13/13 Received By: MB Inspected By: EV

COURIER
☑ PHYSIS ☐ CLIENT ☐ FEDEX ☐ UPS
start 11:30 end 14:00 ☐ OTHER: _____

COOLER
☑ COOLER ☐ BOX total # 5
☐ OTHER: _____

TEMPERATURE
0 °C ☐ WET ICE ☐ BLUE ICE
☑ DRY ICE ☐ NONE

SAMPLE INTEGRITY UPON RECEIPT

1. COC(s) included and completely filled out..... *YES*
2. All sample containers arrived intact..... *YES*
3. All samples listed on COC(s) are present..... *YES*
4. Information on containers consistent with information on COC(s)..... *YES*
5. Correct containers and volume for all analyses indicated..... *YES*
6. All samples received within method holding time..... *YES*
7. Correct preservation used for all analyses indicated..... *YES*

NOTES

Reset Form

1904 E. Wright Circle, Anaheim CA 92806 (714) 602-5320 main / (714) 602-5321 fax

Print Form