FINAL
Berths 167-169 Maintenance Dredging Sediment Characterization Study Los Angeles Harbor

Submitted to:

Port of Los Angeles
425 South Palos Verdes Street
San Pedro, California 90731

Submitted by:

AMEC Earth & Environment, Inc.
9210 Sky Park Court
San Diego, California 92123

November 2011

POLA ADP Number 110426-889
Agreement Number: 10-2893
Project Directive Number: 13
AMEC Project Number 1015101913

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EXECUTIVE SUMMARY

The Port of Los Angeles (Port) is proposing to conduct maintenance dredging along the berthing areas adjacent to Berths 167-169. The design depth for the maintenance dredging project is -40 feet (ft) mean lower low water (MLLW) plus a 2-ft overdredge allowance (a combined maximum depth of -42 ft MLLW). Dredging is proposed for two separate locations along the wharf. The volume of dredged material to be removed from each footprint is approximately 1,500 cubic yards (cy) for a project total of approximately 3,000 cy. The Berths 167-169 project site is occupied by a liquid bulk terminal operated by Shell Corporation that handles fuels and lubricants. The Port is proposing confined disposal of the dredged material as fill at the former Southwest Marine Shipyard facility located at Berths 243-245.

In 1999, the Port conducted a sediment characterization study at Berths 167-169 as part of a 6,000 cubic yard maintenance dredging project. Based upon the results of Green Book Tier III tests conducted on the sediment in 1999, the Port had initially proposed to place the dredged materials at the LA-2 offshore ocean disposal site. However, the EPA/USACE determined that the Berths 167-169 dredged materials were unsuitable for ocean disposal due to elevated levels of polycyclic aromatic hydrocarbons (PAHs) in sediment and bioaccumulation tissue samples. Since ocean disposal was ruled out, the Port placed the dredged material at the Anchorage Road Soil Storage Site in 2001.

As part of the permitting process for the current maintenance dredging project, the Port conducted a sediment characterization study to assess the types and levels of chemical contaminants in the Berths 167-169 dredged materials. Since sediments from this site were previously deemed unsuitable for ocean disposal, the Port is proposing to dispose of the sediment from this round of maintenance dredging as fill in the approved confined disposal facility (CDF) located at Berths 243-245. The scope of work for the testing study described in this report was detailed in a Sampling and Analysis Plan (SAP) that was submitted to the Los Angeles Region Contaminated Sediments Task Force (CSTF) in May 2011. The SAP provided a summary of the previous sediment testing conducted at the project site in 1999, and outlined in detail the Port's proposed sediment collection and testing procedures for the current dredge material characterization study.

The elements of the SAP were discussed at the May 25, 2011, CSTF meeting at the US Army Corps of Engineers offices in Los Angeles. The CSTF provided input on additional scope of work elements to be included in the sediment characterization study (e.g., analysis of PAHs on individual core samples for Area B, collection and testing of Z-layer samples). The added scope elements were requested by the CSTF agencies based on the results of the previous sediment testing that was conducted in 1999. Following addition of these scope elements to the SAP, the CSTF gave its formal approval for the collection and testing to commence.

The Berths 167-169 study site consists of two separate dredge footprints, which are referred to in this report as Areas A and B. Area A is situated in the northern portion of the study site, while Area B is within the southern portion. The current study involved collection of sediment samples in Area A (2 locations) and Area B (3 locations). For the initial collection event, samples were collected to an analysis depth of -42.5 ft MLLW. The multiple cores collected within each area

were combined together to form two composite samples for testing. The project-specific contaminants of concern for the initial collection event included heavy metals, chlorinated pesticides, polychlorinated biphenyls (PCBs), PAHs, semivolatile organic compounds, organotins, and other general chemicals. Analyses for particle size distribution were also performed on the composite samples. At the direction of the CSTF, and based on the results of a previous sediment investigation conducted in 1999 at this site, individual cores from Area B were also analyzed for PAHs (ABT, 2000).

In addition to bulk sediment chemical analyses, the dredge material samples also underwent elutriate analyses to evaluate the potential for soluble chemicals of concern to be released into the water column during the dredging and disposal operations. The elutriate analysis results were compared to the California Toxics Rule ambient water quality criteria.

At the request of the CSTF, Z-layer samples were also collected and tested during the initial collection event. The Z-layer is intended to represent the newly exposed harbor bottom following dredging operations. Z-layer samples were obtained by attempting to advance the vibracore 0.5 feet below the overdredge depth (i.e. -42 ft MLLW) to a depth of approximately -42.5 ft MLLW. The last half foot of each core collected was considered the Z-layer for this site during the initial collection event. This interval within the core sample was subsectioned from the rest of the overlying sediments and tested separately.

The initial collection event sediment sampling was performed in June 2011. Due to the logistical nature of collecting samples at this particular facility, all the core samples could not be collected during same mobilization. The Berth 167-169 facility berths bulk fuel barges for extended periods of time. When the initial collection event commenced in June, there were only short windows of time when the dredge footprints were clear for collection and both dredge footprints were never clear for collection at the same time. Consequently, composite Area B was sampled on June 7, 2011 and composite Area A was sampled on June 22, 2011.

The results of the chemical analyses conducted on the Berths 167-169 dredge material were similar to the 1999 study and showed the sediment samples to contain elevated levels of several chemicals, in particular PAHs. However, while the chemical levels were somewhat elevated for several chemicals of concern, none of the concentrations observed approached the California Title 22 criteria levels for hazardous waste determination. These findings, coupled with the fact that the elutriate analyses showed that there were no water soluble chemicals above California Toxics Rule criteria, indicate that placement of the dredged material as fill at the Berths 243-245 CDF is acceptable.

Results of the Z-layer sediment testing showed that several chemicals had higher concentrations in these samples compared to corresponding overlying sediments. This finding suggested that the site may have been previously dredged to a depth below -42 ft MLLW, or the surface layers within the previous dredge footprint were physically disturbed (i.e. mixed) by propeller wash or other means. In particular, total DDTs in the Area A composite Z-layer was found at a level of 237 micrograms per kilogram (µg/kg) compared to the overlying sediment concentration of 48.1 µg/kg; total DDTs in the Area B composite Z-layer was found at a level of 96 µg/kg compared to the overlying sediment concentration of 34.7 µg/kg; and total PCBs in the

Area B composite Z-layer was found at a level of 369 µg/kg compared to the overlying sediment concentration of 102 µg/kg. Based upon these confounding results, the Port decided to conduct additional analyses on the proposed dredged materials.

The first step was to perform chemical analyses on the individual overlying sediment and Z-layer core sample archives for Area B (Cores 3, 4, and 5) collected during the initial round of sampling. These core samples were analyzed for metals, pesticides, PAHs, PCBs, and tributyltin. The goal of this round of testing was to determine if there was one particular Z-layer core sample with higher levels of contaminants that may be driving the average levels of certain constituents up compared to the overlying sediments. Although Core 4 bottom was higher than all other cores for 4,4'-DDE, there was no other pattern to determine why the Z-layer samples had elevated chemical levels compared to their overlying sediment counterparts.

The second step involved the collection of a supplemental set of sediment core samples within the Berth 167-169 footprint at the same five locations as the initial phase. The goal of the supplemental assessment was to determine (to the best extent possible) the location of the native sediment layer within the sediment column at the site, and to chemically evaluate the sediments below the overdredge depth (-42 ft MLLW) to determine at which depth native sediments would be encountered.

Due to site access limitations during the initial phase, collection needed to be done using a smaller vessel equipped with a small boat vibracore unit. Site access was not as restrictive for the supplemental round of collection, which allowed the field team to employ a larger collection vessel and larger vibracore unit than was used for the initial event. The supplemental collection involved advancing the vibracore significantly below the overdredge depth (up to 7 ft) or to the depth of refusal. Each of the five core samples was subsectioned into multiple 1-ft strata below the design depth of -40 ft. From these subsections, six composite samples were submitted for chemical analysis. The samples analyzed were area composites of the -42 to -43 ft; -43 to -44 ft; and -44 to -45 ft MLLW strata. Native material was encountered in all the cores, sometimes as shallow as -43 ft MLLW. The native material was characterized as lighter in color than the overlying sediments and was composed primarily of sand.

The results of the supplemental testing showed that while the -42 to -43 ft MLLW subsections contained slightly elevated levels of chemicals (particularly Area B for mercury, PAHs and organotins), the concentrations rapidly decreased in the -43 to -44 ft MLLW subsections, and the -44 to -45 ft MLLW subsections were substantially free of chemical contaminants. Also, chemical levels in the 1-ft sediment layer below the overdredge depth (-42 to -43 ft MLLW) were considerably lower than those measured in the overlying sediments. The supplemental test findings do not exactly match the initial study results that showed the 0.5-ft Z-layer (i.e. approximately -42 to -42.5 ft MLLW) sediments to have considerably higher concentration levels for select chemicals compared to the overlying sediments. However, the supplemental tests were performed on a 1-ft long subsection while the initial study Z-layer length was 0.5-ft. This difference may account for a portion of the disparity observed between the two collection phases. Another factor may have been the small boat and small boat vibracore that was required during the initial collection event. The use of a shorter vibracore unit of smaller

diameter may have limited the depth of penetration within the project area, making it difficult to accurately collect the 0.5 foot Z-layer horizon.

The supplemental study findings show that the resultant 1-ft surface of the harbor bottom following dredging at Berths 167-169 would have lower contaminants levels than the overlying sediments that are to be removed by dredging.

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ACRONYMS AND ABBREVIATIONS

AMEC	AMEC Earth & Environmental, Inc.
ASTM	American Society for Testing and Materials
Calscience	Calscience Environmental Laboratories
CCC	criterion continuous concentration (chronic value)
CFR	Code of Federal Regulations
CMC	criterion maximum concentration (acute value)
CSTF	Los Angeles Region Contaminated Sediments Task Force
CTR	California Toxics Rule
cy	cubic yard(s)
DGPS	differential global positioning system
EPA	U.S. Environmental Protection Agency
MB	method blank
MDL	method detection limit
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mL	milliliter
MLLW	mean lower low water
MS	matrix spike
MSA	method of standard addition
MSD	matrix spike duplicate
ng/L	nanograms per liter
NOAA	National Oceanic and Atmospheric Administration
oz.	ounce
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PDS/PDSP	post digestion spike/post digestion spike duplicate
ppt	parts per thousand
Port	Port of Los Angeles
QA/QC	quality assurance/quality control
RSD	relative standard deviation
SAP	Sampling and Analysis Plan

ACRONYMS AND ABBREVIATIONS (Cont.)

SVOC	semi-volatile organic compound
TOC	total organic carbon
TBT	tributyltin
TPAH	total polycyclic aromatic hydrocarbons
TRPH	total recoverable petroleum hydrocarbons
TTLC	total threshold limit concentration
µg/kg	micrograms per kilogram
U.S.	United States
USACE	U.S. Army Corps of Engineers

1.0 INTRODUCTION

The Port of Los Angeles (Port) is proposing to conduct maintenance dredging along the berthing areas adjacent to Berths 167-169, located north east of the turning basin near Mormon Island (Figures 1 and 2). Sediment characterization results in support of the proposed effort are included in this report. The project site is occupied by a liquid bulk terminal operated by Shell Corporation that handles fuels and lubricants. The design depth for the maintenance dredging project is -40 feet (ft) mean lower low water (MLLW) with a 2-ft overdredge allowance, for a combined project depth of -42 ft MLLW. The expected total volume of dredged material to be removed from the berths is approximately 3,000 cubic yards (cy). The purpose of the characterization study being conducted on Berths 167-169 sediments is to determine the chemical levels within the dredge footprint at the proposed maintenance dredging site, and to evaluate disposal suitability. . The Port is proposing to dispose of the dredged material as fill at the former Southwest Marine Shipyard site located at Berths 243-245 (Figure 3). No unconfined, in-water (aquatic) disposal is being proposed.

Based on the disposal alternative being evaluated, the characterization of the Berth 167-169 sediments was limited to chemical and physical testing. Two depth horizons within the dredge footprint were tested separately: 1) the design depth for the maintenance dredging project plus a 2-ft overdredge allowance (a depth of approximately -42 ft MLLW), and 2) the Z-layer (defined as the new sediment surface within the footprint following the completion of dredging operations), or 0.5 feet below the overdredge allowance (approximately -42 to -42.5 ft). Sediment core samples collected from the proposed dredge footprint underwent chemical analyses for a suite of analytes including trace metals, organotins, chlorinated pesticides, polychlorinated biphenyl (PCB) congeners, polycyclic aromatic hydrocarbons (PAHs), phenols, phthalates, and several other general sediment chemistry constituents (i.e. total organic carbon [TOC], grain size, ammonia, oil and grease, and total recoverable petroleum hydrocarbons [TRPH]). In addition to bulk sediment tests, dredge material was also subjected to elutriate analyses to evaluate the potential for the release of soluble chemicals into the water column during dredging and disposal operations.

Upon review of the initial sediment chemistry results, it was determined that supplemental sediment collection and testing should be performed. The results of the initial sampling effort indicated that the Z-layer sediments appeared to contain somewhat higher concentrations of contaminants than the overlying material (in particular DDT and PCBs). Based on this finding, the Port requested that AMEC Earth & Environmental, Inc. (AMEC) conduct a supplemental verification study at the same locations to characterize sediments below the Z-layer by analyzing a modified suite of chemical analytes. Results of both the initial sampling and the verification study are included in this report. This report was prepared by AMEC on behalf of the Port of Los Angeles, herein referred to as the Port.

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FIGURE

Project Vicinity
Berths 167-169 Maintenance Dredging

1

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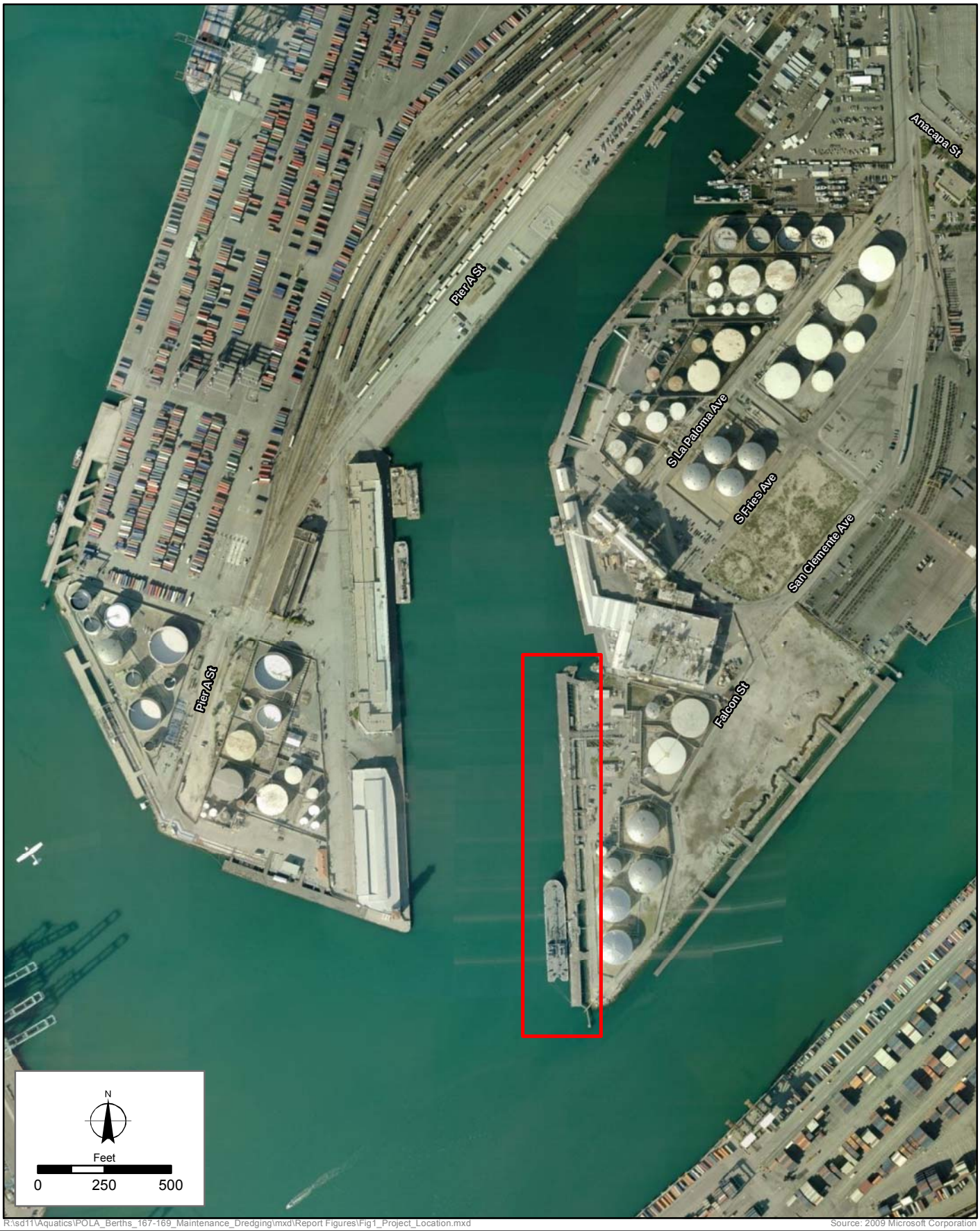

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FIGURE

Project Location
Berths 167-169 Maintenance Dredging

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FIGURE

3

Former Southwest Marine Shipyard (Berths 243-245)
Primary Disposal Location
Berths 167-169 Maintenance Dredging

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2.0 METHODS AND MATERIALS

As mentioned in the Introduction, this study required two separate collection phases for completion. These are referred to below as the "Initial Collection Event" and "Supplemental Collection Event." The methods and materials employed during the two distinct collection events are described below in separate sections. The initial collection event samples were collected from AMEC's 23 ft. sampling vessel, the *RV Velella*, using a vibracore unit designed specifically for small boat operations. The supplemental event sediment samples were collected from the larger vessel *Early Bird II* using a vibracore provided by TEG Oceanographic Services.

2.1 Initial Collection Event

The initial collection event sediment sampling was performed in June 2011. Due to the logistical nature of collecting samples at this particular facility, all the initial event samples could not be collected during one mobilization. The Berth 167-169 facility berths bulk fuel barges for extended periods of time. When the initial collection event commenced in June, there were only short windows of time when the dredge footprints were completely free of vessels to permit collection: both dredge footprints were never clear for collection at the same time. Consequently, composite Area B was sampled on June 7, 2011 and composite Area A was sampled on June 22, 2011.

The following sections describe the locations and techniques that were employed to collect test sediments. Sediment collection followed the guidance provided in *Methods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual* (US EPA 2001), and detailed in the Sampling and Analysis Plan (SAP) submitted by AMEC to the Los Angeles Region Contaminated Sediments Task Force (CSTF) prior to conducting sample collection and testing (AMEC 2011). Coordination between AMEC and the Port, Shell marine facilities personnel, pertinent security personnel, and the laboratories was conducted prior to the initiation of any field activities.

2.1.1 Collection Locations

To adequately characterize sediments within the proposed dredge footprint, a total of five vibracore samples were collected in the northern and southern portions of the area to be dredged (Figure 4). For the initial phase of sampling, core samples were collected to the overdredge allowance depth of -42 ft MLLW. The vibracore was then advanced 0.5 ft beyond project depth to characterize the material that would become the resultant Z-layer.

Station locations and collection depths for the initial study are outlined in Table 1. A differential global positioning system (DGPS) (navigational accuracy ±4 ft) was used to navigate to the actual sampling locations listed in Table 1. During sample collection, the *RV Velella* was securely tied to the berth to maintain position for each core. Once secured, the position was recorded in a field log and the water depth was measured with a weighted fiberglass tape. The water depth was corrected to MLLW using NOAA tide tables for Mormon Island, and compared to the bathymetric data provided by the Port.

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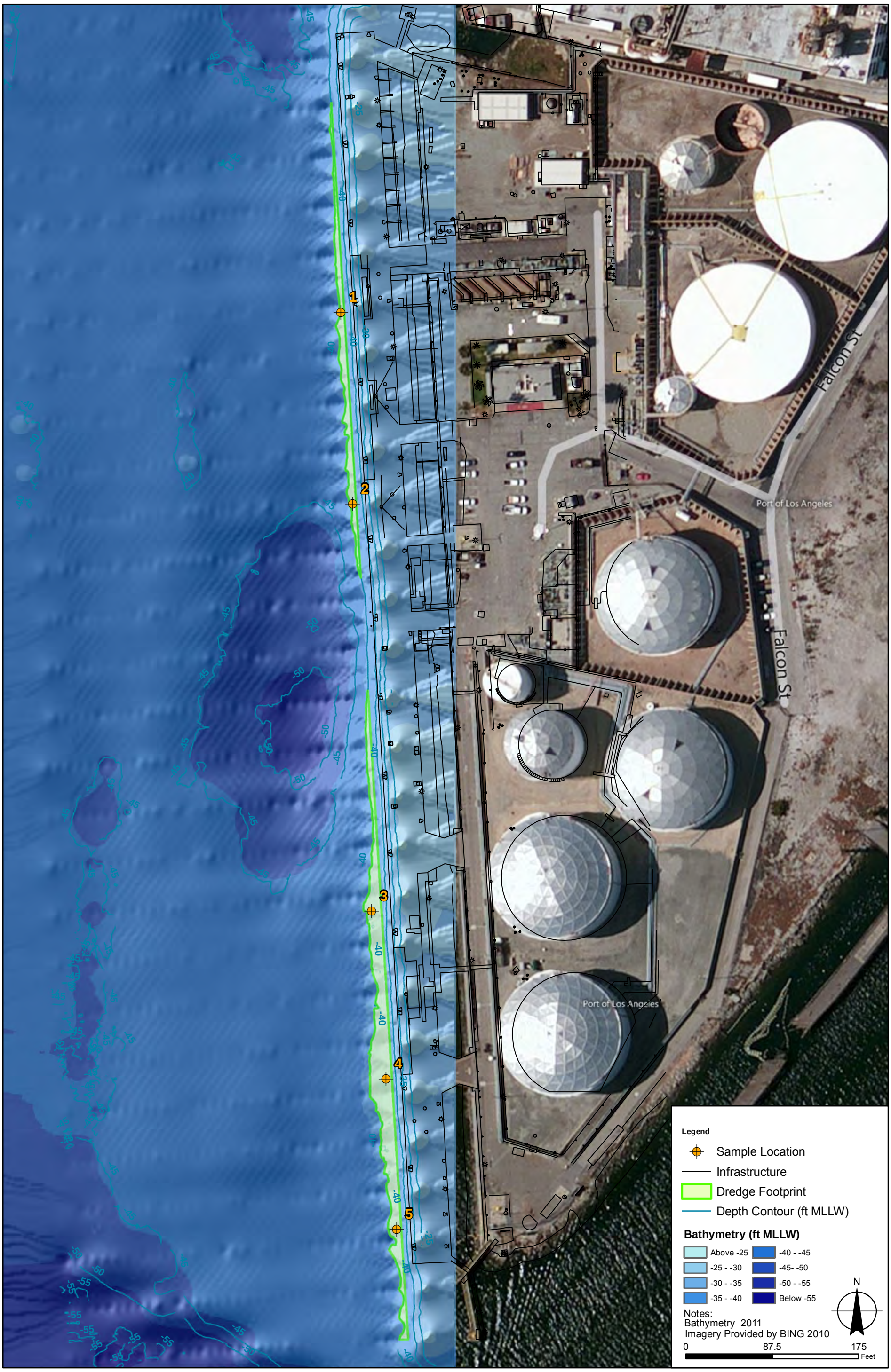

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Berths 167 - 169 Sediment Collection Locations

FIGURE

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Table 1.
Initial Sample Collection Locations and Depths

Station ID	Sample Type	Collection Coordinates		Sample Collection Depths		
		Latitude WGS84 (DD° mm.mmm')	Longitude WGS84 (-DDD° m.mmm')	Existing Mudline[1] (ft MLLW)	Penetration Depth (ft)	Total Core Length (ft)
1	Core	33° 45.343'	-118° 16.076'	-38.4	4.1	4.0
2	Core	33° 45.310'	-118° 16.073'	-38.0	4.5	4.4
3	Core	33° 45.243'	-118° 16.069'	-38.5	4.0	3.5
4	Core	33° 45.214'	-118° 16.066'	-36.8	5.7	5.6
5	Core	33° 45.190'	-118° 16.061'	-35.5	7.0	6.4
Site Water	Grab	33° 45.175'	-118° 16.111'	-	-	-

Notes:
[1] Determined at the time of sampling
ft = foot/feet, MLLW = mean lower low water

2.1.2 Initial Vibracore Collection

Sediment cores were collected using a vibracore at five locations: Stations 1 through 5 (Figure 4). Final sampling locations were determined by navigating to the target coordinates provided in the SAP, and adjusted slightly based on available safe tie-up locations. To record actual sampling locations, a radio corrected DGPS was used to provide a geographic accuracy of ± 4 ft. Field crews were equipped with waterproof tablet personal computers (PCs), and the approved SAP to ensure accuracy of the collection locations and analyses.

AMEC scientists deployed the vibracore used for sediment sample collection from the *RV Velella*, which is equipped with a port mounted davit and electric winch. Water depth was measured prior to sampling and corrected to MLLW using NOAA tide tables for Mormon Island. The vibracore uses a 3-inch-diameter aluminum tube bolted to the vibracore head. The aluminum-encased vibrating unit uses 24 volt power to electrically drive a 1-hp vibrating motor. The vibracore was lowered using an electric winch and davit. The core was vibrated until penetration reached 0.5 ft beyond the overdredge depth (i.e. -42.5 ft MLLW). Core penetration depth was calculated with a tape measure attached to the vibracore head. After the vibracore was turned off, the sediment core was returned to the sampling vessel for processing. Once onboard, core samples were carefully extruded into clean, polyethylene-lined trays, photographed, and inspected for unique strata, color, odors, etc. All collection data was entered into a project specific MS Access® database, and is currently stored on AMEC's secure computer network.

2.1.3 Sediment Sample Processing and Handling

Each core was logged and photographed to describe all unique strata and sediment characteristics. Individual core samples were then homogenized using a decontaminated stainless steel mixing bowl and stainless steel spoons. Four separate composites were prepared for testing; two dredged material area composites (Areas A and B), and two Z-layer composites (Areas A and B). Dredged material composites were prepared by first separately homogenizing individual core samples (collected to a depth of -42 feet MLLW), then combining the individual core samples together to form an area composite (A or B). Z-layer material (-42 to -42.5 ft MLLW) was removed from the dredged material prior to homogenizing each core, and processed separately using the same compositing method. This resulted in two Z-layer composites (A and B).

Composites of the proposed dredged material and Z-layer for Area A consisted of two core samples (Cores 1 and 2) collected in the northern portion of the dredge footprint, while composites for Area B were prepared by combining three core samples (Cores 3, 4, and 5) collected in southern portion of the dredge footprint (Figure 4). The dredged material and Z-layer composites were analyzed for a suite of physical parameters and chemical constituents as presented in Table 5. At the direction of the CSTF, and based on the results of a previous sediment investigation conducted in 1999 at this site, individual cores from Area B were also analyzed for PAHs (ABT, 2000). A separate archive sample was collected and retained from each homogenized core and composite area.

Chemistry sample jars were promptly placed in coolers and covered with ice. Samples were then delivered by AMEC personnel to Calscience Environmental Laboratories (Calscience) in Garden Grove, California. For all samples, archived material was collected and handled in the same manner as the test material, then stored frozen at AMEC's office at -20 degrees Celsius (°C). Chemical, physical, and elutriate tests were performed in accordance with EPA methodologies as outlined in the laboratory report contained in Appendix C1, and in agreement with the Berth 167-169 site-specific SAP (AMEC 2011). Collection methodologies were consistent with that published in US EPA (1995) and US EPA (2001).

The integrity of each sample was maintained throughout the study, from the time of collection to the point of data reporting. Proper recordkeeping and chain-of-custody procedures were implemented to allow samples to be traced from collection to their final disposition. Field log entries were completed at the time observations were made.

2.1.4 Site Water Collection

Site water was collected adjacent to the proposed dredging area and used to prepare elutriate samples for chemical analysis during the initial study. Collection was undertaken using a pre-cleaned non-contaminating sampling bucket. Site water was stored in polyethylene 'cubitainers' and collected at the end of the each day's sampling effort to minimize the amount of time between collection and analysis. Samples were promptly covered in ice and delivered to Calscience by AMEC personnel or picked up by courier. Chain-of-Custody protocols were adhered to at each sample transfer.

2.1.5 Field Documentation

Detailed core logs and photographs for the initial phase of testing are presented as Appendix A1 and B1, respectively.

2.1.6 Chemical and Physical Analyses

Full laboratory reports including: analytical methods, detection limits, and relevant Quality Assurance/Quality Control (QA/QC) information for the initial study are provided in Appendix C1. A sample analysis matrix for whole sediment and elutriate chemicals, and physical analyses performed is provided in Table 2.

2.1.6.1 Chemical Analyses

Calscience, a California-accredited laboratory, conducted all analytical chemical analyses on both the sediment and elutriate samples. Samples were analyzed according to EPA- and USACE-approved methodologies as summarized in the analytical laboratory report provided in Appendix C1.

2.1.6.2 Elutriate Preparation and Testing

Elutriate testing was conducted to evaluate the potential release of chemical contaminants into the water column during the dredging and disposal operations. Site water from the proposed disposal area was used to prepare the sediment elutriates for chemical analyses.

The elutriate samples were prepared by combining a subsample of each test composite with harbor water collected from the proposed dredging area near Berths 167-169 at a ratio of 1 part sediment to 4 parts water. The elutriate sample was prepared by Calscience according to procedures outlined in the Inland Testing Manual for the evaluation of dredged material for inland disposal (EPA/USACE 1998). For metal analyses, the elutriate samples were filtered through a 0.45-micrometer (µm) filter so that dissolved metal concentrations could be compared to applicable California Toxics Rule (CTR) criteria. In addition, a site water sample was also analyzed to determine the background chemical concentrations in the water column at the dredging site.

2.1.7 Grain-Size Analysis

Grain-size analysis was performed on the dredged material composite samples from the initial study only. The analyses were conducted by Core Laboratories under subcontract to Calscience. The tests were performed following sieve and laser diffraction methodologies (ASTM International [ASTM] 422/D4464M). Gravel, sand, silt, and clay were reported to 0.1 percent, along with the corresponding millimeter and phi sizes, and a cumulative grain size distribution diagram. Detailed particle size distributions are included with the Calscience laboratory reports (Appendix C1).

Table 2.
Sediment and Elutriate Testing and Archiving Matrix

Station ID	Sample Type	Sample Collection Type	Analysis Type			Archive
			Sediment Chemistry	Sediment Grain Size	Elutriate Chemistry	
Core 1	Core	Vibracore				X
Core 2	Core	Vibracore				X
Dredged material Composite A	Composite	Vibracore	X	X	X	X
Z-layer Composite A	Composite	Vibracore	X			X
Core 3	Core	Vibracore	X[1]			X
Core 4	Core	Vibracore	X[1]			X
Core 5	Core	Vibracore	X[1]			X
Dredged material Composite B	Composite	Vibracore	X	X	X	X
Z-layer Composite B	Composite	Vibracore	X			X
Site Water	Grab	Grab			X	

Notes:
[1]PAH analysis only

2.2 Supplemental Collection Event

Based upon review of the initial collection event Z-layer sediment chemistry results, it appeared that this layer contained elevated chemical concentrations for several analytes in comparison to the overlaying sediments. Based upon this finding, it was determined that further sediment collection and testing should be performed for verification and to identify the depth of the native sediment horizon within the sediment column at the project site. For the supplemental collection event, the *M/V Early Bird II* served as the collection vessel and TEG Oceanographic Services provided the vibracore collection equipment. These were both changes from the initial collection event, which employed AMEC's smaller collection vessel and a small-boat vibracore unit. For the supplemental verification study, the same stations were re-sampled to minimize spatial variability within composite results and to allow for direct comparison between the initial testing results and results from supplemental testing. This adaptive sampling routine further defined both vertical and horizontal contamination.

During the supplemental study, two individual cores were collected at each of the five core collection locations (Figure 4). The first core was collected to the project depth plus overdredge allowance (i.e. -42 ft MLLW). The purpose of this core was to assess sediment compaction within the core barrel and was used to clearly identify material that lies above the project overdredge depth to that found below. Samples for archival purposes were collected from this

first core, which was comprised solely of potential dredge material above -42 ft MLLW. Material recovered above the design depth (i.e. sediment recovered above -40 ft MLLW) was homogenized throughout the length of the core and retained as an archive.

The second core was used to characterize the material below the project overdredge depth (i.e. -42 ft MLLW). The compaction percentage calculation determined from the first core provided the necessary information to accurately partition out potential dredged material from non-dredged material (i.e. material below -42 ft MLLW), and allowed recovered sediment to be more accurately sub-sampled into 1-ft depth horizons. Three individual depth horizons were then sub-sampled from each core for archiving purposes (0-1 ft below overdredge depth [-42 to -43 ft MLLW], 1-2 ft below overdredge depth [-43 to -44 ft MLLW], and 2-3 ft below overdredge depth [-44 to -45 ft MLLW]). The corresponding depth horizons from stations within Areas A and B were then composited to form one sample for analysis per area for a given depth horizon. Additionally, samples from the two-foot overdredge allowance (i.e. -40 ft to -42 ft MLLW) were separated into one-foot intervals (-40 to -41 ft MLLW and -41 to -42 ft MLLW) and retained as individual depth horizon archives for potential future analysis, if necessary.

The supplemental core collection strategy is summarized in Table 3.

Table 3.
Supplemental Core Collection Strategy

	Target Depth	Sub-sampling Scheme	Purpose
Attempt 1	Overdredge Depth (-42 ft MLLW)	Archive for potential analysis	To assess compaction within core barrel to more accurately determine where the Z-layer is located in the sediment column
Attempt 2	Refusal	1 ft depth intervals below -40 ft until refusal	To characterize sediments below overdredge depth and determine depth of native material/refusal

2.3 Supplemental Vibracore Collection

Sediment cores were collected using a vibracore at approximately the same five locations sampled during the initial collection event (Stations 1 through 5 shown in Figure 4) and were determined in the same manner as the initial study. During the supplemental study, TEG personnel deployed the vibracore for sediment sample collection. Water depth was again measured prior to sampling and corrected to MLLW using NOAA tide tables for Mormon Island. The TEG vibracore uses a 4-inch-diameter aluminum tube connected to a stainless-steel cutter. The aluminum-encased vibrating unit uses 240-volt, 3-phase, and 26-amp electricity to drive two counter-rotating concentric vibrators. The vibracore and tube were lowered by a hydraulic winch and vibrated until penetration was refused. Refusal was defined in the same manner as the initial study. Core penetration depth was calculated using a tape measure attached to the vibracore head. After the vibracore was turned off, the sediment core was returned to the boat's deck for processing.

Once onboard, core samples were carefully extruded into clean, polyethylene-lined trays, photographed, and inspected for unique strata, color, odors, etc. All information was recorded during the sediment collection program in a project-specific electronic field log and stored in a Microsoft Access database.

2.3.1 Sediment Sample Processing and Handling

Supplemental cores were logged and photographed to describe all unique strata and sediment characteristics in the same manner as the initial study. Samples were homogenized using a decontaminated stainless steel mixing bowl and stainless steel spoons to ensure representative sampling for each subsection. For the supplemental sampling event, six separate composites were prepared for testing. For each of the two dredge material area composites (Areas A and B), three composite samples were collected. These samples represented the top three 1-foot deep intervals (i.e.-42 to -43, -43 to -44, and -44 to -45 ft MLLW) below overdredge (Table 4).

Composites for Area A consisted of two core samples (Cores 1 and 2) collected in the northern portion of the dredge footprint, while composites for Area B were prepared by combining three core samples (Cores 3, 4, and 5) collected in the southern portion of the dredge footprint (Figure 4). Each of the three 1-foot interval composites collected below -42 ft MLLW were sampled according to the testing/archiving regiment presented in Table 4, and analyzed for a suite of chemical constituents as presented in Table 5. These layers are referred to as A1 and B1 for the first 1-foot interval below overdredge, A2 and B2 for the second 1-foot interval below overdredge, and A3 and B3 for the third 1-foot interval below overdredge in composite Areas A and B, respectively.

Chemistry sample jars were promptly placed in coolers and covered with ice. Samples were then delivered by AMEC personnel to Calscience Environmental Laboratories (Calscience) in Garden Grove, California. Chemical tests were performed in accordance with EPA methodologies as outlined in the laboratory report contained in Appendix C2, and in agreement with the Berth 167-169 site-specific SAP (AMEC 2011). Collection methodologies were consistent with that published in US EPA (1995) and US EPA (2001).

The integrity of each supplemental sample was maintained throughout the study, from the time of collection to the point of data reporting. Proper recordkeeping and chain-of-custody procedures were implemented to allow samples to be traced from collection to their final disposition. Field log entries were completed at the time observations were made. Detailed core logs and photographs are presented as Appendix A2 and B2, respectively.

2.3.1.1 Sediment Sample Archives

In addition to samples collected for chemical analysis, separate archive samples were collected and retained for each of the following: 1) each homogenized core of dredge material (both attempts); 2) the overdredge from the second core sampled at each location with sub-sectioned archive samples that represent the 0-1 and 1-2 ft depth intervals in the overdredge; 3) the three 1-foot interval samples from the second core collected below the overdredge depth at each station; 4) the three 1-foot interval composite samples collected below the overdredge depth at

each station (second core only); and 5) additional archives of core material sampled below -45 ft MLLW. All archived samples were collected and handled in the same manner as the test material and are currently being stored frozen at AMEC's office at -20 degrees Celsius (°C).

Table 4.
Sediment Testing and Archiving Matrix

Sediment Type	Depth Intervals	Individual Core Samples	Composite Samples
Dredge Material (Attempt 1 & 2)	to -42 ft MLLW	Archived	Archived
Overdredge (Attempt 2)	0-1 ft into Overdredge	Archived	Archived
	1-2 ft into Overdredge	Archived	Archived
	0-1 ft below Overdredge (-42 to -43 ft MLLW)	Archived	Analyzed
Below Overdredge Depth (Attempt 2)	1-2 ft	Archived	Analyzed
	2-3 ft	Archived	Analyzed
	3-4 ft	Archived	Archived
	4-5 ft	Archived	Archived
	5-6 ft	Archived	Archived

2.3.2 Chemical Analyses

Full laboratory reports including: analytical methods, detection limits, and relevant Quality Assurance/Quality Control (QA/QC) information are provided in Appendix C2. A suite of chemical constituents analyzed for the supplemental study are presented in Table 5. Calscience, a California-accredited laboratory, conducted all analytical chemical analyses on both the sediment and elutriate samples. Samples were analyzed according to EPA- and USACE-approved methodologies as summarized in the analytical laboratory report provided in Appendix C2.

Table 5.
Supplemental Analytical Methods and Detection Limits

Analyte	Analysis Method	Sediment Target Detection Limits[a,b]
Total Solids	SM 2540 B[c]	0.1%
Arsenic (As)	6020/6010B[d]	0.1 mg/kg
Cadmium (Cd)	6020/6010B[d]	0.1 mg/kg
Chromium (Cr)	6020/6010B[d]	0.1 mg/kg
Copper (Cu)	6020/6010B[d]	0.1 mg/kg
Lead (Pb)	6020/6010B[d]	0.1 mg/kg
Mercury (Hg)	7471A[d]	0.02 mg/kg
Nickel (Ni)	6020/6010B[d]	0.1 mg/kg
Selenium (Se)	6020/6010B[d]	0.1 mg/kg
Silver (Ag)	6020/6010B[d]	0.1 mg/kg
Zinc (Zn)	6020/6010B[d]	2.0 mg/kg
PAHs[e]	8270C SIM[d]	20 µg/kg
Chlorinated Pesticides[f]	8081A[d]	0.5 to 30 µg/kg
PCB Congeners[g]	8270C SIM	1.0 µg/kg
Phenols	8270C SIM[d]	20 to 100 µg/kg
Phthalates	8270C SIM[d]	10 µg/kg
Organotins	Rice/Krone[h]	1.0 µg/kg

Notes:

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

b Reporting limits were provided by Calscience Environmental Laboratories, Inc.

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

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

e Includes naphthalene, 1-methylnapthalene, 2-methylnapthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, fluoranthene, anthracene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b,k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene.

f Includes aldrin, α-BHC, β-BHC, Δ-BHC (lindane), γ-BHC, chlordane, 2,4- and 4,4-DDD, 2,4- and 4,4-DDE, 2,4- and 4,4-DDT, dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, methyoxchlor, and toxaphene.

g PCBs (sum of 55 congeners: 8, 18, 28, 37, 44, 49, 52, 56, 60, 66, 70, 74, 77, 81, 87, 95, 97, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 132, 138/158, 141, 149, 151, 153, 156, 157, 157, 167, 168, 169, 170, 174, 177, 180, 183, 184, 187, 189, 194,194, 201, 203, 206, and 209)

h Krone, C.A., et al, 1989. A Method for Analysis of Butyltin Species and Measurement of Butyltins in Sediment and English Sole Liver from Puget Sound. Marine Environmental Research 27: 1-18.

µg/kg = micrograms per kilogram (parts per billion)
mg/kg = milligrams per kilogram (parts per million),
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl

3.0 RESULTS

This section presents the results of the chemical and physical tests conducted on the proposed Berths 167-169 dredged material in two separate sections. Section 4.1 provides the results for the initial collection event, while the results of the supplemental collection event are presented in Section 4.2.

3.1 Initial Collection Event

3.1.1 Field Observations

A summary of core penetration and associated station information for the sample collection during the initial collection event is presented in Table 1. Sediments were observed to be similar across the site, consisting almost universally of dark gray, silt with intermixed pockets of fine grained sand within the dredge material. Shell hash was found throughout the length of the dredge material, suggesting a relatively biologically active and/or physically disturbed environment; likely a result of ship movement activities (i.e. prop-wash). Core logs and photographs from each core are included in Appendices A1 and B1 for the initial samples collected.

3.1.2 Physical Characteristics

Grain size analysis was performed on the two dredged material composite samples (Areas A and B) during the initial sampling event. Mean grain size characteristics for both Areas A and B were classified as silt and the fine fraction (sum of the silt and clay fractions) exceeded 60 percent in both samples. A more detailed summary of grain size fractions is presented in Table 6. The original grain size lab data report from Core Laboratories is provided in Appendix C1.

Table 6.
Grain Size Results

Sample ID	Grain Size Description	Median Grain Size (mm)	Component Percentages (%)						Silt & Clay
			Gravel	Sand Size					
				V Coarse	Coarse	Medium	Fine	V Fine	
Composite Area A	Silt	0.02	0.00	0.02	1.04	5.92	12.3	9.04	73.9
Composite Area B	Silt	0.00	0.00	0.00	0.01	10.3	20.3	9.90	63.5

V = very

3.1.3 Bulk Sediment Chemistry

Sediment results for the initial study were analyzed to determine the potential for chemical contaminants in the sediment to cause adverse effects. Sediment chemistry results are summarized in Table 7. All results are reported in dry weight. Original chemistry data reports for the initial phase of testing are provided in Appendix C1.

3.1.3.1 Composite Area A

General Chemistry

General chemical components analyzed as part of this project included TOC, ammonia, oil and grease, and TRPH. TOC was measured at 1.4 percent. The concentration of ammonia for dredged material composite Area A was 13 milligrams per kilogram (mg/kg). TRPH had a concentration of 120 mg/kg. Oil and grease had a similar concentration at 150 mg/kg.

Metals

Zinc, at 141 mg/kg, had the highest concentration of any metal analyzed in dredged material composite Area A. The next highest metal concentration was copper, at 88.8 mg/kg, followed by chromium and lead at 42.4 mg/kg each. Mercury and selenium were both found at concentrations below 1 mg/kg. None of the metals analyzed exceeded State of California Title 22 Total Threshold Limit Concentrations (TTLC) values (listed in Table 7) for determination as hazardous waste.

Chlorinated Pesticides

The chlorinated pesticide breakdown product 4-4'- DDE had a concentration at 31 µg/kg in dredged material composite Area A. Similarly, 4-4'-DDD, 2-4'-DDE and 4-4'-DDT were above detection limits with concentrations measuring 9.6, 5.2, and 2.3 µg/kg, respectively. No other chlorinated pesticides analyzed were found above analytical detection limits. The concentration of DDT and its breakdown products were far below the State of California Title 22 TTLC value of 1,000 µg/kg DDT/DDE/DDD for determination as hazardous waste.

Polycyclic Aromatic Hydrocarbons

The total detectable PAH concentration for dredged material composite Area A was 64,140 µg/kg. The highest individual PAH concentration was that for pyrene at 19,000 µg/kg. Benzo (a) chrysene and pyrene were next with concentrations of 10,000 and 9,400 µg/kg, respectively. The lowest PAH concentration was reported for 1-methylnaphthalene which was below analytical detection limits, and 2-methylnaphthalene at 36 µg/kg. California Title 22 TTLC values do not currently exist for PAHs.

Table 7.
Initial Event Bulk Sediment Chemistry Results

					Dredged Material		Z-Layer		Area B Core Samples		
Analytical Method	**Compound Name**	**Type**	**TTLC**	**Units**	**Composite Area A**	**Composite Area B**	**Composite Area A**	**Composite Area B**	**Core 3**	**Core 4**	**Core 5**
EPA 9060A	Carbon, Total Organic	General Chemistry	---	%	1.4	1.5	1.4	1.4	NT	NT	NT
SM 4500-NH3 B/C (M)	Ammonia (as N)	General Chemistry	---	mg/kg	13	13	16	20	NT	NT	NT
EPA 413.2M	Oil and Grease	General Chemistry	---	mg/kg	150	490	260	790	NT	NT	NT
EPA 418.1M	TRPH	General Chemistry	---	mg/kg	120	410	190	670	NT	NT	NT
EPA 6020	Arsenic	Metals	**500**	mg/kg	10.4	6.31	9.03	9.19	NT	NT	NT
EPA 6020	Cadmium	Metals	**100**	mg/kg	0.499	0.266	0.533	0.733	NT	NT	NT
EPA 6020	Chromium	Metals	**2500**	mg/kg	42.4	27.2	39.5	55.4	NT	NT	NT
EPA 6020	Copper	Metals	**2500**	mg/kg	88.8	101	79.1	72.6	NT	NT	NT
EPA 6020	Lead	Metals	**1000**	mg/kg	42.4	18.6	48.1	56.6	NT	NT	NT
EPA 7471A	Mercury	Metals	**20**	mg/kg	0.277	0.312	0.297	0.478	NT	NT	NT
EPA 6020	Nickel	Metals	**2000**	mg/kg	26.8	17.3	22.7	20.5	NT	NT	NT
EPA 6020	Selenium	Metals	**100**	mg/kg	0.647	0.304	0.592	0.593	NT	NT	NT
EPA 6020	Silver	Metals	**500**	mg/kg	0.286	<0.160	0.266	0.347	NT	NT	NT
EPA 6020	Zinc	Metals	**5000**	mg/kg	141	104	138	147	NT	NT	NT
EPA 8081A	2,4'-DDD	Chlorinated Pesticides	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8081A	2,4'-DDE	Chlorinated Pesticides	---	µg/kg	5.2	5.7	18	15	NT	NT	NT
EPA 8081A	2,4'-DDT	Chlorinated Pesticides	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8081A	4,4'-DDD	Chlorinated Pesticides	---	µg/kg	9.6	<1.6	110	<1.5	NT	NT	NT
EPA 8081A	4,4'-DDE	Chlorinated Pesticides	---	µg/kg	31	29	85	81	NT	NT	NT
EPA 8081A	4,4'-DDT	Chlorinated Pesticides	---	µg/kg	2.3	<1.6	24	<1.5	NT	NT	NT
	Total Detectable DDTs	Chlorinated Pesticides	**1000**	µg/kg	48.1	34.7	237	96	NT	NT	NT
EPA 8081A	Aldrin	Chlorinated Pesticides	**1400**	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8081A	Alpha-BHC	Chlorinated Pesticides	**2500**	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8081A	Alpha Chlordane	Chlorinated Pesticides	**2500**	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8081A	Beta-BHC	Chlorinated Pesticides	**2500**	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8081A	Chlordane	Chlorinated Pesticides	**2500**	µg/kg	<17	<16	<17	<15	NT	NT	NT
EPA 8081A	Delta-BHC	Chlorinated Pesticides	**2500**	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8081A	Dieldrin	Chlorinated Pesticides	**8000**	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8081A	Endosulfan I	Chlorinated Pesticides	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8081A	Endosulfan II	Chlorinated Pesticides	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8081A	Endosulfan Sulfate	Chlorinated Pesticides	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8081A	Endrin	Chlorinated Pesticides	**200**	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8081A	Endrin Aldehyde	Chlorinated Pesticides	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8081A	Endrin Ketone	Chlorinated Pesticides	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8081A	Gamma-BHC	Chlorinated Pesticides	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8081A	Gamma Chlordane	Chlorinated Pesticides	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8081A	Heptachlor	Chlorinated Pesticides	**4700**	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8081A	Heptachlor Epoxide	Chlorinated Pesticides	**4700**	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT

Table 7.
Initial Event Bulk Sediment Chemistry Results

					Dredged Material		Z-Layer		Area B Core Samples		
Analytical Method	**Compound Name**	**Type**	**TTLC**	**Units**	**Composite Area A**	**Composite Area B**	**Composite Area A**	**Composite Area B**	**Core 3**	**Core 4**	**Core 5**
EPA 8081A	Toxaphene	Chlorinated Pesticides	**5000**	µg/kg	<34	<32	<34	<29	NT	NT	NT
EPA 8270C SIM	Naphthalene	LMW PAH	---	µg/kg	72	17	39	130	<18	120	24
EPA 8270C SIM	1-Methylnaphthalene	LMW PAH	---	µg/kg	<17	<16	<17	83	<18	54	<16
EPA 8270C SIM	2-Methylnaphthalene	LMW PAH	---	µg/kg	36	19	<17	36	18	64	<16
EPA 8270C SIM	Acenaphthene	LMW PAH	---	µg/kg	45	27	46	570	30	570	28
EPA 8270C SIM	Acenaphthylene	LMW PAH	---	µg/kg	650	180	340	250	380	750	140
EPA 8270C SIM	Fluorene	LMW PAH	---	µg/kg	170	150	110	400	99	580	46
EPA 8270C SIM	Phenanthrene	LMW PAH	---	µg/kg	480	440	350	1400	370	3800	170
EPA 8270C SIM	Anthracene	LMW PAH	---	µg/kg	2500	2100	1700	1700	1400	3600	360
EPA 8270C SIM	Fluoranthene	LMW PAH	---	µg/kg	1400	9100	21000	6900	1900	19000	2000
EPA 8270C SIM	Pyrene	HMW PAH	---	µg/kg	19000	11000	20000	10000	8300	17000	3500
EPA 8270C SIM	Benzo (a) Anthracene	HMW PAH	---	µg/kg	4100	3100	6100	3900	1900	4500	530
EPA 8270C SIM	Chrysene	HMW PAH	---	µg/kg	10000	5700	7700	5700	3600	8200	1300
EPA 8270C SIM	Benzo (k) Fluoranthene	HMW PAH	---	µg/kg	3100	2200	2600	1900	3600	5500	1500
EPA 8270C SIM	Benzo (b) Fluoranthene	HMW PAH	---	µg/kg	8300	4300	4400	3700	5600	6600	2100
EPA 8270C SIM	Benzo (a) Pyrene	HMW PAH	---	µg/kg	9400	3200	3200	3800	4300	4800	1600
EPA 8270C SIM	Indeno (1,2,3-c,d) Pyrene	HMW PAH	---	µg/kg	2300	1300	1300	1000	1200	1400	410
EPA 8270C SIM	Dibenz (a,h) Anthracene	HMW PAH	---	µg/kg	990	380	390	370	390	460	140
EPA 8270C SIM	Benzo (g,h,i) Perylene	HMW PAH	---	µg/kg	1600	950	910	740	1000	1200	380
	Total Detectable PAHs	PAH	---	µg/kg	64140	44160	70190	42580	34090	78200	14230
EPA 8270C SIM	2,4,5-Trichlorophenol	Phenols	---	µg/kg	<17	<16	<17	<15	NT	NT	NT
EPA 8270C SIM	2,4,6-Trichlorophenol	Phenols	---	µg/kg	<17	<16	<17	<15	NT	NT	NT
EPA 8270C SIM	2,4-Dichlorophenol	Phenols	---	µg/kg	<17	<16	<17	<15	NT	NT	NT
EPA 8270C SIM	2,4-Dimethylphenol	Phenols	---	µg/kg	<17	<16	<17	<15	NT	NT	NT
EPA 8270C SIM	2,4-Dinitrophenol	Phenols	---	µg/kg	<860	<800	<850	<730	NT	NT	NT
EPA 8270C SIM	2-Chlorophenol	Phenols	---	µg/kg	<17	<16	<17	<15	NT	NT	NT
EPA 8270C SIM	2-Methylphenol	Phenols	---	µg/kg	<17	<16	<17	<15	NT	NT	NT
EPA 8270C SIM	2-Nitrophenol	Phenols	---	µg/kg	<17	<16	<17	<15	NT	NT	NT
EPA 8270C SIM	3/4-Methylphenol	Phenols	---	µg/kg	<17	<16	<17	<15	NT	NT	NT
EPA 8270C SIM	4,6-Dinitro-2-Methylphenol	Phenols	---	µg/kg	<860	<800	<850	<730	NT	NT	NT
EPA 8270C SIM	4-Chloro-3-Methylphenol	Phenols	---	µg/kg	<17	<16	<17	<15	NT	NT	NT
EPA 8270C SIM	4-Nitrophenol	Phenols	---	µg/kg	<860	<800	<850	<730	NT	NT	NT
EPA 8270C SIM	Pentachlorophenol	Phenols	**17000**	µg/kg	<860	<800	<850	<730	NT	NT	NT
EPA 8270C SIM	Phenol	Phenols	---	µg/kg	<17	37	<17	27	NT	NT	NT
EPA 8270C SIM	Bis(2-Ethylhexyl) Phthalate	Phthalates	---	µg/kg	580	290	210	530	NT	NT	NT
EPA 8270C SIM	Butyl Benzyl Phthalate	Phthalates	---	µg/kg	<17	52	<17	92	NT	NT	NT
EPA 8270C SIM	Diethyl Phthalate	Phthalates	---	µg/kg	<17	<16	<17	<15	NT	NT	NT

Table 7.
Initial Event Bulk Sediment Chemistry Results

					Dredged Material		Z-Layer		Area B Core Samples		
Analytical Method	**Compound Name**	**Type**	**TTLC**	**Units**	**Composite Area A**	**Composite Area B**	**Composite Area A**	**Composite Area B**	**Core 3**	**Core 4**	**Core 5**
EPA 8270C SIM	Dimethyl Phthalate	Phthalates	---	µg/kg	<17	150	<17	91	NT	NT	NT
EPA 8270C SIM	Di-n-Butyl Phthalate	Phthalates	---	µg/kg	<17	<16	<17	<15	NT	NT	NT
EPA 8270C SIM	Di-n-Octyl Phthalate	Phthalates	---	µg/kg	<17	<16	<17	<15	NT	NT	NT
Organotins by Krone et al.	Dibutyltin	TBT	---	µg/kg	49	14	38	37	NT	NT	NT
Organotins by Krone et al.	Monobutyltin	TBT	---	µg/kg	<5.2	<4.8	2.7J	<4.4	NT	NT	NT
Organotins by Krone et al.	Tetrabutyltin	TBT	---	µg/kg	7.8	<4.8	6.1	<4.4	NT	NT	NT
Organotins by Krone et al.	Tributyltin	TBT	---	µg/kg	1500	14	620	56	NT	NT	NT
EPA 8270C SIM PCB	PCB008	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8270C SIM PCB	PCB018	PCB Congeners	---	µg/kg	2.4	<1.6	2.6	4.5	NT	NT	NT
EPA 8270C SIM PCB	PCB028	PCB Congeners	---	µg/kg	4.3	<1.6	5.2	<1.5	NT	NT	NT
EPA 8270C SIM PCB	PCB031	PCB Congeners	---	µg/kg	<1.7	4.4	<1.7	12	NT	NT	NT
EPA 8270C SIM PCB	PCB033	PCB Congeners	---	µg/kg	3.0	2.1	4.3	3.3	NT	NT	NT
EPA 8270C SIM PCB	PCB037	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8270C SIM PCB	PCB044	PCB Congeners	---	µg/kg	3.5	3.8	3.5	9.9	NT	NT	NT
EPA 8270C SIM PCB	PCB049	PCB Congeners	---	µg/kg	14	16	19	26	NT	NT	NT
EPA 8270C SIM PCB	PCB052	PCB Congeners	---	µg/kg	3.4	4.0	2.4	12	NT	NT	NT
EPA 8270C SIM PCB	PCB056	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	2.7	NT	NT	NT
EPA 8270C SIM PCB	PCB060	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8270C SIM PCB	PCB066	PCB Congeners	---	µg/kg	1.8	2.1	<1.7	6.6	NT	NT	NT
EPA 8270C SIM PCB	PCB070	PCB Congeners	---	µg/kg	<1.7	2.1	<1.7	7.5	NT	NT	NT
EPA 8270C SIM PCB	PCB074	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	3.6	NT	NT	NT
EPA 8270C SIM PCB	PCB077	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8270C SIM PCB	PCB081	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8270C SIM PCB	PCB087	PCB Congeners	---	µg/kg	2.5	2.7	2.4	10	NT	NT	NT
EPA 8270C SIM PCB	PCB095	PCB Congeners	---	µg/kg	3.8	4.0	2.9	15	NT	NT	NT
EPA 8270C SIM PCB	PCB097	PCB Congeners	---	µg/kg	5.5	5.2	5.4	14	NT	NT	NT
EPA 8270C SIM PCB	PCB099	PCB Congeners	---	µg/kg	<1.7	2.3	<1.7	8.3	NT	NT	NT
EPA 8270C SIM PCB	PCB101	PCB Congeners	---	µg/kg	6.0	6.4	4.4	26	NT	NT	NT
EPA 8270C SIM PCB	PCB105	PCB Congeners	---	µg/kg	4.6	3.0	5.2	14	NT	NT	NT
EPA 8270C SIM PCB	PCB110	PCB Congeners	---	µg/kg	4.5	5.5	3.2	22	NT	NT	NT
EPA 8270C SIM PCB	PCB114	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8270C SIM PCB	PCB118	PCB Congeners	---	µg/kg	5.7	5.4	4.8	23	NT	NT	NT
EPA 8270C SIM PCB	PCB119	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8270C SIM PCB	PCB123	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	3.9	NT	NT	NT
EPA 8270C SIM PCB	PCB126	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8270C SIM PCB	PCB128	PCB Congeners	---	µg/kg	1.7	<1.6	<1.7	5.7	NT	NT	NT
EPA 8270C SIM PCB	PCB132	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8270C SIM PCB	PCB138/158	PCB Congeners	---	µg/kg	8.1	8.4	6.0	32	NT	NT	NT

Table 7.
Initial Event Bulk Sediment Chemistry Results

					Dredged Material		Z-Layer		Area B Core Samples		
Analytical Method	**Compound Name**	**Type**	**TTLC**	**Units**	**Composite Area A**	**Composite Area B**	**Composite Area A**	**Composite Area B**	**Core 3**	**Core 4**	**Core 5**
EPA 8270C SIM PCB	PCB141	PCB Congeners	---	µg/kg	<1.7	1.7	<1.7	4.6	NT	NT	NT
EPA 8270C SIM PCB	PCB149	PCB Congeners	---	µg/kg	5.0	5.0	3.4	18	NT	NT	NT
EPA 8270C SIM PCB	PCB151	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	4.6	NT	NT	NT
EPA 8270C SIM PCB	PCB153	PCB Congeners	---	µg/kg	6.6	7.2	4.3	28	NT	NT	NT
EPA 8270C SIM PCB	PCB156	PCB Congeners	---	µg/kg	2.0	<1.6	<1.7	4.1	NT	NT	NT
EPA 8270C SIM PCB	PCB157	PCB Congeners	---	µg/kg	2.9	2.0	2.5	5.1	NT	NT	NT
EPA 8270C SIM PCB	PCB167	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8270C SIM PCB	PCB168	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8270C SIM PCB	PCB169	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8270C SIM PCB	PCB170	PCB Congeners	---	µg/kg	2.4	1.7	<1.7	5.9	NT	NT	NT
EPA 8270C SIM PCB	PCB174	PCB Congeners	---	µg/kg	2.3	1.7	<1.7	5.7	NT	NT	NT
EPA 8270C SIM PCB	PCB177	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	2.2	NT	NT	NT
EPA 8270C SIM PCB	PCB180	PCB Congeners	---	µg/kg	3.8	3.4	2.7	11	NT	NT	NT
EPA 8270C SIM PCB	PCB183	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	2.6	NT	NT	NT
EPA 8270C SIM PCB	PCB184	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8270C SIM PCB	PCB187	PCB Congeners	---	µg/kg	2.2	1.8	<1.7	5.9	NT	NT	NT
EPA 8270C SIM PCB	PCB189	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8270C SIM PCB	PCB194	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	2.5	NT	NT	NT
EPA 8270C SIM PCB	PCB195	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
EPA 8270C SIM PCB	PCB201	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	2.9	NT	NT	NT
EPA 8270C SIM PCB	PCB203	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	1.9	NT	NT	NT
EPA 8270C SIM PCB	PCB206	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	1.5	NT	NT	NT
EPA 8270C SIM PCB	PCB209	PCB Congeners	---	µg/kg	<1.7	<1.6	<1.7	<1.5	NT	NT	NT
	Total Detectable PCBs	PCB Congeners	---	µg/kg	102	102	84.2	369	NT	NT	NT

TTLC = total threshold limit concentration
NT = Not Tested

Phenols and Phthalates

All phenols and phthalates tested were below analytical detection limits with the exception of bis (2-ethylhexyl) phthalate which had a concentration of 580 µg/kg. Only one of the phenolic compounds (pentachlorophenol), and none of the phthalates, has a State of California Title 22 Total TTLC value for determination as hazardous waste. Pentachlorophenol was below the detection limit of 860 µg/kg; well below the TTLC value of 17 mg/kg.

Organotins

Organotin concentrations in dredged material composite Area A ranged from a non-detect value of <5.2 µg/kg for monobutyltin to 1,500 µg/kg for tributyltin. California Title 22 TTLC values do not currently exist for organotins.

PCB Congeners

Polychlorinated biphenyl (PCB) congener concentrations ranged from a high of 14 µg/kg for PCB 049 to less than the detection limit of 1.7 µg/kg for 29 of the 54 congeners measured. The total detectable concentration of PCB congeners for dredged material composite Area A was 102 µg/kg. California Title 22 TTLC values do not currently exist for PCBs.

3.1.3.2 Composite Area B

General Chemistry

General chemical components analyzed as part of this project included TOC, ammonia, oil and grease, and TRPH. TOC in the dredged material composite Area B was 1.5 percent. The concentration of ammonia was 13 mg/kg. TRPH had a concentration of 410 mg/kg. Oil and grease had a concentration of 490 mg/kg.

Metals

Zinc, at 104 mg/kg, had the highest concentration of any metal analyzed in dredged material composite Area B. The next highest metal concentration was copper, at 101 mg/kg, followed by chromium, lead, and nickel at 27.2, 18.6, and 17.3 mg/kg respectively. None of the metals analyzed exceeded State of California Title 22 TTLC values for determination as hazardous waste.

Chlorinated Pesticides

Of the chlorinated pesticides, 4-4'- DDE had the highest concentration at 29 µg/kg in dredged material composite Area B. 2-4'-DDE was the only other chlorinated pesticide found at detectable levels, with a concentration of 5.7 µg/kg. The concentration of these DDT breakdown products were far below the State of California Title 22 TTLC value of 1,000 µg/kg DDT/DDE/DDD for determination as hazardous waste.

Polycyclic Aromatic Hydrocarbons

The total detectable PAH concentration for dredged material composite Area B was 44,160 µg/kg. The highest individual PAH concentration was pyrene at 11,000 µg/kg. Fluoranthene and chrysene were next with concentrations of 9,100 and 5,700 µg/kg respectively. The lowest PAH concentration was reported for 1-methylnaphthalene which was below analytical detection limits, and naphthalene at 17 µg/kg. California Title 22 TTLC values do not currently exist for PAHs.

Phenols and Phthalates

The following phenol and phthalate compounds were detected in dredged material composite Area B sediment: phenol (37 µg/kg), bis (2-ethylhexyl) phthalate (290 µg/kg), butyl benzyl phthalate (52 µg/kg), and dimethyl phthalate (150 µg/kg). Only one of the phenolic compounds (pentachlorophenol), and none of the phthalates, has a State of California Title 22 Total TTLC value for determination as hazardous waste. Pentachlorophenol was below the detection limit of 800 µg/kg; well below the TTLC value of 17 mg/kg.

Organotins

Concentrations of organotins in dredged material composite Area B sediments ranged from a non-detect value of 4.8 µg/kg for monobutyltin and tetrabutyltin to 14 µg/kg for both dibutyltin and tributyltin. California Title 22 TTLC values do not currently exist for organotins.

PCB Congeners

PCB congener concentrations ranged from a high of 16 µg/kg for PCB 049 to less than the detection limit of 1.6 µg/kg for 30 of the 54 congeners measured. The total detectable concentration of PCB congeners for dredged material composite Area B was 102 µg/kg. California Title 22 TTLC values do not currently exist for PCBs.

3.1.3.3 Area B Individual Core PAH Analyses

Based upon the review of previous sediment quality results for this site (ABT 2000), the CSTF requested that PAH analyses be conducted on each of the individual cores collected within Area B. Several individual PAHs were elevated in the cores collected within Area B. The greatest concentrations measured were that for fluoranthene and pyrene. Fluoranthene concentrations ranged from 19,000 µg/kg at Core Station 4 to 1,900 µg/kg at Core Station 3. Pyrene ranged from 17,000 µg/kg at Core Station 4 to 3,500 µg/kg at Core Station 5. Other elevated PAHs include chrysene, benzo (k) fluoranthene, benzo (b) fluoranthene, and benzo (a) pyrene. Total detectable PAH concentrations ranged from a low of 14,230 µg/kg at Core Station 5 to 78,200 at Core Station 4. There are no California Title 22 TTLC criteria for PAHs.

3.1.3.4 Composite Area A Z-layer

General Chemistry

General chemical components analyzed as part of this project included TOC, ammonia, oil and grease, and TRPH. The concentration of ammonia in the Z-layer for Area A was 16 mg/kg. TRPH had a concentration of 190 mg/kg. The concentration of oil and grease was 260 mg/kg.

Metals

The highest concentrations of trace metals in the Z-layer for Area A included zinc (138 mg/kg) and copper (79.1 mg/kg). The concentration of chromium was 39.5 mg/kg. Lead and nickel concentrations were 48.1 mg/kg and 22.7 mg/kg, respectively. None of the metals analyzed exceeded State of California Title 22 TTLC values for determination as hazardous waste.

Chlorinated Pesticides

Results for chlorinated pesticides in the Z-layer for Area A found 4-4'-DDD and 4-4'-DDE to have the highest concentrations at 110 µg/kg and 85 µg/kg. 2-4'-DDE (18 µg/kg) and 4-4'-DDT (24 µg/kg) were the only other chlorinated pesticides detected. The concentration of DDT and its breakdown products were far below the State of California Title 22 TTLC value of 1,000 µg/kg DDT/DDE/DDD for determination as hazardous waste.

Polycyclic Aromatic Hydrocarbons

The total detectable PAH concentration in the Z-layer for Area A was 70,190 µg/kg. The highest individual PAH concentration was fluoranthene at 21,000 µg/kg. Chrysene and pyrene were next at 7,700 µg/kg and 20,000 µg/kg, respectively. The lowest PAH concentration was reported for 1- and 2-methylnaphthalene which were below analytical detection limits, and naphthalene at 39 µg/kg. California Title 22 TTLC values do not currently exist for PAHs.

Phenols and Phthalates

All phenols and phthalates analyzed, with the exception of bis (2-ethylhexyl) phthalate at a concentration of 210 µg/kg, were below analytical detection limits in the Z-layer for Area A. Only one of the phenolic compounds (pentachlorophenol), and none of the phthalates, has a State of California Title 22 Total TTLC value for determination as hazardous waste. Pentachlorophenol was below the detection limit of 850 µg/kg; well below the TTLC value of 17 mg/kg.

Organotins

The greatest organotin concentration in the Z-layer for Area A was that for tributyltin at 620 µg/kg. Dibutyltin had a concentration 38 µg/kg, and tetrabutyltin was detected at a concentration of 6.1 µg/kg. Monobutyltin was detected, but below the reporting limit of 4.4 µg/kg. California Title 22 TTLC values do not currently exist for organotins.

PCB Congeners

PCB congener concentrations in the Z-layer for Area A ranged from a high of 19 µg/kg for PCB 049 to less than the detection limit of 1.7 µg/kg for 35 of the 54 congeners measured. The total detectable concentration of PCB congeners for the Area A Z-layer was 84.2 µg/kg. California Title 22 TTLC values do not currently exist for PCBs.

3.1.3.5 Composite Area B Z-layer

General Chemistry

General chemical components analyzed as part of this project included TOC, ammonia, oil and grease, and TRPH. The concentration of ammonia in the Z-layer for Area B was 20 mg/kg. TRPH had a concentration of 670 mg/kg. Oil and grease had a concentration of 790 mg/kg. A laboratory duplicate was performed on the Area B Z-layer composite. Relative percent differences ranged from 16 percent for oil and grease to 23 percent for TRPH between the duplicate and the original result.

Metals

The highest concentrations of measured metals in the Z-layer for Area B included zinc (147 mg/kg) and copper (72.6 mg/kg). Lead and chromium concentrations were 56.6 mg/kg and 55.4

mg/kg, respectively. Relative percent differences between the original sample and the laboratory duplicate ranged from less than 1 percent for mercury and selenium to 22 percent for the chromium results. None of the metals analyzed exceeded State of California Title 22 TTLC values for determination as hazardous waste.

Chlorinated Pesticides

The chlorinated pesticide DDT breakdown product 4-4'-DDE was detected at a concentration of 81 µg/kg in the Z-layer for Area B. 2-4'-DDE (15 µg/kg) was the only other chlorinated pesticide to be detected. The concentration of DDE was far below the State of California Title 22 TTLC value of 1000 mg/kg DDT/DDE/DDD for determination as hazardous waste.

Polycyclic Aromatic Hydrocarbons

The total detectable PAH concentration for the Area B Z-layer was 42,580 µg/kg. The highest individual PAH concentration was pyrene, with a concentration of 10,000 µg/kg. Chrysene and fluoranthene were next with concentrations of 5,700 µg/kg and 6,900 µg/kg, respectively. The lowest PAH concentration was reported for 2-methylnaphthalene with a concentration of 36 µg/kg. California Title 22 TTLC values do not currently exist for PAHs.

Phenols and Phthalates

The following phenol and phthalate compounds were detected: phenol, bis (2-ethylhexyl) phthalate, butyl benzyl phthalate, and dimethyl phthalate with respective concentrations of 27, 530, 92 and 91 µg/kg. Only one of the phenolic compounds (pentachlorophenol), and none of the phthalates, has a State of California Title 22 Total TTLC value for determination as hazardous waste. Pentachlorophenol was below the detection limit of 730 µg/kg; well below the TTLC value of 17 mg/kg.

Organotins

Concentrations of organotins in the Z-layer for Area B sediments ranged from a non-detect value of less than 4.4 µg/kg for monobutyltin and tetrabutyltin to 56 µg/kg for tributyltin. California Title 22 TTLC values do not currently exist for Organotins.

PCB Congeners

PCB congener concentrations ranged from a high of 32 µg/kg for PCB congener 138/158 to less than the detection limit of 1.5 µg/kg for 17 of the 54 congeners measured. The total detectable concentration of PCB congeners for the Area B Z-layer composite was 369 µg/kg. California Title 22 TTLC values do not currently exist for PCBs.

3.1.4 Elutriate Testing Results

Sediment elutriate results are presented in Table 8 for sediment composite Areas A and B. Original chemistry data reports are located in Appendix C1.

The chemical composition of the site water alone was also measured and reported for comparison purposes. Site Water underwent the same mixing method as that used for elutriate preparation, but without sediment. The metals results for this mixed site water sample, however, showed elevated chromium, copper and nickel detections relative to the elutriate sample.

Realizing that the data appeared anomalous; the chemist was questioned about the preparation. An observation was noted that during the mixing of the Site Water sample, one of the blades of the commercial mixer was scraping the mixing bowl. The scraping was not observed during the elutriate preparation. In order to determine if the metal-on-metal scraping may be the cause of the high Site Water metal concentrations, it was decided that the original Site Water (prior to mixing) should be analyzed for metals only. Concentrations of chromium, copper and nickel in the original (pre-mix) Site Water were more similar to that in the elutriate sample. These results suggest that the unusually high metal concentrations of the mixed Site Water control sample did result from the scraping observed during the mixing process, and that the data does not represent a true control blank. For comparison, both sets of metals data are presented within this report.

Metals

No trace metals exceeded EPA ambient water quality acute criterion maximum concentration (CMC) or chronic criterion continuous concentration (CCC) values in the Area A and B elutriates or Site Water prior to mixing (California Toxics Rule 2000). Two of the trace metals measured in the mixed Site Water (nickel and copper) had concentrations that exceeded respective CCC values of 8.2 µg/L and 3.1 µg/L. The concentration of nickel in the mixed Site Water was 8.29 µg/L, and copper was 6.29 µg/L. As described above these elevated metals concentrations were believed to have resulted from the mixing method for this particular sample, and not the site water itself.

Chlorinated Pesticides

All chlorinated pesticides concentrations were below the detection limit of 0.05 µg/L.

Polycyclic Aromatic Hydrocarbons

Total detectable PAH concentrations for dredged material elutriates were 2.25 µg/L and 2.57 µg/L for the Area A and B samples, respectively. PAH concentrations in the site water and pre-rinse samples were all below analytical detection limits.

Organotins

Tributyltin and dibutyltin were detected in the elutriate sample from Area A, with concentrations of 180 and 13 nanograms per liter (ng/L), respectively. All other results were below analytical detection limits for organotins.

PCB Congeners

All PCB congeners were below analytical detection limits of 0.20 µg/L in all elutriate, site water, and rinse water samples tested.

3.1.5 Additional Individual Core Chemistry

In an attempt to further clarify the Z-layer chemistry results, archives of individual cores from composite Area B were analyzed for a full suite of chemicals before the supplemental testing phase was initiated. These results confirmed initial study Z-layer sediment chemistry. Chemistry results from this phase of testing are presented in Table 9. Full analytical chemistry reports are provided in Appendix C1.

3.1.5.1 Matrix Spikes

Sediments

Matrix spike analyses were performed for each applicable analysis on AMEC project samples Composite B Top, Area A Composite Top, and Core Station 4. All parameters were within the established control limits with the following exceptions.

The copper, silver and zinc MS, MSD and/or RPDs were outside the control limits. However, since the associated post digestion spike/post digestion spike duplicate (PDS/PDSD) recoveries, LCS/LCSD recoveries and RPDs were in control, the data are released with no further action.

Four of the EPA 8081A chlorinated pesticides matrix spikes, matrix spike duplicates and/or RPDs exceeded the control limits due to matrix interference. Yet, since all the LCS, LCSD and RPDs were within the control limits, the results are released with no further qualification.
The MS and/or MSD recoveries for several PAHs (by EPA 8270C SIM) fell outside their established control limits. The results have been flagged with the appropriate qualifiers and are released with no further action since the associated LCS/LCSD recoveries were within established the control limits.

PCB052 and PCB118 (by EPA 8270C SIM) matrix spike and matrix spike duplicate recoveries exceeded the established control limits, but since the LCS and LCSD recoveries were acceptable, the results are released.

Three of the EPA 8270C SIM PAH matrix spikes, matrix spike duplicates and/or RPDs exceeded the control limits. The results have been flagged with the appropriate qualifiers and are released with no further action since the associated LCS/LCSD recoveries were within the established control limits.

The MS, MSD and/or RPDs for tributyltin and tetrabutyltin (Comp B) were outside the established control limits due to the elevated concentrations of organotins as well as matrix interference. However, the results have been flagged with the appropriate qualifiers and were released with no further action since the associated LCS/LCSD recoveries and RPDs were within the established control limits.

Additional Sediment Individual Core Chemistry

Matrix spike analyses were performed for each applicable analysis on both non-project samples and AMEC project samples. All parameters for the AMEC POLA sample matrix spikes were within the established control limits with the following exceptions.

Station 4-Top was used for Organotins matrix spiking and the Tetrabutyltin and Tributyltin matrix spikes and RPDs were outside the control limits. However, since the associated MSD, LCS and LCSD recoveries (plus LCS RPDs) were in control, the data are released with no further action.

Station 5-Bottom was used for the EPA 8081A Chlorinated Pesticides matrix spikes, and the MS, MSD and/or RPDs for several analytes exceeded the control limits due to matrix interference. Yet, since the LCS/LCSD recoveries and RPDs were within the control limits, the results are released with no further qualification. EPA 8270C SIM PAH matrix spikes were performed on sample Station 5-Bottom and the MS, MSD and/or RPD recoveries for many PAHs fell outside their established control limits.

The results have been flagged with the appropriate qualifiers and are released with no further action since the associated LCS/LCSD recoveries and RPDs were in control.

Elutriates

Due to sample volume limitations, matrix spikes could not be performed for all analyses. Matrix spiking was performed for EPA 1640 Trace Metals, EPA 7470A Mercury and EPA 8270C SIM PAHs. All parameters were within the established control limits with the following exceptions.

Arsenic, nickel, and selenium, by EPA 1640, fell outside the established control limits due to matrix interference. However, the results are released with no further action since the corresponding LCS and LCSD recoveries were within the established control limits.

Several of the EPA 8270C SIM PAH MS and/or MSD recoveries were above the established control limits. The results have been flagged with the appropriate qualifiers and released with no further clarification since the corresponding LCS/LCSD recoveries were in control.

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Table 8.
Elutriate Chemistry Results

Analytical Method	Extraction Name	Compound Name	Type	UNITS	CCC	CMC	Composite Area A	Composite Area B	Site Water	Site Water (Pre-mixing)
EPA 1640	EPA 3005A Total	Arsenic	Metals	µg/L	**36**	**69**	7.87	6.67	1.21	1.29
EPA 1640	EPA 3005A Total	Cadmium	Metals	µg/L	**8.8**	**40**	0.0868	0.0346	0.156	0.0732
EPA 1640	EPA 3005A Total	Chromium	Metals	µg/L	**50**	**1100**	0.467	0.406	0.427	0.301
EPA 1640	EPA 3005A Total	Copper	Metals	µg/L	**3.1**	**4.8**	1.11	0.866	**6.29**	1.58
EPA 1640	EPA 3005A Total	Lead	Metals	µg/L	**8.1**	**210**	0.294	0.219	0.168	0.277
EPA 7470A	EPA 7470A Total	Mercury	Metals	µg/L	.	.	<0.200	<0.200	<0.200	NT
EPA 1640	EPA 3005A Total	Nickel	Metals	µg/L	**8.2**	**74**	6.57	1.15	**8.29**	0.628
EPA 1640	EPA 3005A Total	Selenium	Metals	µg/L	**71**	**290**	0.152	0.288	<0.0500	<0.0500
EPA 1640	EPA 3005A Total	Silver	Metals	µg/L	.	**1.9**	0.372	0.318	0.325	0.377
EPA 1640	EPA 3005A Total	Zinc	Metals	µg/L	**81**	**90**	3.2	9.03	8.75	6.35
EPA 8081A	EPA 3510C	2,4'-DDD	Chlorinated Pesticides	µg/L	.	.	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	2,4'-DDE	Chlorinated Pesticides	µg/L	.	.	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	2,4'-DDT	Chlorinated Pesticides	µg/L	.	.	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	4,4'-DDD	Chlorinated Pesticides	µg/L	.	.	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	4,4'-DDE	Chlorinated Pesticides	µg/L	.	.	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	4,4'-DDT	Chlorinated Pesticides	µg/L	**0.001**	**0.13**	<0.050	<0.050	<0.050	NT
		Total Detectable DDTs		µg/L	.	.	ND	ND	ND	NT
EPA 8081A	EPA 3510C	Aldrin	Chlorinated Pesticides	µg/L	.	**1.3**	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	Alpha-BHC	Chlorinated Pesticides	µg/L	.	.	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	Alpha Chlordane	Chlorinated Pesticides	µg/L	.	.	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	Beta-BHC	Chlorinated Pesticides	µg/L	.	.	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	Chlordane	Chlorinated Pesticides	µg/L	**0.004**	**0.09**	<0.50	<0.50	<0.50	NT
EPA 8081A	EPA 3510C	Delta-BHC	Chlorinated Pesticides	µg/L	.	.	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	Dieldrin	Chlorinated Pesticides	µg/L	**0.0019**	**0.71**	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	Endosulfan I	Chlorinated Pesticides	µg/L	**0.0087**	**0.03**	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	Endosulfan II	Chlorinated Pesticides	µg/L	**0.0087**	**0.03**	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	Endosulfan Sulfate	Chlorinated Pesticides	µg/L	.	.	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	Endrin	Chlorinated Pesticides	µg/L	**0.0023**	**0.04**	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	Endrin Aldehyde	Chlorinated Pesticides	µg/L	.	.	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	Endrin Ketone	Chlorinated Pesticides	µg/L	.	.	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	Gamma-BHC	Chlorinated Pesticides	µg/L	.	**0.16**	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	Gamma Chlordane	Chlorinated Pesticides	µg/L	.	.	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	Heptachlor	Chlorinated Pesticides	µg/L	**0.0036**	**0.05**	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	Heptachlor Epoxide	Chlorinated Pesticides	µg/L	**0.0036**	**0.05**	<0.050	<0.050	<0.050	NT
EPA 8081A	EPA 3510C	Toxaphene	Chlorinated Pesticides	µg/L	**0.0002**	**0.21**	<2.0	<2.0	<2.0	NT
EPA 8270C SIM PAHs	EPA 3510C	Naphthalene	LMW PAH	µg/L	.	.	<0.20	0.29	<0.20	NT
EPA 8270C SIM PAHs	EPA 3510C	1-Methylnaphthalene	LMW PAH	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PAHs	EPA 3510C	2-Methylnaphthalene	LMW PAH	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PAHs	EPA 3510C	Acenaphthylene	LMW PAH	µg/L	.	.	<0.20	<0.20	<0.20	NT

Table 8.
Elutriate Chemistry Results

Analytical Method	Extraction Name	Compound Name	Type	UNITS	CCC	CMC	Composite Area A	Composite Area B	Site Water	Site Water (Pre-mixing)
EPA 8270C SIM PAHs	EPA 3510C	Acenaphthene	LMW PAH	µg/L	.	.	<0.20	0.36	<0.20	NT
EPA 8270C SIM PAHs	EPA 3510C	Fluorene	LMW PAH	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PAHs	EPA 3510C	Phenanthrene	LMW PAH	µg/L	.	.	<0.20	0.24	<0.20	NT
EPA 8270C SIM PAHs	EPA 3510C	Anthracene	LMW PAH	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PAHs	EPA 3510C	Fluoranthene	HMW PAH	µg/L	.	.	0.35	0.48	<0.20	NT
EPA 8270C SIM PAHs	EPA 3510C	Pyrene	HMW PAH	µg/L	.	.	1.9	1.2	<0.20	NT
EPA 8270C SIM PAHs	EPA 3510C	Benzo (a) Anthracene	HMW PAH	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PAHs	EPA 3510C	Chrysene	HMW PAH	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PAHs	EPA 3510C	Benzo (k) Fluoranthene	HMW PAH	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PAHs	EPA 3510C	Benzo (b) Fluoranthene	HMW PAH	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PAHs	EPA 3510C	Benzo (a) Pyrene	HMW PAH	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PAHs	EPA 3510C	Indeno (1,2,3-c,d) Pyrene	HMW PAH	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PAHs	EPA 3510C	Dibenz (a,h) Anthracene	HMW PAH	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PAHs	EPA 3510C	Benzo (g,h,i) Perylene	HMW PAH	µg/L	.	.	<0.20	<0.20	<0.20	NT
		Total Detectable PAHs		µg/L	.	.	2.25	2.57	ND	NT
Organotins by Krone et al.	EPA 3510C	Dibutyltin	TBT	ng/L	.	.	13	<3.0	<3.0	NT
Organotins by Krone et al.	EPA 3510C	Monobutyltin	TBT	ng/L	.	.	<3.0	<3.0	<3.0	NT
Organotins by Krone et al.	EPA 3510C	Tetrabutyltin	TBT	ng/L	.	.	<3.0	<3.0	<3.0	NT
Organotins by Krone et al.	EPA 3510C	Tributyltin	TBT	ng/L	.	.	180	<3.0	<3.0	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB008	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB018	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB028	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB037	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB044	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB049	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB052	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB066	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB070	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB074	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB077	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB081	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB087	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB099	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB101	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB105	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB110	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB114	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT

Table 8.
Elutriate Chemistry Results

Analytical Method	Extraction Name	Compound Name	Type	UNITS	CCC	CMC	Composite Area A	Composite Area B	Site Water	Site Water (Pre-mixing)
EPA 8270C SIM PCB Congener	EPA 3510C	PCB118	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB119	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB123	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB126	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB128	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB138/158	PCB Congeners	µg/L	.	.	<0.40	<0.40	<0.40	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB149	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB151	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB153	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB156	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB157	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB167	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB168	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB169	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB170	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB177	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB180	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB183	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB184	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB187	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB189	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB194	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB195	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB201	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB206	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
EPA 8270C SIM PCB Congener	EPA 3510C	PCB209	PCB Congeners	µg/L	.	.	<0.20	<0.20	<0.20	NT
		Total Detectable PCBs		µg/L	.	.	<0.20	<0.20	<0.20	NT

Notes:
CCC = Criterion Continuous Concentration (chronic value)
CMC = Criterion Maximum Concentration (acute value)
NT = Not Tested

Table 9.
Initial Event Individual Core Analysis

Method	Compound Name	Type	TTLC	Units	Station 3 Dredged Material	Station 3 Z-layer	Station 4 Dredged Material	Station 4 Z-layer	Station 5 Dredged Material	Station 5 Z-layer
EPA 413.2M	Oil and Grease	General Chemistry	---	mg/kg	45	180	56	110	83	65
SM 2540 B	Solids, Total	General Chemistry	---	%	58	53.6	63.4	69.7	64.9	69.9
EPA 418.1M	TRPH	General Chemistry	---	mg/kg	36	90	36	62	47	51
EPA 6020	Arsenic	Metals	**500**	mg/kg	10.5	12.8	11.6	21.6	9.8	11.7
EPA 6020	Cadmium	Metals	**100**	mg/kg	0.483	0.668	0.588	1.24	0.602	0.953
EPA 6020	Chromium	Metals	**2500**	mg/kg	41.7	49.1	47.7	90	46	69.3
EPA 6020	Copper	Metals	**2500**	mg/kg	103	87.4	96.5	141	68	81
EPA 6020	Lead	Metals	**1000**	mg/kg	31.5	38.4	72.2	120	44.1	83.8
EPA 7471A	Mercury	Metals	**20**	mg/kg	0.182	0.227	0.245	0.755	0.239	0.428
EPA 6020	Nickel	Metals	**2000**	mg/kg	25	29.4	26.1	30.2	21	21.8
EPA 6020	Selenium	Metals	**100**	mg/kg	0.548	0.658	0.638	0.792	0.436	0.369
EPA 6020	Silver	Metals	**500**	mg/kg	0.233	0.285	0.309	0.531	0.28	0.469
EPA 6020	Zinc	Metals	**5000**	mg/kg	130	147	148	217	126	164
EPA 8081A	2,4'-DDD	Chlorinated Pesticides	---	µg/kg	<1.7	<1.9	<1.6	1.8	<1.5	<1.4
EPA 8081A	2,4'-DDE	Chlorinated Pesticides	---	µg/kg	<1.7	<1.9	<1.6	8.9	2.3	3.3
EPA 8081A	2,4'-DDT	Chlorinated Pesticides	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	4,4'-DDD	Chlorinated Pesticides	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	5.1
EPA 8081A	4,4'-DDE	Chlorinated Pesticides	---	µg/kg	2.9	5.7	7.8	130	15	28
EPA 8081A	4,4'-DDT	Chlorinated Pesticides	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	9.1
EPA 8081A	Total DDTs		**1000**	µg/kg	2.9	5.7	7.8	140	17	46
EPA 8081A	Aldrin	Chlorinated Pesticides	**1400**	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Alpha-BHC	Chlorinated Pesticides	**2500**	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Alpha Chlordane	Chlorinated Pesticides	**2500**	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Beta-BHC	Chlorinated Pesticides	**2500**	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Chlordane	Chlorinated Pesticides	**2500**	µg/kg	<17	<19	<16	<14	<15	<14
EPA 8081A	Cis-nonachlor	Chlorinated Pesticides	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Delta-BHC	Chlorinated Pesticides	**2500**	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Dieldrin	Chlorinated Pesticides	**8000**	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Endosulfan I	Chlorinated Pesticides	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Endosulfan II	Chlorinated Pesticides	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Endosulfan Sulfate	Chlorinated Pesticides	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Endrin	Chlorinated Pesticides	**200**	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4

Table 9.
Initial Event Individual Core Analysis

Method	Compound Name	Type	TTLC	Units	Station 3 Dredged Material	Station 3 Z-layer	Station 4 Dredged Material	Station 4 Z-layer	Station 5 Dredged Material	Station 5 Z-layer
EPA 8081A	Endrin Aldehyde	Chlorinated Pesticides	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Endrin Ketone	Chlorinated Pesticides	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Gamma-BHC	Chlorinated Pesticides	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Gamma Chlordane	Chlorinated Pesticides	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Heptachlor	Chlorinated Pesticides	**4700**	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Heptachlor Epoxide	Chlorinated Pesticides	**4700**	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Methoxychlor	Chlorinated Pesticides	**100000**	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Oxychlordane	Chlorinated Pesticides	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Trans-nonachlor	Chlorinated Pesticides	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8081A	Toxaphene	Chlorinated Pesticides	**5000**	µg/kg	<34	<37	<32	<29	<31	<29
EPA 8270C SIM PAHs	Naphthalene	LMW PAH	---	µg/kg	<18	<19	120	390	24	15
EPA 8270C SIM PAHs	1,6,7-Trimethylnaphthalene	LMW PAH	---	µg/kg	NT	<19	NT	28	NT	<14
EPA 8270C SIM PAHs	1-Methylphenanthrene	LMW PAH	---	µg/kg	NT	<19	NT	670	NT	71
EPA 8270C SIM PAHs	2,6-Dimethylnaphthalene	LMW PAH	---	µg/kg	NT	<19	NT	71	NT	18
EPA 8270C SIM PAHs	1-Methylnaphthalene	LMW PAH	---	µg/kg	<18	<19	54	360	<16	<14
EPA 8270C SIM PAHs	2-Methylnaphthalene	LMW PAH	---	µg/kg	18	<19	64	76	<16	<14
EPA 8270C SIM PAHs	Acenaphthylene	LMW PAH	---	µg/kg	380	100	750	280	140	75
EPA 8270C SIM PAHs	Acenaphthene	LMW PAH	---	µg/kg	30	<19	570	1800	28	<14
EPA 8270C SIM PAHs	Biphenyl	LMW PAH		µg/kg	NT	<19	NT	60	NT	<14
EPA 8270C SIM PAHs	Fluorene	LMW PAH	---	µg/kg	99	36	580	700	46	25
EPA 8270C SIM PAHs	Phenanthrene	LMW PAH	---	µg/kg	370	120	3800	2800	170	90
EPA 8270C SIM PAHs	Anthracene	LMW PAH	---	µg/kg	1400	320	3600	1800	360	340
EPA 8270C SIM PAHs	Fluoranthene	LMW PAH	---	µg/kg	1900	650	19000	9200	2000	680
EPA 8270C SIM PAHs	Perylene	LMW PAH	---	µg/kg	NT	260	NT	430	NT	250
EPA 8270C SIM PAHs	Pyrene	HMW PAH	---	µg/kg	8300	4000	17000	9100	3500	2400
EPA 8270C SIM PAHs	Benzo (a) Anthracene	HMW PAH	---	µg/kg	1900	480	4500	2700	530	1300
EPA 8270C SIM PAHs	Benzo (e) Pyrene	HMW PAH	---	µg/kg	NT	710	NT	1400	NT	630
EPA 8270C SIM PAHs	Chrysene	HMW PAH	---	µg/kg	3600	1300	8200	4000	1300	1700
EPA 8270C SIM PAHs	Benzo (k) Fluoranthene	HMW PAH	---	µg/kg	3600	1300	5500	2000	1500	1200
EPA 8270C SIM PAHs	Benzo (b) Fluoranthene	HMW PAH	---	µg/kg	5600	1500	6600	2700	2100	1200
EPA 8270C SIM PAHs	Benzo (a) Pyrene	HMW PAH	---	µg/kg	4300	1200	4800	2100	1600	1300
EPA 8270C SIM PAHs	Indeno (1,2,3-c,d) Pyrene	HMW PAH	---	µg/kg	1200	300	1400	370	410	310
EPA 8270C SIM PAHs	Dibenz (a,h) Anthracene	HMW PAH	---	µg/kg	390	99	460	150	140	120

Table 9.
Initial Event Individual Core Analysis

Method	Compound Name	Type	TTLC	Units	Station 3 Dredged Material	Station 3 Z-layer	Station 4 Dredged Material	Station 4 Z-layer	Station 5 Dredged Material	Station 5 Z-layer
EPA 8270C SIM PAHs	Benzo (g,h,i) Perylene	HMW PAH	---	µg/kg	1000	270	1200	300	380	260
EPA 8270C SIM PAHs	Total PAHs		---	µg/kg	34087	12000	78198	41000	14228	11000
Organotins by Krone et al.	Dibutyltin	TBT	---	µg/kg	<5.2	<28	21	21	22	17
Organotins by Krone et al.	Monobutyltin	TBT	---	µg/kg	<5.2	<28	<4.7	<4.3	<4.6	<4.3
Organotins by Krone et al.	Tetrabutyltin	TBT	---	µg/kg	<5.2	<28	<4.7	<4.3	<4.6	<4.3
Organotins by Krone et al.	Tributyltin	TBT	---	µg/kg	210	530	45	23	21	27
EPA 8270C SIM PCB Congeners	PCB008	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8270C SIM PCB Congeners	PCB018	PCB Congeners	---	µg/kg	2.8	3	2.4	5.6	2.2	<1.4
EPA 8270C SIM PCB Congeners	PCB028	PCB Congeners	---	µg/kg	6	7.3	4.5	8.5	5	3.7
EPA 8270C SIM PCB Congeners	PCB031	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8270C SIM PCB Congeners	PCB033	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	<1.4	2.1	<1.4
EPA 8270C SIM PCB Congeners	PCB037	PCB Congeners	---	µg/kg	<1.7	2.7	<1.6	<1.4	<1.5	<1.4
EPA 8270C SIM PCB Congeners	PCB044	PCB Congeners	---	µg/kg	3.1	4.5	3.8	13	5.7	9
EPA 8270C SIM PCB Congeners	PCB049	PCB Congeners	---	µg/kg	22	27	14	17	10	12
EPA 8270C SIM PCB Congeners	PCB052	PCB Congeners	---	µg/kg	3	5.3	4	27	7.2	13
EPA 8270C SIM PCB Congeners	PCB056	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	3.5	<1.5	4.5
EPA 8270C SIM PCB Congeners	PCB060	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	2.3
EPA 8270C SIM PCB Congeners	PCB066	PCB Congeners	---	µg/kg	<1.7	<1.9	2.3	8.5	4	8.5
EPA 8270C SIM PCB Congeners	PCB070	PCB Congeners	---	µg/kg	<1.7	2	2.3	15	4	9.8
EPA 8270C SIM PCB Congeners	PCB074	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	4.8	1.8	4.6
EPA 8270C SIM PCB Congeners	PCB077	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	2.8	<1.5	2.2
EPA 8270C SIM PCB Congeners	PCB081	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8270C SIM PCB Congeners	PCB087	PCB Congeners	---	µg/kg	1.8	2.6	3.3	19	5	11
EPA 8270C SIM PCB Congeners	PCB095	PCB Congeners	---	µg/kg	2.1	3.1	5.2	33	8.3	19
EPA 8270C SIM PCB Congeners	PCB097	PCB Congeners	---	µg/kg	5.3	7.7	6.1	23	7.2	13
EPA 8270C SIM PCB Congeners	PCB099	PCB Congeners	---	µg/kg	<1.7	<1.9	2.2	14	3.8	10
EPA 8270C SIM PCB Congeners	PCB101	PCB Congeners	---	µg/kg	4.2	6.2	7.7	50	13	29
EPA 8270C SIM PCB Congeners	PCB105	PCB Congeners	---	µg/kg	<1.7	5.9	4.7	20	5.9	13
EPA 8270C SIM PCB Congeners	PCB110	PCB Congeners	---	µg/kg	2.1	2.9	6.1	43	11	25
EPA 8270C SIM PCB Congeners	PCB114	PCB Congeners	---	µg/kg	<1.7	<1.9	3.2	3	1.6	<1.4
EPA 8270C SIM PCB Congeners	PCB118	PCB Congeners	---	µg/kg	2.1	3.1	6.3	38	11	26
EPA 8270C SIM PCB Congeners	PCB119	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	1.6	<1.5	<1.4
EPA 8270C SIM PCB Congeners	PCB123	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	5.2	1.7	2.1

Table 9.
Initial Event Individual Core Analysis

Method	Compound Name	Type	TTLC	Units	Station 3 Dredged Material	Station 3 Z-layer	Station 4 Dredged Material	Station 4 Z-layer	Station 5 Dredged Material	Station 5 Z-layer
EPA 8270C SIM PCB Congeners	PCB126	PCB Congeners	---	µg/kg	<1.7	<1.9	2	<1.4	<1.5	<1.4
EPA 8270C SIM PCB Congeners	PCB128	PCB Congeners	---	µg/kg	<1.7	<1.9	2.1	11	2.7	6.5
EPA 8270C SIM PCB Congeners	PCB132	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8270C SIM PCB Congeners	PCB138/158	PCB Congeners	---	µg/kg	4.2	5.3	9.2	54	15	33
EPA 8270C SIM PCB Congeners	PCB141	PCB Congeners	---	µg/kg	<1.7	<1.9	1.7	12	2.3	7
EPA 8270C SIM PCB Congeners	PCB149	PCB Congeners	---	µg/kg	2.3	3.2	5.5	30	8.6	19
EPA 8270C SIM PCB Congeners	PCB151	PCB Congeners	---	µg/kg	<1.7	2	2.3	7.1	2.8	4.8
EPA 8270C SIM PCB Congeners	PCB153	PCB Congeners	---	µg/kg	4	4.3	8.6	47	13	31
EPA 8270C SIM PCB Congeners	PCB156	PCB Congeners	---	µg/kg	<1.7	<1.9	1.8	7	2.1	4.2
EPA 8270C SIM PCB Congeners	PCB157	PCB Congeners	---	µg/kg	<1.7	2	2.4	6.9	2.8	4.2
EPA 8270C SIM PCB Congeners	PCB167	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	1.9	<1.5	<1.4
EPA 8270C SIM PCB Congeners	PCB168	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8270C SIM PCB Congeners	PCB169	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	1.6	<1.5	<1.4
EPA 8270C SIM PCB Congeners	PCB170	PCB Congeners	---	µg/kg	<1.7	<1.9	2.9	7.6	3	6.9
EPA 8270C SIM PCB Congeners	PCB174	PCB Congeners	---	µg/kg	<1.7	<1.9	2.1	7.1	2.6	5.3
EPA 8270C SIM PCB Congeners	PCB177	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	3.1	<1.5	2.1
EPA 8270C SIM PCB Congeners	PCB180	PCB Congeners	---	µg/kg	1.9	2.3	3.8	14	5.2	11
EPA 8270C SIM PCB Congeners	PCB183	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	3.5	<1.5	2.6
EPA 8270C SIM PCB Congeners	PCB184	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8270C SIM PCB Congeners	PCB187	PCB Congeners	---	µg/kg	<1.7	<1.9	2.3	7.3	2.9	6
EPA 8270C SIM PCB Congeners	PCB189	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8270C SIM PCB Congeners	PCB194	PCB Congeners	---	µg/kg	<1.7	<1.9	1.7	2.6	<1.5	2.9
EPA 8270C SIM PCB Congeners	PCB195	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8270C SIM PCB Congeners	PCB200	PCB Congeners		µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8270C SIM PCB Congeners	PCB201	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8270C SIM PCB Congeners	PCB203	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	2.8	<1.5	2.6
EPA 8270C SIM PCB Congeners	PCB206	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	1.9	<1.5	1.8
EPA 8270C SIM PCB Congeners	PCB209	PCB Congeners	---	µg/kg	<1.7	<1.9	<1.6	<1.4	<1.5	<1.4
EPA 8270C SIM PCB Congeners	Total PCB Congeners		---	µg/kg	67	100	130	580	170	370

TTLC = total threshold limit concentration
NT = Not Tested

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3.1.6 Data Validation

Quality assurance (QA) data is presented in full detail within the original chemistry reports (Appendix C1 and C2). This section summarizes the results of the quality control (QC) procedures used to ensure that the chemistry data reported is valid.

3.1.6.1 Laboratory Duplicate

A laboratory duplicate analysis was performed on samples from Z-layer composite Area A and Station 3. Due to limited sample available, the Composite B Bottom lab duplicate was only analyzed for oil & grease, TRPH, TOC, total solids and metals. The Station 3 lab duplicate was tested for total solids and PAHs. Laboratory duplicate data is included in the full analytical chemistry reports located in Appendix C1 and C2.

3.1.6.2 Calibration

Frequency and control criteria for initial and continuing calibration verifications were met.

3.1.6.3 Blanks

Concentrations of target analytes in the method blanks were found to be below reporting limits for all tests.

3.1.6.4 Laboratory Control Samples

Laboratory Control Sample (LCS/LCSD) analyses were performed for each applicable method at the required frequencies, and all parameters were within the control limits for each method.

3.1.6.5 Surrogates

Surrogate recoveries for all applicable tests and samples were within the established control limits with the following exceptions:

Sediments
Recovery of decachlorobiphenyl (by EPA 8081A) was above the established control limit in sample Area A Comp Bottom and Area A Comp Top due to matrix interference. However, the results were confirmed by re-analysis and are released with no further action since the second surrogate, 2,4,5,6-tetrachloro-m-xylene, was in control for both.

Additional Individual Core Chemistry
The Decachlorobiphenyl surrogate recovery (by EPA 8081A) was above the established control limits in sample Station 4-Bottom due to matrix interference. However, since the surrogate recovery was confirmed by re-analysis, and the 2, 4, 5, 6-Tetrachloro-m-Xylene surrogate was within the control limits, the results are released with no further action.

3.2 Supplemental Sampling Event

As mentioned previously, samples were collected in the same locations during both events to minimize spatial variability within composite results and to allow for direct comparison between the initial testing results and results from supplemental testing.

3.2.1 Field Observations

Like the initial collection event field observations, sediments were again observed to be similar across the site, consisting almost universally of dark gray, silt with intermixed pockets of fine grain sand within the dredge material. Below the potential dredge material, sediments were dominantly brown in color and contained medium grained sand. Core logs and photographs from each core are included in Appendices A2 and B2 for supplemental samples collected.

3.2.2 Composite Area A

General Chemistry
The only general chemistry component analyzed for supplemental data reporting was total solids. The concentration of total solids for intervals A1 through A3 ranged between 76.1 and 81.1 percent. Supplemental sampling chemistry data is presented in Table 10.

Metals
Similar to the dredge material composites, zinc had the highest concentration of any metal analyzed (29.4 mg/L in horizontal composite layer A2) in dredged material composite Area A, but was nearly 5 times less than the concentration within the overlying material (141 mg/L). The next highest metal concentrations were again copper (7.75 mg/kg) and chromium (8.28 mg/kg) in horizontal composite layer A3; however, these values were approximately 11 and 5 times less than within the overlying material, respectively. Mercury, cadmium, silver, and selenium were all found at concentrations below 1 mg/kg in all horizontal composite layers. Furthermore, none of the metals analyzed exceeded State of California Title 22 Total Threshold Limit Concentrations (TTLC) values for determination as hazardous waste.

Chlorinated Pesticides
The chlorinated pesticide breakdown product 4,4'- DDT was the only chlorinated pesticide detected within composite Area A samples. In horizontal composite layer A1, 4,4'- DDT had a concentration of 1.4 µg/kg, approximately 1.6 times less than within the overlying material. The concentration of DDT and its breakdown products were far below the State of California Title 22 TTLC value of 1,000 µg/kg DDT/DDE/DDD for determination as hazardous waste.

Polycyclic Aromatic Hydrocarbons
The total detectable PAH concentration for dredged material composite Area A was only 73 µg/kg in horizontal composite layer A1. The highest individual PAH concentration was Benzo(a)pyrene at 31 µg/kg. Benzo (k) fluoranthene and pyrene were the next highest with concentrations of 15 and 27 µg/kg, respectively. All other PAH concentrations were non-detect. California Title 22 TTLC values do not currently exist for PAHs.

Phenols and Phthalates

All phenols and phthalates tested were below analytical detection limits. None of the phenolic compounds or phthalates had a State of California Title 22 Total TTLC value for determination as hazardous waste.

Organotins

Organotins concentrations in dredged material composite Area A were all non-detect. California Title 22 TTLC values do not currently exist for organotins.

PCB Congeners

Polychlorinated biphenyl (PCB) congener concentrations were all non-detect. California Title 22 TTLC values do not currently exist for PCBs.

3.2.3 Composite Area B

General Chemistry

The only general chemistry component analyzed as part of this project was total solids. The concentration of total solids for intervals B1 through B3 ranged between 72.1 and 77.7%.

Metals

Zinc, with a concentration of 72.6 mg/kg in horizontal composite B1, was the highest of any metal analyzed in dredged material composite Area B. This concentration is approximately 31.4 mg/kg less than was found in the overlaying material collected in the initial study. Zinc also had the highest concentration of any metal analyzed in horizontal composite layers B2 and B3, but the concentrations were less than half of the concentration of zinc in interval B1. Copper was the second most concentrated metal in horizontal composite layer B1 (value 41.9 mg/kg) followed by lead (40.3 mg/kg). Although metals were found in samples at detectable levels in all three horizontal composite layers, metal concentrations in Area B samples were much less than in the initial study. Moreover, none of the metals analyzed exceeded State of California Title 22 TTLC values for determination as hazardous waste.

Chlorinated Pesticides

Of the chlorinated pesticides, 4,4'- DDE had the highest concentration at 4.2 µg/kg in dredged material composite Area B, horizontal composite layer B1. 2,4'-DDE was the only other chlorinated pesticide found at detectable levels, with a concentration of 2.6 µg/kg. The concentration of these DDT breakdown products were far below the State of California Title 22 TTLC value of 1,000 µg/kg DDT/DDE/DDD for determination as hazardous waste.

Polycyclic Aromatic Hydrocarbons

The total detectable PAH concentration for dredged material composite Area B, horizontal composite layer B1 was 12,509 µg/kg. When compared to concentrations found within the overlying dredge material, this PAH concentration was approximately 3.5 times less. The highest individual PAH concentrations were fluoranthene and pyrene (2,800 µg/kg) in layer B1. However, the value for pyrene and fluoranthene were 3.9 and 3.3 times less than concentrations in the overlying material, respectively. In addition, California Title 22 TTLC

values do not currently exist for PAHs; therefore none of the horizontal composite layers exceeded these values.

Phenols and Phthalates

Bis(2-Ethylhexyl) Phthalate was the only phthalate or phenol detected in samples collected during the supplemental sampling event. Concentrations of 43 µg/kg and 16 µg/kg were detected in horizontal composite layers B1 and B2, respectively. All other phenols and phthalates were non-detect in verification samples. Only one of the phenolic compounds (pentachlorophenol), and none of the phthalates, has a State of California Title 22 Total TTLC value for determination as hazardous waste. Pentachlorophenol was below the detection limit of 800 µg/kg; well below the TTLC value of 17 mg/kg.

Organotins

Only dibutyltin and tributyltin were detected in horizontal composite layers B1 and B2 from composite Area B. Concentrations of organotins were 43 and 42 µg/kg of dibutyltin and 3.1 and 7.5 µg/kg of tributyltin for intervals B1 and B2, respectively. California Title 22 TTLC values do not currently exist for organotins.

PCB Congeners

The only PCB congener detected in samples from composite Area B was PCB congener 049 (2.6 µg/L). All other PCB congener concentrations were less than the detection limit of 1.6 µg/kg. California Title 22 TTLC values do not currently exist for PCBs.

Laboratory Duplicate

A laboratory duplicate analysis was performed on sample A2 from composite Area A. Laboratory duplicate data is included in the full analytical chemistry reports located in Appendix C2.

3.2.4 Matrix Spikes

Matrix spike analyses were performed for each applicable analysis on AMEC project sample A1. All parameters were within the established control limits with the following exceptions:

The arsenic and lead matrix spike and/or matrix spike duplicate recoveries (by EPA 6020) were above the established control limits. However, since the arsenic and lead PDS/PDSD and LCS/LCSD recoveries were in control, the data are released with no further action.

The MS and MSD recoveries for tributyltin and tetrabutyltin were outside the established control limits. However, the results have been flagged with the appropriate qualifiers and are released with no further action since the associated LCS/LCSD recoveries were in control.

The MS, MSD and/or RPD values for two of the chlorinated pesticides (by EPA 8081A) fell outside their established control limits due to matrix interference. Yet, since the LCS, LCSD and RPDs were within the control limits, the results are released with no further qualification.

Table 10.
Supplemental Sediment Sample Chemistry Results

					Composite A				Composite B		
Analytical Method	**Compound Name**	**Type**	**TTLC**	**Units**	**A1 (-42 to -43 MLLW)**	**A2 (-43 to -44 MLLW)**	**A2 (Lab Duplicate)**	**A3 (-44 to -45 MLLW)**	**B1 (-42 to -43 MLLW)**	**B2 (-43 to -44 MLLW)**	**B3 (-44 to -45 MLLW)**
SM 2540 B	Solids, Total	General Chemistry	---	%	79.8	81.1	81.1	76.1	72.1	75.7	77.7
EPA 6020	Arsenic	Metals	**100**	mg/kg	5.75	7.06	7.59	6.64	6.64	3.46	3.35
EPA 6020	Cadmium	Metals	**2500**	mg/kg	<0.125	<0.123	<0.123	<0.131	0.339	0.151	0.132
EPA 6020	Chromium	Metals	**2500**	mg/kg	7.48	7.73	7.83	8.28	21.8	10.8	8.80
EPA 6020	Copper	Metals	**1000**	mg/kg	7.24	7.44	6.70	7.75	41.9	9.97	6.86
EPA 6020	Lead	Metals	**20**	mg/kg	2.29	2.16	1.97	1.97	40.3	4.85	2.61
EPA 7471A	Mercury	Metals	**2000**	mg/kg	<0.0251	<0.0247	<0.0247	<0.0263	0.241	0.0322	0.0555
EPA 6020	Nickel	Metals	**100**	mg/kg	5.94	6.40	6.10	6.40	14.4	8.06	7.03
EPA 6020	Selenium	Metals	**500**	mg/kg	<0.125	<0.123	<0.123	<0.131	0.224	<0.132	0.159
EPA 6020	Silver	Metals	**5000**	mg/kg	<0.125	<0.123	<0.123	<0.131	<0.139	<0.132	<0.129
EPA 6020	Zinc	Metals	---	mg/kg	24.4	29.4	22.2	23.0	72.6	37.9	25.9
EPA 8081A	2,4'-DDD	Chlorinated Pesticides	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	2,4'-DDE	Chlorinated Pesticides	---	µg/kg	<1.3	<1.2	<1.2	<1.3	2.6	<1.3	<1.3
EPA 8081A	2,4'-DDT	Chlorinated Pesticides	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	4,4'-DDD	Chlorinated Pesticides	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	4,4'-DDE	Chlorinated Pesticides	---	µg/kg	<1.3	<1.2	<1.2	<1.3	4.2	<1.3	<1.3
EPA 8081A	4,4'-DDT	Chlorinated Pesticides	**1000**	µg/kg	1.4	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
	Total Detectable DDTs	Chlorinated Pesticides	**1400**	µg/kg	1.4	<1.2	<1.2	<1.3	6.9	<1.3	<1.3
EPA 8081A	Aldrin	Chlorinated Pesticides	**2500**	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	Alpha-BHC	Chlorinated Pesticides	**2500**	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	Alpha Chlordane	Chlorinated Pesticides	**2500**	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	Beta-BHC	Chlorinated Pesticides	**2500**	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	Chlordane	Chlorinated Pesticides	**2500**	µg/kg	<13	<12	<12	<13	<14	<13	<13
EPA 8081A	Delta-BHC	Chlorinated Pesticides	**8000**	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	Dieldrin	Chlorinated Pesticides	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	Endosulfan I	Chlorinated Pesticides	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	Endosulfan II	Chlorinated Pesticides	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	Endosulfan Sulfate	Chlorinated Pesticides	**200**	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	Endrin	Chlorinated Pesticides	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	Endrin Aldehyde	Chlorinated Pesticides	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	Endrin Ketone	Chlorinated Pesticides	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	Gamma-BHC	Chlorinated Pesticides	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	Gamma Chlordane	Chlorinated Pesticides	**4700**	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3

Table 10.
Supplemental Sediment Sample Chemistry Results

					Composite A				Composite B		
Analytical Method	**Compound Name**	**Type**	**TTLC**	**Units**	**A1 (-42 to -43 MLLW)**	**A2 (-43 to -44 MLLW)**	**A2 (Lab Duplicate)**	**A3 (-44 to -45 MLLW)**	**B1 (-42 to -43 MLLW)**	**B2 (-43 to -44 MLLW)**	**B3 (-44 to -45 MLLW)**
EPA 8081A	Heptachlor	Chlorinated Pesticides	**4700**	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	Heptachlor Epoxide	Chlorinated Pesticides	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	Methoxychlor	Chlorinated Pesticides	**5000**	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8081A	Toxaphene	Chlorinated Pesticides	---	µg/kg	<25	<25	<25	<26	<28	<26	<26
EPA 8270C SIM PAHs	Naphthalene	LMW PAH	---	µg/kg	<13	<12	<12	<13	<14	<13	<13
EPA 8270C SIM PAHs	1-Methylnaphthalene	LMW PAH	---	µg/kg	<13	<12	<12	<13	<14	<13	<13
EPA 8270C SIM PAHs	2-Methylnaphthalene	LMW PAH	---	µg/kg	<13	<12	<12	<13	<14	<13	<13
EPA 8270C SIM PAHs	Acenaphthene	LMW PAH	---	µg/kg	<13	<12	<12	<13	33	<13	<13
EPA 8270C SIM PAHs	Acenaphthylene	LMW PAH	---	µg/kg	<13	<12	<12	<13	83	14	<13
EPA 8270C SIM PAHs	Fluorene	LMW PAH	---	µg/kg	<13	<12	<12	<13	46	16	<13
EPA 8270C SIM PAHs	Phenanthrene	LMW PAH	---	µg/kg	<13	<12	<12	<13	210	42	<13
EPA 8270C SIM PAHs	Anthracene	LMW PAH	---	µg/kg	<13	<12	<12	<13	920	96	15
EPA 8270C SIM PAHs	Fluoranthene	LMW PAH	---	µg/kg	<13	<12	<12	<13	2800	550	140
EPA 8270C SIM PAHs	Pyrene	HMW PAH	---	µg/kg	27	<12	<12	<13	2800	710	150
EPA 8270C SIM PAHs	Benzo (a) Anthracene	HMW PAH	---	µg/kg	<13	<12	<12	<13	1100	160	26
EPA 8270C SIM PAHs	Chrysene	HMW PAH	---	µg/kg	<13	<12	<12	<13	1600	280	39
EPA 8270C SIM PAHs	Benzo (k) Fluoranthene	HMW PAH	---	µg/kg	15	<12	<12	<13	710	170	28
EPA 8270C SIM PAHs	Benzo (b) Fluoranthene	HMW PAH	---	µg/kg	<13	<12	<12	<13	880	190	28
EPA 8270C SIM PAHs	Benzo (a) Pyrene	HMW PAH	---	µg/kg	31	<12	<12	<13	810	170	39
EPA 8270C SIM PAHs	Indeno (1,2,3-c,d) Pyrene	HMW PAH	---	µg/kg	<13	<12	<12	<13	280	60	25
EPA 8270C SIM PAHs	Dibenz (a,h) Anthracene	HMW PAH	---	µg/kg	<13	<12	<12	<13	47	<13	<13
EPA 8270C SIM PAHs	Benzo (g,h,i) Perylene	HMW PAH	---	µg/kg	<13	<12	<12	<13	190	44	26
	Total Detectable PAHs	PAH	---	µg/kg	73	<12	<12	<13	12509	2502	516
EPA 8270C SIM PAHs	2,4,5-Trichlorophenol	Phenols	---	µg/kg	<13	<12	<12	<13	<14	<13	<13
EPA 8270C SIM PAHs	2,4,6-Trichlorophenol	Phenols	---	µg/kg	<13	<12	<12	<13	<14	<13	<13
EPA 8270C SIM PAHs	2,4-Dichlorophenol	Phenols	---	µg/kg	<13	<12	<12	<13	<14	<13	<13
EPA 8270C SIM PAHs	2,4-Dimethylphenol	Phenols	---	µg/kg	<13	<12	<12	<13	<14	<13	<13
EPA 8270C SIM PAHs	2,4-Dinitrophenol	Phenols	---	µg/kg	<630	<620	<620	<660	<690	<660	<640
EPA 8270C SIM PAHs	2-Chlorophenol	Phenols	---	µg/kg	<13	<12	<12	<13	<14	<13	<13
EPA 8270C SIM PAHs	2-Methylphenol	Phenols	---	µg/kg	<13	<12	<12	<13	<14	<13	<13
EPA 8270C SIM PAHs	2-Nitrophenol	Phenols	---	µg/kg	<630	<620	<620	<660	<690	<660	<640
EPA 8270C SIM PAHs	3/4-Methylphenol	Phenols	---	µg/kg	<13	<12	<12	<13	<14	<13	<13
EPA 8270C SIM PAHs	4,6-Dinitro-2-Methylphenol	Phenols	---	µg/kg	<630	<620	<620	<660	<690	<660	<640

Table 10.
Supplemental Sediment Sample Chemistry Results

					Composite A				Composite B		
Analytical Method	**Compound Name**	**Type**	**TTLC**	**Units**	**A1 (-42 to -43 MLLW)**	**A2 (-43 to -44 MLLW)**	**A2 (Lab Duplicate)**	**A3 (-44 to -45 MLLW)**	**B1 (-42 to -43 MLLW)**	**B2 (-43 to -44 MLLW)**	**B3 (-44 to -45 MLLW)**
EPA 8270C SIM PAHs	4-Chloro-3-Methylphenol	Phenols	---	µg/kg	<13	<12	<12	<13	<14	<13	<13
EPA 8270C SIM PAHs	4-Nitrophenol	Phenols	**17000**	µg/kg	<13	<12	<12	<13	<14	<13	<13
EPA 8270C SIM PAHs	Pentachlorophenol	Phenols	---	µg/kg	<630	<620	<620	<660	<690	<660	<640
EPA 8270C SIM PAHs	Phenol	Phenols	---	µg/kg	<13	<12	<12	<13	<14	<13	<13
EPA 8270C SIM PAHs	Bis(2-Ethylhexyl) Phthalate	Phthalates	---	µg/kg	<13	<12	<12	<13	43	16	<13
EPA 8270C SIM PAHs	Butyl Benzyl Phthalate	Phthalates	---	µg/kg	<13	<12	<12	<13	<14	<13	<13
EPA 8270C SIM PAHs	Diethyl Phthalate	Phthalates	---	µg/kg	<13	<12	<12	<13	<14	<13	<13
EPA 8270C SIM PAHs	Dimethyl Phthalate	Phthalates	---	µg/kg	<13	<12	<12	<13	<14	<13	<13
EPA 8270C SIM PAHs	Di-n-Butyl Phthalate	Phthalates	---	µg/kg	<13	<12	<12	<13	<14	<13	<13
EPA 8270C SIM PAHs	Di-n-Octyl Phthalate	Phthalates	---	µg/kg	<13	<12	<12	<13	<14	<13	<13
Organotins (Krone et al.)	Dibutyltin	TBT	---	µg/kg	3.3	<0.81	<0.81	<0.86	43	3.1	<0.84
Organotins (Krone et al.)	Monobutyltin	TBT	---	µg/kg	<0.82	<0.81	<0.81	<0.86	<0.91	<0.86	<0.84
Organotins (Krone et al.)	Tetrabutyltin	TBT	---	µg/kg	<0.97	<0.95	<0.95	<1.0	<1.1	<1.0	<0.99
Organotins (Krone et al.)	Tributyltin	TBT	---	µg/kg	6.2	<0.71	<0.71	<0.76	42	7.5	<0.74
EPA 8270C SIM PCB Cong.	PCB008	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB018	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB028	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB031	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB033	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB037	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB044	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB049	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	2.6	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB052	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB056	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB060	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB066	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB070	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB074	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB077	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB081	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB087	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB095	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB097	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3

Table 10.
Supplemental Sediment Sample Chemistry Results

					Composite A				Composite B		
Analytical Method	**Compound Name**	**Type**	**TTLC**	**Units**	**A1 (-42 to -43 MLLW)**	**A2 (-43 to -44 MLLW)**	**A2 (Lab Duplicate)**	**A3 (-44 to -45 MLLW)**	**B1 (-42 to -43 MLLW)**	**B2 (-43 to -44 MLLW)**	**B3 (-44 to -45 MLLW)**
EPA 8270C SIM PCB Cong.	PCB099	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB101	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB105	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB110	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB114	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB118	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB119	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB123	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB126	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB128	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB132	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB138/158	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB141	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB149	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB151	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB153	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB156	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB157	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB167	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB168	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB169	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB170	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB174	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB177	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB180	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB183	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB184	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB187	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB189	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB194	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB195	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB200	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB201	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3

Table 10.
Supplemental Sediment Sample Chemistry Results

					Composite A				Composite B		
Analytical Method	**Compound Name**	**Type**	**TTLC**	**Units**	**A1 (-42 to -43 MLLW)**	**A2 (-43 to -44 MLLW)**	**A2 (Lab Duplicate)**	**A3 (-44 to -45 MLLW)**	**B1 (-42 to -43 MLLW)**	**B2 (-43 to -44 MLLW)**	**B3 (-44 to -45 MLLW)**
EPA 8270C SIM PCB Cong.	PCB203	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB206	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
EPA 8270C SIM PCB Cong.	PCB209	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	<1.4	<1.3	<1.3
	Total Detectable PCBs	PCB Congeners	---	µg/kg	<1.3	<1.2	<1.2	<1.3	2.6	<1.3	<1.3

TTLC = total threshold limit concentration

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4.0 DISCUSSION

The purpose of the sediment characterization study being conducted for Berths 167-169 is to determine the concentration of chemicals within the dredge footprint at the proposed maintenance dredging site to verify that the material is suitable for the disposal alternative being pursued and to predict the sediment quality of the post-dredge resultant harbor bottom. Analyses conducted on elutriate samples for this project also evaluate the potential for re-suspension of contaminants that may occur during dredging and placement of the material as fill at the proposed confined disposal location. Confined fill disposal at the former Southwest Marine Shipyard is the proposed disposal option; therefore, the sediment quality of this material was compared to available hazardous waste criteria as opposed to biological effects guidelines. Elutriate chemistry was compared to applicable water quality standards for the protection of aquatic life (California Toxics Rule, 2000) due to the potential re-suspension of sediment contaminants that may occur during dredge and fill operations.

4.1 Initial Collection Event

Two vertical horizons were evaluated for bulk sediments during the initial sampling phase: 1) the design depth for the maintenance dredging project plus a 2-ft overdredge allowance (-42 ft MLLW), and 2) 0.5 ft of material beyond the overdredge allowance (approximately -42 to -42.5 ft). This bottom half-foot horizon is called the Z-layer and represents the new sediment surface post dredging. For the initial study, chemical concentrations within the Z-layer were compared to that within the overlying sediments, as well as to available California Title 22 soil/sediment values for materials to be considered classified as hazardous waste.

The results of the chemical analyses conducted on the Berths 167-169 dredged materials showed the sediment samples to contain elevated levels of several chemicals similar to those observed in the 1999 study, in particular PAHs. While the chemical levels were somewhat elevated for several chemicals of concern, none of the concentrations observed approached the California Title 22 criteria levels for hazardous waste determination. These findings, coupled with the fact that the elutriate analyses showed that there were no water soluble chemicals above California Toxics Rule criteria, indicate that placement of the dredged material as fill at the Berths 243-245 CDF is acceptable.

Results from the initial sampling event revealed that sediments collected within the Z-layer appeared to contain levels of contaminants that were within ranges of typical environmental variability (<20 percent different), or were much greater than concentrations measured in the overlying sediments. This was especially true for chemical concentrations of DDTs, and PCBs in both composite areas (Table 7). This finding suggested that the site may have been previously dredged below -42 ft MLLW, or the initially exposed surface layers within the dredge footprint were physically disturbed (i.e. mixed) by propeller wash or other means.

Results from the initial sampling event indicated that the sediment surface post-dredging could potentially contain elevated levels of contaminants compared to what is currently exposed at the project site. To verify these results, additional analyses were conducted on sediments from individual core archives from composite Area B (Table 9). The goal of this round of testing was

to determine if there was one particular Z-layer core sample with higher levels of contaminants than the others that was increasing the average levels of certain constituents compared to the overlying sediments. The results of these individual core analyses confirmed that concentrations of several contaminants within the Z-layer were greater than within the overlying material and that additional testing was needed to characterize the area.

Although sediments from the initial sampling event contained no contaminants above hazardous waste criteria and no soluble contaminants in exceedance of acute (CMC) or chronic (CCC) values for the protection of aquatic life, the Port requested additional analyses be conducted to further clarify the apparent presence of elevated chemical levels in the Z-layer. Consequently, the collection of a supplemental set of sediment core samples within the Berths 167-169 footprint was undertaken at the same five locations as the initial phase. The goal of the supplemental assessment was to determine (to the best extent possible) the location of the native sediment layer within the sediment column at the site, and to chemically evaluate the sediments below the overdredge depth (-42 ft MLLW) to determine the depth at which native sediments would be reached.

4.2 Supplemental Collection Event

Chemical concentrations below the dredge footprint were quantified during a supplemental sampling event conducted in mid-September. During the first sampling event, frequent and unpredictable ship traffic limited the successive collection of samples and required the use of a smaller vibracore and smaller vessel for access. As a consequence, two field events were necessary in June to complete collection. However, during the supplemental event, more favorable scheduling of barges at the project sites provided a window that allowed for all samples to be collected during one mobilization and using both a larger vessel and a larger vibracore. During the supplemental phase of testing, the use of a larger vibracore allowed for penetration well beyond the Z-layer and ensured the collection of samples which adequately represented each 1-foot interval beneath the overdredge depth. The differences in site access and sampling technique between the two collection events may have led, in part, to some of the variability observed in the results from the initial study and the supplemental collection.

The supplemental analyses conducted on samples collected at the same locations, but from depths below what was previously analyzed, revealed that these sediments have much lower concentrations of contaminants than the overlying sediments (Table 10). The results of the supplemental testing showed that while the -42 to -43 ft MLLW subsections contained slightly elevated levels of chemicals (particularly Area B for mercury, PAHs, and organotins), the concentrations rapidly decreased in the -43 to -44 ft MLLW subsections. Moreover, the -44 to -45 ft MLLW subsections were substantially free of any chemical contaminants.

The supplemental test results that showed chemical levels in the 1-ft sediment layer below the overdredge depth (-42 to -43 ft MLLW) to be considerably lower than those measured in the overlying sediments, were in disagreement with the initial study results. The Z-layer samples that were shown during the initial study to have elevated levels of contaminants are summarized in Table 11. For comparison purposes, this table also shows the results of the tests conducted on the 1-ft depth interval below the overdredge depth taken during the supplemental study.

It should be noted that supplemental samples collected were analyzed for one foot of material below the overdredge, while Z-layer samples only represent the first half-foot. This difference may account for a portion of the disparity observed between the two collection phases.

Significant differences in sediment chemistry between samples collected for Z-layer chemical analysis and the A1 and B1 composite layer may indicate the presence of a thin layer of concentrated chemical contaminants at the bottom of the overdredge allowance. Z-layer results from the initial study compared to the first foot of supplemental verification sampling may suggest mixing of the sediment interface between the bottom of the overdredge and the Z-layer during dredging and sediment sampling activities.

In addition to comparisons of core chemical concentrations, core logs and photographs indicate a mixed layer of sediment between -42 and -43 ft MLLW in composite Area B cores and between -41 to -42 ft in composite Area A cores collected during supplemental testing. Core logs in Appendix C2 indicate sediments that are mostly sandy silt or silty sand occur within these disturbed areas, while sediments above this area are generally classified as silt and below this area are generally classified as sand.

Core photos in Appendix B1 also visually help to indicate the presence of these disturbed sediments. For visual reference, Core photographs which display the -40 and -42 ft depth horizons are noted as such within Appendix B1. Cores which may indicate mixing of sediment at the interface between overdredge and clean or native material (i.e. the general area of the initial study Z-layer) are mostly apparent in those which were penetrated to project depth (approximately 42 feet) only (see photos of Cores 2 through 5, attempt 1). Unconsolidated sediments are also clearly visible in two of the more deeply penetrated cores in composite Area B (see photos of Cores 4 and 5, attempt 2). In conclusion, the supplemental study findings show that the sediments immediately below the 2-ft overdredge allowance depth (-42 ft MLLW) do have lower contaminant levels than the overlying sediments that are to be removed during the maintenance dredging project.

4.3 Conclusion

The results of the chemical analyses conducted on the Berths 167-169 dredged materials showed the sediment samples to contain elevated levels of several chemicals similar to those observed in the 1999 study, in particular PAHs. While the chemical levels were somewhat elevated for several chemicals of concern, none of the concentrations observed approached the California Title 22 criteria levels for hazardous waste determination. These findings, coupled with the fact that the elutriate analyses showed that there were no water soluble chemicals above California Toxics Rule criteria, indicate that placement of the dredged material as fill at the Berths 243-245 CDF is acceptable.

Table 11.
Comparison of Chemistry Results for Sediments Collected Between -42 to -43 ft MLLW

			Area A Composite		Area B Composite	
			Supplemental Collection	Initial Collection	Supplemental Collection	Initial Collection
Compound Name	**Type**	**Units**	**A1 (-42 to -43 ft MLLW)**	**Z-layer (-42 to -42.5 MLLW)**	**B1 (-42 to -43 ft MLLW)**	**Z-layer (-42 to -42.5 MLLW)**
Total Detectable DDTs	Chlorinated Pesticides	µg/kg	1.4	237	6.9	96
Total Detectable PAHs	PAH	µg/kg	73	70,190	12,509	42,580
Total Detectable PCBs	PCB Congeners	µg/kg	<1.3	84.2	2.6	369

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APPENDIX A1

CORE LOGS
INITIAL EVENT

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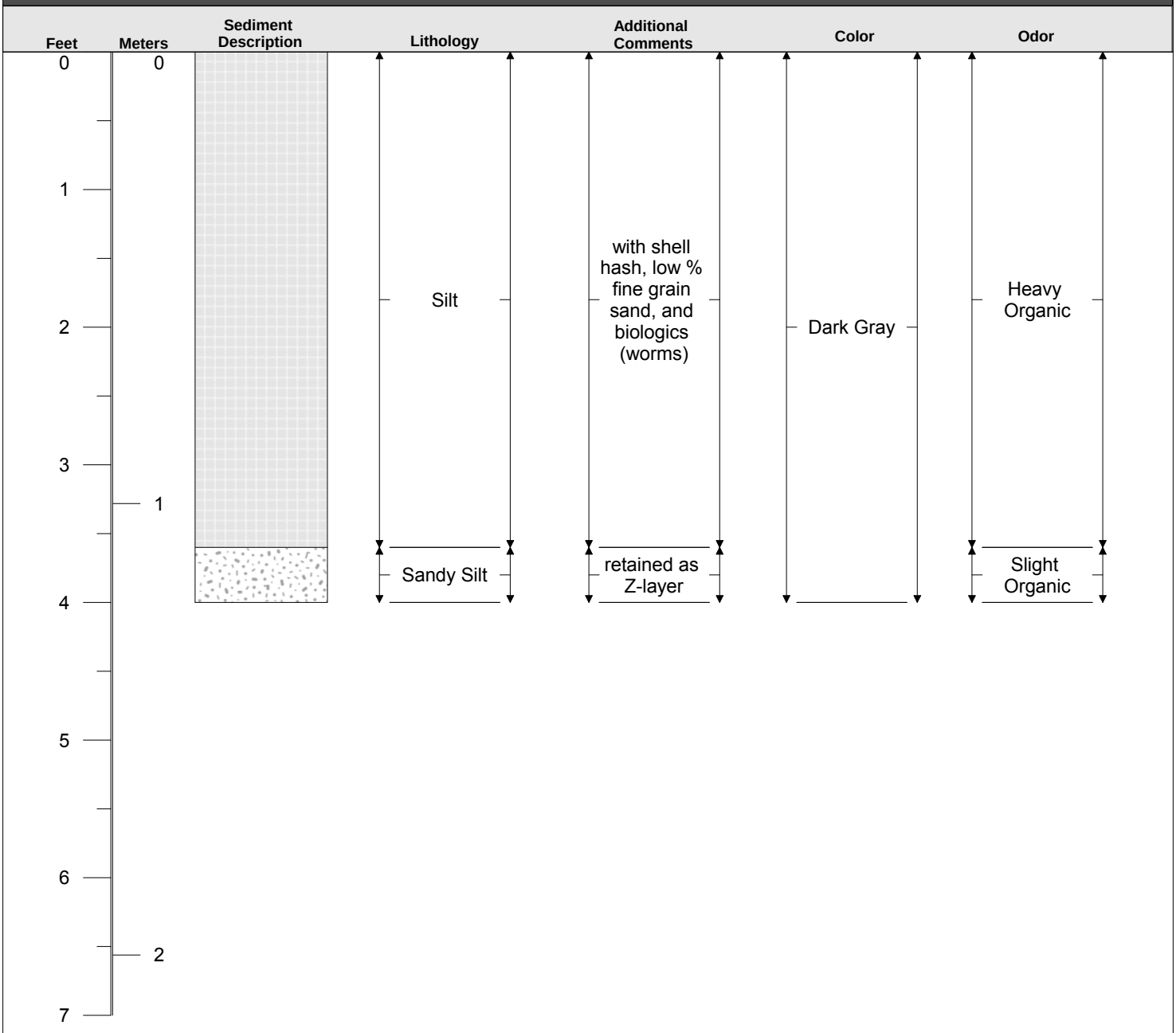
amec
9210 Sky Park Court, Suite 200
San Diego, CA 92123
858-300-4300

Station ID: 1
Project: Berth 167 - 169
Project Manager: Barry Snyder

Date: 6/22/2011
Time: 13:10
Latitude (WGS84): 33° 45.343'
Longitude (WGS84): -118° 16.076'



Water Depth (ft): 41.2
Tide (ft): 2.8
Attempt: 1

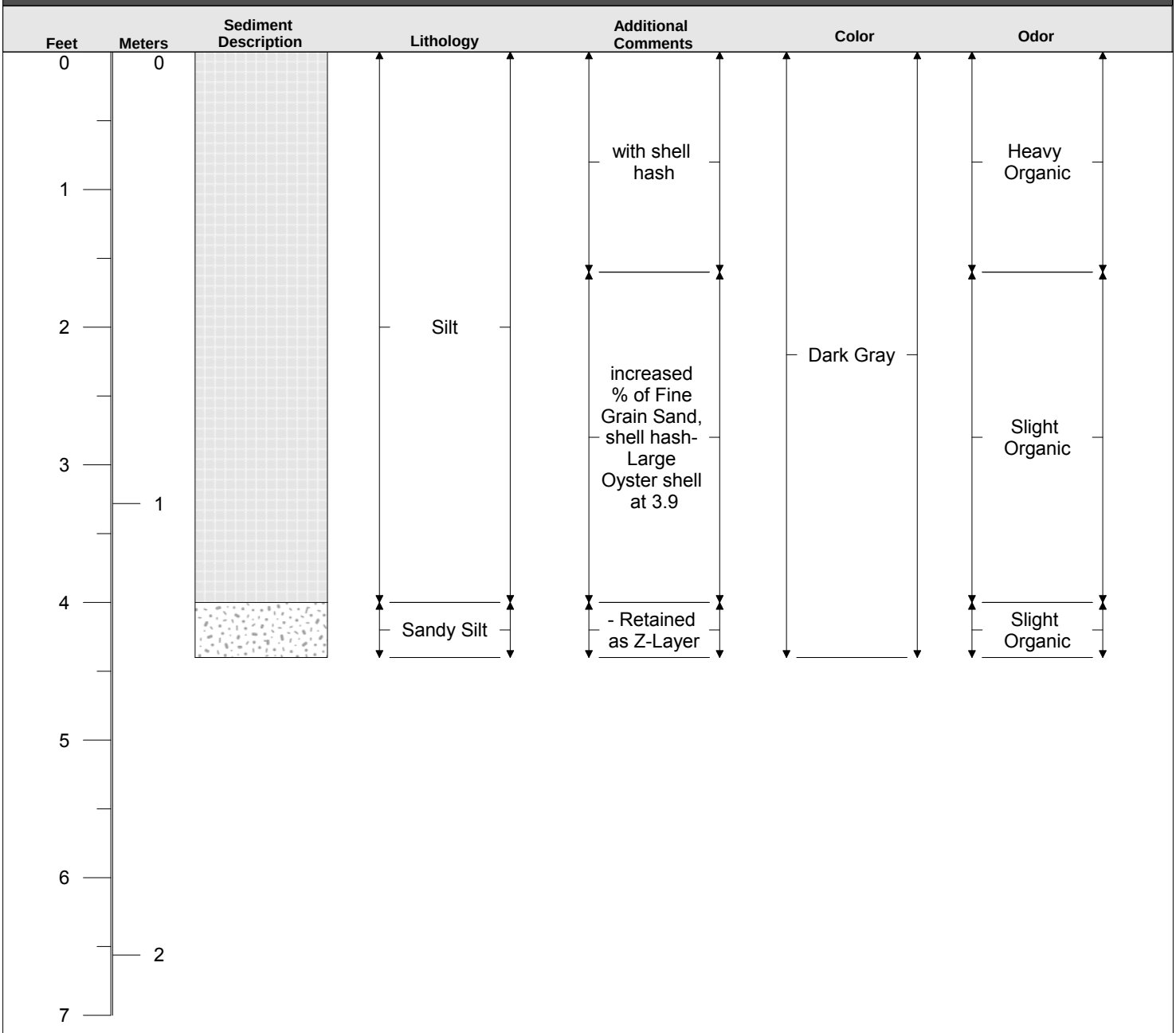
Penetration (ft): 4.1
Analysis Length (ft): 4

Comments:

amec
9210 Sky Park Court, Suite 200
San Diego, CA 92123
858-300-4300

Station ID: 2
Project: Berth 167 - 169
Project Manager: Barry Snyder

Date: 6/22/2011
Time: 14:36
Latitude (WGS84): 33° 45.310'
Longitude (WGS84): -118° 16.073'



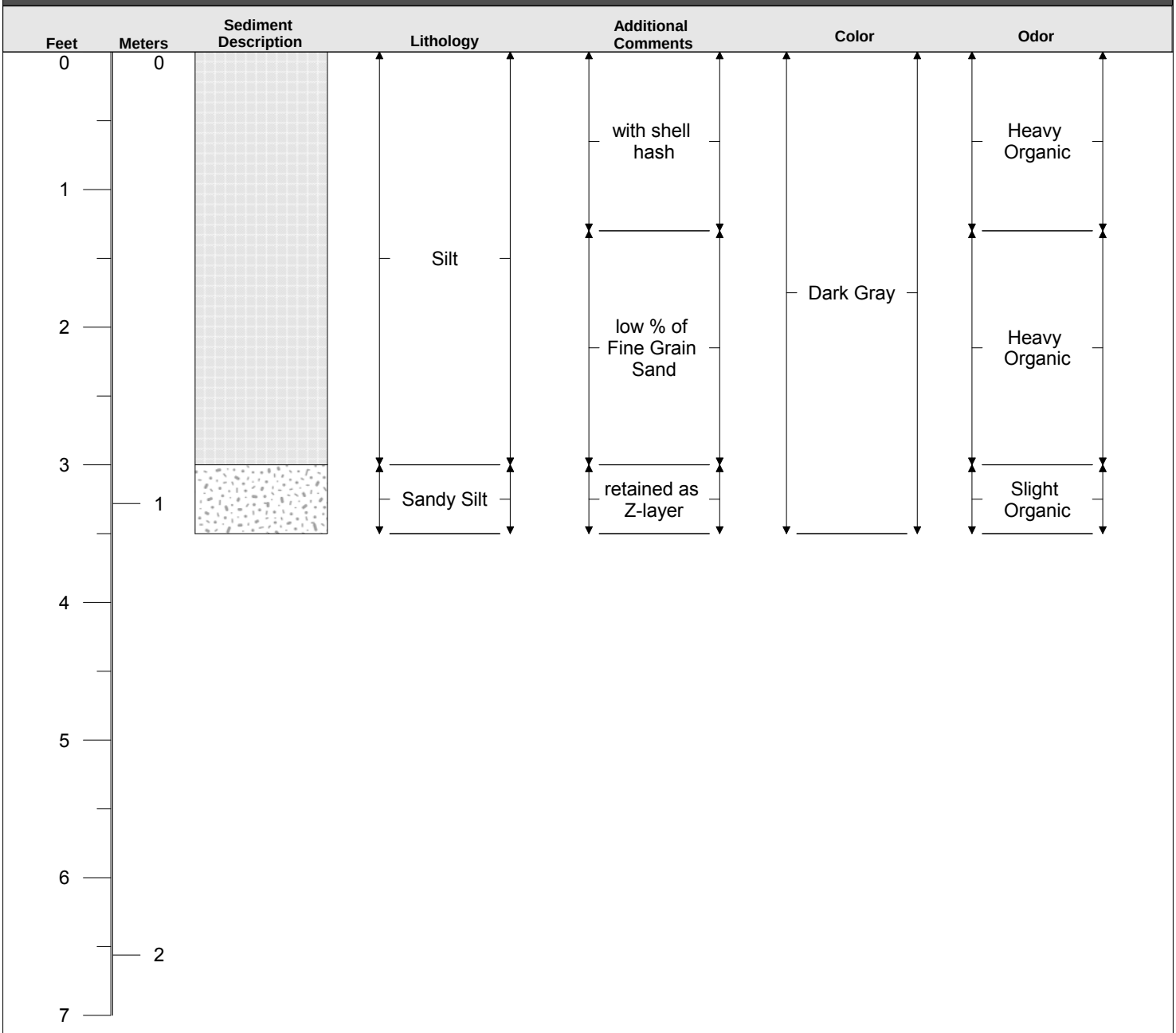
Water Depth (ft): 41.6
Tide (ft): 3.6
Attempt: 1

Penetration (ft): 4.5
Analysis Length (ft): 4.4
Comments: visable sheen throughout length of core

amec
9210 Sky Park Court, Suite 200
San Diego, CA 92123
858-300-4300

Station ID: 3
Project: Berth 167 - 169
Project Manager: Barry Snyder

Date: 6/22/2011
Time: 14:43
Latitude (WGS84): 33° 45.243'
Longitude (WGS84): -118° 16.069'



Water Depth (ft): 41.9
Tide (ft): 3.4
Attempt: 2

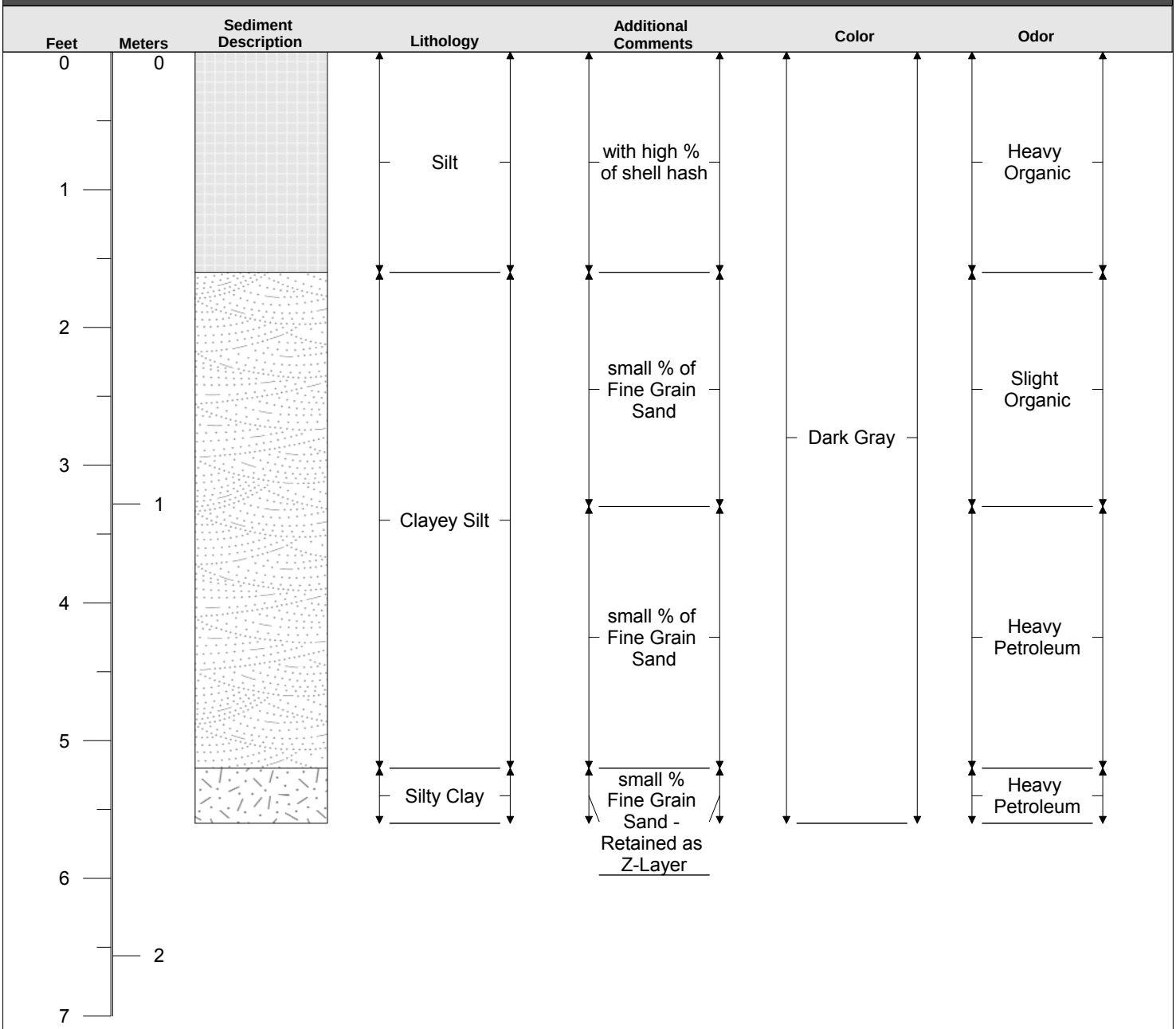
Penetration (ft): 4
Analysis Length (ft): 3.5

Comments:

amec
9210 Sky Park Court, Suite 200
San Diego, CA 92123
858-300-4300

Station ID: 4
Project: Berth 167 - 169
Project Manager: Barry Snyder

Date: 6/7/2011
Time: 15:00
Latitude (WGS84): 33° 45.214'
Longitude (WGS84): -118° 16.066'



Water Depth (ft): 41
Tide (ft): 4.2
Attempt: 2

Penetration (ft): 5.7
Analysis Length (ft): 5.6

Comments:

amec
9210 Sky Park Court, Suite 200
San Diego, CA 92123
858-300-4300

Station ID: 5
Project: Berth 167 - 169
Project Manager: Barry Snyder

Date: 6/7/2011
Time: 16:00
Latitude (WGS84): 33° 45.190'
Longitude (WGS84): -118° 16.061'

Feet	Meters	Sediment Description	Lithology	Additional Comments	Color	Odor
0	0		Sandy Silt	with small % of Shell Hash	Dark Gray	Slight Organic
1				with small % of Clay		None
2				with small % of Clay		None
3	1					
4				with small % of Clay		Heavy Petroleum
5				with small % of Clay-Retained as Z-layer		Heavy Petroleum
6	2					
7						

Water Depth (ft): 39.6
Tide (ft): 4.1
Attempt: 1

Penetration (ft): 7
Analysis Length (ft): 6.4
Comments: visable sheen near bottom portion of the core

APPENDIX A2

CORE LOGS
SUPPLEMENTAL EVENT

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amec
9210 Sky Park Court, Suite 200
San Diego, CA 92123
858-300-4300

Station ID: 1
Project: Berth 167 - 169
Project Manager: Barry Snyder

Date: 9/23/2011
Time: 10:20
Latitude (WGS84): 33° 45.343'
Longitude (WGS84): -118° 16.077'

Feet	Meters	Sediment Description	Lithology	Additional Comments	Color	Odor
0	0		Silt	with shell hash	dark grey	Heavy Petroleum
2						
	1					
4						
6						
	2					
8						
10	3					
12						
	4					
14						

Water Depth (ft): 40.5
Tide (ft): 3.2
Attempt: 1

Penetration (ft): 4.7
Analysis Length (ft): 3

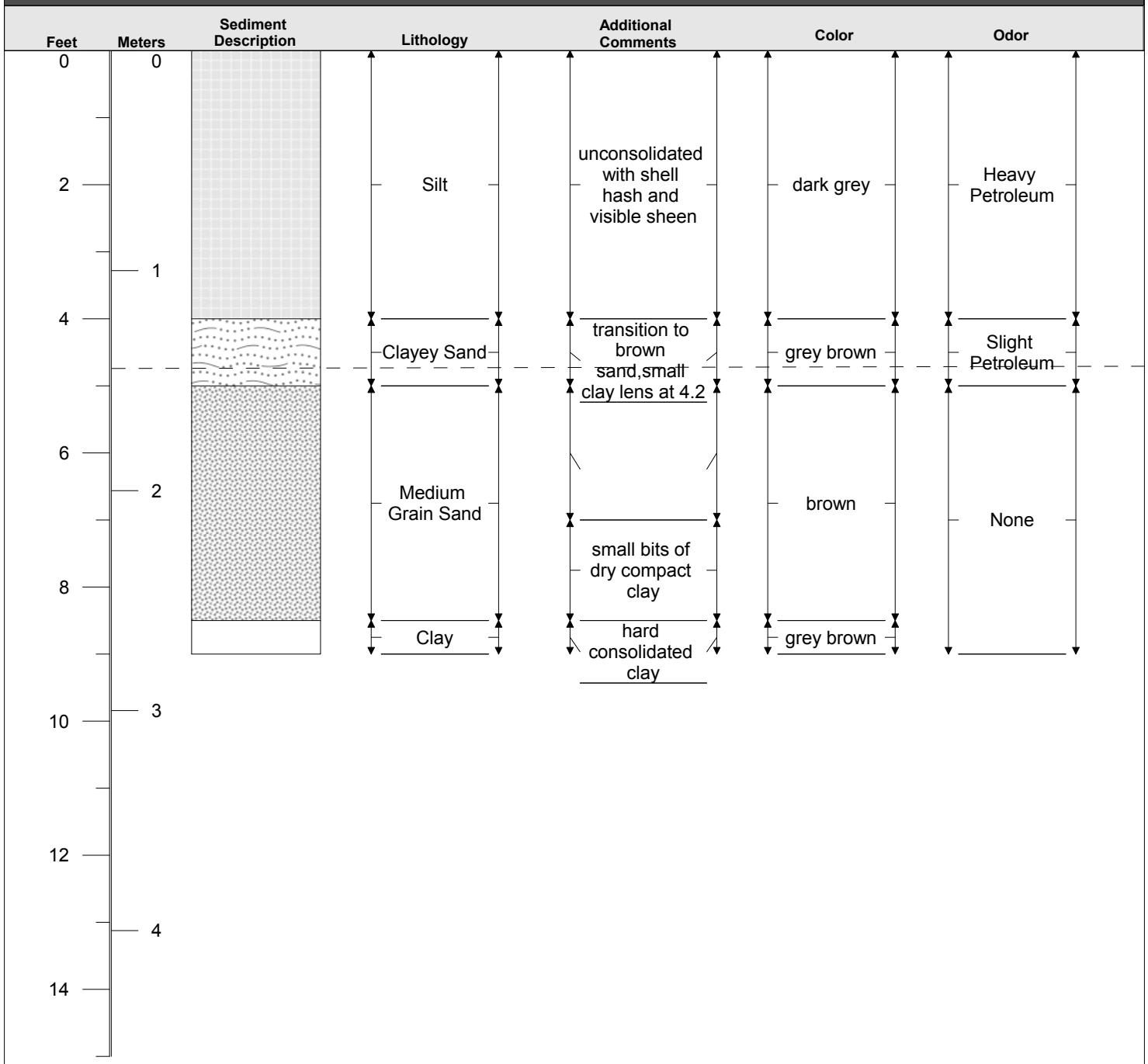
Log Notes:
Dashed line indicates target dredge depth at time of sampling

Comments:
dredged material samples retained as archive

amec
9210 Sky Park Court, Suite 200
San Diego, CA 92123
858-300-4300

Station ID: 1
Project: Berth 167 - 169
Project Manager: Barry Snyder

Date: 9/23/2011
Time: 10:55
Latitude (WGS84): 33° 45.343'
Longitude (WGS84): -118° 16.077'



Water Depth (ft): 40.5
Tide (ft): 3.2
Attempt: 2

Penetration (ft): 10
Analysis Length (ft): 9

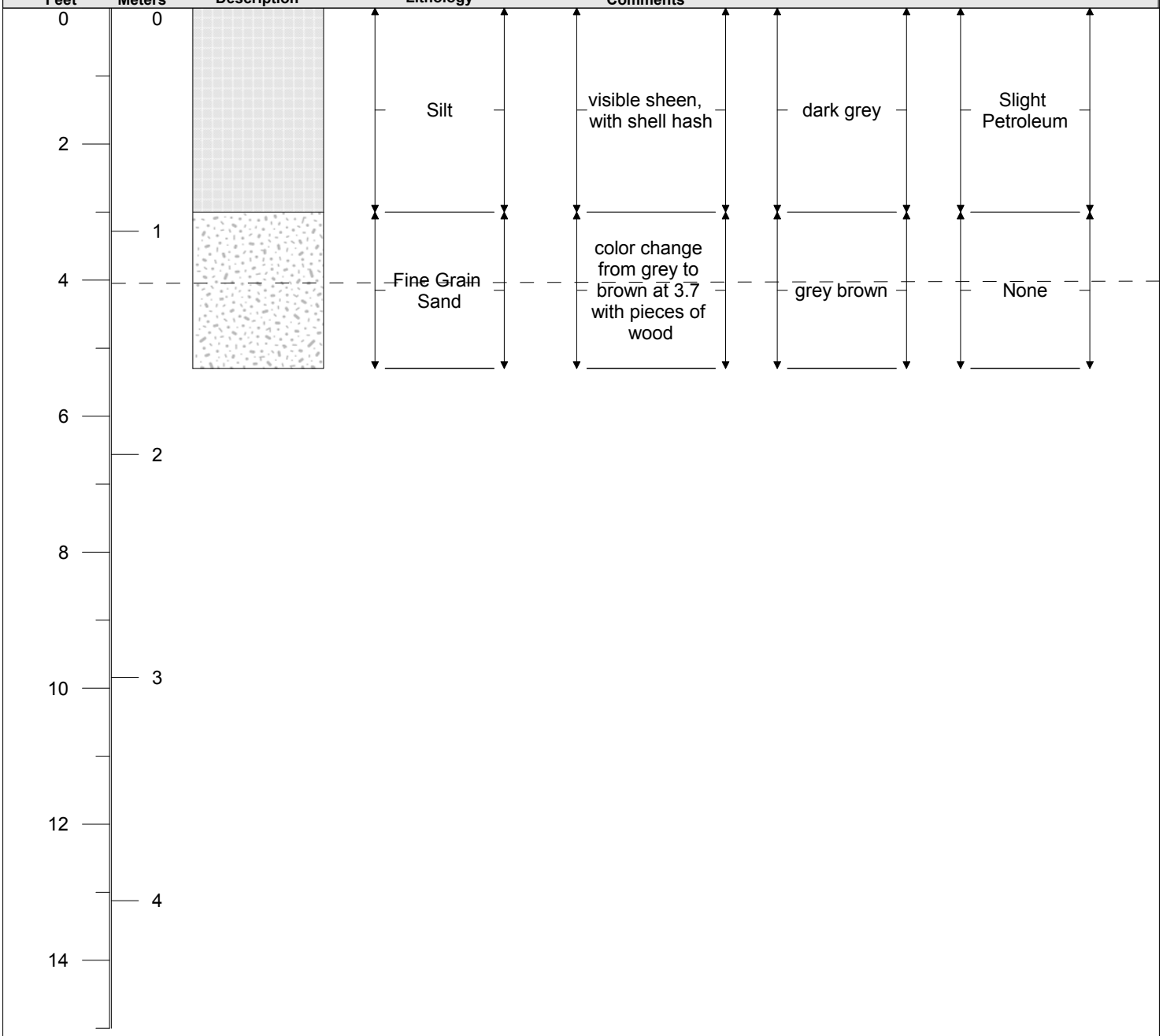
Log Notes:
Dashed line indicates target dredge depth at time of sampling

Comments:
reached native material, clay plug in core catcher

amec
9210 Sky Park Court, Suite 200
San Diego, CA 92123
858-300-4300

Station ID: 2
Project: Berth 167 - 169
Project Manager: Barry Snyder

Date: 9/23/2011
Time: 8:20
Latitude (WGS84): 33° 45.311'
Longitude (WGS84): -118° 16.074'



Water Depth (ft): 42.3
Tide (ft): 4.3
Attempt: 1

Penetration (ft): 5.3
Analysis Length (ft): 4

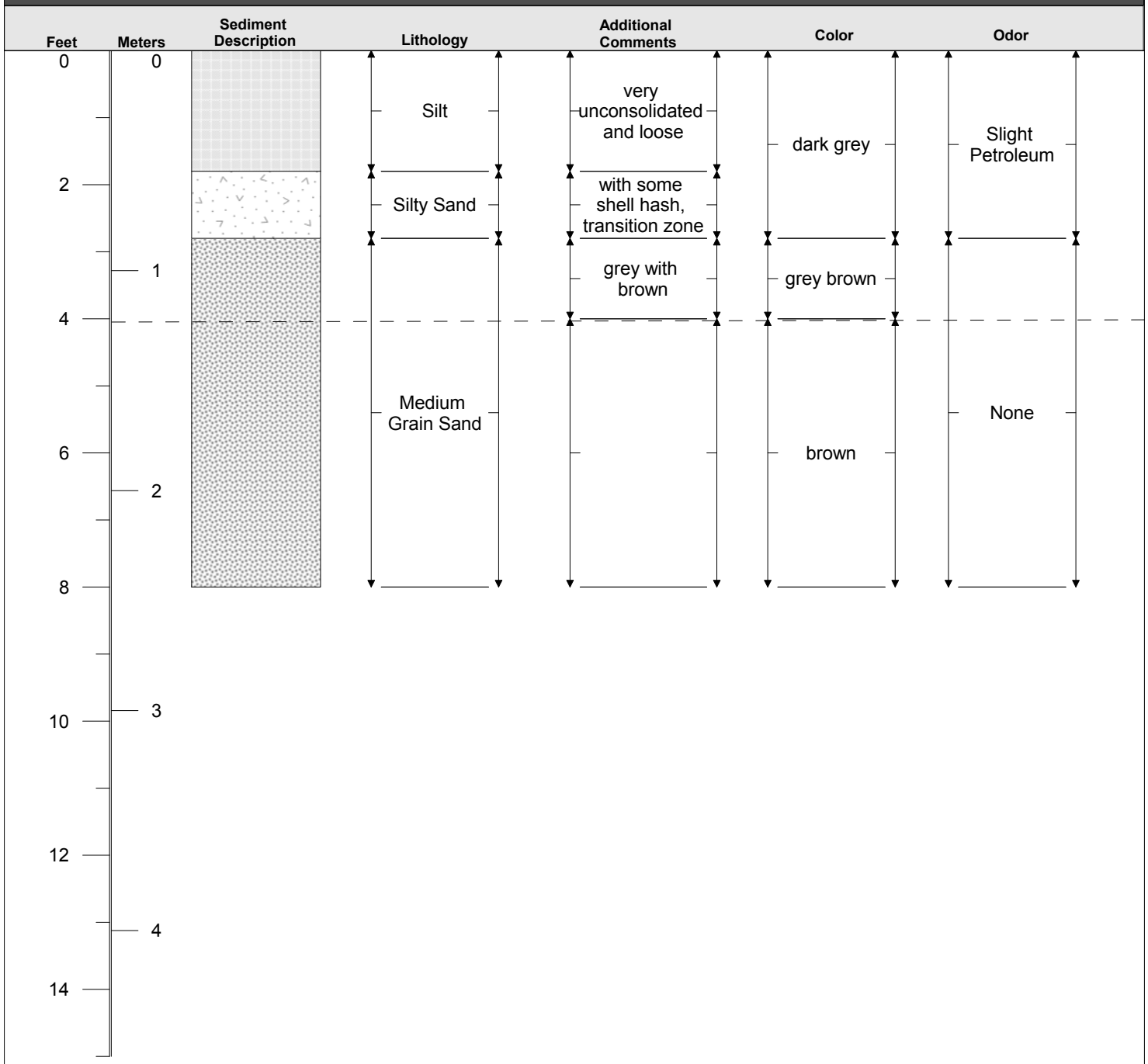
Log Notes:
Dashed line indicates target dredge depth at time of sampling

Comments:
Overdredge material saved for testing as needed

amec
9210 Sky Park Court, Suite 200
San Diego, CA 92123
858-300-4300

Station ID: 2
Project: Berth 167 - 169
Project Manager: Barry Snyder

Date: 9/23/2011
Time: 9:00
Latitude (WGS84): 33° 45.311'
Longitude (WGS84): -118° 16.074'



Water Depth (ft): 42.1
Tide (ft): 4.1
Attempt: 2

Penetration (ft): 9
Analysis Length (ft): 8

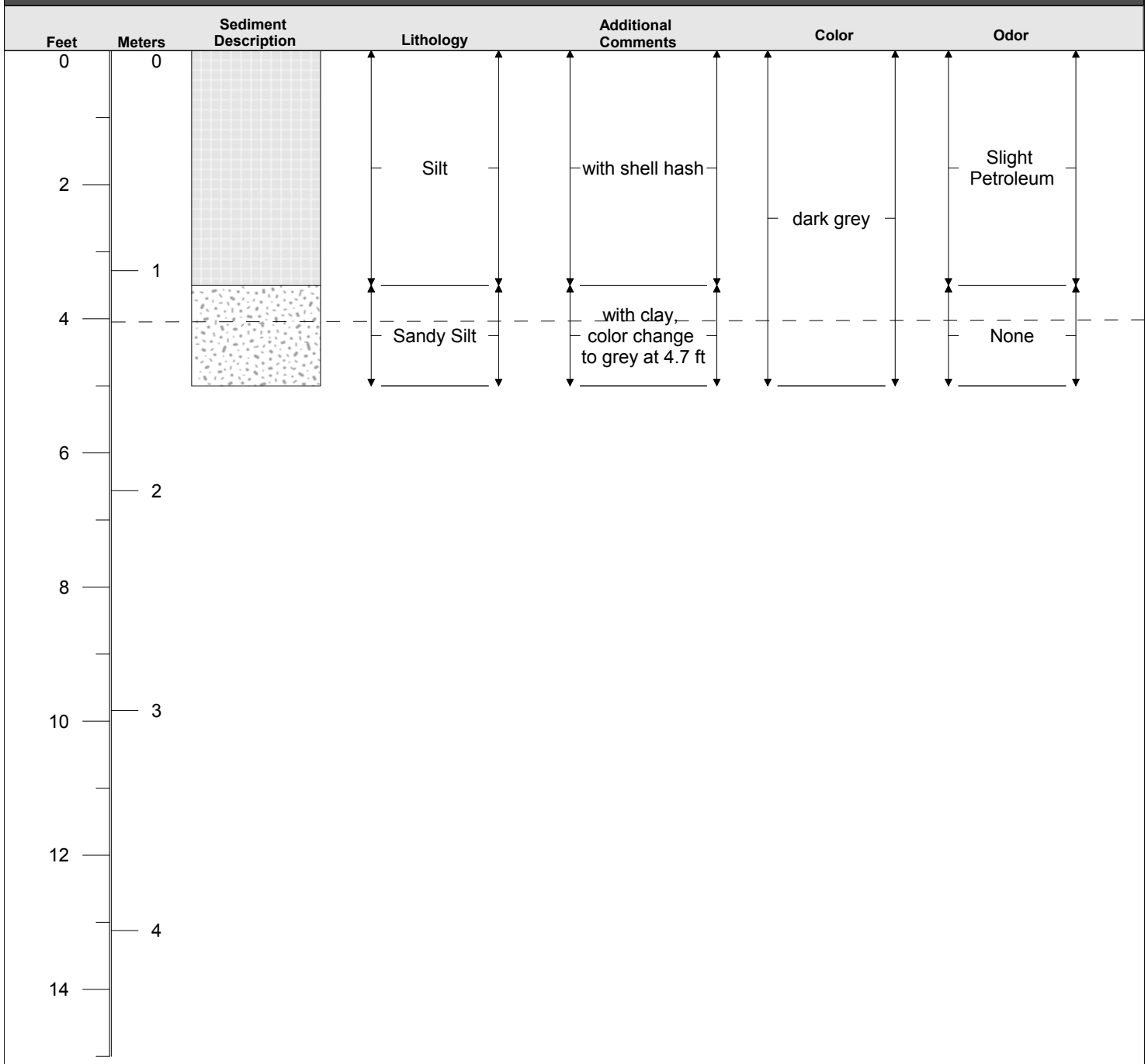
Log Notes:
Dashed line indicates target dredge depth at time of sampling

Comments:
reached native material

amec
9210 Sky Park Court, Suite 200
San Diego, CA 92123
858-300-4300

Station ID: 3
Project: Berth 167 - 169
Project Manager: Barry Snyder

Date: 9/22/2011
Time: 14:37
Latitude (WGS84): 33° 45.243'
Longitude (WGS84): -118° 16.070'



Water Depth (ft): 41.6
Tide (ft): 3.6
Attempt: 1

Penetration (ft): 5
Analysis Length (ft): 4

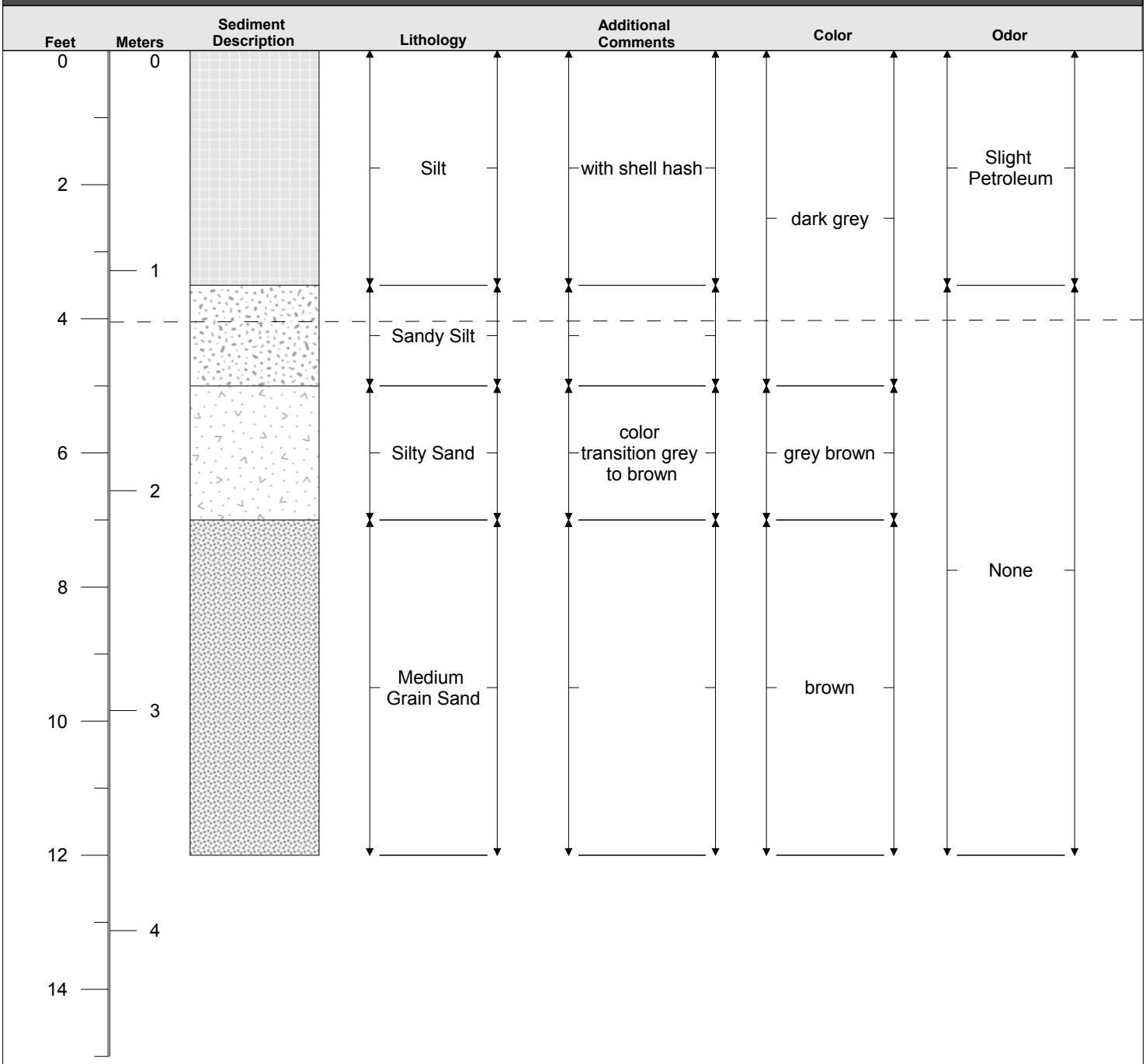
Log Notes:
Dashed line indicates target dredge depth at time of sampling

Comments:
Penetration to1 ft beyond overdredge depth.

amec
9210 Sky Park Court, Suite 200
San Diego, CA 92123
858-300-4300

Station ID: 3
Project: Berth 167 - 169
Project Manager: Barry Snyder

Date: 9/22/2011
Time: 15:11
Latitude (WGS84): 33° 45.243'
Longitude (WGS84): -118° 16.070'



Water Depth (ft): 41.9
Tide (ft): 3.9
Attempt: 2

Penetration (ft): 12
Analysis Length (ft): 12

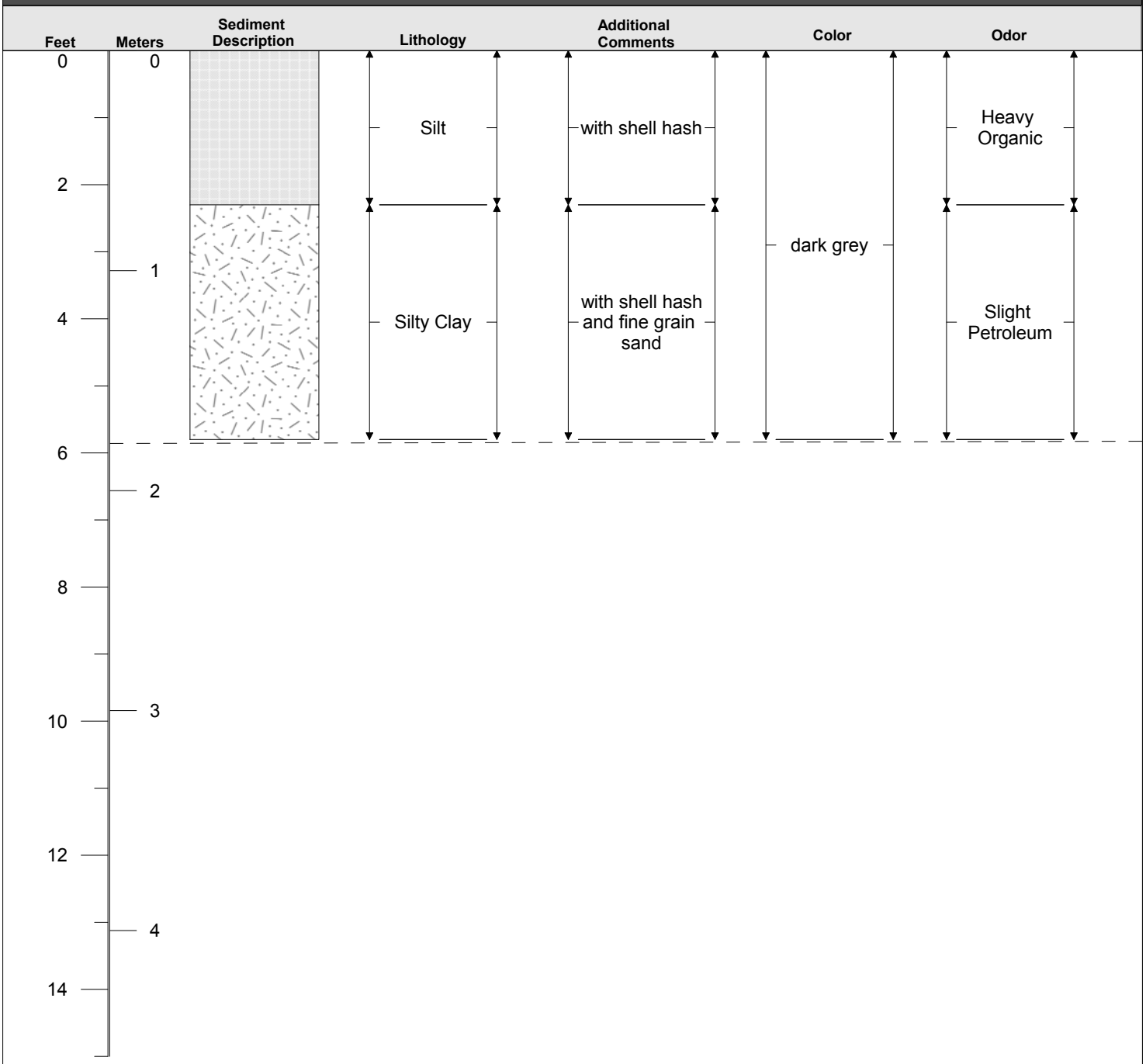
Log Notes:
Dashed line indicates target dredge depth at time of sampling

Comments:
reached native material

amec
9210 Sky Park Court, Suite 200
San Diego, CA 92123
858-300-4300

Station ID: 4
Project: Berth 167 - 169
Project Manager: Barry Snyder

Date: 9/22/2011
Time: 12:11
Latitude (WGS84): 33° 45.215'
Longitude (WGS84): -118° 16.067'



Water Depth (ft): 39
Tide (ft): 2.8
Attempt: 1

Penetration (ft): 5.8
Analysis Length (ft): 5.8

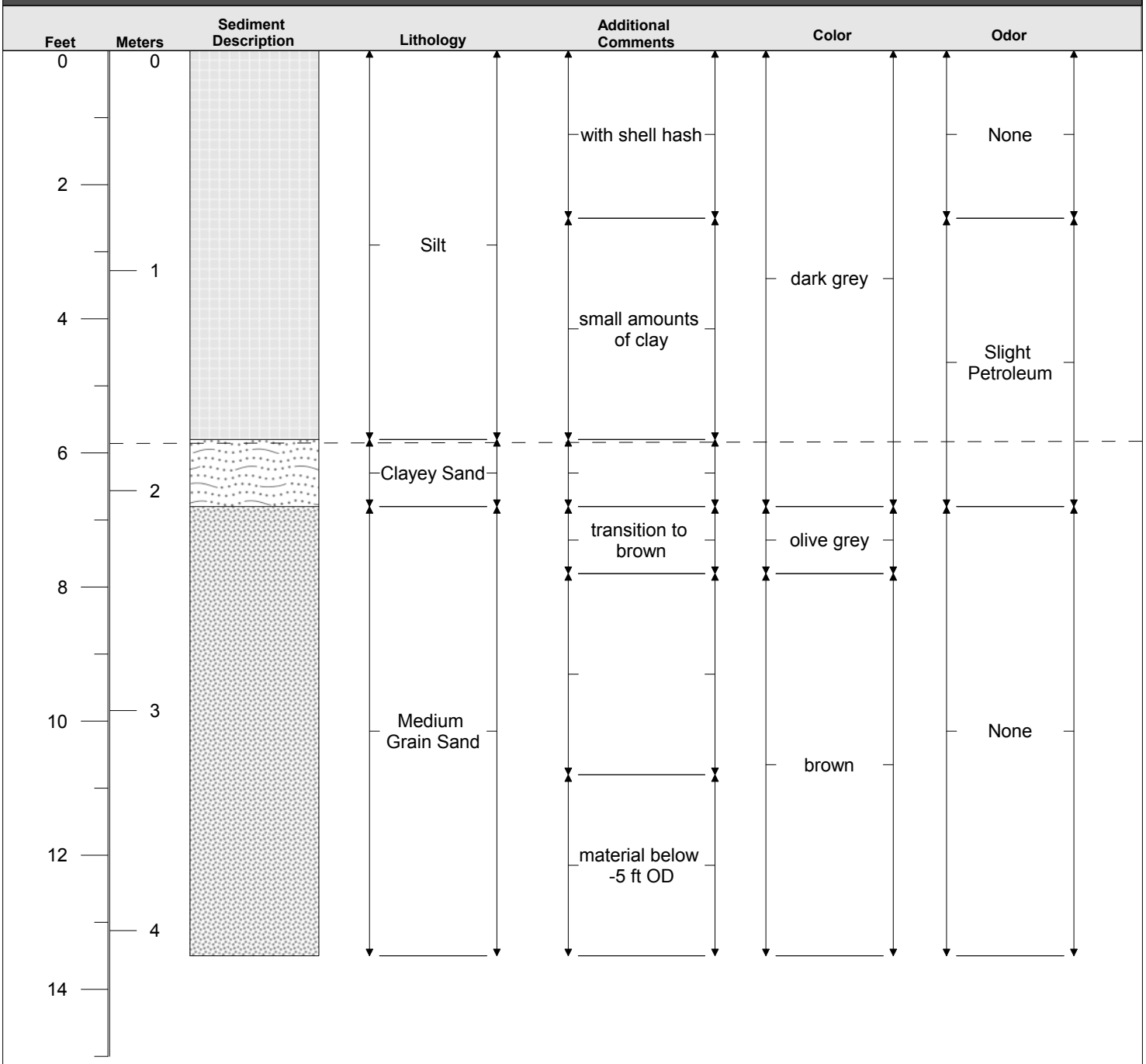
Log Notes:
Dashed line indicates target dredge depth at time of sampling

Comments:
archive of core and overdredge material

amec
9210 Sky Park Court, Suite 200
San Diego, CA 92123
858-300-4300

Station ID: 4
Project: Berth 167 - 169
Project Manager: Barry Snyder

Date: 9/22/2011
Time: 13:15
Latitude (WGS84): 33° 45.215'
Longitude (WGS84): -118° 16.067'



Water Depth (ft): 39.2
Tide (ft): 3
Attempt: 2

Penetration (ft): 15.5
Analysis Length (ft): 13.5

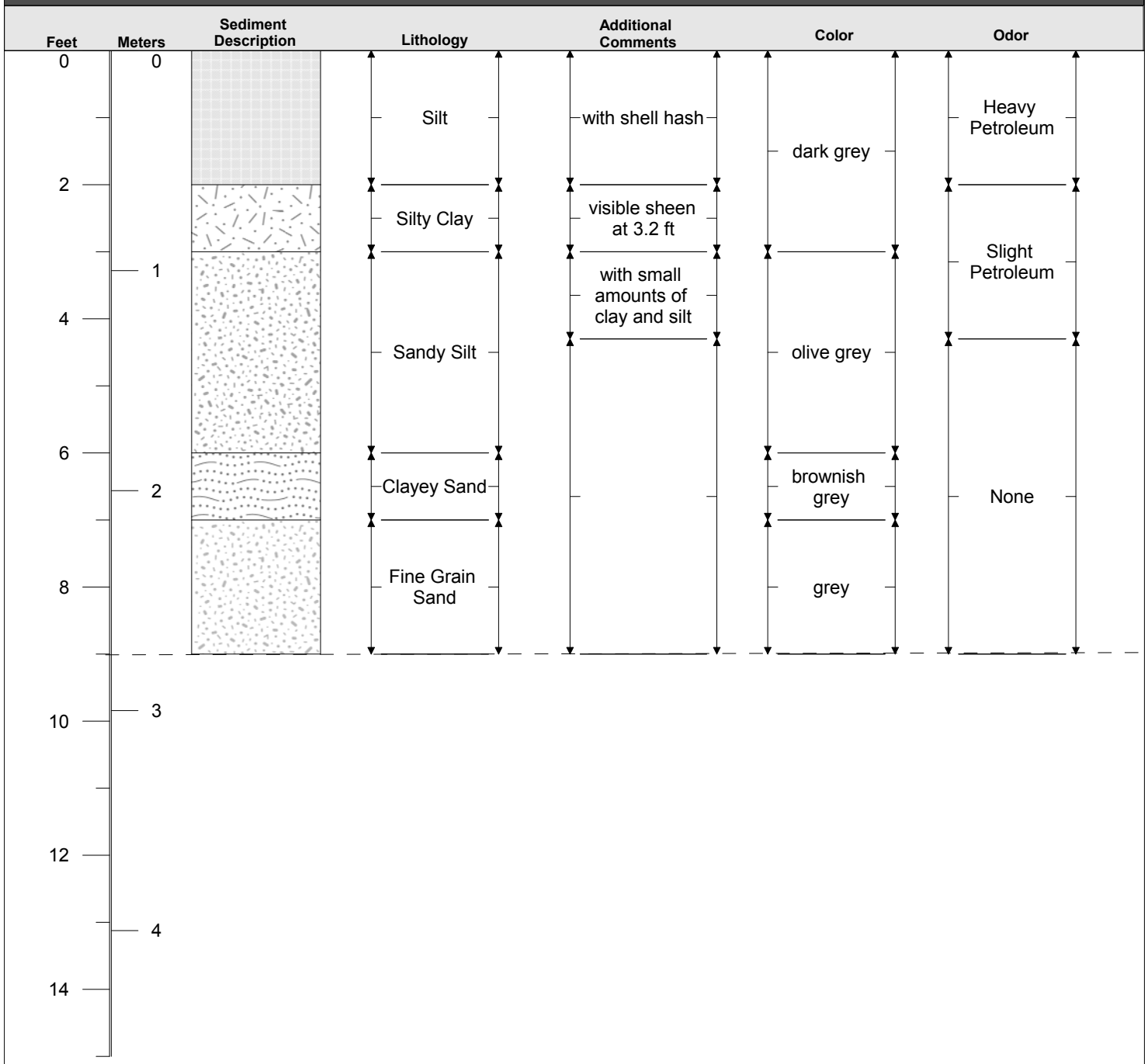
Log Notes:
Dashed line indicates target dredge depth at time of sampling

Comments:
reached native material

amec
9210 Sky Park Court, Suite 200
San Diego, CA 92123
858-300-4300

Station ID: 5
Project: Berth 167 - 169
Project Manager: Barry Snyder

Date: 9/22/2011
Time: 8:35
Latitude (WGS84): 33° 45.190'
Longitude (WGS84): -118° 16.061'



Water Depth (ft): 37
Tide (ft): 3.8
Attempt: 1

Penetration (ft): 9
Analysis Length (ft): 9

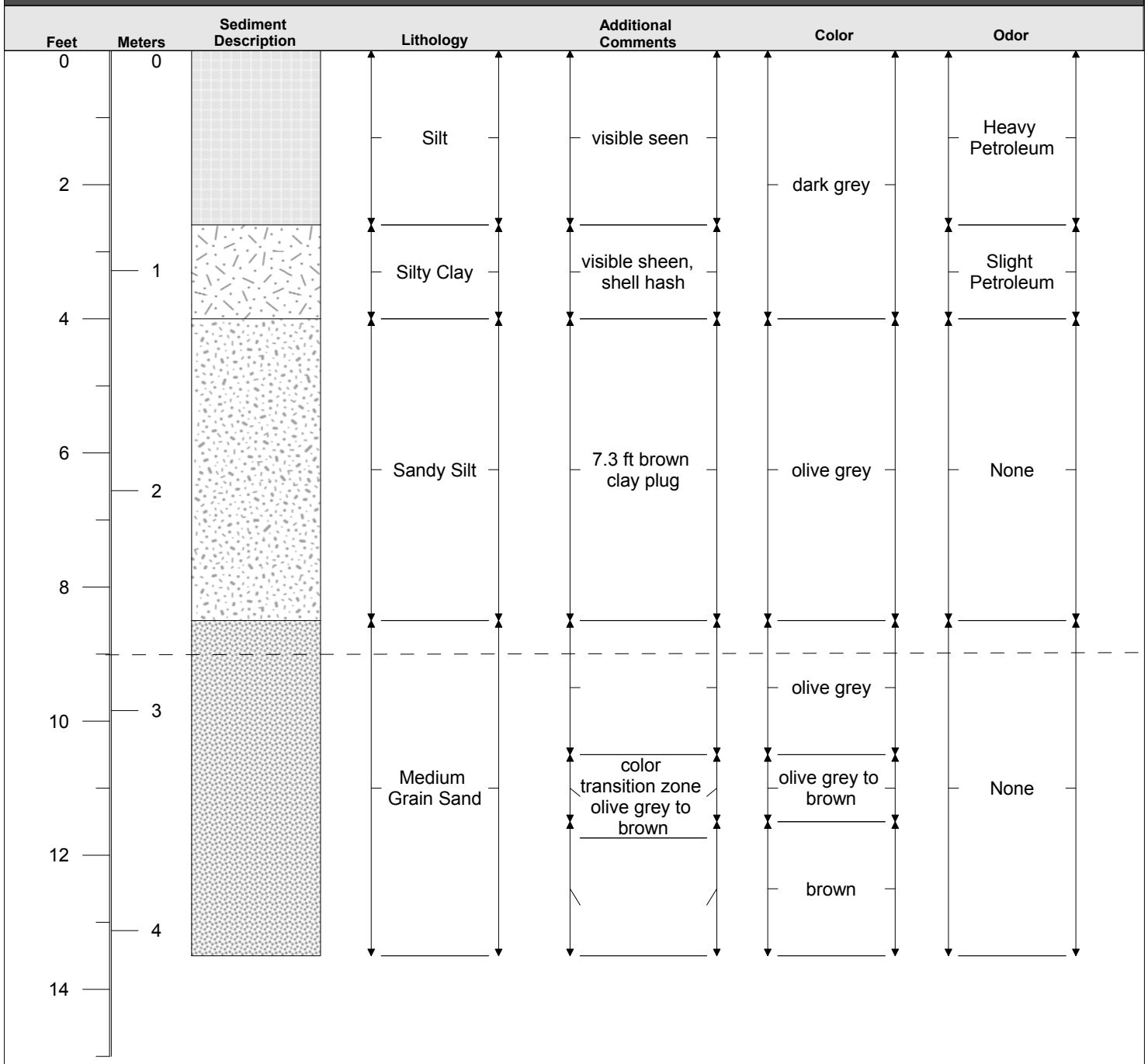
Log Notes:
Dashed line indicates target dredge depth at time of sampling

Comments:
archives taken of separate strata, dredge, and overdredge material

amec
9210 Sky Park Court, Suite 200
San Diego, CA 92123
858-300-4300

Station ID: 5
Project: Berth 167 - 169
Project Manager: Barry Snyder

Date: 9/22/2011
Time: 10:42
Latitude (WGS84): 33° 45.190'
Longitude (WGS84): -118° 16.061'



Water Depth (ft): 36.1
Tide (ft): 2.9
Attempt: 2

Penetration (ft): 15.5
Analysis Length (ft): 13.5

Log Notes:
Dashed line indicates target dredge depth at time of sampling

Comments:
reached native material

APPENDIX B1

CORE PHOTOGRAPHS
INITIAL EVENT

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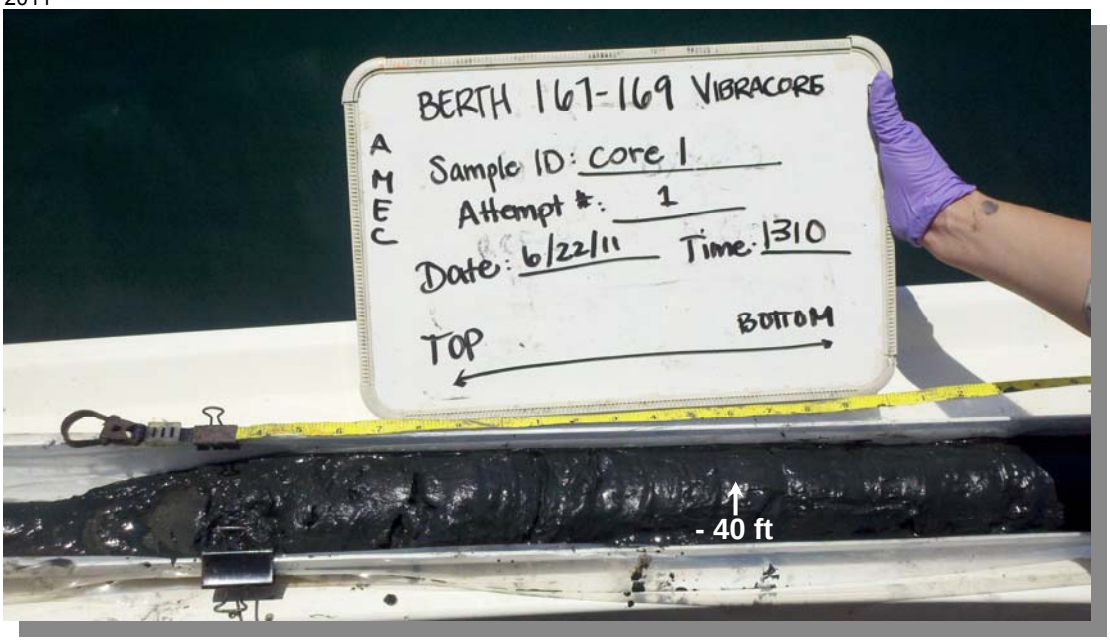
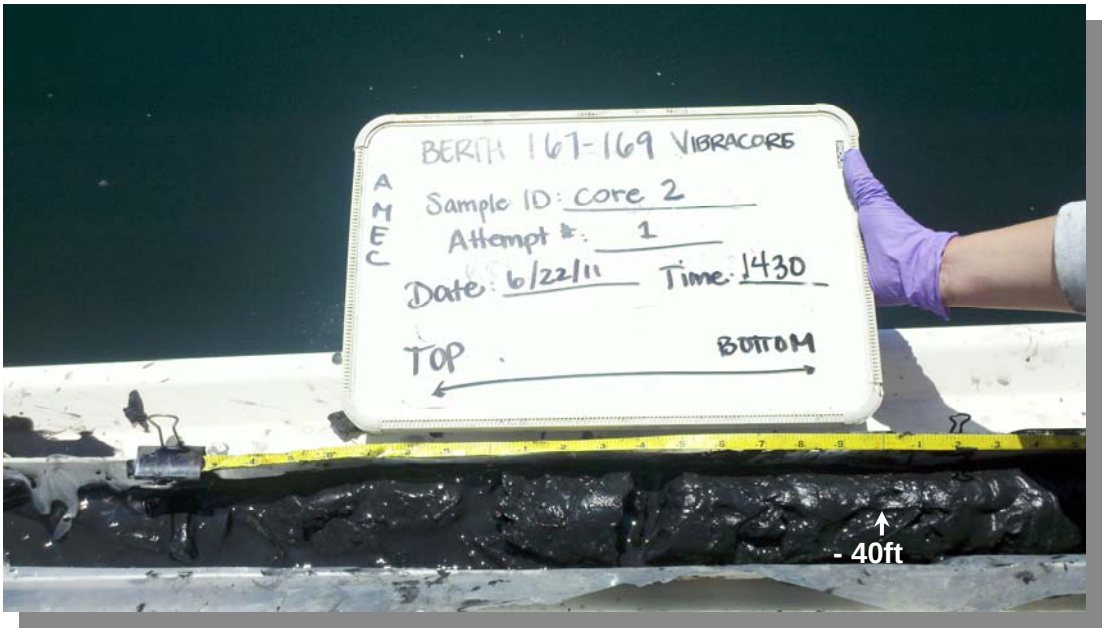
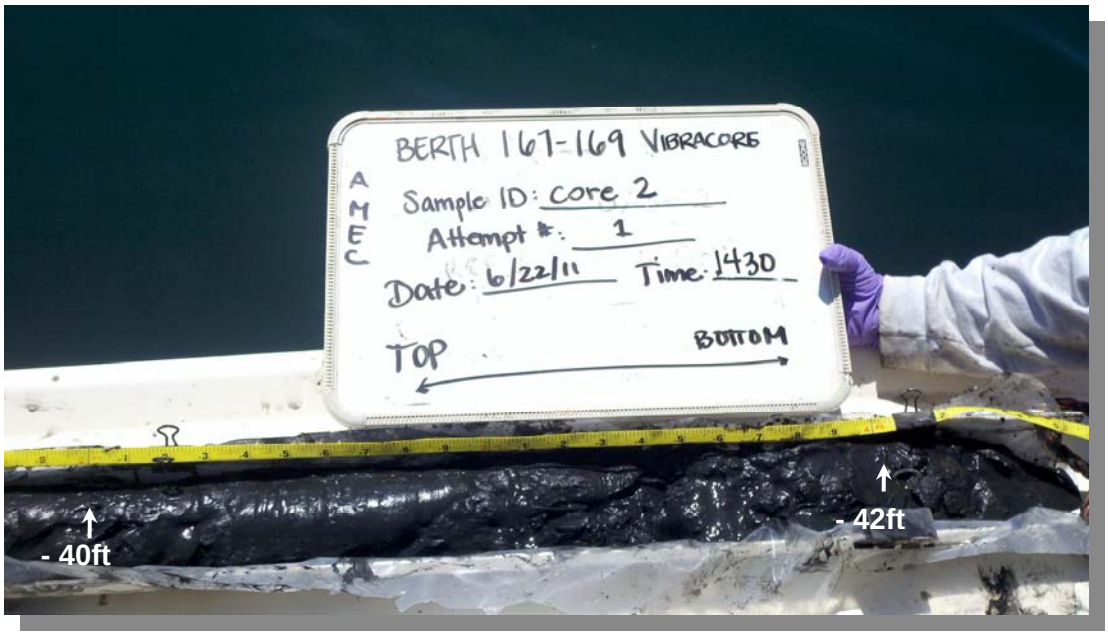


Location: Berth 167-169 Composite Area A
Station #: 1
Attempt #: 1
Depth: -38.4 to -40.9 feet MLLW

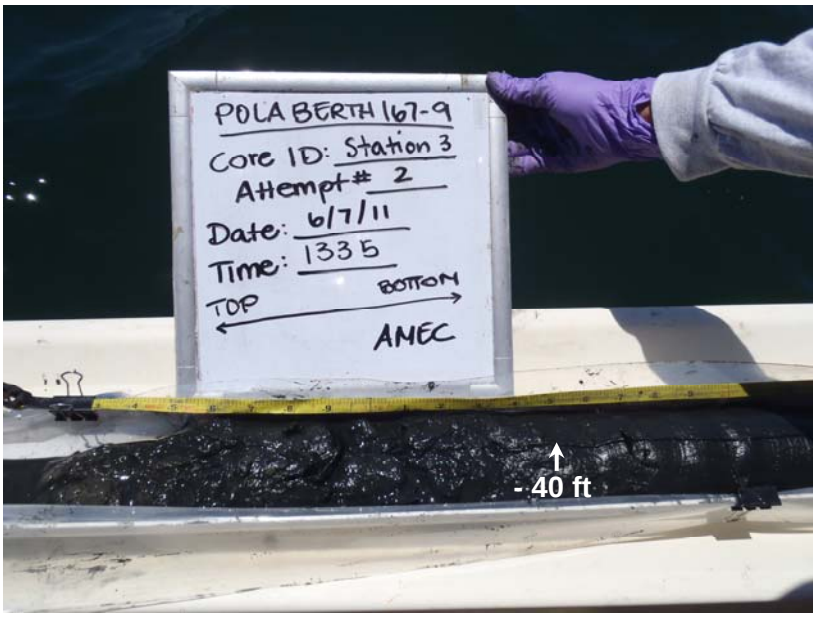
Location: Berth 167-169 Composite Area A
Station #: 1
Attempt #: 1
Depth: -39.9 to -42.5 feet MLLW



Location: Berth 167-169 Composite Area A
Station #: 2
Attempt #: 1
Depth: -38 to -40.5 feet MLLW



Location: Berth 167-169 Composite Area A
Station #: 2
Attempt #: 1
Depth: -39.8 to -42.5 feet MLLW



Location: Berth 167-169 Composite Area B
Station #: 3
Attempt #: 2
Depth: -38.5 to -40.8 feet MLLW

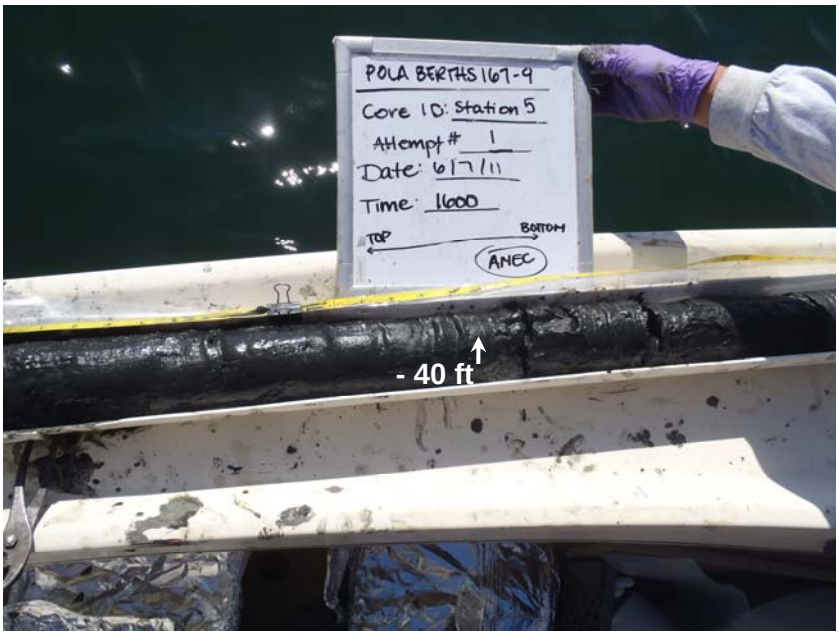
Location: Berth 167-169 Composite Area B
Station #: 3
Attempt #: 2
Depth: -40.3 to -42 feet MLLW

Location: Berth 167-169 Composite Area B
Station #: 4
Attempt #: 2
Depth: -36.8 to -39.5 feet MLLW

Location: Berth 167-169 Composite Area B
Station #: 4
Attempt #: 2
Depth: -37.7 to -40.8 feet MLLW

Location: Berth 167-169 Composite Area B
Station #: 4
Attempt #: 2
Depth: -40.3 to -42.5 feet MLLW

Location: Berth 167-169 Composite Area B
Station #: 5
Attempt #: 1
Depth: -35.5 to -38.1 feet MLLW



Location: Berth 167-169 Composite Area B
Station #: 5
Attempt #: 1
Depth: -38.5 to -41.5 feet MLLW

Location: Berth 167-169 Composite Area B
Station #: 5
Attempt #: 1
Depth: -40.4 to -42 feet MLLW

APPENDIX B2

CORE PHOTOGRAPHS
SUPPLEMENTAL EVENT

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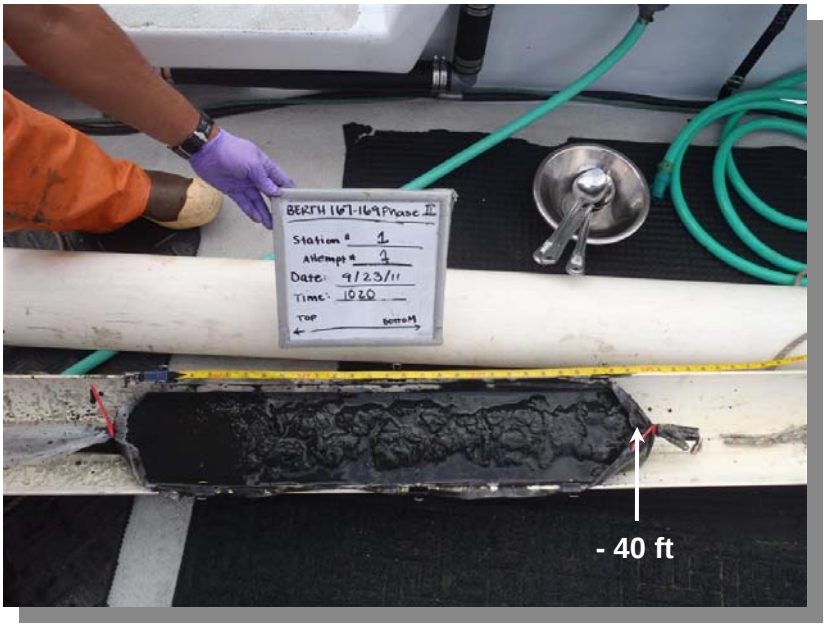
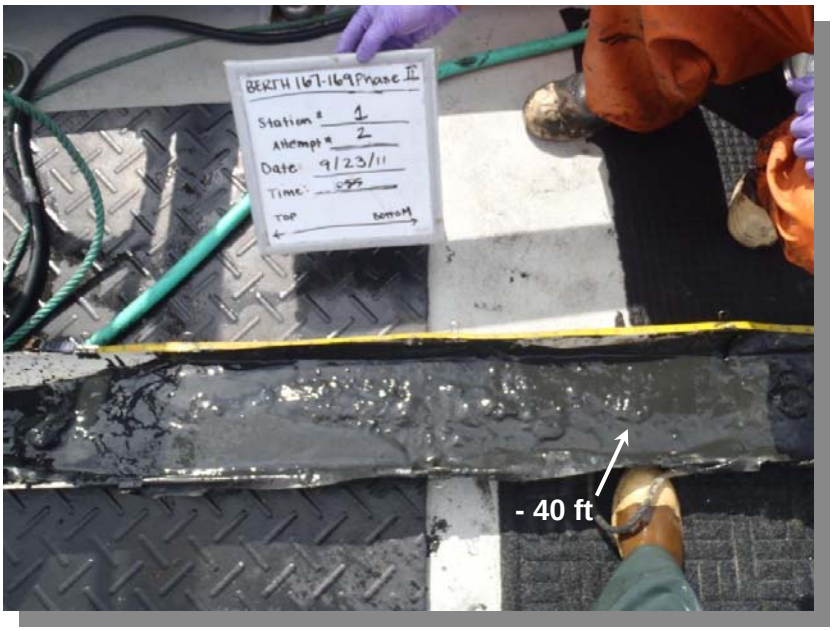
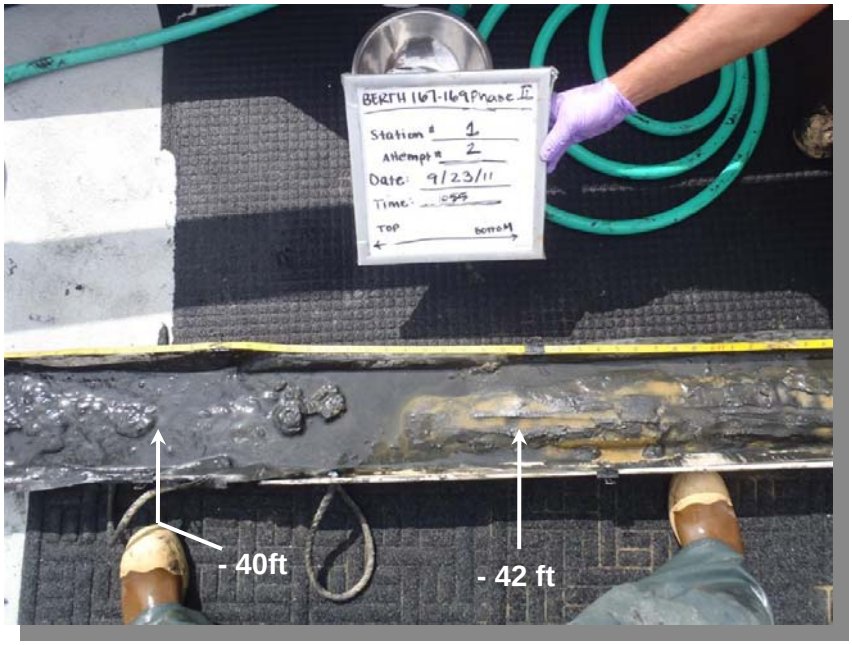


Location: Berth 167-169 Composite Area A
Station #: 1
Attempt #: 1
Depth: -37.3 to -40.3 feet MLLW

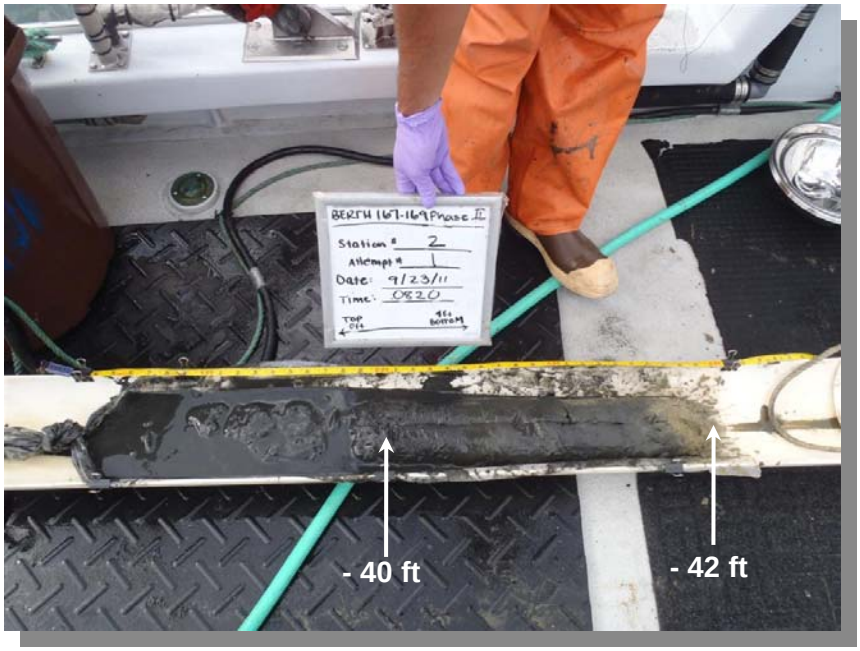


Location: Berth 167-169 Composite Area A
Station #: 1
Attempt #: 2
Depth: -37.3 to -40.3 feet MLLW



Location: Berth 167-169 Composite Area A
Station #: 1
Attempt #: 2
Depth: -40.3 to -43.3 feet MLLW

Location: Berth 167-169 Composite Area A
Station #: 1
Attempt #: 2
Depth: -43.3 to -46.3 feet MLLW



Location: Berth 167-169 Composite Area A
Station #: 2
Attempt #: 1
Depth: -38 to -42 feet MLLW

Location: Berth 167-169 Composite Area A
Station #: 2
Attempt #: 2
Depth: -38 to -41 feet MLLW

Location: Berth 167-169 Composite Area A
Station #: 2
Attempt #: 2
Depth: -41 to -44 feet MLLW

Location: Berth 167-169 Composite Area B
Station #: 3
Attempt #: 1
Depth: -38 to -42 feet MLLW

Location: Berth 167-169 Composite Area B
Station #: 3
Attempt #: 1
Depth: -40 to -43 feet MLLW

Location: Berth 167-169 Composite Area B
Station #: 3
Attempt #: 2
Depth: -38 to -41.5 feet MLLW

Location: Berth 167-169 Composite Area B
Station #: 3
Attempt #: 2
Depth: -41.5 to -45 feet MLLW

Location: Berth 167-169 Composite Area B
Station #: 3
Attempt #: 2
Depth: -45 to -48 feet MLLW

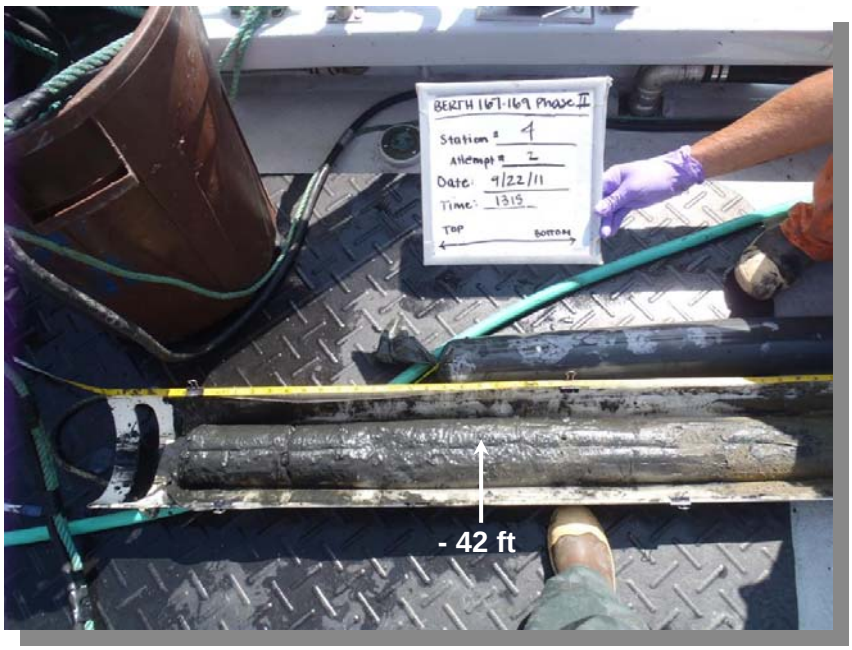
Location: Berth 167-169 Composite Area B
Station #: 3
Attempt #: 2
Depth: -47 to -50 feet MLLW

Location: Berth 167-169 Composite Area B
Station #: 4
Attempt #: 1
Depth: -36.2 to -39.2 feet MLLW

Location: Berth 167-169 Composite Area B
Station #: 4
Attempt #: 1
Depth: -39.2 to -42.2 feet MLLW

Location: Berth 167-169 Composite Area B
Station #: 4
Attempt #: 2
Depth: -36.2 to -38.2 feet MLLW

Location: Berth 167-169 Composite Area B
Station #: 4
Attempt #: 2
Depth: -36.7 to -40.2 feet MLLW

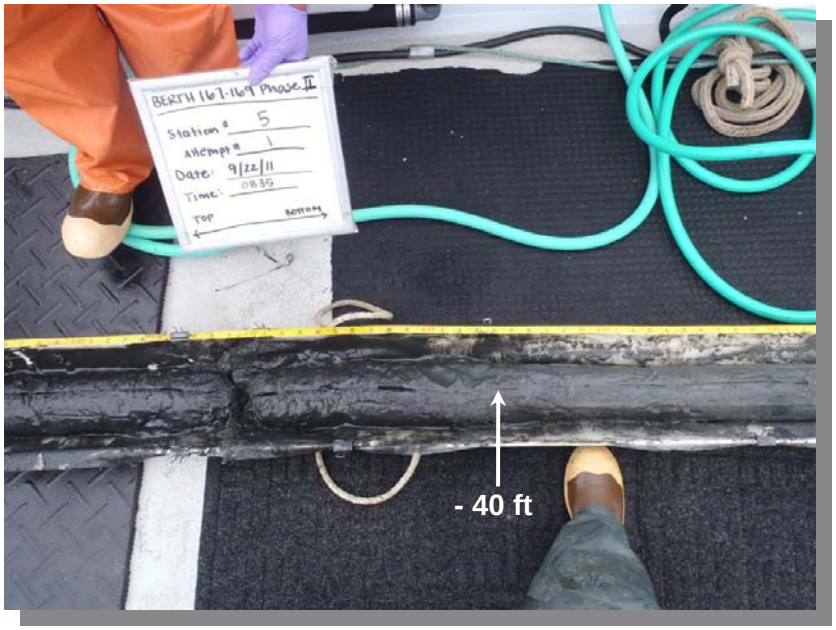


Location: Berth 167-169 Composite Area B
Station #: 4
Attempt #: 2
Depth: -40.2 to -43.2 feet MLLW

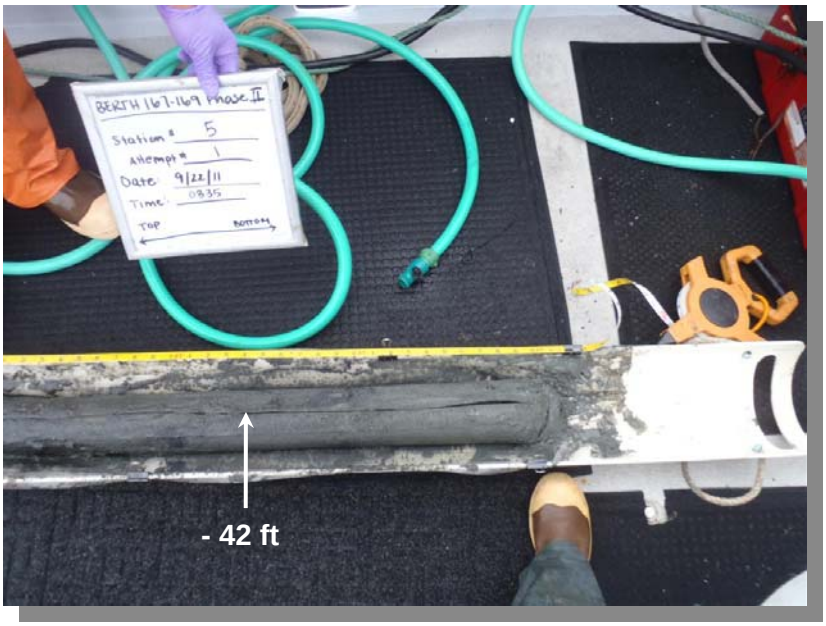
Location: Berth 167-169 Composite Area B
Station #: 4
Attempt #: 2
Depth: -43.2 to -47.2 feet MLLW

Location: Berth 167-169 Composite Area B
Station #: 4
Attempt #: 2
Depth: -47.2 to -49.2 feet MLLW

Location: Berth 167-169 Composite Area B
Station #: 5
Attempt #: 1
Depth: -34.6 to -37.6 feet MLLW

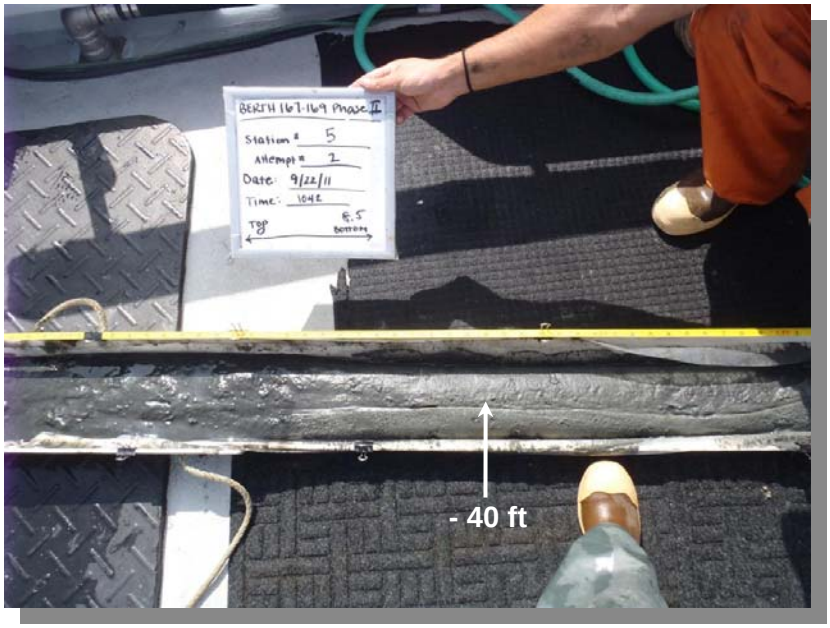


Location: Berth 167-169 Composite Area B
Station #: 5
Attempt #: 1
Depth: -37.6 to -40.6 feet MLLW



Location: Berth 167-169 Composite Area B
Station #: 5
Attempt #: 1
Depth: -40.6 to -43.6 feet MLLW

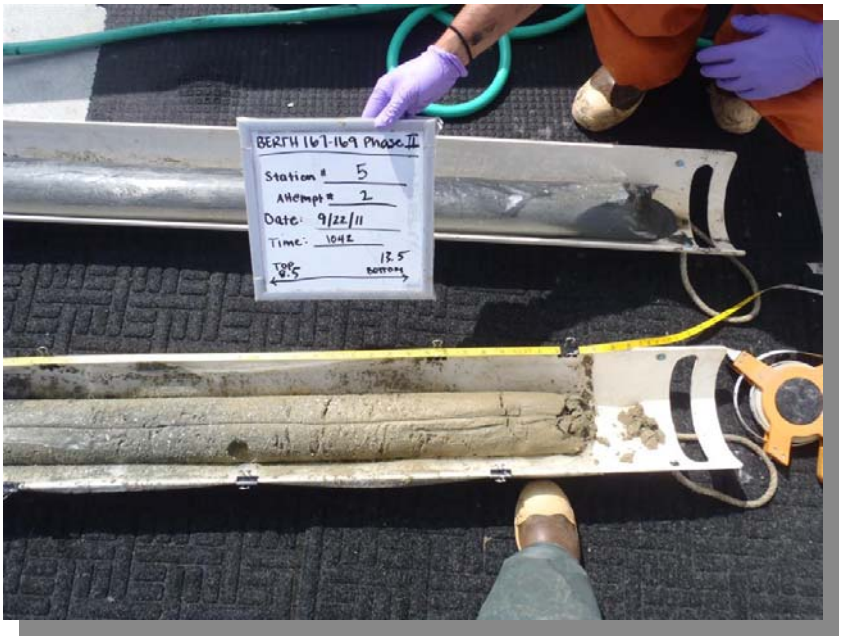
Location: Berth 167-169 Composite Area B
Station #: 5
Attempt #: 2
Depth: -34.6 to -37.6 feet MLLW



Location: Berth 167-169
Station #: 5
Attempt #: 2
Depth: -37.6 to -40.6 feet MLLW

Location: Berth 167-169
Station #: 5
Attempt #: 2
Depth: -39.7 to -42.6 feet MLLW

Location: Berth 167-169
Station #:5
Attempt #: 2
Depth: -42.6 to 47 feet MLLW



Location: Berth 167-169
Station #:5
Attempt #: 2
Depth: -45.6 to -48.1 feet MLLW

APPENDIX C1
ANALYTICAL CHEMISTRY REPORTS
INITIAL EVENT

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Composite Area A Sediment Chemistry

Calscience
Environmental & Marine Chemistry Laboratories

CALSCIENCE

WORK ORDER NUMBER: 11-06-1553

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: AMEC Earth & Environmental

Client Project Name: 1015101913 / POLA Berths 167-169

Attention: Barry Snyder
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Approved for release on 07/8/2011 by:
Danielle Gonsman
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety. Note that the Chain-of-Custody Record and Sample Receipt Form are integral parts of this report.

Calscience
Environmental & Marine Chemistry Laboratories

Contents

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Work Order Number: 11-06-1553

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Calscience Environmental Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 11-06-1553
Project Name: 1015101913 / POLA Berths 167-169

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the sediment samples.

Sample Condition on Receipt

One seawater sample and three sediment samples (housed in 16-oz glass containers) were received for this project on June 23, 2011. The samples were transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures. The temperature of the samples upon receipt at the laboratory was 5.5°C. All samples were given laboratory identification numbers, logged into the Laboratory Information Management System (LIMS) and then stored under refrigeration pending sediment chemistry testing and elutriate preparation in accordance with the project SAP.

The SET was prepared using the Elutriate-Sed and Site Water samples, and the results are presented within Calscience Work Order 11-06-1971.

Tests Performed

Dissolved Sulfide by EPA 376.2M
Total Sulfide by EPA 376.2M
Oil and Grease by EPA 413.2M
TRPH by EPA 418.1M
Trace Metals by EPA 6020/7471A
Chlorinated Pesticides by EPA 8081A
PCB Congeners by EPA 8270C SIM
PAHs, Phenols and Phthalates by EPA 8270C SIM
Organotins by Krone et al.
TOC by EPA 9060A
Total Solids by SM 2540B
Ammonia by SM 4500-NH3 B/C (M)

One sample was subcontracted to Core Laboratories in Bakersfield, CA, for Grain Size (by ASTM D422/D4464). The report follows the Calscience results.

Data Summary

The sample results and reporting limits were dry weight corrected.

All samples were homogenized prior to preparation and analysis.

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Holding times

All holding times were met.

Calibration

Frequency and control criteria for initial and continuing calibration verifications were met.

Reporting Limits

All Method Detection Limits were met. The Organotins results were evaluated to the MDL, and where applicable, "J" flags were reported.

Blanks

Concentrations of target analytes in the method blank were found to be below reporting limits for all testing.

Laboratory Control Samples

A Laboratory Control Sample (LCS) analysis was performed at the required frequencies, and unless otherwise noted, all parameters were within the established control limits.

Matrix Spikes

Matrix spike analyses were performed for each applicable analysis on AMEC project sample Area 1 Comp-T. All parameters were within the established control limits with the following exceptions.

The Zinc matrix spike duplicate recovery was above the established control limit. However, since the Zinc PDS/PDSD and LCS/LCSD recoveries were in control, the data are released with no further action.

The MS, MSD and/or RPDs for Tributyltin and Tetrabutyltin were outside the established control limits due to the elevated concentrations of Organotins as well as matrix interference. However, the results have been flagged with the appropriate qualifiers and are released with no further action since the associated LCS/LCSD recoveries and RPDs were in control.

The MS, MSD and/or RPD values for several Chlorinated Pesticides (by EPA 8081A) fell outside their established control limits due to matrix interference. Yet, since the LCS, LCSD and RPDs were within the control limits, the results are released with no further qualification.

Three of the EPA 8270C SIM PAH matrix spikes, matrix spike duplicates and/or RPDs exceeded the control limits. The results have been flagged with the appropriate qualifiers and are released with no further action since the associated LCS/LCSD recoveries were in control.

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PCB052 and PCB118 (by EPA 8270C SIM) matrix spike duplicate recoveries exceeded the established control limits, but since the MS, LCS and LCSD recoveries were acceptable, the results are released.

Surrogates

Surrogate recoveries for all applicable tests and samples were within the established control limits with the following exceptions.

The Decachlorobiphenyl recovery (by EPA 8081A) was above the established control limit in samples Area 1 Comp B and Area 1 Comp T due to matrix interference. However, the results were confirmed by re-analysis and are released with no further action since the second surrogate, 2,4,5,6-Tetrachloro-m-Xylene, was in control for both samples.

Acronyms

LCS/LCSD- Laboratory Control Sample/Laboratory Control Sample Duplicate
PDS/PDSD- Post Digestion Spike/Post Digestion Spike Duplicate
MS/MSD- Matrix Spike/Matrix Spike Duplicate
ME-Marginal Exceedance
RPD- Relative Percent Difference

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 413.2M

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Area 1 Comp T	**11-06-1553-1-C**	**06/22/11 15:00**	**Sediment**	**IR #1**	**06/30/11**	**06/30/11 12:54**	**110630L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Oil and Grease	150	17	1		mg/kg

Area 1 Comp B	**11-06-1553-2-A**	**06/22/11 15:00**	**Sediment**	**IR #1**	**06/30/11**	**06/30/11 12:54**	**110630L01**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Oil and Grease	260	17	1		mg/kg

Method Blank	**099-07-019-92**	**N/A**	**Solid**	**IR #1**	**06/30/11**	**06/30/11 12:54**	**110630L01**

Parameter	Result	RL	DF	Qual	Units
Oil and Grease	ND	10	1		mg/kg

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 418.1M

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Area 1 Comp T	**11-06-1553-1-C**	**06/22/11 15:00**	**Sediment**	**IR #1**	**06/30/11**	**06/30/11 13:48**	**110630L02**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
TRPH	120	17	1		mg/kg

Area 1 Comp B	**11-06-1553-2-A**	**06/22/11 15:00**	**Sediment**	**IR #1**	**06/30/11**	**06/30/11 13:48**	**110630L02**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
TRPH	190	17	1		mg/kg

Method Blank	**099-07-015-1,769**	**N/A**	**Solid**	**IR #1**	**06/30/11**	**06/30/11 13:48**	**110630L02**

Parameter	Result	RL	DF	Qual	Units
TRPH	ND	10	1		mg/kg

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Area 1 Comp T	**11-06-1553-1-AC**	**06/22/11 15:00**	**Sediment**	**GC 41**	**06/24/11**	**06/28/11 12:03**	**110624L10**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.7	1		4,4'-DDT	2.3	1.7	1	
Alpha-BHC	ND	1.7	1		Endosulfan I	ND	1.7	1	
Beta-BHC	ND	1.7	1		Endosulfan II	ND	1.7	1	
Delta-BHC	ND	1.7	1		Endosulfan Sulfate	ND	1.7	1	
Gamma-BHC	ND	1.7	1		Endrin	ND	1.7	1	
Chlordane	ND	17	1		Endrin Aldehyde	ND	1.7	1	
Dieldrin	ND	1.7	1		Endrin Ketone	ND	1.7	1	
2,4'-DDD	ND	1.7	1		Heptachlor	ND	1.7	1	
2,4'-DDE	5.2	1.7	1		Heptachlor Epoxide	ND	1.7	1	
2,4'-DDT	ND	1.7	1		Toxaphene	ND	34	1	
4,4'-DDD	9.6	1.7	1		Alpha Chlordane	ND	1.7	1	
4,4'-DDE	31	8.6	5		Gamma Chlordane	ND	1.7	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	101	50-130		Decachlorobiphenyl	152	50-130	2,7

Area 1 Comp B	**11-06-1553-2-A**	**06/22/11 15:00**	**Sediment**	**GC 41**	**06/24/11**	**06/28/11 12:18**	**110624L10**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.7	1		4,4'-DDT	24	17	10	
Alpha-BHC	ND	1.7	1		Endosulfan I	ND	1.7	1	
Beta-BHC	ND	1.7	1		Endosulfan II	ND	1.7	1	
Delta-BHC	ND	1.7	1		Endosulfan Sulfate	ND	1.7	1	
Gamma-BHC	ND	1.7	1		Endrin	ND	1.7	1	
Chlordane	ND	17	1		Endrin Aldehyde	ND	1.7	1	
Dieldrin	ND	1.7	1		Endrin Ketone	ND	1.7	1	
2,4'-DDD	ND	1.7	1		Heptachlor	ND	1.7	1	
2,4'-DDE	18	17	10		Heptachlor Epoxide	ND	1.7	1	
2,4'-DDT	ND	1.7	1		Toxaphene	ND	34	1	
4,4'-DDD	110	17	10		Alpha Chlordane	ND	1.7	1	
4,4'-DDE	85	17	10		Gamma Chlordane	ND	1.7	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	104	50-130		Decachlorobiphenyl	214	50-130	2,7

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-858-98**	**N/A**	**Solid**	**GC 41**	**06/24/11**	**06/28/11 10:46**	**110624L10**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.0	1		4,4'-DDT	ND	1.0	1	
Alpha-BHC	ND	1.0	1		Endosulfan I	ND	1.0	1	
Beta-BHC	ND	1.0	1		Endosulfan II	ND	1.0	1	
Delta-BHC	ND	1.0	1		Endosulfan Sulfate	ND	1.0	1	
Gamma-BHC	ND	1.0	1		Endrin	ND	1.0	1	
Chlordane	ND	10	1		Endrin Aldehyde	ND	1.0	1	
Dieldrin	ND	1.0	1		Endrin Ketone	ND	1.0	1	
2,4'-DDD	ND	1.0	1		Heptachlor	ND	1.0	1	
2,4'-DDE	ND	1.0	1		Heptachlor Epoxide	ND	1.0	1	
2,4'-DDT	ND	1.0	1		Toxaphene	ND	20	1	
4,4'-DDD	ND	1.0	1		Alpha Chlordane	ND	1.0	1	
4,4'-DDE	ND	1.0	1		Gamma Chlordane	ND	1.0	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	101	50-130		Decachlorobiphenyl	96	50-130	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Area 1 Comp T	**11-06-1553-1-AC**	**06/22/11 15:00**	**Sediment**	**GC/MS MM**	**06/24/11**	**06/29/11 13:50**	**110624L08**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1-Methylnaphthalene	ND	17	1		Benzo (b) Fluoranthene	8300	430	25	
2,4,5-Trichlorophenol	ND	17	1		Benzo (g,h,i) Perylene	1600	17	1	
2,4,6-Trichlorophenol	ND	17	1		Benzo (k) Fluoranthene	3100	17	1	
2,4-Dichlorophenol	ND	17	1		Bis(2-Ethylhexyl) Phthalate	580	17	1	
2,4-Dimethylphenol	ND	17	1		Butyl Benzyl Phthalate	ND	17	1	
2,4-Dinitrophenol	ND	860	1		Chrysene	10000	430	25	
2-Chlorophenol	ND	17	1		Di-n-Butyl Phthalate	ND	17	1	
2-Methylnaphthalene	36	17	1		Di-n-Octyl Phthalate	ND	17	1	
2-Methylphenol	ND	17	1		Dibenz (a,h) Anthracene	990	17	1	
2-Nitrophenol	ND	17	1		Diethyl Phthalate	ND	17	1	
3/4-Methylphenol	ND	17	1		Dimethyl Phthalate	ND	17	1	
4,6-Dinitro-2-Methylphenol	ND	860	1		Fluoranthene	1400	17	1	
4-Chloro-3-Methylphenol	ND	17	1		Fluorene	170	17	1	
4-Nitrophenol	ND	860	1		Indeno (1,2,3-c,d) Pyrene	2300	17	1	
Acenaphthene	45	17	1		Naphthalene	72	17	1	
Acenaphthylene	650	17	1		Pentachlorophenol	ND	860	1	
Anthracene	2500	17	1		Phenanthrene	480	17	1	
Benzo (a) Anthracene	4100	430	25		Phenol	ND	17	1	
Benzo (a) Pyrene	9400	430	25		Pyrene	19000	430	25	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	78	32-143		2-Fluorobiphenyl	65	14-146	
2-Fluorophenol	57	15-138		Nitrobenzene-d5	56	18-162	
p-Terphenyl-d14	81	34-148		Phenol-d6	61	17-141	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Area 1 Comp B	**11-06-1553-2-A**	**06/22/11 15:00**	**Sediment**	**GC/MS MM**	**06/24/11**	**06/29/11 12:55**	**110624L08**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1-Methylnaphthalene	ND	17	1		Benzo (b) Fluoranthene	4400	340	20	
2,4,5-Trichlorophenol	ND	17	1		Benzo (g,h,i) Perylene	910	17	1	
2,4,6-Trichlorophenol	ND	17	1		Benzo (k) Fluoranthene	2600	17	1	
2,4-Dichlorophenol	ND	17	1		Bis(2-Ethylhexyl) Phthalate	210	17	1	
2,4-Dimethylphenol	ND	17	1		Butyl Benzyl Phthalate	ND	17	1	
2,4-Dinitrophenol	ND	850	1		Chrysene	7700	340	20	
2-Chlorophenol	ND	17	1		Di-n-Butyl Phthalate	ND	17	1	
2-Methylnaphthalene	ND	17	1		Di-n-Octyl Phthalate	ND	17	1	
2-Methylphenol	ND	17	1		Dibenz (a,h) Anthracene	390	17	1	
2-Nitrophenol	ND	17	1		Diethyl Phthalate	ND	17	1	
3/4-Methylphenol	ND	17	1		Dimethyl Phthalate	ND	17	1	
4,6-Dinitro-2-Methylphenol	ND	850	1		Fluoranthene	21000	340	20	
4-Chloro-3-Methylphenol	ND	17	1		Fluorene	110	17	1	
4-Nitrophenol	ND	850	1		Indeno (1,2,3-c,d) Pyrene	1300	17	1	
Acenaphthene	46	17	1		Naphthalene	39	17	1	
Acenaphthylene	340	17	1		Pentachlorophenol	ND	850	1	
Anthracene	1700	17	1		Phenanthrene	350	17	1	
Benzo (a) Anthracene	6100	340	20		Phenol	ND	17	1	
Benzo (a) Pyrene	3200	17	1		Pyrene	20000	340	20	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	65	32-143		2-Fluorobiphenyl	71	14-146	
2-Fluorophenol	67	15-138		Nitrobenzene-d5	70	18-162	
p-Terphenyl-d14	82	34-148		Phenol-d6	68	17-141	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-413-323**	**N/A**	**Solid**	**GC/MS MM**	**06/24/11**	**06/29/11 11:32**	**110624L08**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1-Methylnaphthalene	ND	10	1		Benzo (b) Fluoranthene	ND	10	1	
2,4,5-Trichlorophenol	ND	10	1		Benzo (g,h,i) Perylene	ND	10	1	
2,4,6-Trichlorophenol	ND	10	1		Benzo (k) Fluoranthene	ND	10	1	
2,4-Dichlorophenol	ND	10	1		Bis(2-Ethylhexyl) Phthalate	ND	10	1	
2,4-Dimethylphenol	ND	10	1		Butyl Benzyl Phthalate	ND	10	1	
2,4-Dinitrophenol	ND	500	1		Chrysene	ND	10	1	
2-Chlorophenol	ND	10	1		Di-n-Butyl Phthalate	ND	10	1	
2-Methylnaphthalene	ND	10	1		Di-n-Octyl Phthalate	ND	10	1	
2-Methylphenol	ND	10	1		Dibenz (a,h) Anthracene	ND	10	1	
2-Nitrophenol	ND	10	1		Diethyl Phthalate	ND	10	1	
3/4-Methylphenol	ND	10	1		Dimethyl Phthalate	ND	10	1	
4,6-Dinitro-2-Methylphenol	ND	500	1		Fluoranthene	ND	10	1	
4-Chloro-3-Methylphenol	ND	10	1		Fluorene	ND	10	1	
4-Nitrophenol	ND	500	1		Indeno (1,2,3-c,d) Pyrene	ND	10	1	
Acenaphthene	ND	10	1		Naphthalene	ND	10	1	
Acenaphthylene	ND	10	1		Pentachlorophenol	ND	500	1	
Anthracene	ND	10	1		Phenanthrene	ND	10	1	
Benzo (a) Anthracene	ND	10	1		Phenol	ND	10	1	
Benzo (a) Pyrene	ND	10	1		Pyrene	ND	10	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	71	32-143		2-Fluorobiphenyl	63	14-146	
2-Fluorophenol	39	15-138		Nitrobenzene-d5	37	18-162	
p-Terphenyl-d14	73	34-148		Phenol-d6	54	17-141	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Area 1 Comp T	**11-06-1553-1-AC**	**06/22/11 15:00**	**Sediment**	**GC/MS HHH**	**06/24/11**	**06/28/11 16:35**	**110624L09**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.7	1		PCB187	2.2	1.7	1	
PCB018	2.4	1.7	1		PCB183	ND	1.7	1	
PCB028	4.3	1.7	1		PCB126	ND	1.7	1	
PCB052	3.4	1.7	1		PCB128	1.7	1.7	1	
PCB049	14	1.7	1		PCB167	ND	1.7	1	
PCB044	3.5	1.7	1		PCB177	ND	1.7	1	
PCB037	ND	1.7	1		PCB156	2.0	1.7	1	
PCB074	ND	1.7	1		PCB157	2.9	1.7	1	
PCB070	ND	1.7	1		PCB180	3.8	1.7	1	
PCB066	1.8	1.7	1		PCB170	2.4	1.7	1	
PCB101	6.0	1.7	1		PCB201	ND	1.7	1	
PCB099	ND	1.7	1		PCB169	ND	1.7	1	
PCB119	ND	1.7	1		PCB189	ND	1.7	1	
PCB087	2.5	1.7	1		PCB195	ND	1.7	1	
PCB081	ND	1.7	1		PCB194	ND	1.7	1	
PCB110	4.5	1.7	1		PCB206	ND	1.7	1	
PCB151	ND	1.7	1		PCB209	ND	1.7	1	
PCB077	ND	1.7	1		PCB031	ND	1.7	1	
PCB149	5.0	1.7	1		PCB033	3.0	1.7	1	
PCB123	ND	1.7	1		PCB056	ND	1.7	1	
PCB118	5.7	1.7	1		PCB060	ND	1.7	1	
PCB114	ND	1.7	1		PCB095	3.8	1.7	1	
PCB184	ND	1.7	1		PCB097	5.5	1.7	1	
PCB153	6.6	1.7	1		PCB132	ND	1.7	1	
PCB168	ND	1.7	1		PCB141	ND	1.7	1	
PCB105	4.6	1.7	1		PCB174	2.3	1.7	1	
PCB138/158	8.1	3.4	1		PCB203	ND	1.7	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	68	50-125		p-Terphenyl-d14	100	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

7440 Lincoln Way, Garden Grove, CA 92841-1427 · TEL:(714) 895-5494 · FAX: (714) 894-7501

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Area 1 Comp B	**11-06-1553-2-AC**	**06/22/11 15:00**	**Sediment**	**GC/MS HHH**	**06/24/11**	**06/28/11 17:02**	**110624L09**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.7	1		PCB187	ND	1.7	1	
PCB018	2.6	1.7	1		PCB183	ND	1.7	1	
PCB028	5.2	1.7	1		PCB126	ND	1.7	1	
PCB052	2.4	1.7	1		PCB128	ND	1.7	1	
PCB049	19	1.7	1		PCB167	ND	1.7	1	
PCB044	3.5	1.7	1		PCB177	ND	1.7	1	
PCB037	ND	1.7	1		PCB156	ND	1.7	1	
PCB074	ND	1.7	1		PCB157	2.5	1.7	1	
PCB070	ND	1.7	1		PCB180	2.7	1.7	1	
PCB066	ND	1.7	1		PCB170	ND	1.7	1	
PCB101	4.4	1.7	1		PCB201	ND	1.7	1	
PCB099	ND	1.7	1		PCB169	ND	1.7	1	
PCB119	ND	1.7	1		PCB189	ND	1.7	1	
PCB087	2.4	1.7	1		PCB195	ND	1.7	1	
PCB081	ND	1.7	1		PCB194	ND	1.7	1	
PCB110	3.2	1.7	1		PCB206	ND	1.7	1	
PCB151	ND	1.7	1		PCB209	ND	1.7	1	
PCB077	ND	1.7	1		PCB031	ND	1.7	1	
PCB149	3.4	1.7	1		PCB033	4.3	1.7	1	
PCB123	ND	1.7	1		PCB056	ND	1.7	1	
PCB118	4.8	1.7	1		PCB060	ND	1.7	1	
PCB114	ND	1.7	1		PCB095	2.9	1.7	1	
PCB184	ND	1.7	1		PCB097	5.4	1.7	1	
PCB153	4.3	1.7	1		PCB132	ND	1.7	1	
PCB168	ND	1.7	1		PCB141	ND	1.7	1	
PCB105	5.2	1.7	1		PCB174	ND	1.7	1	
PCB138/158	6.0	3.4	1		PCB203	ND	1.7	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	75	50-125		p-Terphenyl-d14	102	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-343-2**	**N/A**	**Solid**	**GC/MS HHH**	**06/24/11**	**06/28/11 16:08**	**110624L09**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.0	1		PCB187	ND	1.0	1	
PCB018	ND	1.0	1		PCB183	ND	1.0	1	
PCB028	ND	1.0	1		PCB126	ND	1.0	1	
PCB052	ND	1.0	1		PCB128	ND	1.0	1	
PCB049	ND	1.0	1		PCB167	ND	1.0	1	
PCB044	ND	1.0	1		PCB177	ND	1.0	1	
PCB037	ND	1.0	1		PCB156	ND	1.0	1	
PCB074	ND	1.0	1		PCB157	ND	1.0	1	
PCB070	ND	1.0	1		PCB180	ND	1.0	1	
PCB066	ND	1.0	1		PCB170	ND	1.0	1	
PCB101	ND	1.0	1		PCB201	ND	1.0	1	
PCB099	ND	1.0	1		PCB169	ND	1.0	1	
PCB119	ND	1.0	1		PCB189	ND	1.0	1	
PCB087	ND	1.0	1		PCB195	ND	1.0	1	
PCB081	ND	1.0	1		PCB194	ND	1.0	1	
PCB110	ND	1.0	1		PCB206	ND	1.0	1	
PCB151	ND	1.0	1		PCB209	ND	1.0	1	
PCB077	ND	1.0	1		PCB031	ND	1.0	1	
PCB149	ND	1.0	1		PCB033	ND	1.0	1	
PCB123	ND	1.0	1		PCB056	ND	1.0	1	
PCB118	ND	1.0	1		PCB060	ND	1.0	1	
PCB114	ND	1.0	1		PCB095	ND	1.0	1	
PCB184	ND	1.0	1		PCB097	ND	1.0	1	
PCB153	ND	1.0	1		PCB132	ND	1.0	1	
PCB168	ND	1.0	1		PCB141	ND	1.0	1	
PCB105	ND	1.0	1		PCB174	ND	1.0	1	
PCB138/158	ND	2.0	1		PCB203	ND	1.0	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	70	50-125		p-Terphenyl-d14	94	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	Organotins by Krone et al.
		Units:	ug/kg
Project: 1015101913 / POLA Berths 167-169			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Area 1 Comp T	**11-06-1553-1-AC**	**06/22/11 15:00**	**Sediment**	**GC/MS Y**	**06/24/11**	**06/28/11 11:32**	**110624L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	49	5.2	1.0	1		Tetrabutyltin	7.8	5.2	0.62	1	
Monobutyltin	ND	5.2	1.7	1		Tributyltin	1500	52	5.8	10	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	98	50-130					

Area 1 Comp B	**11-06-1553-2-A**	**06/22/11 15:00**	**Sediment**	**GC/MS Y**	**06/24/11**	**06/28/11 12:04**	**110624L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	38	5.1	1.0	1		Tetrabutyltin	6.1	5.1	0.61	1	
Monobutyltin	2.7	5.1	1.6	1	J	Tributyltin	620	25	2.8	5	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	95	50-130					

Method Blank	**099-07-016-853**	**N/A**	**Solid**	**GC/MS Y**	**06/24/11**	**06/28/11 11:00**	**110624L12**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	ND	3.0	0.60	1		Tetrabutyltin	ND	3.0	0.36	1	
Monobutyltin	ND	3.0	0.97	1		Tributyltin	ND	3.0	0.33	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	91	50-130					

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020
		Units:	mg/kg
Project: 1015101913 / POLA Berths 167-169			Page 1 of 1

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Area 1 Comp T	**11-06-1553-1-A**	**06/22/11 15:00**	**Sediment**	**ICP/MS 04**	**06/24/11**	**06/24/11 18:34**	**110624L01**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	10.4	0.172	1		Nickel	26.8	0.172	1	
Cadmium	0.499	0.172	1		Selenium	0.647	0.172	1	
Chromium	42.4	0.172	1		Silver	0.286	0.172	1	
Copper	88.8	0.172	1		Zinc	141	1.72	1	
Lead	42.4	0.172	1						

Area 1 Comp B	**11-06-1553-2-A**	**06/22/11 15:00**	**Sediment**	**ICP/MS 04**	**06/24/11**	**06/24/11 18:55**	**110624L01**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	9.03	0.169	1		Nickel	22.7	0.169	1	
Cadmium	0.533	0.169	1		Selenium	0.592	0.169	1	
Chromium	39.5	0.169	1		Silver	0.266	0.169	1	
Copper	79.1	0.169	1		Zinc	138	1.69	1	
Lead	48.1	0.169	1						

Method Blank	**096-10-002-1,987**	**N/A**	**Solid**	**ICP/MS 04**	**06/24/11**	**06/24/11 17:52**	**110624L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	ND	0.100	1		Nickel	ND	0.100	1	
Cadmium	ND	0.100	1		Selenium	ND	0.100	1	
Chromium	ND	0.100	1		Silver	ND	0.100	1	
Copper	ND	0.100	1		Zinc	ND	1.00	1	
Lead	ND	0.100	1						

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Area 1 Comp T	**11-06-1553-1-A**	**06/22/11 15:00**	**Sediment**	**Mercury**	**06/24/11**	**06/24/11 11:44**	**110624L04**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.277	0.0346	1		mg/kg

Area 1 Comp B	**11-06-1553-2-A**	**06/22/11 15:00**	**Sediment**	**Mercury**	**06/24/11**	**06/24/11 17:16**	**110624L04**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.297	0.0340	1		mg/kg

Method Blank	**099-12-452-209**	**N/A**	**Solid**	**Mercury**	**06/24/11**	**06/24/11 11:38**	**110624L04**

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0200	1		mg/kg

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/23/11
Work Order No: 11-06-1553

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date Collected	Matrix
Area 1 Comp T	**11-06-1553-1**	**06/22/11**	**Sediment**

Comment(s): (9) -Results are reported on a dry weight basis

Parameter	Results	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Sulfide, Total (9)	620	17	100		mg/kg	06/28/11	06/28/11	EPA 376.2M
Sulfide, Dissolved	ND	0.10	1		mg/kg	06/23/11	06/23/11	EPA 376.2M
Carbon, Total Organic (9)	1.4	0.086	1		%	N/A	06/24/11	EPA 9060A
Solids, Total	58.0	0.100	1		%	06/24/11	06/24/11	SM 2540 B
Ammonia (as N) (9)	13	0.34	1		mg/kg	07/05/11	07/05/11	SM 4500-NH3 B/C (M)

Area 1 Comp B	**11-06-1553-2**	**06/22/11**	**Sediment**

Comment(s): (9) -Results are reported on a dry weight basis

Parameter	Results	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Sulfide, Total (9)	380	8.5	50		mg/kg	06/28/11	06/28/11	EPA 376.2M
Sulfide, Dissolved	ND	0.10	1		mg/kg	06/24/11	06/24/11	EPA 376.2M
Carbon, Total Organic (9)	1.4	0.085	1		%	N/A	06/24/11	EPA 9060A
Solids, Total	59.0	0.100	1		%	06/24/11	06/24/11	SM 2540 B
Ammonia (as N) (9)	16	0.34	1		mg/kg	07/05/11	07/05/11	SM 4500-NH3 B/C (M)

Method Blank		**N/A**	**Solid**

Parameter	Results	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Sulfide, Total	ND	0.10	1		mg/kg	06/28/11	06/28/11	EPA 376.2M
Sulfide, Dissolved	ND	0.020	0.2		mg/kg	06/23/11	06/23/11	EPA 376.2M
Sulfide, Dissolved	ND	0.020	0.2		mg/kg	06/24/11	06/24/11	EPA 376.2M
Carbon, Total Organic	ND	0.050	1		%	N/A	06/24/11	EPA 9060A
Solids, Total	ND	0.100	1		%	06/24/11	06/24/11	SM 2540 B
Ammonia (as N)	ND	0.20	1		mg/kg	07/05/11	07/05/11	SM 4500-NH3 B/C (M)

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental		Date Received:	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020

Project 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Area 1 Comp T	**Sediment**	**ICP/MS 04**	**06/24/11**	**06/24/11**	**110624S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	101	103	80-120	1	0-20	
Cadmium	106	106	80-120	0	0-20	
Chromium	100	103	80-120	2	0-20	
Copper	100	111	80-120	4	0-20	
Lead	98	106	80-120	4	0-20	
Nickel	94	102	80-120	5	0-20	
Selenium	96	103	80-120	7	0-20	
Silver	101	99	80-120	1	0-20	
Zinc	90	143	80-120	12	0-20	3

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

AMEC Earth & Environmental		Date Received	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS / PDSD Batch Number
Area 1 Comp T	**Sediment**	**ICP/MS 04**	**06/24/11**	**06/24/11**	**110624S01**

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	101	101	75-125	0	0-20	
Cadmium	103	103	75-125	1	0-20	
Chromium	101	91	75-125	5	0-20	
Copper	91	88	75-125	1	0-20	
Lead	103	103	75-125	0	0-20	
Nickel	101	97	75-125	2	0-20	
Selenium	100	99	75-125	0	0-20	
Silver	91	92	75-125	1	0-20	
Zinc	98	82	75-125	4	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental		Date Received:	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 413.2M

Project 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Area 1 Comp T	**Sediment**	**IR #1**	**06/30/11**	**06/30/11**	**110630S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Oil and Grease	100	105	55-135	2	0-30	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental		Date Received:	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 418.1M

Project 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Area 1 Comp T	**Sediment**	**IR #1**	**06/30/11**	**06/30/11**	**110630S02**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TRPH	95	94	55-135	1	0-30	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental		Date Received:	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Area 1 Comp T	**Sediment**	**Mercury**	**06/24/11**	**06/24/11**	**110624S04**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	88	81	76-136	7	0-16	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	06/23/11
Work Order No:	11-06-1553
Preparation:	EPA 3545
Method:	Organotins by Krone et al.

Project 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Area 1 Comp T	**Sediment**	**GC/MS Y**	**06/24/11**	**06/28/11**	**110624S12**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	97	186	50-130	61	0-20	3,4
Tributyltin	536	1552	50-130	168	0-20	3,4

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental		Date Received:	06/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM

Project 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Area 1 Comp T	**Sediment**	**GC/MS MM**	**06/24/11**	**06/29/11**	**110624S08**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
2,4,6-Trichlorophenol	86	87	40-160	1	0-20	
2,4-Dichlorophenol	90	90	40-160	0	0-20	
2-Methylphenol	90	90	40-160	0	0-20	
2-Nitrophenol	102	102	40-160	0	0-20	
4-Chloro-3-Methylphenol	83	81	40-160	2	0-20	
Acenaphthene	104	103	40-106	1	0-20	
Benzo (a) Pyrene	37	37	17-163	0	0-20	
Chrysene	0	0	17-168	0	0-20	3
Di-n-Butyl Phthalate	98	97	40-160	1	0-20	
Dimethyl Phthalate	88	88	40-160	1	0-20	
Fluoranthene	443	443	26-137	0	0-20	3
Fluorene	113	113	59-121	1	0-20	
Naphthalene	96	96	21-133	1	0-20	
Phenanthrene	100	100	54-120	0	0-20	
Phenol	82	83	40-160	1	0-20	
Pyrene	172	174	6-156	0	0-46	3

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	06/23/11
Work Order No:	11-06-1553
Preparation:	EPA 3545
Method:	EPA 8081A

Project 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Area 1 Comp T	**Sediment**	**GC 41**	**06/24/11**	**06/28/11**	**110624S10**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aldrin	108	107	50-135	1	0-25	
Alpha-BHC	145	135	50-135	7	0-25	3
Beta-BHC	126	112	50-135	12	0-25	
Delta-BHC	125	117	50-135	6	0-25	
Gamma-BHC	102	101	50-135	1	0-25	
Dieldrin	133	128	50-135	4	0-25	
4,4'-DDD	129	107	50-135	9	0-25	
4,4'-DDE	239	59	50-135	36	0-25	3,4
4,4'-DDT	151	54	50-135	76	0-25	3,4
Endosulfan I	102	102	50-135	0	0-25	
Endosulfan II	82	88	50-135	8	0-25	
Endosulfan Sulfate	113	109	50-135	3	0-25	
Endrin	152	144	50-135	5	0-25	3
Endrin Aldehyde	52	55	50-135	5	0-25	
Endrin Ketone	105	31	50-135	27	0-25	3,4
Heptachlor	96	91	50-135	5	0-25	
Heptachlor Epoxide	125	107	50-135	16	0-25	
Methoxychlor	0	0	50-135	40	0-25	3,4
Alpha Chlordane	126	119	50-135	6	0-25	
Gamma Chlordane	0	0	50-135	28	0-25	3,4

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: 06/23/11
Work Order No: 11-06-1553
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners

Project 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Area 1 Comp T	**Sediment**	**GC/MS HHH**	**06/24/11**	**06/28/11**	**110624S09**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
PCB008	100	106	50-125	5	0-30	
PCB018	103	110	50-125	7	0-30	
PCB028	108	119	50-125	9	0-30	
PCB052	118	139	50-125	16	0-30	3
PCB044	105	112	50-125	7	0-30	
PCB066	115	123	50-125	7	0-30	
PCB101	110	119	50-125	7	0-30	
PCB077	118	123	50-125	4	0-30	
PCB118	123	128	50-125	4	0-30	3
PCB153	118	115	50-125	3	0-30	
PCB105	113	117	50-125	4	0-30	
PCB187	114	118	50-125	3	0-30	
PCB126	111	115	50-125	3	0-30	
PCB128	107	113	50-125	5	0-30	
PCB180	120	121	50-125	1	0-30	
PCB170	105	107	50-125	2	0-30	
PCB195	111	122	50-125	9	0-30	
PCB206	115	123	50-125	7	0-30	
PCB209	115	124	50-125	8	0-30	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: N/A
Work Order No: 11-06-1553

Project: 1015101913 / POLA Berths 167-169

Matrix: Aqueous or Solid

Parameter	Method	Quality Control Sample ID	Date Analyzed	Date Extracted	MS% REC	MSD % REC	%REC CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	EPA 9060A	Area 1 Comp T	06/24/11	N/A	84	83	75-125	1	0-25	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: N/A
Work Order No: 11-06-1553

Project: 1015101913 / POLA Berths 167-169

Matrix: Aqueous or Solid

Parameter	Method	QC Sample ID	Date Analyzed	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Sulfide, Total	EPA 376.2M	Area 1 Comp T	06/28/11	360	370	3	0-25	
Sulfide, Dissolved	EPA 376.2M	Area 1 Comp T	06/23/11	ND	ND	NA	0-25	
Sulfide, Dissolved	EPA 376.2M	Area 1 Comp B	06/24/11	ND	ND	NA	0-25	
Solids, Total	SM 2540 B	Area 1 Comp T	06/24/11	58.0	58.5	1	0-10	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
096-10-002-1,987	**Solid**	**ICP/MS 04**	**06/24/11**	**06/24/11**	**110624L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	101	101	80-120	0	0-20	
Cadmium	107	106	80-120	1	0-20	
Chromium	102	101	80-120	1	0-20	
Copper	106	103	80-120	3	0-20	
Lead	115	114	80-120	1	0-20	
Nickel	109	105	80-120	4	0-20	
Selenium	101	103	80-120	2	0-20	
Silver	97	96	80-120	0	0-20	
Zinc	104	102	80-120	2	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 413.2M

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
099-07-019-92	**Solid**	**IR #1**	**06/30/11**	**NONE**	**110630L01**

Parameter	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Oil and Grease	100.0	108.1	108	70-130	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 418.1M

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
099-07-015-1,769	**Solid**	**IR #1**	**06/30/11**	**NONE**	**110630L02**

Parameter	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
TRPH	100.0	106.7	107	70-130	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-452-209	**Solid**	**Mercury**	**06/24/11**	**06/24/11**	**110624L04**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	96	98	82-124	2	0-16	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	Organotins by Krone et al.

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-016-853	**Solid**	**GC/MS Y**	**06/24/11**	**06/28/11**	**110624L12**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	113	113	50-130	0	0-20	
Tributyltin	87	88	50-130	1	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-413-323	**Solid**	**GC/MS MM**	**06/24/11**	**06/29/11**	**110624L08**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
2,4,6-Trichlorophenol	64	63	40-160	20-180	2	0-20	
2,4-Dichlorophenol	69	69	40-160	20-180	0	0-20	
2-Methylphenol	66	65	40-160	20-180	1	0-20	
2-Nitrophenol	68	68	40-160	20-180	1	0-20	
4-Chloro-3-Methylphenol	67	67	40-160	20-180	1	0-20	
Acenaphthene	68	68	48-108	38-118	1	0-11	
Benzo (a) Pyrene	76	75	17-163	0-187	1	0-20	
Chrysene	70	69	17-168	0-193	1	0-20	
Di-n-Butyl Phthalate	66	66	40-160	20-180	1	0-20	
Dimethyl Phthalate	63	63	40-160	20-180	1	0-20	
Fluoranthene	67	67	26-137	8-156	0	0-20	
Fluorene	74	74	59-121	49-131	1	0-20	
Naphthalene	68	68	21-133	2-152	0	0-20	
Phenanthrene	67	67	54-120	43-131	0	0-20	
Phenol	63	63	40-160	20-180	0	0-20	
Pyrene	64	64	28-106	15-119	0	0-16	

Total number of LCS compounds : 16
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1553
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-858-98	**Solid**	**GC 41**	**06/24/11**	**06/28/11**	**110624L10**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Aldrin	109	109	50-135	36-149	0	0-25	
Alpha-BHC	118	121	50-135	36-149	3	0-25	
Beta-BHC	117	115	50-135	36-149	2	0-25	
Delta-BHC	122	120	50-135	36-149	1	0-25	
Gamma-BHC	122	120	50-135	36-149	2	0-25	
Dieldrin	113	109	50-135	36-149	3	0-25	
4,4'-DDD	126	126	50-135	36-149	0	0-25	
4,4'-DDE	122	117	50-135	36-149	4	0-25	
4,4'-DDT	118	101	50-135	36-149	15	0-25	
Endosulfan I	108	106	50-135	36-149	2	0-25	
Endosulfan II	114	109	50-135	36-149	5	0-25	
Endosulfan Sulfate	110	108	50-135	36-149	2	0-25	
Endrin	144	125	50-135	36-149	14	0-25	ME
Endrin Aldehyde	86	100	50-135	36-149	14	0-25	
Endrin Ketone	126	110	50-135	36-149	13	0-25	
Heptachlor	118	113	50-135	36-149	5	0-25	
Heptachlor Epoxide	119	107	50-135	36-149	11	0-25	
Methoxychlor	107	96	50-135	36-149	11	0-25	
Alpha Chlordane	113	108	50-135	36-149	4	0-25	
Gamma Chlordane	112	110	50-135	36-149	3	0-25	

Total number of LCS compounds : 20
Total number of ME compounds : 1
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: N/A
Work Order No: 11-06-1553
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-343-2	**Solid**	**GC/MS HHH**	**06/24/11**	**06/28/11**	**110624L09**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
PCB008	91	95	50-125	38-138	4	0-30	
PCB018	93	98	50-125	38-138	5	0-30	
PCB028	94	100	50-125	38-138	6	0-30	
PCB052	91	98	50-125	38-138	7	0-30	
PCB044	95	101	50-125	38-138	6	0-30	
PCB066	93	102	50-125	38-138	9	0-30	
PCB101	93	102	50-125	38-138	9	0-30	
PCB077	91	101	50-125	38-138	11	0-30	
PCB118	95	105	50-125	38-138	11	0-30	
PCB153	88	99	50-125	38-138	11	0-30	
PCB105	90	100	50-125	38-138	11	0-30	
PCB187	89	99	50-125	38-138	11	0-30	
PCB126	84	94	50-125	38-138	11	0-30	
PCB128	85	96	50-125	38-138	12	0-30	
PCB180	98	101	50-125	38-138	3	0-30	
PCB170	97	96	50-125	38-138	1	0-30	
PCB195	106	104	50-125	38-138	2	0-30	
PCB206	100	104	50-125	38-138	4	0-30	
PCB209	103	104	50-125	38-138	1	0-30	

Total number of LCS compounds : 19
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: N/A
Work Order No: 11-06-1553

Project: 1015101913 / POLA Berths 167-169

Matrix: Aqueous or Solid

Parameter	Method	Quality Control Sample ID	Date Extracted	Date Analyzed	LCS % REC	LCSD % REC	%REC CL	RPD	RPD CL	Qual
Carbon, Total Organic	EPA 9060A	099-06-013-597	N/A	06/24/11	92	89	80-120	4	0-20	
Ammonia (as N)	SM 4500-NH3 B	099-12-816-30	07/05/11	07/05/11	97	97	80-120	0	0-20	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 11-06-1553

Qualifier	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

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Calscience Environmental Laboratories, Inc.

☐ SoCal Laboratory
7440 Lincoln Way
Garden Grove, CA 92841-1427
(714) 895-5494

☐ NorCal Service Center
5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

CHAIN OF CUSTODY RECORD

Date 6/23/2011

Page 1 of 1

WO # / LAB USE ONLY: 06-1553

LABORATORY CLIENT: AMEC

ADDRESS: 9210 Sky Park Court Suite 200

CITY: San Diego STATE: CA ZIP: 92123

TEL: 858-300-4320 E-MAIL: Barry.snyder@amec.com

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD

☐ COELT EDF GLOBAL ID LOG CODE

CLIENT PROJECT NAME / NUMBER: POLA Beach 167-9

P.O. NO.: 10151019 13.0001

PROJECT CONTACT: Barry Snyder

SAMPLER(S): (PRINT) BM/KG

SPECIAL INSTRUCTIONS:
Please report in Dry Weight - See Danielle Consman w/ ?s!
Please confirm Samples/Analysis w/ SAP

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6-C36) or (C6-C44)	TPH ( )	BTEX / MTBE (8260) or (Grain Size)	VOCs (8260) Total Sulfides	Oxygenates (8260) Organotins	En Core / Terra Core Prep (5035) TRPH	SVOCs (8270) Phthalates	Pesticides (8081)	PCBs (8082) Congeners 8270D	PAHs (8310) or (8270) PAHs 8270D	T22 Metals (6010/747X)	Cr(VI) [7196 or 7199 or 218.6]	Air - VOCs (TO-14A) or (TO-15)	Air - TPH (g) [TO-3]	Total Solids	TOC	Total Ammonia
1	~~Comp 1~~ Area 1 Comp T	6/22/11	1500	Sed	1								X	X	X	X	X	X	X	X				X	X	X
2	Area 1 Comp B	6/22/11	1500	Sed	1														X							
3	Elutriate-Sed	6/22/11	1500	Sed	1								X	X	X	X	X	X	X	X				X	X	X
1 4	Area 1 Comp T	6/22/11	1500	Sed	1							X														
4 5	Site Water	6/22/11	1530	H_2O	2								X	X	X	X	X	X	X	X				X	X	X
1 6	Area 1 Comp T MS/MSD	6/22/11	1500	Sed	1								X	X	X	X	X	X	X	X				X	X	X
	6/22/11																									

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
[signature]	[signature] N-CA	6/23/11	1315
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

DISTRIBUTION: White with final report, Green and Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Green and Yellow copies respectively.

06/01/10 Revision

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 11-06-1553

SAMPLE RECEIPT FORM

Cooler 1 of 2

CLIENT: AMEC

DATE: 06/23/11

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 5.0 °C + 0.5 °C (CF) = 5.5 °C ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Initial: PS

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: PS

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: PS

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOA**h** ☐VOA**na_2** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na_2** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐500PB ☐500PB**na**

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na_2** ☑ 2.5 G (COUBES) ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** PS

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** YL

Preservative: **h:** HCL **n:** HNO_3 **na_2:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **znna:** $ZnAc_2$+NaOH **f:** Field-filtered **Scanned by:** YL

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 11-06-1553

SAMPLE RECEIPT FORM

Cooler 2 of 2

CLIENT: AMEC

DATE: 06/23/11

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 5.2 °C + 0.5 °C (CF) = 5.7 °C ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Initial: RS

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: RS

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: RS

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☑16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☑#3,4 Z

Water: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐500PB ☐500PB**na**

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** RS

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** YL

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **znna:** $ZnAc_2$+NaOH **f:** Field-filtered **Scanned by:** YL

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Composite Area A Physical Analysis

CALSCIENCE ENVIRONMENTAL LABORATORIES, INC.

Subcontractor Analysis Report

Work Order # 11-06-1553

One or more samples in this Work Order have tests that were subcontracted. The subcontract report(s) follows.

For subcontracted tests, please reference the laboratory information noted below.

1 Core Laboratories - Bakersfield,CA ISO 9001:2000, CERT-0014993, ELAP CA # 1247

Particle Size Distribution ASTM D422/4464

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Petroleum Services Division
3437 Landco Dr.
Bakersfield, California 93308
Tel: 661-325-5657
Fax: 661-325-5808
www.corelab.com

July 5, 2011

Danielle Gonsman
Calscience Environmental Laboratories, Inc.
7440 Lincoln Way
Garden Grove, CA 92641-1432

Re: Physical Properties Analyses
Project: 11-06-1553
CL File No: 411052EN

Dear Ms Gonsman:

The final results of the particle-size distribution determinations performed upon the sample submitted from your Project # 11-06-1553 accompany this cover. This electronic version of the report will constitute the final report unless otherwise instructed.

Appropriate ASTM, EPA or API methodologies were used for this project and SOP's are available on request. Samples for this project are currently in storage and will be retained for thirty days past completion of testing at no charge. At the end of thirty days the samples will be disposed. You may contact me regarding continued storage, disposal or return of the samples.

We appreciate the opportunity to be of service to Calscience Environmental Laboratories, Inc. and trust these data will prove beneficial in the development of this project. Please do not hesitate to contact us (661-325-5657) if you have any questions regarding these results, or if we can be of any additional service.

Sincerely,
Core Laboratories

Jeffry L. Smith

Jeffry L. Smith
ARP Supervisor

CLB Listed NYSE

SIEVE and LASER PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

Petroleum Services

Co. : Calscience
Proj. No. : 11-06-1553

Core Lab File No : 57111-411052EN
Date : 7/5/2011

Sample ID	Grain Size Description (Mean from Folk)	Median Grain Size, mm	Component Percentages								Silt & Clay
			Gravel	Sand Size						Clay	
				VCoarse	Coarse	Medium	Fine	VFine	Silt		
Area 1 Comp T	silt	0.02	0.00	0.02	1.04	5.92	12.36	9.04	60.46	13.48	73.9

Company : Calscience
Proj. No. : 11-06-1553

C.L. File No. : 57111-411052EN
Date : 7/5/2011

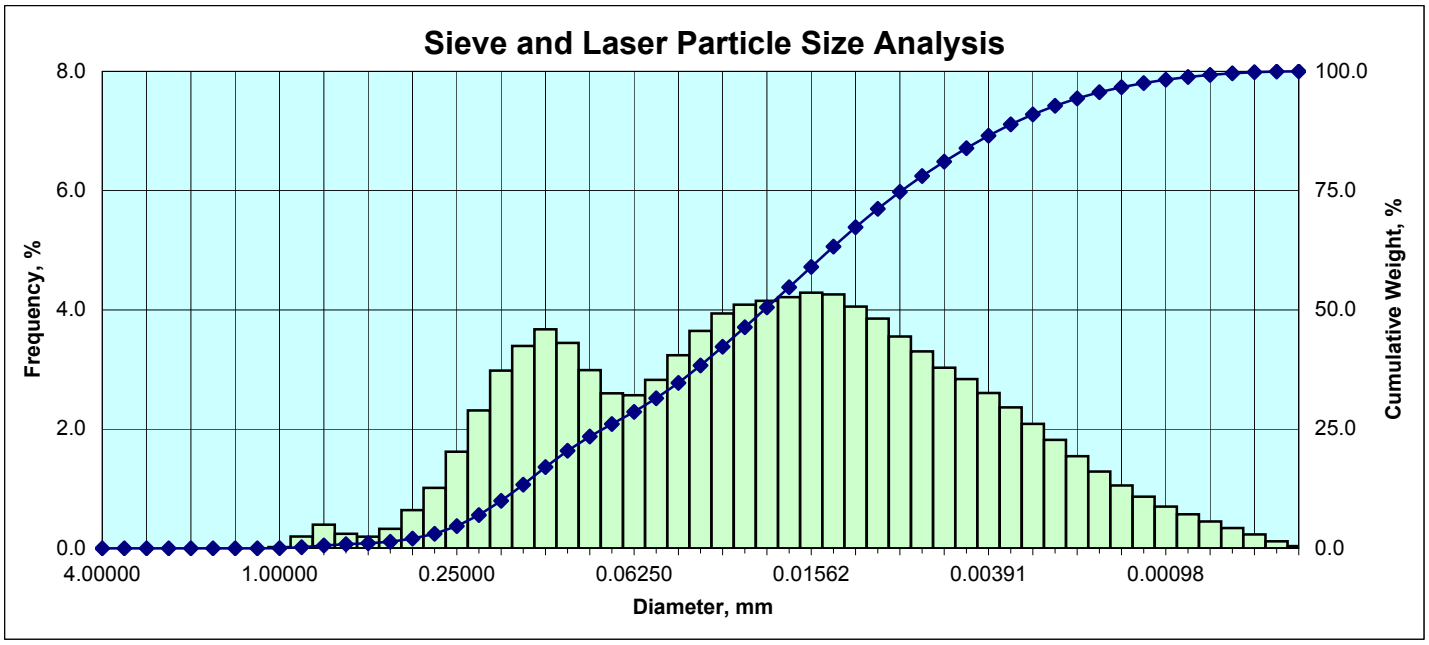
Sieve and Laser Particle Size Analysis (Metric)

Sample ID/ Depth(ft)	Component Percentages								Percentiles										Sorting Statistics (Folk)				
	Gravel	Sand					Fines		Particle Diameter (mm)										Median	Mean	Sorting	Skew.	Kurt.
		vcgr	cgr	mgr	fgr	vfgr	silt	clay	5	10	16	25	40	50	75	84	90	95	mm	mm	ϕ		
Area 1 Comp T	0.00	0.02	1.04	3.61	12.36	9.04	60.46	13.48	0.2417 fgr	0.1756 fgr	0.1312 fgr	0.0799 vfgr	0.0344 silt	0.0225 silt	0.0077 silt	0.0046 silt	0.0030 clay	0.0018 clay	0.023 silt	0.024 silt	2.279 v. Poor	-0.010 near sym	0.860 platykurtic

** Particle-size distribution pattern precludes calculation of these statistical parameters

Company : Calscience
Proj. No. : 11-06-1553

CL File No. : 57111-411052EN
Sample ID : Area 1 Comp T



Particle Size Distribution

	Diameter [US Mesh]	Diameter [in.]	Diameter [mm]	Diameter [ϕ]	Weight % [Incl.]	Weight % [Cum.]
Granule	5	0.157480	4.00000	-2.00	0.000	0.00
	6	0.132425	3.36359	-1.75	0.000	0.00
	7	0.111355	2.82843	-1.50	0.000	0.00
	8	0.093638	2.37841	-1.25	0.000	0.00
	10	0.078740	2.00000	-1.00	0.000	0.00
V Crse Sand	12	0.066212	1.68179	-0.75	0.000	0.00
	14	0.055678	1.41421	-0.50	0.000	0.00
	16	0.046819	1.18921	-0.25	0.000	0.00
	18	0.039370	1.00000	0.00	0.020	0.02
Coarse Sand	20	0.033106	0.84090	0.25	0.198	0.22
	25	0.027839	0.70711	0.50	0.398	0.62
	30	0.023410	0.59460	0.75	0.245	0.86
	35	0.019685	0.50000	1.00	0.197	1.06
Medium Sand	40	0.016553	0.42045	1.25	0.329	1.39
	45	0.013919	0.35355	1.50	0.642	2.03
	50	0.011705	0.29730	1.75	1.014	3.04
	60	0.009843	0.25000	2.00	1.622	4.67
Fine Sand	70	0.008277	0.21022	2.25	2.314	6.98
	80	0.006960	0.17678	2.50	2.981	9.96
	100	0.005852	0.14865	2.75	3.394	13.35
	120	0.004921	0.12500	3.00	3.673	17.03
V. Fine Sand	140	0.004138	0.10511	3.25	3.447	20.47
	170	0.003480	0.08839	3.50	2.988	23.46
	200	0.002926	0.07433	3.75	2.600	26.06
Silt	230	0.002461	0.06250	4.00	2.567	28.63
	270	0.002069	0.05256	4.25	2.826	31.46
	325	0.001740	0.04419	4.50	3.239	34.69
	400	0.001463	0.03716	4.75	3.647	38.34
	450	0.001230	0.03125	5.00	3.941	42.28
	500	0.001035	0.02628	5.25	4.087	46.37
	635	0.000870	0.02210	5.50	4.151	50.52
		0.000732	0.01858	5.75	4.214	54.73
		0.000615	0.01562	6.00	4.288	59.02
		0.000517	0.01314	6.25	4.259	63.28
		0.000435	0.01105	6.50	4.054	67.33
		0.000366	0.00929	6.75	3.852	71.19
		0.000308	0.00781	7.00	3.553	74.74
		0.000259	0.00657	7.25	3.304	78.04
		0.000217	0.00552	7.50	3.029	81.07
		0.000183	0.00465	7.75	2.841	83.91
		0.000154	0.00391	8.00	2.605	86.52
Clay		0.000129	0.00328	8.25	2.365	88.88
		0.000109	0.00276	8.50	2.087	90.97
		0.000091	0.00232	8.75	1.819	92.79
		0.000077	0.00195	9.00	1.545	94.34
		0.000065	0.00164	9.25	1.287	95.62
		0.000054	0.00138	9.50	1.056	96.68
		0.000046	0.00116	9.75	0.867	97.54
		0.000038	0.00098	10.00	0.701	98.25
		0.000032	0.00082	10.25	0.571	98.82
		0.000027	0.00069	10.50	0.452	99.27
		0.000023	0.00058	10.75	0.342	99.61
		0.000019	0.00049	11.00	0.235	99.85
		0.000016	0.00041	11.25	0.118	99.96
		0.000015	0.00038	11.50	0.037	100.00

Sorting Statistics (Folk)

Parameter	Trask	Inman	Folk
Median	**Silt sized**		
(in)	0.0009	0.0009	0.0009
(mm)	0.0225	0.0225	0.0225
Mean	**Silt sized**		
(in)	0.0017	0.0010	0.0009
(mm)	0.0438	0.0246	0.0239
Sorting	**V. Poor**		
	3.219	0.188	2.279
Skewness	**Near symmetrical**		
	1.101	0.047	-0.010
Kurtosis	**Platykurtic**		
	0.209	0.465	0.860

Component Percentages

Gravel	Sand	Silt	Clay	Silt + Clay
0.00	26.06	60.46	13.48	73.94

Percentile [Weight, %]	Particle Diameter [in.]	Particle Diameter [mm]	Particle Diameter [phi]
5	0.0095	0.2417	2.0484
10	0.0069	0.1756	2.5100
16	0.0052	0.1312	2.9299
25	0.0031	0.0799	3.6465
40	0.0014	0.0344	4.8595
50	0.0009	0.0225	5.4719
75	0.0003	0.0077	7.0198
84	0.0002	0.0046	7.7576
90	0.0001	0.0030	8.3800
95	0.0001	0.0018	9.1232

** Distribution pattern precludes calculation of these statistical parameters.

Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1427
TEL: (714) 895-5494 . FAX: (714) 894-7501

TO: CORE LABORATORIES

CHAIN OF CUSTODY RECORD

DATE: 06/23/11
PAGE: 1 OF 1

LABORATORY CLIENT: Calscience Environmental Laboratories, Inc.
ADDRESS: 7440 Lincoln Way
CITY: Garden Grove, CA 92841-1427
TEL: (714) 895-5494
E-MAIL: dgonsman@calscience.com

CLIENT PROJECT NAME / NUMBER: 11-06-1553
P.O. NO.: 11-06-1553
PROJECT CONTACT: Danielle Gonsman
TEMP BLANK:
LAB USE ONLY:
SAMPLER(S): (PRINT)

TURNAROUND TIME
___SAME DAY ___24 HR ___48HR ___72 HR ___5 DAYS X STANDARD

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ___/___/___

SPECIAL INSTRUCTIONS
Contact prior to subcontracting samples
*500, 1000, and 2000 psi

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	GRAIN SIZE
	Area 1 Comp T	06/22/11	1500	sed	1	X

Relinquished by: (Signature)	Received by / Affiliation: (Signature)	Date:	Time:
Wdbatn (CALSCIENCE)	GSO # 516849470	6/23/11	1630
	Tracy Bishop	6/24/11	10:10AM

Composite Area B Sediment Chemistry

Calscience
Environmental & Marine Chemistry Laboratories

CALSCIENCE

WORK ORDER NUMBER: 11-06-0516

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: AMEC Earth & Environmental

Client Project Name: 1015101913 / POLA Berths 167-169

Attention: Barry Snyder
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Approved for release on 06/28/2011 by:
Danielle Gonsman
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety. Note that the Chain-of-Custody Record and Sample Receipt Form are integral parts of this report.

Calscience
Environmental & Marine Chemistry Laboratories

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Work Order Number: 11-06-0516

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Calscience Environmental Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 11-06-0516
Project Name: 1015101913 / POLA Berths 167-169

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the sediment samples.

Sample Condition on Receipt

One seawater sample and seven sediment samples (housed in 16-oz glass containers) were received for this project on June 8, 2011. The samples were transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures. The temperature of the samples upon receipt at the laboratory was 3.7°C. All samples were given laboratory identification numbers, logged into the Laboratory Information Management System (LIMS) and then stored under refrigeration pending sediment chemistry testing and elutriate preparation in accordance with the project SAP.

The SET was prepared using the Elutriate Sed-Comp-B-Top and the Site Water samples, and the results are presented within Calscience Work Order 11-06-0773.

Tests Performed

Dissolved Sulfide by EPA 376.2M
Total Sulfide by EPA 376.2M
Oil and Grease by EPA 413.2M
TRPH by EPA 418.1M
Trace Metals by EPA 6020/7471A
Chlorinated Pesticides by EPA 8081A
PCB Congeners by EPA 8270C SIM
PAHs, Phenols and Phthalates by EPA 8270C SIM
TOC by EPA 9060A
Total Solids by SM 2540B
Ammonia by SM 4500-NH3 B/C (M)
Organotins by Krone et al.

One sample was subcontracted to Core Laboratories in Bakersfield, CA, for Grain Size (by ASTM D422/D4464). The report follows the Calscience results.

Data Summary

The sample results and reporting limits were dry weight corrected.

All samples were homogenized prior to preparation and analysis.

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Holding times

All holding times were met.

Calibration

Frequency and control criteria for initial and continuing calibration verifications were met.

Reporting Limits

All Method Detection Limits were met. The Organotins and TRPH results were evaluated to the MDL, and where applicable, "J" flags were reported.

Blanks

Concentrations of target analytes in the method blank were found to be below reporting limits for all testing.

Laboratory Control Samples

A Laboratory Control Sample (LCS) analysis was performed at the required frequencies, and unless otherwise noted, all parameters were within the established control limits.

Matrix Spikes

Matrix spike analyses were performed for each applicable analysis on AMEC project samples Composite B Top and Station 4. All parameters were within the established control limits with the following exceptions.

The Copper, Silver and Zinc MS, MSD and/or RPDs were outside the control limits. However, since the associated PDS/PDSD recoveries, LCS/LCSD recoveries and RPDs were in control, the data are released with no further action.

Four of the EPA 8081A Chlorinated Pesticides matrix spikes, matrix spike duplicates and/or RPDs exceeded the control limits due to matrix interference. Yet, since all the LCS, LCSD and RPDs were within the control limits, the results are released with no further qualification.

The MS and/or MSD recoveries for several PAHs (by EPA 8270C SIM) fell outside their established control limits. The results have been flagged with the appropriate qualifiers and are released with no further action since the associated LCS/LCSD recoveries were in control.

PCB052 and PCB118 (by EPA 8270C SIM) matrix spike and matrix spike duplicate recoveries exceeded the established control limits, but since the LCS and LCSD recoveries were acceptable, the results are released.

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Surrogates

Surrogate recoveries for all applicable tests and samples were within the established control limits.

Lab Duplicate

A laboratory duplicate was performed on samples Composite B- Bottom and Station 3. Due to limited sample available, the Composite B- Bottom Lab Dup was only analyzed for Oil & Grease, TRPH, TOC, Total Solids and Metals. The Station 3 Lab Dup was tested for Total Solids and PAHs.

Acronyms

LCS/LCSD- Laboratory Control Sample/Laboratory Control Sample Duplicate
PDS/PDSD- Post Digestion Spike/Post Digestion Spike Duplicate
MS/MSD- Matrix Spike/Matrix Spike Duplicate
ME-Marginal Exceedance
RPD- Relative Percent Difference

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 9060A

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B- Top	**11-06-0516-4-A**	**06/07/11 16:45**	**Sediment**	**TOC 5**	**N/A**	**06/09/11 18:11**	**B0609TOCL1**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Carbon, Total Organic	1.5	0.080	1		%

Composite B- Bottom	**11-06-0516-5-A**	**06/07/11 16:45**	**Sediment**	**TOC 5**	**N/A**	**06/09/11 18:11**	**B0609TOCL1**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Carbon, Total Organic	1.4	0.073	1		%

Composite B- Bottom (LAB DUPLICATE)	**11-06-0516-10-A**	**06/07/11 16:45**	**Sediment**	**TOC 5**	**N/A**	**06/09/11 18:11**	**B0609TOCL1**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Carbon, Total Organic	1.4	0.073	1		%

Method Blank	**099-06-013-592**	**N/A**	**Solid**	**TOC 5**	**N/A**	**06/09/11 18:11**	**B0609TOCL1**

Parameter	Result	RL	DF	Qual	Units
Carbon, Total Organic	ND	0.050	1		%

Return to Contents

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 376.2M

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B- Top	**11-06-0516-4-A**	**06/07/11 16:45**	**Sediment**	**N/A**	**06/11/11**	**06/11/11 15:10**	**B0611SB1**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Sulfide, Total	400	8.0	50		mg/kg

Composite B- Bottom	**11-06-0516-5-A**	**06/07/11 16:45**	**Sediment**	**N/A**	**06/11/11**	**06/11/11 15:10**	**B0611SB1**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Sulfide, Total	180	7.3	50		mg/kg

Method Blank	**099-10-035-19**	**N/A**	**Solid**	**N/A**	**06/11/11**	**06/11/11 15:10**	**B0611SB1**

Parameter	Result	RL	DF	Qual	Units
Sulfide, Total	ND	0.10	1		mg/kg

Return to Contents

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 4500-NH3 B/C (M)

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B- Top	**11-06-0516-4-A**	**06/07/11 16:45**	**Sediment**	**BUR05**	**06/14/11**	**06/14/11 16:45**	**B0614NH3L3**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Ammonia (as N)	13	0.32	1		mg/kg

Composite B- Bottom	**11-06-0516-5-A**	**06/07/11 16:45**	**Sediment**	**BUR05**	**06/14/11**	**06/14/11 16:45**	**B0614NH3L3**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Ammonia (as N)	20	0.29	1		mg/kg

Method Blank	**099-12-816-29**	**N/A**	**Solid**	**BUR05**	**06/14/11**	**06/14/11 16:45**	**B0614NH3L3**

Parameter	Result	RL	DF	Qual	Units
Ammonia (as N)	ND	0.20	1		mg/kg

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 376.2M

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B- Top	**11-06-0516-4-A**	**06/07/11 16:45**	**Sediment**	**N/A**	**06/08/11**	**06/08/11 14:30**	**B0608DSB2**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Sulfide, Dissolved	ND	0.16	1		mg/kg

Composite B- Bottom	**11-06-0516-5-A**	**06/07/11 16:45**	**Sediment**	**N/A**	**06/08/11**	**06/08/11 14:30**	**B0608DSB2**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Sulfide, Dissolved	ND	0.15	1		mg/kg

Method Blank	**099-14-095-13**	**N/A**	**Solid**	**N/A**	**06/08/11**	**06/08/11 14:30**	**B0608DSB2**

Parameter	Result	RL	DF	Qual	Units
Sulfide, Dissolved	ND	0.020	0.2		mg/kg

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 2540 B

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 3	**11-06-0516-1-A**	**06/07/11 13:35**	**Sediment**	**N/A**	**06/10/11**	**06/10/11 18:30**	**B0610TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	57.1	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 4	**11-06-0516-2-A**	**06/07/11 15:00**	**Sediment**	**N/A**	**06/10/11**	**06/10/11 18:30**	**B0610TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	62.0	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 5	**11-06-0516-3-A**	**06/07/11 16:00**	**Sediment**	**N/A**	**06/10/11**	**06/10/11 18:30**	**B0610TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	64.1	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B- Top	**11-06-0516-4-A**	**06/07/11 16:45**	**Sediment**	**N/A**	**06/10/11**	**06/10/11 18:30**	**B0610TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	62.6	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B- Bottom	**11-06-0516-5-A**	**06/07/11 16:45**	**Sediment**	**N/A**	**06/10/11**	**06/10/11 18:30**	**B0610TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	68.5	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 3 (LAB DUPLICATE)	**11-06-0516-9-A**	**06/07/11 13:35**	**Sediment**	**N/A**	**06/10/11**	**06/10/11 18:30**	**B0610TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	56.9	0.100	1		%

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 2540 B

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B- Bottom (LAB DUPLICATE)	**11-06-0516-10-A**	**06/07/11 16:45**	**Sediment**	**N/A**	**06/10/11**	**06/10/11 18:30**	**B0610TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	68.5	0.100	1		%

Method Blank	**099-05-019-1,663**	**N/A**	**Solid**	**N/A**	**06/10/11**	**06/10/11 18:30**	**B0610TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	ND	0.100	1		%

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 413.2M

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B- Top	**11-06-0516-4-A**	**06/07/11 16:45**	**Sediment**	**IR #1**	**06/14/11**	**06/14/11 12:18**	**110614L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Units
Oil and Grease	490	32	13	2		mg/kg

Composite B- Bottom	**11-06-0516-5-A**	**06/07/11 16:45**	**Sediment**	**IR #1**	**06/14/11**	**06/14/11 12:18**	**110614L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Units
Oil and Grease	790	29	12	2		mg/kg

Composite B- Bottom (LAB DUPLICATE)	**11-06-0516-10-A**	**06/07/11 16:45**	**Sediment**	**IR #1**	**06/14/11**	**06/14/11 12:18**	**110614L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Units
Oil and Grease	930	29	12	2		mg/kg

Method Blank	**099-07-019-90**	**N/A**	**Solid**	**IR #1**	**06/14/11**	**06/14/11 12:18**	**110614L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units
Oil and Grease	ND	10	4.0	1		mg/kg

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	Extraction
		Method:	EPA 418.1M

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B- Top	**11-06-0516-4-A**	**06/07/11 16:45**	**Sediment**	**IR #1**	**06/14/11**	**06/14/11 00:00**	**110614L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Units
TRPH	410	32	13	2		mg/kg

Composite B- Bottom	**11-06-0516-5-A**	**06/07/11 16:45**	**Sediment**	**IR #1**	**06/14/11**	**06/14/11 18:51**	**110614L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Units
TRPH	670	29	12	2		mg/kg

Composite B- Bottom (LAB DUPLICATE)	**11-06-0516-10-A**	**06/07/11 16:45**	**Sediment**	**IR #1**	**06/14/11**	**06/14/11 18:51**	**110614L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Units
TRPH	850	29	12	2		mg/kg

Method Blank	**099-07-015-1,767**	**N/A**	**Solid**	**IR #1**	**06/14/11**	**06/14/11 00:00**	**110614L03**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units
TRPH	ND	10	4.0	1		mg/kg

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	Organotins by Krone et al.
		Units:	ug/kg
Project: 1015101913 / POLA Berths 167-169			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B- Top	**11-06-0516-4-A**	**06/07/11 16:45**	**Sediment**	**GC/MS Y**	**06/10/11**	**06/14/11 12:13**	**110610L09**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	14	4.8	0.96	1		Tetrabutyltin	ND	4.8	0.57	1	
Monobutyltin	ND	4.8	1.6	1		Tributyltin	14	4.8	0.53	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	79	50-130	

Composite B- Bottom	**11-06-0516-5-A**	**06/07/11 16:45**	**Sediment**	**GC/MS Y**	**06/10/11**	**06/14/11 12:45**	**110610L09**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	37	4.4	0.88	1		Tetrabutyltin	ND	4.4	0.52	1	
Monobutyltin	ND	4.4	1.4	1		Tributyltin	56	4.4	0.49	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	73	50-130	

Method Blank	**099-07-016-845**	**N/A**	**Solid**	**GC/MS Y**	**06/10/11**	**06/14/11 11:41**	**110610L09**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	ND	3.0	0.60	1		Tetrabutyltin	ND	3.0	0.36	1	
Monobutyltin	ND	3.0	0.97	1		Tributyltin	ND	3.0	0.33	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	77	50-130	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B- Top	**11-06-0516-4-A**	**06/07/11 16:45**	**Sediment**	**GC/MS MM**	**06/10/11**	**06/14/11 15:36**	**110610L05**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1-Methylnaphthalene	ND	16	1		Benzo (b) Fluoranthene	4300	160	10	
2,4,5-Trichlorophenol	ND	16	1		Benzo (g,h,i) Perylene	950	16	1	
2,4,6-Trichlorophenol	ND	16	1		Benzo (k) Fluoranthene	2200	16	1	
2,4-Dichlorophenol	ND	16	1		Bis(2-Ethylhexyl) Phthalate	290	16	1	
2,4-Dimethylphenol	ND	16	1		Butyl Benzyl Phthalate	52	16	1	
2,4-Dinitrophenol	ND	800	1		Chrysene	5700	160	10	
2-Chlorophenol	ND	16	1		Di-n-Butyl Phthalate	ND	16	1	
2-Methylnaphthalene	19	16	1		Di-n-Octyl Phthalate	ND	16	1	
2-Methylphenol	ND	16	1		Dibenz (a,h) Anthracene	380	16	1	
2-Nitrophenol	ND	16	1		Diethyl Phthalate	ND	16	1	
3/4-Methylphenol	ND	16	1		Dimethyl Phthalate	150	16	1	
4,6-Dinitro-2-Methylphenol	ND	800	1		Fluoranthene	9100	160	10	
4-Chloro-3-Methylphenol	ND	16	1		Fluorene	150	16	1	
4-Nitrophenol	ND	800	1		Indeno (1,2,3-c,d) Pyrene	1300	16	1	
Acenaphthene	27	16	1		Naphthalene	17	16	1	
Acenaphthylene	180	16	1		Pentachlorophenol	ND	800	1	
Anthracene	2100	16	1		Phenanthrene	440	16	1	
Benzo (a) Anthracene	3100	16	1		Phenol	37	16	1	
Benzo (a) Pyrene	3200	16	1		Pyrene	11000	160	10	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	59	32-143		2-Fluorobiphenyl	54	14-146	
2-Fluorophenol	43	15-138		Nitrobenzene-d5	43	18-162	
p-Terphenyl-d14	67	34-148		Phenol-d6	46	17-141	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B- Bottom	**11-06-0516-5-A**	**06/07/11 16:45**	**Sediment**	**GC/MS MM**	**06/10/11**	**06/14/11 16:02**	**110610L05**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1-Methylnaphthalene	83	15	1		Benzo (b) Fluoranthene	3700	150	10	
2,4,5-Trichlorophenol	ND	15	1		Benzo (g,h,i) Perylene	740	15	1	
2,4,6-Trichlorophenol	ND	15	1		Benzo (k) Fluoranthene	1900	15	1	
2,4-Dichlorophenol	ND	15	1		Bis(2-Ethylhexyl) Phthalate	530	15	1	
2,4-Dimethylphenol	ND	15	1		Butyl Benzyl Phthalate	92	15	1	
2,4-Dinitrophenol	ND	730	1		Chrysene	5700	150	10	
2-Chlorophenol	ND	15	1		Di-n-Butyl Phthalate	ND	15	1	
2-Methylnaphthalene	36	15	1		Di-n-Octyl Phthalate	ND	15	1	
2-Methylphenol	ND	15	1		Dibenz (a,h) Anthracene	370	15	1	
2-Nitrophenol	ND	15	1		Diethyl Phthalate	ND	15	1	
3/4-Methylphenol	ND	15	1		Dimethyl Phthalate	91	15	1	
4,6-Dinitro-2-Methylphenol	ND	730	1		Fluoranthene	6900	150	10	
4-Chloro-3-Methylphenol	ND	15	1		Fluorene	400	15	1	
4-Nitrophenol	ND	730	1		Indeno (1,2,3-c,d) Pyrene	1000	15	1	
Acenaphthene	570	15	1		Naphthalene	130	15	1	
Acenaphthylene	250	15	1		Pentachlorophenol	ND	730	1	
Anthracene	1700	15	1		Phenanthrene	1400	15	1	
Benzo (a) Anthracene	3900	150	10		Phenol	27	15	1	
Benzo (a) Pyrene	3800	150	10		Pyrene	10000	150	10	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	89	32-143		2-Fluorobiphenyl	70	14-146	
2-Fluorophenol	59	15-138		Nitrobenzene-d5	65	18-162	
p-Terphenyl-d14	82	34-148		Phenol-d6	61	17-141	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-413-320**	**N/A**	**Solid**	**GC/MS MM**	**06/10/11**	**06/14/11 13:26**	**110610L05**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
1-Methylnaphthalene	ND	10	1		Benzo (b) Fluoranthene	ND	10	1	
2,4,5-Trichlorophenol	ND	10	1		Benzo (g,h,i) Perylene	ND	10	1	
2,4,6-Trichlorophenol	ND	10	1		Benzo (k) Fluoranthene	ND	10	1	
2,4-Dichlorophenol	ND	10	1		Bis(2-Ethylhexyl) Phthalate	ND	10	1	
2,4-Dimethylphenol	ND	10	1		Butyl Benzyl Phthalate	ND	10	1	
2,4-Dinitrophenol	ND	500	1		Chrysene	ND	10	1	
2-Chlorophenol	ND	10	1		Di-n-Butyl Phthalate	ND	10	1	
2-Methylnaphthalene	ND	10	1		Di-n-Octyl Phthalate	ND	10	1	
2-Methylphenol	ND	10	1		Dibenz (a,h) Anthracene	ND	10	1	
2-Nitrophenol	ND	10	1		Diethyl Phthalate	ND	10	1	
3/4-Methylphenol	ND	10	1		Dimethyl Phthalate	ND	10	1	
4,6-Dinitro-2-Methylphenol	ND	500	1		Fluoranthene	ND	10	1	
4-Chloro-3-Methylphenol	ND	10	1		Fluorene	ND	10	1	
4-Nitrophenol	ND	500	1		Indeno (1,2,3-c,d) Pyrene	ND	10	1	
Acenaphthene	ND	10	1		Naphthalene	ND	10	1	
Acenaphthylene	ND	10	1		Pentachlorophenol	ND	500	1	
Anthracene	ND	10	1		Phenanthrene	ND	10	1	
Benzo (a) Anthracene	ND	10	1		Phenol	ND	10	1	
Benzo (a) Pyrene	ND	10	1		Pyrene	ND	10	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	58	32-143		2-Fluorobiphenyl	61	14-146	
2-Fluorophenol	44	15-138		Nitrobenzene-d5	32	18-162	
p-Terphenyl-d14	77	34-148		Phenol-d6	53	17-141	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B- Top	**11-06-0516-4-A**	**06/07/11 16:45**	**Sediment**	**GC 51**	**06/10/11**	**06/14/11 14:42**	**110610L08**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.6	1		4,4'-DDT	ND	1.6	1	
Alpha-BHC	ND	1.6	1		Endosulfan I	ND	1.6	1	
Beta-BHC	ND	1.6	1		Endosulfan II	ND	1.6	1	
Delta-BHC	ND	1.6	1		Endosulfan Sulfate	ND	1.6	1	
Gamma-BHC	ND	1.6	1		Endrin	ND	1.6	1	
Chlordane	ND	16	1		Endrin Aldehyde	ND	1.6	1	
Dieldrin	ND	1.6	1		Endrin Ketone	ND	1.6	1	
2,4'-DDD	ND	1.6	1		Heptachlor	ND	1.6	1	
2,4'-DDE	5.7	1.6	1		Heptachlor Epoxide	ND	1.6	1	
2,4'-DDT	ND	1.6	1		Toxaphene	ND	32	1	
4,4'-DDD	ND	1.6	1		Alpha Chlordane	ND	1.6	1	
4,4'-DDE	29	8.0	5		Gamma Chlordane	ND	1.6	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	87	50-130		Decachlorobiphenyl	108	50-130	

Composite B- Bottom	**11-06-0516-5-A**	**06/07/11 16:45**	**Sediment**	**GC 51**	**06/10/11**	**06/14/11 13:58**	**110610L08**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.5	1		4,4'-DDT	ND	1.5	1	
Alpha-BHC	ND	1.5	1		Endosulfan I	ND	1.5	1	
Beta-BHC	ND	1.5	1		Endosulfan II	ND	1.5	1	
Delta-BHC	ND	1.5	1		Endosulfan Sulfate	ND	1.5	1	
Gamma-BHC	ND	1.5	1		Endrin	ND	1.5	1	
Chlordane	ND	15	1		Endrin Aldehyde	ND	1.5	1	
Dieldrin	ND	1.5	1		Endrin Ketone	ND	1.5	1	
2,4'-DDD	ND	1.5	1		Heptachlor	ND	1.5	1	
2,4'-DDE	15	15	10		Heptachlor Epoxide	ND	1.5	1	
2,4'-DDT	ND	1.5	1		Toxaphene	ND	29	1	
4,4'-DDD	ND	1.5	1		Alpha Chlordane	ND	1.5	1	
4,4'-DDE	81	15	10		Gamma Chlordane	ND	1.5	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	77	50-130		Decachlorobiphenyl	115	50-130	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-858-94**	**N/A**	**Solid**	**GC 51**	**06/10/11**	**06/14/11 13:29**	**110610L08**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.0	1		4,4'-DDT	ND	1.0	1	
Alpha-BHC	ND	1.0	1		Endosulfan I	ND	1.0	1	
Beta-BHC	ND	1.0	1		Endosulfan II	ND	1.0	1	
Delta-BHC	ND	1.0	1		Endosulfan Sulfate	ND	1.0	1	
Gamma-BHC	ND	1.0	1		Endrin	ND	1.0	1	
Chlordane	ND	10	1		Endrin Aldehyde	ND	1.0	1	
Dieldrin	ND	1.0	1		Endrin Ketone	ND	1.0	1	
2,4'-DDD	ND	1.0	1		Heptachlor	ND	1.0	1	
2,4'-DDE	ND	1.0	1		Heptachlor Epoxide	ND	1.0	1	
2,4'-DDT	ND	1.0	1		Toxaphene	ND	20	1	
4,4'-DDD	ND	1.0	1		Alpha Chlordane	ND	1.0	1	
4,4'-DDE	ND	1.0	1		Gamma Chlordane	ND	1.0	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	95	50-130		Decachlorobiphenyl	93	50-130	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 3	**11-06-0516-1-A**	**06/07/11 13:35**	**Sediment**	**GC/MS BBB**	**06/10/11**	**06/14/11 15:57**	**110610L06**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acenaphthene	30	18	1		Dibenz (a,h) Anthracene	390	18	1	
Acenaphthylene	380	18	1		Fluoranthene	1900	180	10	
Anthracene	1400	180	10		Fluorene	99	18	1	
Benzo (a) Anthracene	1900	180	10		Indeno (1,2,3-c,d) Pyrene	1200	180	10	
Benzo (a) Pyrene	4300	180	10		2-Methylnaphthalene	18	18	1	
Benzo (b) Fluoranthene	5600	180	10		1-Methylnaphthalene	ND	18	1	
Benzo (g,h,i) Perylene	1000	180	10		Naphthalene	ND	18	1	
Benzo (k) Fluoranthene	3600	180	10		Phenanthrene	370	18	1	
Chrysene	3600	180	10		Pyrene	8300	180	10	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	82	14-146		Nitrobenzene-d5	90	18-162	
p-Terphenyl-d14	87	34-148					

Station 4	**11-06-0516-2-A**	**06/07/11 15:00**	**Sediment**	**GC/MS BBB**	**06/10/11**	**06/14/11 16:22**	**110610L06**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acenaphthene	570	16	1		Dibenz (a,h) Anthracene	460	16	1	
Acenaphthylene	750	16	1		Fluoranthene	19000	810	50	
Anthracene	3600	810	50		Fluorene	580	16	1	
Benzo (a) Anthracene	4500	810	50		Indeno (1,2,3-c,d) Pyrene	1400	810	50	
Benzo (a) Pyrene	4800	810	50		2-Methylnaphthalene	64	16	1	
Benzo (b) Fluoranthene	6600	810	50		1-Methylnaphthalene	54	16	1	
Benzo (g,h,i) Perylene	1200	810	50		Naphthalene	120	16	1	
Benzo (k) Fluoranthene	5500	810	50		Phenanthrene	3800	810	50	
Chrysene	8200	810	50		Pyrene	17000	810	50	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	80	14-146		Nitrobenzene-d5	87	18-162	
p-Terphenyl-d14	92	34-148					

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 5	**11-06-0516-3-A**	**06/07/11 16:00**	**Sediment**	**GC/MS BBB**	**06/10/11**	**06/14/11 15:33**	**110610L06**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acenaphthene	28	16	1		Dibenz (a,h) Anthracene	140	16	1	
Acenaphthylene	140	16	1		Fluoranthene	2000	160	10	
Anthracene	360	16	1		Fluorene	46	16	1	
Benzo (a) Anthracene	530	16	1		Indeno (1,2,3-c,d) Pyrene	410	16	1	
Benzo (a) Pyrene	1600	160	10		2-Methylnaphthalene	ND	16	1	
Benzo (b) Fluoranthene	2100	160	10		1-Methylnaphthalene	ND	16	1	
Benzo (g,h,i) Perylene	380	16	1		Naphthalene	24	16	1	
Benzo (k) Fluoranthene	1500	160	10		Phenanthrene	170	16	1	
Chrysene	1300	160	10		Pyrene	3500	160	10	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	77	14-146		Nitrobenzene-d5	90	18-162	
p-Terphenyl-d14	83	34-148					

Station 3 (LAB DUPLICATE)	**11-06-0516-9-A**	**06/07/11 13:35**	**Sediment**	**GC/MS BBB**	**06/10/11**	**06/14/11 15:08**	**110610L06**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acenaphthene	24	18	1		Dibenz (a,h) Anthracene	290	18	1	
Acenaphthylene	260	18	1		Fluoranthene	830	18	1	
Anthracene	780	18	1		Fluorene	70	18	1	
Benzo (a) Anthracene	580	18	1		Indeno (1,2,3-c,d) Pyrene	800	18	1	
Benzo (a) Pyrene	3100	180	10		2-Methylnaphthalene	44	18	1	
Benzo (b) Fluoranthene	3800	180	10		1-Methylnaphthalene	25	18	1	
Benzo (g,h,i) Perylene	730	18	1		Naphthalene	27	18	1	
Benzo (k) Fluoranthene	2900	180	10		Phenanthrene	250	18	1	
Chrysene	2000	180	10		Pyrene	6600	180	10	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	78	14-146		Nitrobenzene-d5	85	18-162	
p-Terphenyl-d14	85	34-148					

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-097-45**	**N/A**	**Solid**	**GC/MS BBB**	**06/10/11**	**06/14/11 12:38**	**110610L06**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acenaphthene	ND	10	1		Dibenz (a,h) Anthracene	ND	10	1	
Acenaphthylene	ND	10	1		Fluoranthene	ND	10	1	
Anthracene	ND	10	1		Fluorene	ND	10	1	
Benzo (a) Anthracene	ND	10	1		Indeno (1,2,3-c,d) Pyrene	ND	10	1	
Benzo (a) Pyrene	ND	10	1		2-Methylnaphthalene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1		1-Methylnaphthalene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1		Naphthalene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1		Phenanthrene	ND	10	1	
Chrysene	ND	10	1		Pyrene	ND	10	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	77	14-146		Nitrobenzene-d5	81	18-162	
p-Terphenyl-d14	78	34-148					

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B- Top	**11-06-0516-4-A**	**06/07/11 16:45**	**Sediment**	**GC/MS HHH**	**06/10/11**	**06/14/11 13:18**	**110610L07**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.6	1		PCB187	1.8	1.6	1	
PCB018	ND	1.6	1		PCB183	ND	1.6	1	
PCB028	ND	1.6	1		PCB126	ND	1.6	1	
PCB052	4.0	1.6	1		PCB128	ND	1.6	1	
PCB049	16	1.6	1		PCB167	ND	1.6	1	
PCB044	3.8	1.6	1		PCB177	ND	1.6	1	
PCB037	ND	1.6	1		PCB156	ND	1.6	1	
PCB074	ND	1.6	1		PCB157	2.0	1.6	1	
PCB070	2.1	1.6	1		PCB180	3.4	1.6	1	
PCB066	2.1	1.6	1		PCB170	1.7	1.6	1	
PCB101	6.4	1.6	1		PCB201	ND	1.6	1	
PCB099	2.3	1.6	1		PCB169	ND	1.6	1	
PCB119	ND	1.6	1		PCB189	ND	1.6	1	
PCB087	2.7	1.6	1		PCB195	ND	1.6	1	
PCB081	ND	1.6	1		PCB194	ND	1.6	1	
PCB110	5.5	1.6	1		PCB206	ND	1.6	1	
PCB151	ND	1.6	1		PCB209	ND	1.6	1	
PCB077	ND	1.6	1		PCB031	4.4	1.6	1	
PCB149	5.0	1.6	1		PCB033	2.1	1.6	1	
PCB123	ND	1.6	1		PCB056	ND	1.6	1	
PCB118	5.4	1.6	1		PCB060	ND	1.6	1	
PCB114	ND	1.6	1		PCB095	4.0	1.6	1	
PCB184	ND	1.6	1		PCB097	5.2	1.6	1	
PCB153	7.2	1.6	1		PCB132	ND	1.6	1	
PCB168	ND	1.6	1		PCB141	1.7	1.6	1	
PCB105	3.0	1.6	1		PCB174	1.7	1.6	1	
PCB138/158	8.4	3.2	1		PCB203	ND	1.6	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	118	50-125		p-Terphenyl-d14	118	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B- Bottom	**11-06-0516-5-A**	**06/07/11 16:45**	**Sediment**	**GC/MS HHH**	**06/10/11**	**06/14/11 13:45**	**110610L07**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.5	1		PCB187	5.9	1.5	1	
PCB018	4.5	1.5	1		PCB183	2.6	1.5	1	
PCB028	ND	1.5	1		PCB126	ND	1.5	1	
PCB052	12	1.5	1		PCB128	5.7	1.5	1	
PCB049	26	1.5	1		PCB167	ND	1.5	1	
PCB044	9.9	1.5	1		PCB177	2.2	1.5	1	
PCB037	ND	1.5	1		PCB156	4.1	1.5	1	
PCB074	3.6	1.5	1		PCB157	5.1	1.5	1	
PCB070	7.5	1.5	1		PCB180	11	1.5	1	
PCB066	6.6	1.5	1		PCB170	5.9	1.5	1	
PCB101	26	1.5	1		PCB201	2.9	1.5	1	
PCB099	8.3	1.5	1		PCB169	ND	1.5	1	
PCB119	ND	1.5	1		PCB189	ND	1.5	1	
PCB087	10	1.5	1		PCB195	ND	1.5	1	
PCB081	ND	1.5	1		PCB194	2.5	1.5	1	
PCB110	22	1.5	1		PCB206	1.5	1.5	1	
PCB151	4.6	1.5	1		PCB209	ND	1.5	1	
PCB077	ND	1.5	1		PCB031	12	1.5	1	
PCB149	18	1.5	1		PCB033	3.3	1.5	1	
PCB123	3.9	1.5	1		PCB056	2.7	1.5	1	
PCB118	23	1.5	1		PCB060	ND	1.5	1	
PCB114	ND	1.5	1		PCB095	15	1.5	1	
PCB184	ND	1.5	1		PCB097	14	1.5	1	
PCB153	28	1.5	1		PCB132	ND	1.5	1	
PCB168	ND	1.5	1		PCB141	4.6	1.5	1	
PCB105	14	1.5	1		PCB174	5.7	1.5	1	
PCB138/158	32	2.9	1		PCB203	1.9	1.5	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	85	50-125		p-Terphenyl-d14	111	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-343-1**	**N/A**	**Solid**	**GC/MS HHH**	**06/10/11**	**06/14/11 12:50**	**110610L07**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.0	1		PCB187	ND	1.0	1	
PCB018	ND	1.0	1		PCB183	ND	1.0	1	
PCB028	ND	1.0	1		PCB126	ND	1.0	1	
PCB052	ND	1.0	1		PCB128	ND	1.0	1	
PCB049	ND	1.0	1		PCB167	ND	1.0	1	
PCB044	ND	1.0	1		PCB177	ND	1.0	1	
PCB037	ND	1.0	1		PCB156	ND	1.0	1	
PCB074	ND	1.0	1		PCB157	ND	1.0	1	
PCB070	ND	1.0	1		PCB180	ND	1.0	1	
PCB066	ND	1.0	1		PCB170	ND	1.0	1	
PCB101	ND	1.0	1		PCB201	ND	1.0	1	
PCB099	ND	1.0	1		PCB169	ND	1.0	1	
PCB119	ND	1.0	1		PCB189	ND	1.0	1	
PCB087	ND	1.0	1		PCB195	ND	1.0	1	
PCB081	ND	1.0	1		PCB194	ND	1.0	1	
PCB110	ND	1.0	1		PCB206	ND	1.0	1	
PCB151	ND	1.0	1		PCB209	ND	1.0	1	
PCB077	ND	1.0	1		PCB031	ND	1.0	1	
PCB149	ND	1.0	1		PCB033	ND	1.0	1	
PCB123	ND	1.0	1		PCB056	ND	1.0	1	
PCB118	ND	1.0	1		PCB060	ND	1.0	1	
PCB114	ND	1.0	1		PCB095	ND	1.0	1	
PCB184	ND	1.0	1		PCB097	ND	1.0	1	
PCB153	ND	1.0	1		PCB132	ND	1.0	1	
PCB168	ND	1.0	1		PCB141	ND	1.0	1	
PCB105	ND	1.0	1		PCB174	ND	1.0	1	
PCB138/158	ND	2.0	1		PCB203	ND	1.0	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	106	50-125		p-Terphenyl-d14	105	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020
		Units:	mg/kg
Project: 1015101913 / POLA Berths 167-169			Page 1 of 1

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B- Top	**11-06-0516-4-A**	**06/07/11 16:45**	**Sediment**	**ICP/MS 04**	**06/10/11**	**06/10/11 20:06**	**110610L01**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	6.31	0.160	1		Nickel	17.3	0.160	1	
Cadmium	0.266	0.160	1		Selenium	0.304	0.160	1	
Chromium	27.2	0.160	1		Silver	ND	0.160	1	
Copper	101	0.160	1		Zinc	104	1.60	1	
Lead	18.6	0.160	1						

Composite B- Bottom	**11-06-0516-5-A**	**06/07/11 16:45**	**Sediment**	**ICP/MS 04**	**06/10/11**	**06/10/11 14:29**	**110610L01**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	9.19	0.146	1		Nickel	20.5	0.146	1	
Cadmium	0.733	0.146	1		Selenium	0.593	0.146	1	
Chromium	55.4	0.146	1		Silver	0.347	0.146	1	
Copper	72.6	0.146	1		Zinc	147	1.46	1	
Lead	56.6	0.146	1						

Composite B- Bottom (LAB DUPLICATE)	**11-06-0516-10-A**	**06/07/11 16:45**	**Sediment**	**ICP/MS 04**	**06/10/11**	**06/10/11 14:33**	**110610L01**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	8.99	0.146	1		Nickel	21.4	0.146	1	
Cadmium	0.766	0.146	1		Selenium	0.598	0.146	1	
Chromium	69.1	0.146	1		Silver	0.356	0.146	1	
Copper	71.4	0.146	1		Zinc	145	1.46	1	
Lead	59.1	0.146	1						

Method Blank	**096-10-002-1,970**	**N/A**	**Solid**	**ICP/MS 04**	**06/10/11**	**06/10/11 13:04**	**110610L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	ND	0.100	1		Nickel	ND	0.100	1	
Cadmium	ND	0.100	1		Selenium	ND	0.100	1	
Chromium	ND	0.100	1		Silver	ND	0.100	1	
Copper	ND	0.100	1		Zinc	ND	1.00	1	
Lead	ND	0.100	1						

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: 1015101913 / POLA Berths 167-169

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite B- Top	**11-06-0516-4-A**	**06/07/11 16:45**	**Sediment**	**Mercury**	**06/09/11**	**06/09/11 16:38**	**110609L05**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.312	0.0320	1		mg/kg

Composite B- Bottom	**11-06-0516-5-A**	**06/07/11 16:45**	**Sediment**	**Mercury**	**06/09/11**	**06/09/11 16:41**	**110609L05**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.478	0.0293	1		mg/kg

Composite B- Bottom (LAB DUPLICATE)	**11-06-0516-10-A**	**06/07/11 16:45**	**Sediment**	**Mercury**	**06/09/11**	**06/09/11 16:43**	**110609L05**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.475	0.0293	1		mg/kg

Method Blank	**099-12-452-205-A**	**N/A**	**Solid**	**Mercury**	**06/09/11**	**06/09/11 16:27**	**110609L05**

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0200	1		mg/kg

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	06/08/11
Work Order No:	11-06-0516
Preparation:	EPA 3050B
Method:	EPA 6020

Project 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Composite B- Top	**Sediment**	**ICP/MS 04**	**06/10/11**	**06/10/11**	**110610S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	96	97	80-120	1	0-20	
Cadmium	98	99	80-120	2	0-20	
Chromium	107	103	80-120	2	0-20	
Copper	180	42	80-120	38	0-20	3,4
Lead	95	96	80-120	1	0-20	
Nickel	98	96	80-120	2	0-20	
Selenium	99	102	80-120	2	0-20	
Silver	32	38	80-120	17	0-20	3
Zinc	124	90	80-120	9	0-20	3

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

AMEC Earth & Environmental		Date Received	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS / PDSD Batch Number
Composite B- Top	**Sediment**	**ICP/MS 04**	**06/10/11**	**06/10/11**	**110610S01**

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	93	92	75-125	1	0-20	
Cadmium	94	94	75-125	0	0-20	
Chromium	95	99	75-125	2	0-20	
Copper	103	97	75-125	2	0-20	
Lead	91	95	75-125	3	0-20	
Nickel	92	94	75-125	2	0-20	
Selenium	99	95	75-125	4	0-20	
Silver	88	87	75-125	1	0-20	
Zinc	101	94	75-125	2	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 9060A

Project 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Composite B- Top	**Sediment**	**TOC 5**	**N/A**	**06/09/11**	**B0609TOCS1**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	89	96	75-125	5	0-25	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 376.2M

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
Composite B- Top	**Sediment**	**N/A**	**06/11/11**	**06/11/11**	**B0611SD1**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Sulfide, Total	250	250	0	0-25	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 376.2M

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
Composite B- Top	**Sediment**	**N/A**	**06/08/11**	**06/08/11**	**B0608DSD2**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Sulfide, Dissolved	ND	ND	NA	0-25	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 2540 B

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
Composite B- Top	**Sediment**	**N/A**	**06/10/11**	**06/10/11**	**B0610TSD1**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Solids, Total	62.6	61.9	1	0-10	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 413.2M

Project 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Composite B- Top	**Sediment**	**IR #1**	**06/14/11**	**06/14/11**	**110614S02**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Oil and Grease	87	78	55-135	4	0-30	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	Extraction
		Method:	EPA 418.1M

Project 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Composite B- Top	**Sediment**	**IR #1**	**06/14/11**	**06/14/11**	**110614S03**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TRPH	78	85	55-135	4	0-30	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Composite B- Top	**Sediment**	**Mercury**	**06/09/11**	**06/09/11**	**110609S05**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	85	82	76-136	3	0-16	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	06/08/11
Work Order No:	11-06-0516
Preparation:	EPA 3545
Method:	Organotins by Krone et al.

Project 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Composite B- Top	**Sediment**	**GC/MS Y**	**06/10/11**	**06/14/11**	**110610S09**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	103	97	50-130	6	0-20	
Tributyltin	82	76	50-130	7	0-20	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	06/08/11
Work Order No:	11-06-0516
Preparation:	EPA 3545
Method:	EPA 8270C SIM

Project 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Composite B- Top	**Sediment**	**GC/MS MM**	**06/10/11**	**06/14/11**	**110610S05**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
2,4,6-Trichlorophenol	77	78	40-160	1	0-20	
2,4-Dichlorophenol	80	82	40-160	2	0-20	
2-Methylphenol	71	70	40-160	2	0-20	
2-Nitrophenol	88	92	40-160	5	0-20	
4-Chloro-3-Methylphenol	73	72	40-160	0	0-20	
Acenaphthene	96	94	40-106	2	0-20	
Benzo (a) Pyrene	17	19	17-163	1	0-20	
Chrysene	0	0	17-168	0	0-20	3
Di-n-Butyl Phthalate	59	60	40-160	1	0-20	
Dimethyl Phthalate	67	67	40-160	0	0-20	
Fluoranthene	0	0	26-137	6	0-20	3
Fluorene	98	96	59-121	1	0-20	
Naphthalene	76	75	21-133	1	0-20	
Phenanthrene	170	172	54-120	1	0-20	3
Phenol	64	64	40-160	1	0-20	
Pyrene	0	0	6-156	2	0-46	3

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental		Date Received:	06/08/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A

Project 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Composite B- Top	**Sediment**	**GC 51**	**06/10/11**	**06/14/11**	**110610S08**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aldrin	98	78	50-135	23	0-25	
Alpha-BHC	123	114	50-135	8	0-25	
Beta-BHC	129	126	50-135	2	0-25	
Delta-BHC	108	114	50-135	6	0-25	
Gamma-BHC	82	86	50-135	5	0-25	
Dieldrin	88	95	50-135	8	0-25	
4,4'-DDD	137	143	50-135	4	0-25	3
4,4'-DDE	57	105	50-135	11	0-25	
4,4'-DDT	108	37	50-135	55	0-25	3,4
Endosulfan I	71	74	50-135	3	0-25	
Endosulfan II	75	81	50-135	8	0-25	
Endosulfan Sulfate	88	82	50-135	7	0-25	
Endrin	98	88	50-135	12	0-25	
Endrin Aldehyde	68	65	50-135	6	0-25	
Endrin Ketone	127	117	50-135	8	0-25	
Heptachlor	71	76	50-135	6	0-25	
Heptachlor Epoxide	111	120	50-135	7	0-25	
Methoxychlor	81	38	50-135	32	0-25	3,4
Alpha Chlordane	94	100	50-135	7	0-25	
Gamma Chlordane	135	91	50-135	39	0-25	4

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	06/08/11
Work Order No:	11-06-0516
Preparation:	EPA 3545
Method:	EPA 8270C SIM PAHs

Project 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Station 4	**Sediment**	**GC/MS BBB**	**06/10/11**	**06/14/11**	**110610S06**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Acenaphthene	32	29	40-160	1	0-20	3
Acenaphthylene	54	57	40-160	0	0-20	
Anthracene	0	0	40-160	2	0-20	3
Benzo (a) Anthracene	466	458	40-160	0	0-20	3
Benzo (a) Pyrene	419	373	40-160	1	0-20	3
Benzo (b) Fluoranthene	139	123	40-160	0	0-20	
Benzo (g,h,i) Perylene	128	117	40-160	1	0-20	
Benzo (k) Fluoranthene	94	0	40-160	17	0-20	3
Chrysene	0	0	40-160	1	0-20	3
Dibenz (a,h) Anthracene	112	111	40-160	0	0-20	
Fluoranthene	0	0	40-160	3	0-20	3
Fluorene	51	51	40-160	0	0-20	
Indeno (1,2,3-c,d) Pyrene	151	141	40-160	1	0-20	
2-Methylnaphthalene	102	106	40-160	3	0-20	
1-Methylnaphthalene	98	108	40-160	7	0-20	
Naphthalene	104	105	40-160	1	0-20	
Phenanthrene	0	0	40-160	1	0-20	3
Pyrene	0	0	40-160	2	0-46	3

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	06/08/11
Work Order No:	11-06-0516
Preparation:	EPA 3545
Method:	EPA 8270C SIM PCB Congeners

Project 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Composite B- Top	**Sediment**	**GC/MS HHH**	**06/10/11**	**06/14/11**	**110610S07**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
PCB008	107	106	50-125	2	0-30	
PCB018	114	107	50-125	6	0-30	
PCB028	121	113	50-125	8	0-30	
PCB052	127	126	50-125	1	0-30	3
PCB044	109	102	50-125	7	0-30	
PCB066	125	120	50-125	4	0-30	
PCB101	114	112	50-125	1	0-30	
PCB077	124	118	50-125	5	0-30	
PCB118	132	126	50-125	4	0-30	3
PCB153	117	112	50-125	4	0-30	
PCB105	120	117	50-125	2	0-30	
PCB187	115	110	50-125	4	0-30	
PCB126	111	109	50-125	2	0-30	
PCB128	119	105	50-125	13	0-30	
PCB180	125	111	50-125	11	0-30	
PCB170	109	102	50-125	6	0-30	
PCB195	112	107	50-125	5	0-30	
PCB206	118	108	50-125	9	0-30	
PCB209	120	121	50-125	1	0-30	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
096-10-002-1,970	**Solid**	**ICP/MS 04**	**06/10/11**	**06/10/11**	**110610L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	94	91	80-120	3	0-20	
Cadmium	100	100	80-120	0	0-20	
Chromium	105	106	80-120	1	0-20	
Copper	99	95	80-120	4	0-20	
Lead	111	109	80-120	2	0-20	
Nickel	103	105	80-120	1	0-20	
Selenium	109	105	80-120	4	0-20	
Silver	93	95	80-120	2	0-20	
Zinc	102	99	80-120	4	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 9060A

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-06-013-592	**Solid**	**TOC 5**	**N/A**	**06/09/11**	**B0609TOCL1**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	109	110	80-120	1	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 4500-NH3 B/C (M)

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-816-29	**Solid**	**BUR05**	**06/14/11**	**06/14/11**	**B0614NH3L3**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Ammonia (as N)	99	98	80-120	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	EPA 413.2M

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-019-90	**Solid**	**IR #1**	**06/14/11**	**06/14/11**	**110614L02**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Oil and Grease	109	107	70-130	2	0-30	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 418.1
		Method:	EPA 418.1M

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-015-1,762	**Solid**	**IR #1**	**06/14/11**	**06/14/11**	**110614L03**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TRPH	110	106	70-130	4	0-30	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-452-205	**Solid**	**Mercury**	**06/09/11**	**06/09/11**	**110609L05**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	100	101	82-124	1	0-16	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	Organotins by Krone et al.

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
099-07-016-845	**Solid**	**GC/MS Y**	**06/14/11**	**14JUN007.rr**	**110610L09**

Parameter	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Tetrabutyltin	100.0	110.8	111	50-130	
Tributyltin	100.0	94.84	95	50-130	

RPD - Relative Percent Difference , CL - Control Limit

Return to Contents

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-413-320	**Solid**	**GC/MS MM**	**06/10/11**	**06/14/11**	**110610L05**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
2,4,6-Trichlorophenol	68	68	40-160	20-180	0	0-20	
2,4-Dichlorophenol	67	68	40-160	20-180	1	0-20	
2-Methylphenol	53	53	40-160	20-180	0	0-20	
2-Nitrophenol	41	44	40-160	20-180	6	0-20	
4-Chloro-3-Methylphenol	58	59	40-160	20-180	1	0-20	
Acenaphthene	72	72	48-108	38-118	1	0-11	
Benzo (a) Pyrene	82	81	17-163	0-187	0	0-20	
Chrysene	74	73	17-168	0-193	0	0-20	
Di-n-Butyl Phthalate	68	71	40-160	20-180	3	0-20	
Dimethyl Phthalate	64	65	40-160	20-180	2	0-20	
Fluoranthene	72	73	26-137	8-156	1	0-20	
Fluorene	77	76	59-121	49-131	1	0-20	
Naphthalene	64	64	21-133	2-152	1	0-20	
Phenanthrene	72	73	54-120	43-131	1	0-20	
Phenol	46	46	40-160	20-180	1	0-20	
Pyrene	68	68	28-106	15-119	0	0-16	

Total number of LCS compounds : 16
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-858-94	**Solid**	**GC 51**	**06/10/11**	**06/14/11**	**110610L08**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Aldrin	79	85	50-135	36-149	8	0-25	
Alpha-BHC	84	88	50-135	36-149	5	0-25	
Beta-BHC	89	91	50-135	36-149	2	0-25	
Delta-BHC	87	89	50-135	36-149	3	0-25	
Gamma-BHC	89	92	50-135	36-149	4	0-25	
Dieldrin	81	88	50-135	36-149	8	0-25	
4,4'-DDD	84	92	50-135	36-149	9	0-25	
4,4'-DDE	87	93	50-135	36-149	7	0-25	
4,4'-DDT	88	91	50-135	36-149	3	0-25	
Endosulfan I	79	86	50-135	36-149	8	0-25	
Endosulfan II	84	91	50-135	36-149	8	0-25	
Endosulfan Sulfate	77	82	50-135	36-149	7	0-25	
Endrin	89	93	50-135	36-149	5	0-25	
Endrin Aldehyde	68	71	50-135	36-149	5	0-25	
Endrin Ketone	83	91	50-135	36-149	9	0-25	
Heptachlor	86	88	50-135	36-149	3	0-25	
Heptachlor Epoxide	73	76	50-135	36-149	4	0-25	
Methoxychlor	84	86	50-135	36-149	3	0-25	
Alpha Chlordane	82	88	50-135	36-149	7	0-25	
Gamma Chlordane	82	88	50-135	36-149	7	0-25	

Total number of LCS compounds : 20
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0516
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-097-45	**Solid**	**GC/MS BBB**	**06/10/11**	**06/14/11**	**110610L06**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Acenaphthene	88	87	48-108	38-118	1	0-11	
Acenaphthylene	86	87	40-160	20-180	1	0-20	
Anthracene	77	76	40-160	20-180	0	0-20	
Benzo (a) Anthracene	88	89	40-160	20-180	1	0-20	
Benzo (a) Pyrene	92	92	40-160	20-180	0	0-20	
Benzo (b) Fluoranthene	92	93	40-160	20-180	0	0-20	
Benzo (g,h,i) Perylene	85	85	40-160	20-180	1	0-20	
Benzo (k) Fluoranthene	93	94	40-160	20-180	1	0-20	
Chrysene	91	91	40-160	20-180	0	0-20	
Dibenz (a,h) Anthracene	87	87	40-160	20-180	0	0-20	
Fluoranthene	89	89	40-160	20-180	0	0-20	
Fluorene	90	89	40-160	20-180	1	0-20	
Indeno (1,2,3-c,d) Pyrene	88	89	40-160	20-180	1	0-20	
2-Methylnaphthalene	86	85	40-160	20-180	1	0-20	
1-Methylnaphthalene	94	94	40-160	20-180	0	0-20	
Naphthalene	90	91	40-160	20-180	1	0-20	
Phenanthrene	89	89	40-160	20-180	0	0-20	
Pyrene	88	90	40-160	20-180	2	0-16	

Total number of LCS compounds : 18

Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: N/A
Work Order No: 11-06-0516
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners

Project: 1015101913 / POLA Berths 167-169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-343-1	**Solid**	**GC/MS HHH**	**06/10/11**	**06/14/11**	**110610L07**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
PCB008	101	102	50-125	38-138	1	0-30	
PCB018	102	104	50-125	38-138	2	0-30	
PCB028	100	102	50-125	38-138	3	0-30	
PCB052	98	100	50-125	38-138	2	0-30	
PCB044	100	104	50-125	38-138	3	0-30	
PCB066	102	101	50-125	38-138	0	0-30	
PCB101	99	100	50-125	38-138	0	0-30	
PCB077	106	105	50-125	38-138	1	0-30	
PCB118	108	103	50-125	38-138	4	0-30	
PCB153	98	95	50-125	38-138	3	0-30	
PCB105	99	102	50-125	38-138	4	0-30	
PCB187	100	99	50-125	38-138	0	0-30	
PCB126	93	96	50-125	38-138	3	0-30	
PCB128	98	97	50-125	38-138	1	0-30	
PCB180	98	97	50-125	38-138	0	0-30	
PCB170	93	97	50-125	38-138	4	0-30	
PCB195	103	104	50-125	38-138	1	0-30	
PCB206	101	105	50-125	38-138	4	0-30	
PCB209	109	109	50-125	38-138	0	0-30	

Total number of LCS compounds : 19
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 11-06-0516

Qualifier	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

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Calscience Environmental Laboratories, Inc.

☒ SoCal Laboratory
7440 Lincoln Way
Garden Grove, CA 92841-1427
(714) 895-5494

☐ NorCal Service Center
5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

CHAIN OF CUSTODY RECORD

Date 6/8/2011

Page 1 of 1

WO # / LAB USE ONLY: 0 6 - 0 5 1 6

LABORATORY CLIENT: AMEC

ADDRESS: 9210 Sky Park Courte Suite 200

CITY: San Diego STATE: CA ZIP: 92123

TEL: 858-300-4320

E-MAIL: Barry.Snyder@amec.com

CLIENT PROJECT NAME / NUMBER: 101570913

P.O. NO.:

PROJECT CONTACT: Barry Snyder

SAMPLER(S): (PRINT) Brent Merdian

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD

☐ COELT EDF

GLOBAL ID

LOG CODE

SPECIAL INSTRUCTIONS: Report Sed. in Dry weight
Please contact Barry Snyder with any questions.

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	~~TPH (g) or GRO~~	~~TPH (d) or DRO or (C6-C36) or (C6-C44)~~	~~TPH~~	~~BTEX / MTBE (8260) or ( )~~	~~VOCs (8260)~~ TRPH 418.1	~~Oxygenates (8260)~~ Organotins	En Core / Terra Core Prep (5035)	~~SVOCs (8270)~~ Phthalates 8270C	Pesticides (8081)	PCBs (8082)	~~PNAs (8310) or (8270)~~ Phenols 8270C	T22 Metals (6010/747X)	~~Cr(VI) (7196 or 7199 or 218.6)~~ PAHs 8270C	~~Air VOCs (TO-14A) or (TO-15)~~ TOTAL Ammonia	~~Air TPH (g) (TO-3)~~ Mercury 7471	TOC - 9060	Oil & Grease	Grain Size
1	Station 3	6/7/2011	1335	Sed	1	X															X					
2	Station 4		1500		1																X					
3	Station 5		1600		1																X					
4	Composite B-Top		1645		1								X	X		X			X	X	X	X	X	X	X	
5	Composite B-Bottom		1645		1								X	X		X			X	X	X	X	X	X	X	
6	Site Water		1700	WTR	5								X	X		X			X	X	X	X	X	X	X	
7	Elutriate Sed - Comp. B-Top		1645	Sed	2								X	X		X			X	X	X	X	X	X	X	
8	Comp B - Grain Size		1645		1																					X

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
[signature]	[signature]	6/8/2011	0945
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

DISTRIBUTION: White with final report, Green and Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the [illegible] nd Yellow copies respectively.

06/01/10 Revision

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Table 8. Chemical Analyses for Sediment and Elutriates Samples

Analyte	Analysis Method	Sediment Target Detection Limits[a,b]	Elutriate Target Detection Limits[b]
Total Solids	SM 2540 B	0.1%	N/A
Total Organic Carbon	9060	0.1%	N/A
Total Ammonia	SM 4500-NH3 B/C (M)[c]	0.2 mg/kg	N/A
Total and Soluble Sulfides	376.2M[c]	0.1 mg/kg	N/A
Oil and Grease	EPA 413.2M	5.0 mg/kg	N/A
Arsenic (As)	6020/6010B[d]	0.1 mg/kg	0.001 mg/L
Cadmium (Cd)	6020/6010B[d]	0.1 mg/kg	0.001 mg/L
Chromium (Cr)	6020/6010B[d]	0.1 mg/kg	0.001 mg/L
Copper (Cu)	6020/6010B[d]	0.1 mg/kg	0.001 mg/L
Lead (Pb)	6020/6010B[d]	0.1 mg/kg	0.001 mg/L
Mercury (Hg)	7471A[d]	0.02 mg/kg	0.0002 mg/L
Nickel (Ni)	6020/6010B[d]	0.1 mg/kg	0.001 mg/L
Selenium (Se)	6020/6010B[d]	0.1 mg/kg	0.001 mg/L
Silver (Ag)	6020/6010B[d]	0.1 mg/kg	0.001 mg/L
Zinc (Zn)	6020/6010B[d]	2.0 mg/kg	0.001 mg/L
TRPH	418.1M[d]	5.0 mg/kg	N/A
PAHs[e]	8270C SIM[d]	20 µg/kg	1.0-15 µg/L
Chlorinated Pesticides[f]	8081A[d]	0.5 to 30 µg/kg	0.1 µg/L
PCB Congeners[g]	8270C SIM	1.0 µg/kg	1.0 µg/L
Phenols	8270C SIM[d]	20 to 100 µg/kg	N/A
Phthalates	8270C SIM[d]	10 µg/kg	N/A
Organotins	Rice/Krone[h]	1.0 µg/kg	1.0 µg/L

Notes:

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

b Reporting limits were provided by Calscience Environmental Laboratories, Inc.

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

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

e Includes naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b,k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene.

f Includes aldrin, □-BHC, □-BHC, □-BHC (lindane), □-BHC, chlordane, 2,4- and 4,4-DDD, 2,4- and 4,4-DDE, 2,4- and 4,4-DDT, dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, and toxaphene.

g PCBs (sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194,201, and 206)

h Rice et al. 1987 or similar (e.g., Krone et al. 1989)

µg/kg micrograms per kilogram (parts per billion)
mg/kg milligrams per kilogram (parts per million),
µg/L micrograms per liter
mg/L milligrams per liter
N/A not analyzed
PAH polycyclic aromatic hydrocarbon
PCB polychlorinated biphenyl
SM Standard Methods
SOP standard operating procedure
TRPH total recoverable petroleum hydrocarbons

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 11-06-0516

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: AMEC

DATE: 06/08/11

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 3.2 °C + 0.5 °C (CF) = 3.7 °C ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Initial: [illegible]

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: [illegible]

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: RS

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑ 6/8/11	☑	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☑16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☑ #7-8 Z

Water: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐500PB ☐500PB**na**

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☑ 5 CUBE 1 GAL ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** RS

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope **Reviewed by:** WSC

Preservative: h: HCL n: HNO_3 na$_2$: $Na_2S_2O_3$ na: NaOH p: H_3PO_4 s: H_2SO_4 znna: $ZnAc_2$+NaOH f: Field-filtered **Scanned by:** WSC

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 11-06-0576

SAMPLE ANOMALY FORM

SAMPLES - CONTAINERS & LABELS:

Comments:

- ☐ **Sample(s)/Container(s) NOT RECEIVED but listed on COC**
- ☐ **Sample(s)/Container(s) received but NOT LISTED on COC**
- ☐ **Holding time expired** – list sample ID(s) and test
- ☐ **Insufficient quantities for analysis** – list test
- ☐ **Improper container(s) used** – list test
- ☐ **Improper preservative used** – list test
- ☐ **No preservative noted on COC or label** – list test & notify lab
- ☐ **Sample labels illegible** – note test/container type
- ☑ **Sample label(s) do not match COC** – Note in comments
  - ☐ **Sample ID**
  - ☐ **Date and/or Time Collected**
  - ☐ **Project Information**
  - ☑ **# of Container(s)**
  - ☐ **Analysis**
- ☐ **Sample container(s) compromised** – Note in comments
  - ☐ **Water present in sample container**
  - ☐ **Broken**
- ☐ **Sample container(s) not labeled**
- ☐ **Air sample container(s) compromised** – Note in comments
  - ☐ **Flat**
  - ☐ **Very low in volume**
  - ☐ **Leaking (Not transferred - duplicate bag submitted)**
  - ☐ **Leaking (transferred into Calscience Tedlar® Bag*)**
  - ☐ **Leaking (transferred into Client's Tedlar® Bag*)**
- ☐ **Other:** _____

(-4) RECEIVED 2 CONTAINER INSTEAD OF 1.

HEADSPACE – Containers with Bubble > 6mm or ¼ inch:

Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Cont. received	Analysis

Comments: _____

*Transferred at Client's request.

Initial / Date: RS 06 /08 /11

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Composite Area B Physical Analysis

Petroleum Services Division
3437 Landco Dr.
Bakersfield, California 93308
Tel: 661-325-5657
Fax: 661-325-5808
www.corelab.com

Core Lab
RESERVOIR OPTIMIZATION

June 27, 2011

Danielle Gonsman
Calscience Environmental Laboratories, Inc.
7440 Lincoln Way
Garden Grove, CA 92641-1432

Re: Physical Properties Analyses
Project: 11-06-0516
CL File No: 411044EN

Dear Ms Gonsman:

The final results of the particle-size distribution determinations performed upon the sample submitted from your Project # 11-06-0516 accompany this cover. This electronic version of the report will constitute the final report unless otherwise instructed.

Appropriate ASTM, EPA or API methodologies were used for this project and SOP's are available on request. Samples for this project are currently in storage and will be retained for thirty days past completion of testing at no charge. At the end of thirty days the samples will be disposed. You may contact me regarding continued storage, disposal or return of the samples.

We appreciate the opportunity to be of service to Calscience Environmental Laboratories, Inc. and trust these data will prove beneficial in the development of this project. Please do not hesitate to contact us (661-325-5657) if you have any questions regarding these results, or if we can be of any additional service.

Sincerely,
Core Laboratories

Jeffry L. Smith

Jeffry L. Smith
ARP Supervisor

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CLB Listed NYSE

SIEVE and LASER PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

Core Lab
RESERVOIR OPTIMIZATION

Petroleum Services

Co. : Calscience Environmental Laboratories, Inc.
Proj. No. : 11-06-0516

Core Lab File No : 57111-411044EN
Date : 6/21/2011

Sample ID	Grain Size Description (Mean from Folk)	Median Grain Size, mm	Component Percentages								Silt & Clay
			Gravel	Sand Size						Clay	
				VCoarse	Coarse	Medium	Fine	VFine	Silt		
Comp B	silt	0.00	0.00	0.00	0.01	10.29	20.31	9.90	51.68	11.84	63.5

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Company : Calscience Environmental Laboratories, Inc.
Proj. No. : 11-06-0516

C.L. File No. : 57111-411044EN
Date : 6/21/2011

Sieve and Laser Particle Size Analysis (Metric)

. No. : 11-06-0	Component Percentages								Percentiles										Sorting Statistics (Folk)				
ID/	Gravel	Sand					Fines		Particle Diameter (mm)										Median	Mean	Sorting	Skew.	Kurt.
Depth(ft)		vcgr	cgr	mgr	fgr	vfgr	silt	clay	5	10	16	25	40	50	75	84	90	95	mm	mm	ϕ		
Comp B	0.00	0.00	0.01	10.29	20.31	9.90	51.68	11.84	0.0105 mgr	0.0083 fgr	0.0068 fgr	0.0052 fgr	0.0023 silt	0.0013 silt	0.0004 silt	0.0002 silt	0.0001 clay	0.0001 clay	0.001 silt	0.001 silt	2.330 v. Poor	0.095 near sym	0.763 platykurtic

** Particle-size distribution pattern precludes calculation of these statistical parameters

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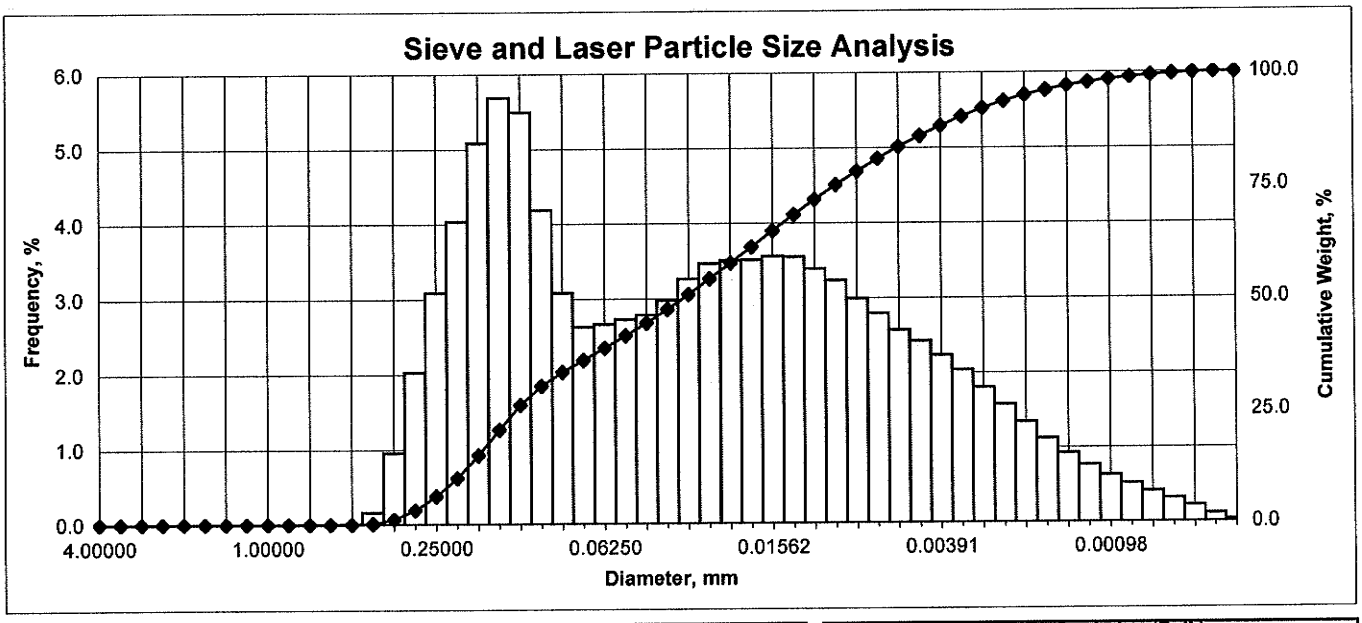
Core Lab
RESERVOIR OPTIMIZATION

Company : Calscience Environmental Laboratories, Inc.
Proj. No. : 11-06-0516

CL File No. : 57111-411044EN
Sample ID : Comp B



Particle Size Distribution

	Diameter [US Mesh]	Diameter [in.]	Diameter [mm]	Diameter [ϕ]	Weight % [Incl.]	Weight % [Cum.]
Granule	5	0.157480	4.00000	-2.00	0.000	0.00
	6	0.132425	3.36359	-1.75	0.000	0.00
	7	0.111355	2.82843	-1.50	0.000	0.00
	8	0.093638	2.37841	-1.25	0.000	0.00
	10	0.078740	2.00000	-1.00	0.000	0.00
V Crse Sand	12	0.066212	1.68179	-0.75	0.000	0.00
	14	0.055678	1.41421	-0.50	0.000	0.00
	16	0.046819	1.18921	-0.25	0.000	0.00
	18	0.039370	1.00000	0.00	0.000	0.00
Coarse Sand	20	0.033106	0.84090	0.25	0.000	0.00
	25	0.027839	0.70711	0.50	0.000	0.00
	30	0.023410	0.59460	0.75	0.000	0.00
	35	0.019685	0.50000	1.00	0.013	0.01
Medium Sand	40	0.016553	0.42045	1.25	0.163	0.18
	45	0.013919	0.35355	1.50	0.963	1.14
	50	0.011705	0.29730	1.75	2.034	3.17
	60	0.009843	0.25000	2.00	3.090	6.26
Fine Sand	70	0.008277	0.21022	2.25	4.040	10.30
	80	0.006960	0.17678	2.50	5.083	15.39
	100	0.005852	0.14865	2.75	5.690	21.08
	120	0.004921	0.12500	3.00	5.494	26.57
V. Fine Sand	140	0.004138	0.10511	3.25	4.190	30.76
	170	0.003480	0.08839	3.50	3.083	33.84
	200	0.002926	0.07433	3.75	2.630	36.47
Silt	230	0.002461	0.06250	4.00	2.668	39.14
	270	0.002069	0.05256	4.25	2.730	41.87
	325	0.001740	0.04419	4.50	2.788	44.66
	400	0.001463	0.03716	4.75	2.976	47.63
	450	0.001230	0.03125	5.00	3.264	50.90
	500	0.001035	0.02628	5.25	3.468	54.37
	635	0.000870	0.02210	5.50	3.507	57.87
		0.000732	0.01858	5.75	3.513	61.39
		0.000615	0.01562	6.00	3.563	64.95
		0.000517	0.01314	6.25	3.552	68.50
		0.000435	0.01105	6.50	3.393	71.89
		0.000366	0.00929	6.75	3.236	75.13
		0.000308	0.00781	7.00	2.994	78.12
		0.000259	0.00657	7.25	2.796	80.92
		0.000217	0.00552	7.50	2.573	83.49
		0.000183	0.00465	7.75	2.426	85.92
		0.000154	0.00391	8.00	2.236	88.16
Clay		0.000129	0.00328	8.25	2.040	90.20
		0.000109	0.00276	8.50	1.807	92.00
		0.000091	0.00232	8.75	1.579	93.58
		0.000077	0.00195	9.00	1.345	94.93
		0.000065	0.00164	9.25	1.124	96.05
		0.000054	0.00138	9.50	0.927	96.98
		0.000046	0.00116	9.75	0.767	97.75
		0.000038	0.00098	10.00	0.629	98.37
		0.000032	0.00082	10.25	0.519	98.89
		0.000027	0.00069	10.50	0.417	99.31
		0.000023	0.00058	10.75	0.320	99.63
		0.000019	0.00049	11.00	0.222	99.85
		0.000016	0.00041	11.25	0.112	99.97
		0.000015	0.00038	11.50	0.035	100.00

Sorting Statistics (Folk)

Parameter	Trask	Inman	Folk
Median	Silt sized		
(in)	0.0013	0.0013	0.0013
(mm)	0.0326	0.0326	0.0326
Mean	Silt sized		
(in)	0.0028	0.0012	0.0012
(mm)	0.0706	0.0304	0.0311
Sorting	V. Poor		
	3.754	0.176	2.330
Skewness	Near symmetrical		
	1.076	0.210	0.095
Kurtosis	Platykurtic		
	0.294	0.416	0.763

Component Percentages

Gravel	Sand	Silt	Clay	Silt + Clay
0.00	36.47	51.68	11.84	63.53

Percentile [Weight, %]	Particle Diameter [in.]	Particle Diameter [mm]	Particle Diameter [phi]
5	0.0105	0.2660	1.9106
10	0.0083	0.2114	2.2417
16	0.0068	0.1728	2.5328
25	0.0052	0.1318	2.9237
40	0.0023	0.0590	4.0822
50	0.0013	0.0326	4.9371
75	0.0004	0.0094	6.7405
84	0.0002	0.0053	7.5492
90	0.0001	0.0033	8.2253
95	0.0001	0.0019	9.0147

** Distribution pattern precludes calculation of these statistical parameters.

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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1427
TEL: (714) 895-5494 . FAX: (714) 894-7501

TO: CORE LABORATORIES

CHAIN OF CUSTODY RECORD 411044

DATE: 06/09/11
PAGE: 1 OF 1

LABORATORY CLIENT: Calscience Environmental Laboratories, Inc.
ADDRESS: 7440 Lincoln Way
CITY: Garden Grove, CA 92841-1427
TEL: (714) 895-5494
E-MAIL: dgonsman@calscience.com

CLIENT PROJECT NAME / NUMBER: 11-06-0516
P.O. NO.: 11-06-0516
PROJECT CONTACT: Danielle Gonsman
TEMP BLANK:
LAB USE ONLY
SAMPLER(S): (PRINT)

TURNAROUND TIME
___SAME DAY ___24 HR ___48HR ___72 HR ___5 DAYS X STANDARD

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ___/___/___

SPECIAL INSTRUCTIONS
Contact prior to subcontracting samples

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	GRAIN SIZE ASTM D422/4464
	Comp B- Grain Size	06/07/11	1645	sed	1	X

Relinquished by: (Signature)	Received by / Affiliation: (Signature)	Date:	Time:
(CALSCIENCE)	GSO # 516752843	6/9/11	1620
Relinquished by: (Signature)	Received by / Affiliation: (Signature) Jeff Smith Core Lab	6/10/11	900
Relinquished by: (Signature)	Received by / Affiliation: (Signature)	Date:	Time:

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Elutriate Chemistry

Calscience
Environmental & Marine Chemistry Laboratories

CALSCIENCE

WORK ORDER NUMBER: 11-06-0773

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: AMEC Earth & Environmental

Client Project Name: 1015101913

Attention: Barry Snyder
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Approved for release on 06/29/2011 by:
Danielle Gonsman
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety. Note that the Chain-of-Custody Record and Sample Receipt Form are integral parts of this report.

Calscience
Environmental & Marine Chemistry Laboratories

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Work Order Number: 11-06-0773

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Calscience Environmental Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 11-06-0773
Project ID: 1015101913 / POLA Berths 167-169

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the elutriate samples.

Sample Condition on Receipt

One seawater sample and one sediment sample was received for this project on June 10, 2011 (under CEL Work Order 11-06-0516). The samples were transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures, and the temperature of the samples were 3.7°C. Upon receipt at the lab, the samples were given laboratory identification numbers, logged into the Laboratory Information Management System (LIMS) and stored in refrigeration units pending elutriate preparation.

Elutriate Preparation

The elutriate sample was prepared in accordance with the Standard Elutriate Testing protocol (Inland Testing Manual, 2006), as follows.

Prior to use, all labware was thoroughly cleaned in accordance with standard laboratory operating procedures (detergent wash, acid bath, and rinse with D.I. water). Approximately eight liters of the site water was placed a commercial grade stainless steel mixing bowl. Using volumetric displacement, approximately two liters of sediment was added to the bowl with the site water. At room temperature, the mixture was stirred vigorously for 30 minutes. After mixing, the elutriate sample was allowed to settle for approximately one hour. The supernatant was then siphoned off and collected in clean glass containers. Approximately 6.0 to 7.0 liters of clear supernatant were decanted from the settled mixture.

The elutriate sample was centrifuged and transferred to new 1L amber glass containers (for all hydrocarbon determinations) and a 250mL HDPE container (for metals determination). The samples were then logged into LIMS given laboratory identification numbers, and stored in refrigeration units pending chemistry analysis.

In order to account for any possible laboratory contamination during the elutriate preparation, the Site Water sample was treated as a control and processed in the same manner as the elutriate sample. The metals results for the Site Water sample showed elevated Chromium, Copper and Nickel detections relative to the elutriate sample. Realizing the data made no sense, the chemist was questioned about the preparation. An observation was noted that during the mixing of the Site Water sample, one of the blades of the commercial mixer was scraping the mixing bowl. The scraping was not observed during the elutriate preparation. In order to determine if the metal-on-metal scraping may be the cause of the high Site Water metals concentrations, it was then decided to analyze the original Site Water for metals. The elevated Chromium, Copper and Nickel levels were not found in the original Site Water, rather the levels were

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sensible relative to the elutriate sample. We therefore believe that the unusually high metal concentrations of the Site Water control sample did result from the scraping observed during the mixing process, and that the data does not represent a true control blank. Therefore, both sets of data are presented within this report.

Tests Performed

Trace Metals by EPA 1640
Mercury by EPA 7470A
Chlorinated Pesticides by EPA 8081A
PCB Congeners by EPA 8270C SIM
PAHs by EPA 8270C SIM
Organotins by Krone et al.

Data Summary

Holding times

All holding time requirements were met.

Calibration

Frequency and control criteria for initial and continuing calibration verifications were met.

Blanks

Concentrations of target analytes in the method blanks were found to be below reporting limits for all tests.

Laboratory Control Samples

Laboratory Control Sample (LCS/LCSD) analyses were performed for each applicable method at the required frequencies, and all parameters were within the control limits for each method.

Matrix Spikes

Due to sample volume limitations, matrix spikes could not be performed for all analyses. Matrix spiking was performed for EPA 1640 Trace Metals, EPA 7470A Mercury and EPA 8270C SIM PAHs. All parameters were within the established control limits with the following exceptions.

Arsenic Nickel and Selenium, by EPA 1640, fell outside the established control limits due to matrix interference. However, the results are released with no further action since the corresponding LCS and LCSD recoveries were within the established control limits.

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Several of the EPA 8270C SIM PAH MS and/or MSD recoveries were above the established control limits. The results have been flagged with the appropriate qualifiers and released with no further clarification since the corresponding LCS/LCSD recoveries were in control.

Surrogates

Surrogate recoveries for all applicable tests and samples were within acceptable control limits.

Acronyms

LCS/LCSD- Laboratory Control Sample/Laboratory Control Sample Duplicate
MS/MSD- Matrix Spike/Matrix Spike Duplicate
RPD- Relative Percent Difference

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0773
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	EPA 8270C SIM PAHs
		Units:	ug/L
Project: 1015101913			Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Elutriate Sed-Comp B	**11-06-0773-1-E**	**06/10/11 12:00**	**Aqueous**	**GC/MS BBB**	**06/14/11**	**06/16/11 14:28**	**110614L08**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	0.29	0.20	1		Pyrene	1.2	0.20	1	
2-Methylnaphthalene	ND	0.20	1		Benzo (a) Anthracene	ND	0.20	1	
1-Methylnaphthalene	ND	0.20	1		Chrysene	ND	0.20	1	
Acenaphthylene	ND	0.20	1		Benzo (k) Fluoranthene	ND	0.20	1	
Acenaphthene	0.36	0.20	1		Benzo (b) Fluoranthene	ND	0.20	1	
Fluorene	ND	0.20	1		Benzo (a) Pyrene	ND	0.20	1	
Phenanthrene	0.24	0.20	1		Indeno (1,2,3-c,d) Pyrene	ND	0.20	1	
Anthracene	ND	0.20	1		Dibenz (a,h) Anthracene	ND	0.20	1	
Fluoranthene	0.48	0.20	1		Benzo (g,h,i) Perylene	ND	0.20	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	86	28-139			2-Fluorobiphenyl	84	33-144		
p-Terphenyl-d14	78	23-160							

Site Water	**11-06-0773-2-C**	**06/10/11 12:00**	**Aqueous**	**GC/MS BBB**	**06/14/11**	**06/16/11 15:42**	**110614L08**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	0.20	1		Pyrene	ND	0.20	1	
2-Methylnaphthalene	ND	0.20	1		Benzo (a) Anthracene	ND	0.20	1	
1-Methylnaphthalene	ND	0.20	1		Chrysene	ND	0.20	1	
Acenaphthylene	ND	0.20	1		Benzo (k) Fluoranthene	ND	0.20	1	
Acenaphthene	ND	0.20	1		Benzo (b) Fluoranthene	ND	0.20	1	
Fluorene	ND	0.20	1		Benzo (a) Pyrene	ND	0.20	1	
Phenanthrene	ND	0.20	1		Indeno (1,2,3-c,d) Pyrene	ND	0.20	1	
Anthracene	ND	0.20	1		Dibenz (a,h) Anthracene	ND	0.20	1	
Fluoranthene	ND	0.20	1		Benzo (g,h,i) Perylene	ND	0.20	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	86	28-139			2-Fluorobiphenyl	81	33-144		
p-Terphenyl-d14	76	23-160							

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0773
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	EPA 8270C SIM PAHs
		Units:	ug/L
Project: 1015101913			Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-06-008-369**	**N/A**	**Aqueous**	**GC/MS BBB**	**06/14/11**	**06/16/11 11:34**	**110614L08**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	0.20	1		Pyrene	ND	0.20	1	
2-Methylnaphthalene	ND	0.20	1		Benzo (a) Anthracene	ND	0.20	1	
1-Methylnaphthalene	ND	0.20	1		Chrysene	ND	0.20	1	
Acenaphthylene	ND	0.20	1		Benzo (k) Fluoranthene	ND	0.20	1	
Acenaphthene	ND	0.20	1		Benzo (b) Fluoranthene	ND	0.20	1	
Fluorene	ND	0.20	1		Benzo (a) Pyrene	ND	0.20	1	
Phenanthrene	ND	0.20	1		Indeno (1,2,3-c,d) Pyrene	ND	0.20	1	
Anthracene	ND	0.20	1		Dibenz (a,h) Anthracene	ND	0.20	1	
Fluoranthene	ND	0.20	1		Benzo (g,h,i) Perylene	ND	0.20	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Nitrobenzene-d5	84	28-139		2-Fluorobiphenyl	79	33-144	
p-Terphenyl-d14	79	23-160					

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0773
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	Organotins by Krone et al.
		Units:	ng/L
Project: 1015101913			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Elutriate Sed-Comp B	**11-06-0773-1-C**	**06/10/11 12:00**	**Aqueous**	**GC/MS Y**	**06/13/11**	**06/14/11 19:06**	**110613L16**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Dibutyltin	ND	3.0	1		Tetrabutyltin	ND	3.0	1	
Monobutyltin	ND	3.0	1		Tributyltin	ND	3.0	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	88	50-130	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Site Water	**11-06-0773-2-D**	**06/10/11 12:00**	**Aqueous**	**GC/MS Y**	**06/13/11**	**06/14/11 19:38**	**110613L16**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Dibutyltin	ND	3.0	1		Tetrabutyltin	ND	3.0	1	
Monobutyltin	ND	3.0	1		Tributyltin	ND	3.0	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	87	50-130	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-07-035-147**	**N/A**	**Aqueous**	**GC/MS Y**	**06/13/11**	**06/14/11 18:03**	**110613L16**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Dibutyltin	ND	3.0	1		Tetrabutyltin	ND	3.0	1	
Monobutyltin	ND	3.0	1		Tributyltin	ND	3.0	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	75	50-130	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0773
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	EPA 8081A
		Units:	ug/L
Project: 1015101913			Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Elutriate Sed-Comp B	**11-06-0773-1-D**	**06/10/11 12:00**	**Aqueous**	**GC 51**	**06/13/11**	**06/14/11 12:17**	**110613L10**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Alpha-BHC	ND	0.050	1		4,4'-DDD	ND	0.050	1	
Gamma-BHC	ND	0.050	1		Endosulfan II	ND	0.050	1	
Beta-BHC	ND	0.050	1		4,4'-DDT	ND	0.050	1	
Heptachlor	ND	0.050	1		Endosulfan Sulfate	ND	0.050	1	
Delta-BHC	ND	0.050	1		Chlordane	ND	0.50	1	
Aldrin	ND	0.050	1		Toxaphene	ND	2.0	1	
Heptachlor Epoxide	ND	0.050	1		Endrin Ketone	ND	0.050	1	
Endosulfan I	ND	0.050	1		Alpha Chlordane	ND	0.050	1	
Dieldrin	ND	0.050	1		Gamma Chlordane	ND	0.050	1	
4,4'-DDE	ND	0.050	1		2,4'-DDD	ND	0.050	1	
Endrin	ND	0.050	1		2,4'-DDE	ND	0.050	1	
Endrin Aldehyde	ND	0.050	1		2,4'-DDT	ND	0.050	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	63	50-135		2,4,5,6-Tetrachloro-m-Xylene	77	50-135	

Site Water	**11-06-0773-2-B**	**06/10/11 12:00**	**Aqueous**	**GC 51**	**06/13/11**	**06/14/11 12:31**	**110613L10**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Alpha-BHC	ND	0.050	1		4,4'-DDD	ND	0.050	1	
Gamma-BHC	ND	0.050	1		Endosulfan II	ND	0.050	1	
Beta-BHC	ND	0.050	1		4,4'-DDT	ND	0.050	1	
Heptachlor	ND	0.050	1		Endosulfan Sulfate	ND	0.050	1	
Delta-BHC	ND	0.050	1		Chlordane	ND	0.50	1	
Aldrin	ND	0.050	1		Toxaphene	ND	2.0	1	
Heptachlor Epoxide	ND	0.050	1		Endrin Ketone	ND	0.050	1	
Endosulfan I	ND	0.050	1		Alpha Chlordane	ND	0.050	1	
Dieldrin	ND	0.050	1		Gamma Chlordane	ND	0.050	1	
4,4'-DDE	ND	0.050	1		2,4'-DDD	ND	0.050	1	
Endrin	ND	0.050	1		2,4'-DDE	ND	0.050	1	
Endrin Aldehyde	ND	0.050	1		2,4'-DDT	ND	0.050	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	79	50-135		2,4,5,6-Tetrachloro-m-Xylene	81	50-135	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0773
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	EPA 8081A
		Units:	ug/L
Project: 1015101913			Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-830-49**	**N/A**	**Aqueous**	**GC 51**	**06/13/11**	**06/14/11 11:19**	**110613L10**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Alpha-BHC	ND	0.050	1		4,4'-DDD	ND	0.050	1	
Gamma-BHC	ND	0.050	1		Endosulfan II	ND	0.050	1	
Beta-BHC	ND	0.050	1		4,4'-DDT	ND	0.050	1	
Heptachlor	ND	0.050	1		Endosulfan Sulfate	ND	0.050	1	
Delta-BHC	ND	0.050	1		Chlordane	ND	0.50	1	
Aldrin	ND	0.050	1		Toxaphene	ND	2.0	1	
Heptachlor Epoxide	ND	0.050	1		Endrin Ketone	ND	0.050	1	
Endosulfan I	ND	0.050	1		Alpha Chlordane	ND	0.050	1	
Dieldrin	ND	0.050	1		Gamma Chlordane	ND	0.050	1	
4,4'-DDE	ND	0.050	1		2,4'-DDD	ND	0.050	1	
Endrin	ND	0.050	1		2,4'-DDE	ND	0.050	1	
Endrin Aldehyde	ND	0.050	1		2,4'-DDT	ND	0.050	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	80	50-135		2,4,5,6-Tetrachloro-m-Xylene	82	50-135	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0773
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/L
Project: 1015101913			Page 1 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Elutriate Sed-Comp B	**11-06-0773-1-B**	**06/10/11 12:00**	**Aqueous**	**GC/MS HHH**	**06/14/11**	**06/16/11 13:37**	**110614L07**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	0.20	1		PCB184	ND	0.20	1	
PCB018	ND	0.20	1		PCB153	ND	0.20	1	
PCB028	ND	0.20	1		PCB168	ND	0.20	1	
PCB052	ND	0.20	1		PCB105	ND	0.20	1	
PCB049	ND	0.20	1		PCB138/158	ND	0.40	1	
PCB044	ND	0.20	1		PCB187	ND	0.20	1	
PCB037	ND	0.20	1		PCB183	ND	0.20	1	
PCB074	ND	0.20	1		PCB126	ND	0.20	1	
PCB070	ND	0.20	1		PCB128	ND	0.20	1	
PCB066	ND	0.20	1		PCB167	ND	0.20	1	
PCB101	ND	0.20	1		PCB177	ND	0.20	1	
PCB099	ND	0.20	1		PCB156	ND	0.20	1	
PCB119	ND	0.20	1		PCB157	ND	0.20	1	
PCB087	ND	0.20	1		PCB180	ND	0.20	1	
PCB081	ND	0.20	1		PCB170	ND	0.20	1	
PCB110	ND	0.20	1		PCB201	ND	0.20	1	
PCB151	ND	0.20	1		PCB169	ND	0.20	1	
PCB077	ND	0.20	1		PCB189	ND	0.20	1	
PCB149	ND	0.20	1		PCB195	ND	0.20	1	
PCB123	ND	0.20	1		PCB194	ND	0.20	1	
PCB118	ND	0.20	1		PCB206	ND	0.20	1	
PCB114	ND	0.20	1		PCB209	ND	0.20	1	

Surrogates:	REC (%)	Control Limits	Qual
p-Terphenyl-d14	134	30-160	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0773
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/L
Project: 1015101913			Page 2 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Site Water	**11-06-0773-2-E**	**06/10/11 12:00**	**Aqueous**	**GC/MS HHH**	**06/14/11**	**06/16/11 14:04**	**110614L07**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	0.20	1		PCB184	ND	0.20	1	
PCB018	ND	0.20	1		PCB153	ND	0.20	1	
PCB028	ND	0.20	1		PCB168	ND	0.20	1	
PCB052	ND	0.20	1		PCB105	ND	0.20	1	
PCB049	ND	0.20	1		PCB138/158	ND	0.40	1	
PCB044	ND	0.20	1		PCB187	ND	0.20	1	
PCB037	ND	0.20	1		PCB183	ND	0.20	1	
PCB074	ND	0.20	1		PCB126	ND	0.20	1	
PCB070	ND	0.20	1		PCB128	ND	0.20	1	
PCB066	ND	0.20	1		PCB167	ND	0.20	1	
PCB101	ND	0.20	1		PCB177	ND	0.20	1	
PCB099	ND	0.20	1		PCB156	ND	0.20	1	
PCB119	ND	0.20	1		PCB157	ND	0.20	1	
PCB087	ND	0.20	1		PCB180	ND	0.20	1	
PCB081	ND	0.20	1		PCB170	ND	0.20	1	
PCB110	ND	0.20	1		PCB201	ND	0.20	1	
PCB151	ND	0.20	1		PCB169	ND	0.20	1	
PCB077	ND	0.20	1		PCB189	ND	0.20	1	
PCB149	ND	0.20	1		PCB195	ND	0.20	1	
PCB123	ND	0.20	1		PCB194	ND	0.20	1	
PCB118	ND	0.20	1		PCB206	ND	0.20	1	
PCB114	ND	0.20	1		PCB209	ND	0.20	1	

Surrogates:	REC (%)	Control Limits	Qual
p-Terphenyl-d14	119	30-160	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0773
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/L
Project: 1015101913			Page 3 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-935-7**	**N/A**	**Aqueous**	**GC/MS HHH**	**06/14/11**	**06/16/11 13:08**	**110614L07**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	0.20	1		PCB184	ND	0.20	1	
PCB018	ND	0.20	1		PCB153	ND	0.20	1	
PCB028	ND	0.20	1		PCB168	ND	0.20	1	
PCB052	ND	0.20	1		PCB105	ND	0.20	1	
PCB049	ND	0.20	1		PCB138/158	ND	0.40	1	
PCB044	ND	0.20	1		PCB187	ND	0.20	1	
PCB037	ND	0.20	1		PCB183	ND	0.20	1	
PCB074	ND	0.20	1		PCB126	ND	0.20	1	
PCB070	ND	0.20	1		PCB128	ND	0.20	1	
PCB066	ND	0.20	1		PCB167	ND	0.20	1	
PCB101	ND	0.20	1		PCB177	ND	0.20	1	
PCB099	ND	0.20	1		PCB156	ND	0.20	1	
PCB119	ND	0.20	1		PCB157	ND	0.20	1	
PCB087	ND	0.20	1		PCB180	ND	0.20	1	
PCB081	ND	0.20	1		PCB170	ND	0.20	1	
PCB110	ND	0.20	1		PCB201	ND	0.20	1	
PCB151	ND	0.20	1		PCB169	ND	0.20	1	
PCB077	ND	0.20	1		PCB189	ND	0.20	1	
PCB149	ND	0.20	1		PCB195	ND	0.20	1	
PCB123	ND	0.20	1		PCB194	ND	0.20	1	
PCB118	ND	0.20	1		PCB206	ND	0.20	1	
PCB114	ND	0.20	1		PCB209	ND	0.20	1	

Surrogates:	REC (%)	Control Limits	Qual
p-Terphenyl-d14	94	30-160	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0773
San Diego, CA 92123-4302		Preparation:	EPA 7470A Total
		Method:	EPA 7470A

Project: 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Elutriate Sed-Comp B	**11-06-0773-1-A**	**06/10/11 12:00**	**Aqueous**	**Mercury**	**06/13/11**	**06/13/11 17:53**	**110613L03**

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.200	1		ug/L

Site Water	**11-06-0773-2-A**	**06/10/11 12:00**	**Aqueous**	**Mercury**	**06/13/11**	**06/13/11 17:55**	**110613L03**

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.200	1		ug/L

Method Blank	**099-12-457-229**	**N/A**	**Aqueous**	**Mercury**	**06/13/11**	**06/13/11 17:46**	**110613L03**

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.200	1		ug/L

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0773
San Diego, CA 92123-4302		Preparation:	EPA 3005A Total
		Method:	EPA 1640
		Units:	ug/L
Project: 1015101913			Page 1 of 2

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Elutriate Sed-Comp B	**11-06-0773-1-A**	**06/10/11 12:00**	**Aqueous**	**ICP/MS 03**	**06/13/11**	**06/14/11 16:21**	**110613L05**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	6.67	0.0300	1		Nickel	1.15	0.0500	1	
Cadmium	0.0346	0.0300	1		Selenium	0.288	0.0500	1	
Chromium	0.406	0.200	1		Silver	0.318	0.0500	1	
Copper	0.866	0.0300	1		Zinc	9.03	1.00	1	
Lead	0.219	0.0300	1						

Site Water	**11-06-0773-2-A**	**06/10/11 12:00**	**Aqueous**	**ICP/MS 03**	**06/13/11**	**06/14/11 16:33**	**110613L05**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	1.21	0.0300	1		Nickel	8.29	0.0500	1	
Cadmium	0.156	0.0300	1		Selenium	ND	0.0500	1	
Chromium	0.427	0.200	1		Silver	0.325	0.0500	1	
Copper	6.29	0.0300	1		Zinc	8.75	1.00	1	
Lead	0.168	0.0300	1						

Site Water (Original)	**11-06-0773-3-A**	**06/07/11 17:00**	**Aqueous**	**ICP/MS 03**	**06/27/11**	**06/27/11 18:12**	**110627L06**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	1.29	0.0300	1		Nickel	0.628	0.0500	1	
Cadmium	0.0732	0.0300	1		Selenium	ND	0.0500	1	
Chromium	0.301	0.200	1		Silver	0.377	0.0500	1	
Copper	1.58	0.0300	1		Zinc	6.35	1.00	1	
Lead	0.277	0.0300	1						

Method Blank	**099-13-067-53**	**N/A**	**Aqueous**	**ICP/MS 03**	**06/13/11**	**06/13/11 18:40**	**110613L05**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	ND	0.0300	1		Nickel	ND	0.0500	1	
Cadmium	ND	0.0300	1		Selenium	ND	0.0500	1	
Chromium	ND	0.200	1		Silver	ND	0.0500	1	
Copper	ND	0.0300	1		Zinc	ND	1.00	1	
Lead	ND	0.0300	1						

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0773
San Diego, CA 92123-4302		Preparation:	EPA 3005A Total
		Method:	EPA 1640
		Units:	ug/L
Project: 1015101913			Page 2 of 2

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-13-067-57**	**N/A**	**Aqueous**	**ICP/MS 03**	**06/27/11**	**06/27/11 16:40**	**110627L06**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	ND	0.0300	1		Nickel	ND	0.0500	1	
Cadmium	ND	0.0300	1		Selenium	ND	0.0500	1	
Chromium	ND	0.200	1		Silver	ND	0.0500	1	
Copper	ND	0.0300	1		Zinc	ND	1.00	1	
Lead	ND	0.0300	1						

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	06/10/11
Work Order No:	11-06-0773
Preparation:	EPA 3005A Total
Method:	EPA 1640

Project 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Elutriate Sed-Comp B	**Aqueous**	**ICP/MS 03**	**06/13/11**	**06/14/11**	**110613S05**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	4X	4X	50-150	4X	0-20	Q
Cadmium	112	108	50-150	3	0-20	
Chromium	72	73	50-150	1	0-20	
Copper	119	111	50-150	3	0-20	
Lead	113	110	50-150	2	0-20	
Nickel	140	136	50-150	1	0-20	
Selenium	151	151	50-150	0	0-20	3
Silver	118	108	50-150	4	0-20	
Zinc	103	95	50-150	3	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	06/10/11
Work Order No:	11-06-0773
Preparation:	EPA 3005A Filt.
Method:	EPA 1640

Project 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
11-06-1493-5	**Sea Water**	**ICP/MS 03**	**06/27/11**	**06/27/11**	**110627S06**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	4X	4X	50-150	4X	0-20	Q
Cadmium	97	96	50-150	1	0-20	
Chromium	96	94	50-150	3	0-20	
Copper	138	111	50-150	15	0-20	
Lead	107	107	50-150	0	0-20	
Nickel	4X	4X	50-150	4X	0-20	Q
Selenium	78	49	50-150	35	0-20	3,4
Silver	119	107	50-150	6	0-20	
Zinc	106	99	50-150	5	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	06/10/11
Work Order No:	11-06-0773
Preparation:	EPA 7470A Total
Method:	EPA 7470A

Project 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Elutriate Sed-Comp B	**Aqueous**	**Mercury**	**06/13/11**	**06/13/11**	**110613S03**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	94	98	71-134	5	0-14	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	06/10/11
Work Order No:	11-06-0773
Preparation:	EPA 3510C
Method:	EPA 8270C SIM PAHs

Project 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Elutriate Sed-Comp B	**Aqueous**	**GC/MS BBB**	**06/14/11**	**06/16/11**	**110614S08**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	156	155	21-133	1	0-25	3
2-Methylnaphthalene	115	114	21-140	1	0-25	
1-Methylnaphthalene	122	122	20-140	0	0-25	
Acenaphthylene	90	90	33-145	0	0-25	
Acenaphthene	126	125	49-121	1	0-25	3
Fluorene	127	126	59-121	1	0-25	3
Phenanthrene	154	152	54-120	1	0-25	3
Anthracene	83	83	27-133	1	0-25	
Fluoranthene	93	94	26-137	1	0-25	
Pyrene	96	95	18-168	1	0-25	
Benzo (a) Anthracene	89	88	33-143	1	0-25	
Chrysene	91	91	17-168	0	0-25	
Benzo (k) Fluoranthene	97	93	24-159	3	0-25	
Benzo (b) Fluoranthene	92	94	24-159	2	0-25	
Benzo (a) Pyrene	89	89	17-163	0	0-25	
Indeno (1,2,3-c,d) Pyrene	84	84	10-171	0	0-25	
Dibenz (a,h) Anthracene	82	82	10-219	0	0-25	
Benzo (g,h,i) Perylene	82	83	10-227	1	0-25	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0773
San Diego, CA 92123-4302		Preparation:	EPA 3005A Total
		Method:	EPA 1640

Project: 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-13-067-53	**Aqueous**	**ICP/MS 03**	**06/13/11**	**06/14/11**	**110613L05**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	116	119	70-130	3	0-20	
Cadmium	100	100	70-130	0	0-20	
Chromium	107	108	70-130	1	0-20	
Copper	108	108	70-130	0	0-20	
Lead	104	106	70-130	2	0-20	
Nickel	98	100	70-130	1	0-20	
Selenium	74	75	70-130	1	0-20	
Silver	79	76	70-130	4	0-20	
Zinc	108	108	70-130	0	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0773
San Diego, CA 92123-4302		Preparation:	EPA 3005A Total
		Method:	EPA 1640

Project: 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-13-067-57	**Aqueous**	**ICP/MS 03**	**06/27/11**	**06/27/11**	**110627L06**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	96	93	70-130	3	0-20	
Cadmium	89	88	70-130	1	0-20	
Chromium	100	100	70-130	1	0-20	
Copper	98	95	70-130	3	0-20	
Lead	98	97	70-130	2	0-20	
Nickel	93	91	70-130	2	0-20	
Selenium	82	82	70-130	0	0-20	
Silver	90	92	70-130	2	0-20	
Zinc	105	98	70-130	7	0-20	

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0773
San Diego, CA 92123-4302		Preparation:	EPA 7470A Total
		Method:	EPA 7470A

Project: 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-457-229	**Aqueous**	**Mercury**	**06/13/11**	**06/13/11**	**110613L03**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	91	91	90-122	0	0-14	

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0773
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	EPA 8270C SIM PAHs

Project: 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-06-008-369	**Aqueous**	**GC/MS BBB**	**06/14/11**	**06/16/11**	**110614L08**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Naphthalene	89	89	21-133	2-152	0	0-25	
2-Methylnaphthalene	83	83	21-140	1-160	0	0-25	
1-Methylnaphthalene	94	94	20-140	0-160	0	0-25	
Acenaphthylene	86	84	33-145	14-164	2	0-25	
Acenaphthene	89	88	55-121	44-132	1	0-25	
Fluorene	88	87	59-121	49-131	1	0-25	
Phenanthrene	89	89	54-120	43-131	0	0-25	
Anthracene	70	71	27-133	9-151	1	0-25	
Fluoranthene	90	90	26-137	8-156	0	0-25	
Pyrene	89	89	45-129	31-143	0	0-25	
Benzo (a) Anthracene	86	86	33-143	15-161	0	0-25	
Chrysene	90	92	17-168	0-193	2	0-25	
Benzo (k) Fluoranthene	97	96	24-159	2-182	1	0-25	
Benzo (b) Fluoranthene	91	90	24-159	2-182	2	0-25	
Benzo (a) Pyrene	86	85	17-163	0-187	2	0-25	
Indeno (1,2,3-c,d) Pyrene	88	86	25-175	0-200	2	0-25	
Dibenz (a,h) Anthracene	86	85	25-175	0-200	2	0-25	
Benzo (g,h,i) Perylene	86	84	25-157	3-179	2	0-25	

Total number of LCS compounds : 18

Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0773
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	Organotins by Krone et al.

Project: 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-035-147	**Aqueous**	**GC/MS Y**	**06/13/11**	**06/14/11**	**110613L16**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	57	51	50-130	12	0-20	
Tributyltin	88	76	50-130	15	0-20	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-0773
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	EPA 8081A

Project: 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-830-49	**Aqueous**	**GC 51**	**06/13/11**	**06/14/11**	**110613L10**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Alpha-BHC	88	88	50-135	36-149	1	0-25	
Gamma-BHC	91	92	50-135	36-149	1	0-25	
Beta-BHC	91	100	50-135	36-149	9	0-25	
Heptachlor	87	87	50-135	36-149	0	0-25	
Delta-BHC	86	87	50-135	36-149	1	0-25	
Aldrin	81	81	50-135	36-149	0	0-25	
Heptachlor Epoxide	86	86	50-135	36-149	1	0-25	
Endosulfan I	86	87	50-135	36-149	1	0-25	
Dieldrin	86	86	50-135	36-149	1	0-25	
4,4'-DDE	85	85	50-135	36-149	0	0-25	
Endrin	98	97	50-135	36-149	1	0-25	
Endrin Aldehyde	83	82	50-135	36-149	2	0-25	
4,4'-DDD	86	84	50-135	36-149	2	0-25	
Endosulfan II	89	86	50-135	36-149	3	0-25	
4,4'-DDT	79	79	50-135	36-149	1	0-25	
Endosulfan Sulfate	85	86	50-135	36-149	1	0-25	
Methoxychlor	92	94	50-135	36-149	2	0-25	
Endrin Ketone	88	89	50-135	36-149	1	0-25	
Alpha Chlordane	85	85	50-135	36-149	0	0-25	
Gamma Chlordane	86	86	50-135	36-149	0	0-25	

Total number of LCS compounds : 20
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: N/A
Work Order No: 11-06-0773
Preparation: EPA 3510C
Method: EPA 8270C SIM PCB Congeners

Project: 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-935-7	**Aqueous**	**GC/MS HHH**	**06/14/11**	**06/16/11**	**110614L07**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
PCB008	47	47	30-160	8-182	0	0-50	
PCB018	48	48	30-160	8-182	1	0-50	
PCB028	49	49	30-160	8-182	0	0-50	
PCB052	48	48	30-160	8-182	0	0-50	
PCB044	50	50	30-160	8-182	1	0-50	
PCB066	50	50	30-160	8-182	1	0-50	
PCB101	50	50	30-160	8-182	0	0-50	
PCB077	50	50	30-160	8-182	0	0-50	
PCB118	52	51	30-160	8-182	1	0-50	
PCB153	48	48	30-160	8-182	0	0-50	
PCB105	49	49	30-160	8-182	0	0-50	
PCB187	48	48	30-160	8-182	0	0-50	
PCB126	45	46	30-160	8-182	1	0-50	
PCB128	47	47	30-160	8-182	1	0-50	
PCB180	48	48	30-160	8-182	0	0-50	
PCB170	46	46	30-160	8-182	1	0-50	
PCB195	46	46	30-160	8-182	0	0-50	
PCB206	41	41	30-160	8-182	0	0-50	
PCB209	34	33	30-160	8-182	1	0-50	

Total number of LCS compounds : 19
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 11-06-0773

Qualifier	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

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Calscience Environmental Laboratories, Inc.

☐ SoCal Laboratory
7440 Lincoln Way
Garden Grove, CA 92841-1427
(714) 895-5494

☐ NorCal Service Center
5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

CHAIN OF CUSTODY RECORD

WO # / LAB USE ONLY: 06-0773

Date: 6-10-2011

Page 1 of 1

LABORATORY CLIENT: AMEC

ADDRESS: 5210 Sky Park Court Suite 200

CITY: San Diego, CA STATE: ZIP: 92123

TEL: 858-300-4320 E-MAIL: Barry.Snyder@amec.com

CLIENT PROJECT NAME / NUMBER: 1015101913

P.O. NO.:

PROJECT CONTACT: Barry Snyder

SAMPLER(S): (PRINT)

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD

☐ COELT EDF

GLOBAL ID

LOG CODE

SPECIAL INSTRUCTIONS:
*Elutriate from SET - metals filtered, organics centrifuged, ~~metals preserved, organics not~~

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	~~Preserved~~	Field Filtered	Metals EPA 1640	As, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn	Mercury EPA 7470A	PAHs 8270 SIM	Chlorinated Pest EPA 8081A	PCB Congeners EPA 8270 SIM	Organotins (Krone)	~~MS/MSD~~
1	Elutriate Sed - Comp B	6-10-11	12:00	W	9	X	X		X		X	X	X	X	X	
2	Site Water	6-10-11	12:00	W	5	X	X		X		X	X	X	X	X	
									(MS/MSD)		(MS/MSD)					

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Barry Snyder	[signature]	6/10/11	1636
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

DISTRIBUTION: White with final report, Green and Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Green and Yellow copies respectively.

06/01/10 Revision

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 11-06-0773

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: AMEC

DATE: 06/10/11

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 4.1 °C + 0.5 °C (CF) = 4.6 °C ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Initial: [illegible]

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: [illegible]

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: DL

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☐	☑	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☑*1AGB**na$_2$** 7 ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐500PB ☐500PB**na**

☑*250PB 2 ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** DL

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** MSL

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **znna:** $ZnAc_2$+NaOH **f:** Field-filtered **Scanned by:** MSL

*(-2) 4 x 1AGB + 1 x 250PB

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Calscience
Environmental & Marine Chemistry Laboratories

CALSCIENCE

WORK ORDER NUMBER: 11-06-1971

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: AMEC Earth & Environmental

Client Project Name: POLA Berths 167-169 / 1015101913.0001

Attention: Barry Snyder
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Approved for release on 07/8/2011 by:
Danielle Gonsman
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety. Note that the Chain-of-Custody Record and Sample Receipt Form are integral parts of this report.

Calscience
Environmental & Marine Chemistry Laboratories

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Work Order Number: 11-06-1971

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Calscience Environmental Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 11-06-1971
Project ID: 1015101913 / POLA Berths 167-169

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the elutriate samples.

Sample Condition on Receipt

One seawater sample and one sediment sample was received for this project on June 23, 2011 (under CEL Work Order 11-06-1553). The samples were transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures, and the temperature of the samples were 5.5°C. Upon receipt at the lab, the samples were given laboratory identification numbers, logged into the Laboratory Information Management System (LIMS) and stored in refrigeration units pending elutriate preparation.

Elutriate Preparation

The elutriate sample was prepared in accordance with the Standard Elutriate Testing protocol (Inland Testing Manual, 2006), as follows.

Prior to use, all labware was thoroughly cleaned in accordance with standard laboratory operating procedures (detergent wash, acid bath, and rinse with D.I. water). Approximately eight liters of the site water was placed a commercial grade stainless steel mixing bowl. Using volumetric displacement, approximately two liters of sediment was added to the bowl with the site water. At room temperature, the mixture was stirred vigorously for 30 minutes. After mixing, the elutriate sample was allowed to settle for approximately one hour. The supernatant was then siphoned off and collected in clean glass containers. Approximately 6.0 to 7.0 liters of clear supernatant were decanted from the settled mixture.

The elutriate sample was centrifuged and transferred to new 1L amber glass containers (for all hydrocarbon determinations) and a 250mL HDPE container (for metals determination). The samples were then logged into LIMS given laboratory identification numbers, and stored in refrigeration units pending chemistry analysis.

Tests Performed

Trace Metals by EPA 1640
Mercury by EPA 7470A
Chlorinated Pesticides by EPA 8081A
PCB Congeners by EPA 8270C SIM
PAHs by EPA 8270C SIM
Organotins by Krone et al.

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Data Summary

Holding times

All holding time requirements were met.

Calibration

Frequency and control criteria for initial and continuing calibration verifications were met.

Blanks

Concentrations of target analytes in the method blanks were found to be below reporting limits for all tests.

Laboratory Control Samples

Laboratory Control Sample (LCS/LCSD) analyses were performed for each applicable method at the required frequencies, and all parameters were within the control limits for each method.

Matrix Spikes

Due to sample volume limitations, matrix spikes could not be performed for all analyses. Matrix spiking was performed for EPA 7470A Mercury and EPA 8270C SIM PAHs. All parameters were within the established control limits.

Surrogates

Surrogate recoveries for all applicable tests and samples were within acceptable control limits.

Acronyms

LCS/LCSD- Laboratory Control Sample/Laboratory Control Sample Duplicate
MS/MSD- Matrix Spike/Matrix Spike Duplicate
RPD- Relative Percent Difference

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/30/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1971
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	EPA 8081A
		Units:	ug/L

Project: POLA Berths 167-169 / 1015101913.0001

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Elutriate-Sed	**11-06-1971-1-D**	**06/28/11 15:00**	**Sea Water**	**GC 41**	**07/01/11**	**07/05/11 11:43**	**110701L08**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Alpha-BHC	ND	0.050	1		4,4'-DDT	ND	0.050	1	
Gamma-BHC	ND	0.050	1		Endosulfan Sulfate	ND	0.050	1	
Beta-BHC	ND	0.050	1		Methoxychlor	ND	0.050	1	
Heptachlor	ND	0.050	1		Chlordane	ND	0.50	1	
Delta-BHC	ND	0.050	1		Toxaphene	ND	2.0	1	
Aldrin	ND	0.050	1		Endrin Ketone	ND	0.050	1	
Heptachlor Epoxide	ND	0.050	1		Alpha Chlordane	ND	0.050	1	
Endosulfan I	ND	0.050	1		Gamma Chlordane	ND	0.050	1	
Dieldrin	ND	0.050	1		2,4'-DDD	ND	0.050	1	
4,4'-DDE	ND	0.050	1		Trans-nonachlor	ND	0.050	1	
Endrin	ND	0.050	1		Cis-nonachlor	ND	0.050	1	
Endrin Aldehyde	ND	0.050	1		2,4'-DDE	ND	0.050	1	
4,4'-DDD	ND	0.050	1		2,4'-DDT	ND	0.050	1	
Endosulfan II	ND	0.050	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	77	50-135		2,4,5,6-Tetrachloro-m-Xylene	75	50-135	

Method Blank	**099-12-830-50**	**N/A**	**Aqueous**	**GC 41**	**07/01/11**	**07/05/11 10:57**	**110701L08**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Alpha-BHC	ND	0.050	1		4,4'-DDT	ND	0.050	1	
Gamma-BHC	ND	0.050	1		Endosulfan Sulfate	ND	0.050	1	
Beta-BHC	ND	0.050	1		Methoxychlor	ND	0.050	1	
Heptachlor	ND	0.050	1		Chlordane	ND	0.50	1	
Delta-BHC	ND	0.050	1		Toxaphene	ND	2.0	1	
Aldrin	ND	0.050	1		Endrin Ketone	ND	0.050	1	
Heptachlor Epoxide	ND	0.050	1		Alpha Chlordane	ND	0.050	1	
Endosulfan I	ND	0.050	1		Gamma Chlordane	ND	0.050	1	
Dieldrin	ND	0.050	1		2,4'-DDD	ND	0.050	1	
4,4'-DDE	ND	0.050	1		Trans-nonachlor	ND	0.050	1	
Endrin	ND	0.050	1		Cis-nonachlor	ND	0.050	1	
Endrin Aldehyde	ND	0.050	1		2,4'-DDE	ND	0.050	1	
4,4'-DDD	ND	0.050	1		2,4'-DDT	ND	0.050	1	
Endosulfan II	ND	0.050	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	94	50-135		2,4,5,6-Tetrachloro-m-Xylene	87	50-135	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/30/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1971
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	EPA 8270C SIM PAHs
		Units:	ug/L

Project: POLA Berths 167-169 / 1015101913.0001

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Elutriate-Sed	**11-06-1971-1-E**	**06/28/11 15:00**	**Sea Water**	**GC/MS AAA**	**07/01/11**	**07/06/11 12:59**	**110701L13**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	0.20	1		Pyrene	1.9	0.20	1	
2-Methylnaphthalene	ND	0.20	1		Benzo (a) Anthracene	ND	0.20	1	
1-Methylnaphthalene	ND	0.20	1		Chrysene	ND	0.20	1	
Acenaphthylene	ND	0.20	1		Benzo (k) Fluoranthene	ND	0.20	1	
Acenaphthene	ND	0.20	1		Benzo (b) Fluoranthene	ND	0.20	1	
Fluorene	ND	0.20	1		Benzo (a) Pyrene	ND	0.20	1	
Phenanthrene	ND	0.20	1		Indeno (1,2,3-c,d) Pyrene	ND	0.20	1	
Anthracene	ND	0.20	1		Dibenz (a,h) Anthracene	ND	0.20	1	
Fluoranthene	0.35	0.20	1		Benzo (g,h,i) Perylene	ND	0.20	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	77	28-139			2-Fluorobiphenyl	70	33-144		
p-Terphenyl-d14	66	23-160							

Method Blank	**099-06-008-370**	**N/A**	**Aqueous**	**GC/MS AAA**	**07/01/11**	**07/06/11 10:21**	**110701L13**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Naphthalene	ND	0.20	1		Pyrene	ND	0.20	1	
2-Methylnaphthalene	ND	0.20	1		Benzo (a) Anthracene	ND	0.20	1	
1-Methylnaphthalene	ND	0.20	1		Chrysene	ND	0.20	1	
Acenaphthylene	ND	0.20	1		Benzo (k) Fluoranthene	ND	0.20	1	
Acenaphthene	ND	0.20	1		Benzo (b) Fluoranthene	ND	0.20	1	
Fluorene	ND	0.20	1		Benzo (a) Pyrene	ND	0.20	1	
Phenanthrene	ND	0.20	1		Indeno (1,2,3-c,d) Pyrene	ND	0.20	1	
Anthracene	ND	0.20	1		Dibenz (a,h) Anthracene	ND	0.20	1	
Fluoranthene	ND	0.20	1		Benzo (g,h,i) Perylene	ND	0.20	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Nitrobenzene-d5	82	28-139			2-Fluorobiphenyl	63	33-144		
p-Terphenyl-d14	62	23-160							

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/30/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1971
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/L

Project: POLA Berths 167-169 / 1015101913.0001

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Elutriate-Sed	**11-06-1971-1-C**	**06/28/11 15:00**	**Sea Water**	**GC/MS HHH**	**07/01/11**	**07/06/11 18:23**	**110701L14**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	0.20	1		PCB184	ND	0.20	1	
PCB018	ND	0.20	1		PCB153	ND	0.20	1	
PCB052	ND	0.20	1		PCB168	ND	0.20	1	
PCB028	ND	0.20	1		PCB105	ND	0.20	1	
PCB049	ND	0.20	1		PCB138/158	ND	0.40	1	
PCB044	ND	0.20	1		PCB187	ND	0.20	1	
PCB037	ND	0.20	1		PCB183	ND	0.20	1	
PCB074	ND	0.20	1		PCB126	ND	0.20	1	
PCB070	ND	0.20	1		PCB128	ND	0.20	1	
PCB066	ND	0.20	1		PCB167	ND	0.20	1	
PCB101	ND	0.20	1		PCB177	ND	0.20	1	
PCB099	ND	0.20	1		PCB156	ND	0.20	1	
PCB119	ND	0.20	1		PCB157	ND	0.20	1	
PCB087	ND	0.20	1		PCB180	ND	0.20	1	
PCB081	ND	0.20	1		PCB170	ND	0.20	1	
PCB110	ND	0.20	1		PCB201	ND	0.20	1	
PCB151	ND	0.20	1		PCB169	ND	0.20	1	
PCB077	ND	0.20	1		PCB189	ND	0.20	1	
PCB149	ND	0.20	1		PCB195	ND	0.20	1	
PCB123	ND	0.20	1		PCB194	ND	0.20	1	
PCB118	ND	0.20	1		PCB206	ND	0.20	1	
PCB114	ND	0.20	1		PCB209	ND	0.20	1	

Surrogates:	REC (%)	Control Limits	Qual
p-Terphenyl-d14	111	30-160	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/30/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1971
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/L

Project: POLA Berths 167-169 / 1015101913.0001

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-935-8**	**N/A**	**Aqueous**	**GC/MS HHH**	**07/01/11**	**07/06/11 17:56**	**110701L14**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	0.20	1		PCB184	ND	0.20	1	
PCB018	ND	0.20	1		PCB153	ND	0.20	1	
PCB028	ND	0.20	1		PCB168	ND	0.20	1	
PCB052	ND	0.20	1		PCB105	ND	0.20	1	
PCB049	ND	0.20	1		PCB138/158	ND	0.40	1	
PCB044	ND	0.20	1		PCB187	ND	0.20	1	
PCB037	ND	0.20	1		PCB183	ND	0.20	1	
PCB074	ND	0.20	1		PCB126	ND	0.20	1	
PCB070	ND	0.20	1		PCB128	ND	0.20	1	
PCB066	ND	0.20	1		PCB167	ND	0.20	1	
PCB101	ND	0.20	1		PCB177	ND	0.20	1	
PCB099	ND	0.20	1		PCB156	ND	0.20	1	
PCB119	ND	0.20	1		PCB157	ND	0.20	1	
PCB087	ND	0.20	1		PCB180	ND	0.20	1	
PCB081	ND	0.20	1		PCB170	ND	0.20	1	
PCB110	ND	0.20	1		PCB201	ND	0.20	1	
PCB151	ND	0.20	1		PCB169	ND	0.20	1	
PCB077	ND	0.20	1		PCB189	ND	0.20	1	
PCB149	ND	0.20	1		PCB195	ND	0.20	1	
PCB123	ND	0.20	1		PCB194	ND	0.20	1	
PCB118	ND	0.20	1		PCB206	ND	0.20	1	
PCB114	ND	0.20	1		PCB209	ND	0.20	1	

Surrogates:	REC (%)	Control Limits	Qual
p-Terphenyl-d14	133	30-160	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/30/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1971
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	Organotins by Krone et al.
		Units:	ng/L

Project: POLA Berths 167-169 / 1015101913.0001

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Elutriate-Sed	**11-06-1971-1-H**	**06/28/11 15:00**	**Sea Water**	**GC/MS Y**	**07/05/11**	**07/07/11 11:24**	**110705L12**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Dibutyltin	13	3.0	1		Tetrabutyltin	ND	3.0	1	
Monobutyltin	ND	3.0	1		Tributyltin	180	3.0	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	82	50-130	

Method Blank	099-07-035-149	N/A	Aqueous	GC/MS Y	07/05/11	07/07/11 10:52	110705L12

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Dibutyltin	ND	3.0	1		Tetrabutyltin	ND	3.0	1	
Monobutyltin	ND	3.0	1		Tributyltin	ND	3.0	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	81	50-130	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/30/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1971
San Diego, CA 92123-4302		Preparation:	EPA 7470A Total
		Method:	EPA 7470A

Project: POLA Berths 167-169 / 1015101913.0001

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Elutriate-Sed	**11-06-1971-1-B**	**06/28/11 15:00**	**Sea Water**	**Mercury**	**07/01/11**	**07/01/11 16:53**	**110701L07**

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.200	1		ug/L

Method Blank	**099-12-457-230**	**N/A**	**Aqueous**	**Mercury**	**07/01/11**	**07/01/11 16:42**	**110701L07**

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.200	1		ug/L

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Earth & Environmental		Date Received:	06/30/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1971
San Diego, CA 92123-4302		Preparation:	EPA 3005A Total
		Method:	EPA 1640
		Units:	ug/L
Project: POLA Berths 167-169 / 1015101913.0001			Page 1 of 1

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Elutriate-Sed	**11-06-1971-1-A**	**06/28/11 15:00**	**Sea Water**	**ICP/MS 03**	**07/05/11**	**07/07/11 03:22**	**110705L05**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	7.87	0.0300	1		Nickel	6.57	0.0500	1	
Cadmium	0.0868	0.0300	1		Selenium	0.152	0.0500	1	
Chromium	0.467	0.200	1		Silver	0.372	0.0500	1	
Copper	1.11	0.0300	1		Zinc	3.20	1.00	1	
Lead	0.294	0.0300	1						

Method Blank	**099-13-067-59**	**N/A**	**Aqueous**	**ICP/MS 03**	**07/05/11**	**07/07/11 01:05**	**110705L05**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	ND	0.0300	1		Nickel	ND	0.0500	1	
Cadmium	ND	0.0300	1		Selenium	ND	0.0500	1	
Chromium	ND	0.200	1		Silver	ND	0.0500	1	
Copper	ND	0.0300	1		Zinc	ND	1.00	1	
Lead	ND	0.0300	1						

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental		Date Received:	06/30/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1971
San Diego, CA 92123-4302		Preparation:	EPA 3005A Total
		Method:	EPA 1640

Project POLA Berths 167-169 / 1015101913.0001

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
11-06-2020-1	**Aqueous**	**ICP/MS 03**	**07/05/11**	**07/07/11**	**110705S05**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	90	75	50-150	4	0-20	
Cadmium	72	76	50-150	3	0-20	
Chromium	98	97	50-150	0	0-20	
Copper	85	103	50-150	5	0-20	
Lead	84	87	50-150	5	0-20	
Nickel	4X	4X	50-150	4X	0-20	Q
Selenium	90	92	50-150	2	0-20	
Silver	90	92	50-150	1	0-20	
Zinc	77	85	50-150	6	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental		Date Received:	06/30/11
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1971
San Diego, CA 92123-4302		Preparation:	EPA 7470A Total
		Method:	EPA 7470A

Project POLA Berths 167-169 / 1015101913.0001

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Elutriate-Sed	**Sea Water**	**Mercury**	**07/01/11**	**07/01/11**	**110701S07**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	91	95	71-134	5	0-14	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	06/30/11
Work Order No:	11-06-1971
Preparation:	EPA 3510C
Method:	EPA 8270C SIM PAHs

Project POLA Berths 167-169 / 1015101913.0001

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Elutriate-Sed	**Sea Water**	**GC/MS AAA**	**07/01/11**	**07/06/11**	**110701S13**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	83	83	21-133	0	0-25	
2-Methylnaphthalene	75	75	21-140	0	0-25	
1-Methylnaphthalene	75	76	20-140	1	0-25	
Acenaphthylene	81	81	33-145	1	0-25	
Acenaphthene	81	82	49-121	1	0-25	
Fluorene	87	86	59-121	1	0-25	
Phenanthrene	85	87	54-120	1	0-25	
Anthracene	70	70	27-133	0	0-25	
Fluoranthene	84	82	26-137	2	0-25	
Pyrene	87	90	18-168	1	0-25	
Benzo (a) Anthracene	82	81	33-143	1	0-25	
Chrysene	88	88	17-168	0	0-25	
Benzo (k) Fluoranthene	96	95	24-159	2	0-25	
Benzo (b) Fluoranthene	85	85	24-159	1	0-25	
Benzo (a) Pyrene	82	82	17-163	0	0-25	
Indeno (1,2,3-c,d) Pyrene	84	85	10-171	1	0-25	
Dibenz (a,h) Anthracene	84	85	10-219	1	0-25	
Benzo (g,h,i) Perylene	85	86	10-227	1	0-25	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1971
San Diego, CA 92123-4302		Preparation:	EPA 3005A Total
		Method:	EPA 1640

Project: POLA Berths 167-169 / 1015101913.0001

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-13-067-59	**Aqueous**	**ICP/MS 03**	**07/05/11**	**07/07/11**	**110705L05**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	93	89	70-130	4	0-20	
Cadmium	82	84	70-130	3	0-20	
Chromium	108	107	70-130	1	0-20	
Copper	89	114	70-130	25	0-20	X
Lead	93	95	70-130	2	0-20	
Nickel	80	80	70-130	0	0-20	
Selenium	84	86	70-130	2	0-20	
Silver	88	88	70-130	0	0-20	
Zinc	94	95	70-130	1	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1971
San Diego, CA 92123-4302		Preparation:	EPA 7470A Total
		Method:	EPA 7470A

Project: POLA Berths 167-169 / 1015101913.0001

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-457-230	**Aqueous**	**Mercury**	**07/01/11**	**07/01/11**	**110701L07**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	109	108	90-122	1	0-14	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1971
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	EPA 8270C SIM PAHs

Project: POLA Berths 167-169 / 1015101913.0001

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-06-008-370	**Aqueous**	**GC/MS AAA**	**07/01/11**	**07/06/11**	**110701L13**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Naphthalene	82	82	21-133	2-152	0	0-25	
2-Methylnaphthalene	79	78	21-140	1-160	0	0-25	
1-Methylnaphthalene	84	84	20-140	0-160	0	0-25	
Acenaphthylene	88	88	33-145	14-164	1	0-25	
Acenaphthene	88	88	55-121	44-132	0	0-25	
Fluorene	93	93	59-121	49-131	0	0-25	
Phenanthrene	95	95	54-120	43-131	0	0-25	
Anthracene	78	78	27-133	9-151	0	0-25	
Fluoranthene	96	95	26-137	8-156	1	0-25	
Pyrene	101	102	45-129	31-143	1	0-25	
Benzo (a) Anthracene	94	94	33-143	15-161	0	0-25	
Chrysene	100	100	17-168	0-193	0	0-25	
Benzo (k) Fluoranthene	108	110	24-159	2-182	2	0-25	
Benzo (b) Fluoranthene	95	94	24-159	2-182	0	0-25	
Benzo (a) Pyrene	89	90	17-163	0-187	0	0-25	
Indeno (1,2,3-c,d) Pyrene	100	98	25-175	0-200	1	0-25	
Dibenz (a,h) Anthracene	98	97	25-175	0-200	1	0-25	
Benzo (g,h,i) Perylene	99	97	25-157	3-179	2	0-25	

Total number of LCS compounds : 18

Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1971
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	Organotins by Krone et al.

Project: POLA Berths 167-169 / 1015101913.0001

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-035-149	**Aqueous**	**GC/MS Y**	**07/05/11**	**07/07/11**	**110705L12**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	92	93	50-130	1	0-20	
Tributyltin	74	79	50-130	6	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-06-1971
San Diego, CA 92123-4302		Preparation:	EPA 3510C
		Method:	EPA 8081A

Project: POLA Berths 167-169 / 1015101913.0001

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-830-50	**Aqueous**	**GC 41**	**07/01/11**	**07/05/11**	**110701L08**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Alpha-BHC	99	105	50-135	36-149	6	0-25	
Gamma-BHC	101	107	50-135	36-149	5	0-25	
Beta-BHC	97	103	50-135	36-149	6	0-25	
Heptachlor	96	97	50-135	36-149	1	0-25	
Delta-BHC	97	103	50-135	36-149	6	0-25	
Aldrin	92	92	50-135	36-149	1	0-25	
Heptachlor Epoxide	94	99	50-135	36-149	5	0-25	
Endosulfan I	94	99	50-135	36-149	5	0-25	
Dieldrin	94	99	50-135	36-149	5	0-25	
4,4'-DDE	95	100	50-135	36-149	5	0-25	
Endrin	92	97	50-135	36-149	6	0-25	
Endrin Aldehyde	96	101	50-135	36-149	5	0-25	
4,4'-DDD	93	97	50-135	36-149	5	0-25	
Endosulfan II	94	99	50-135	36-149	6	0-25	
4,4'-DDT	97	103	50-135	36-149	6	0-25	
Endosulfan Sulfate	91	96	50-135	36-149	6	0-25	
Methoxychlor	89	94	50-135	36-149	6	0-25	
Endrin Ketone	99	105	50-135	36-149	6	0-25	
Alpha Chlordane	93	97	50-135	36-149	4	0-25	
Gamma Chlordane	94	98	50-135	36-149	4	0-25	

Total number of LCS compounds : 20
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Earth & Environmental
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: N/A
Work Order No: 11-06-1971
Preparation: EPA 3510C
Method: EPA 8270C SIM PCB Congeners

Project: POLA Berths 167-169 / 1015101913.0001

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-935-8	**Aqueous**	**GC/MS HHH**	**07/01/11**	**07/06/11**	**110701L14**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
PCB008	45	37	30-160	8-182	20	0-50	
PCB018	47	40	30-160	8-182	15	0-50	
PCB028	50	47	30-160	8-182	5	0-50	
PCB052	49	47	30-160	8-182	4	0-50	
PCB044	51	50	30-160	8-182	3	0-50	
PCB066	53	52	30-160	8-182	2	0-50	
PCB101	53	52	30-160	8-182	1	0-50	
PCB077	53	53	30-160	8-182	1	0-50	
PCB118	56	55	30-160	8-182	1	0-50	
PCB153	53	52	30-160	8-182	1	0-50	
PCB105	53	52	30-160	8-182	1	0-50	
PCB187	53	53	30-160	8-182	0	0-50	
PCB126	50	49	30-160	8-182	1	0-50	
PCB128	51	51	30-160	8-182	0	0-50	
PCB180	53	53	30-160	8-182	0	0-50	
PCB170	50	50	30-160	8-182	1	0-50	
PCB195	50	52	30-160	8-182	4	0-50	
PCB206	47	52	30-160	8-182	9	0-50	
PCB209	45	52	30-160	8-182	13	0-50	

Total number of LCS compounds : 19
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 11-06-1971

Qualifier	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 · FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 6/29/2011

PAGE: 1 OF 1

LABORATORY CLIENT: AMEC Earth & Environmental

ADDRESS: 9210 Sky Park Court, Suite 200

CITY: San Diego, CA 92123

TEL: 858-300-4320

E-MAIL: Barry.Synder@amec.com

CLIENT PROJECT NAME / NUMBER: POLA Berths 167-169 / 1015101913.0001

PROJECT CONTACT: Barry Snyder

SAMPLER(S): (SIGNATURE)

P.O. NO.:

Temp Blank.:

LAB USE ONLY: 0 6 - 1 9 7 1

TURNAROUND TIME

☐ SAME DAY ☐ 24 HR ☐ 48HR ☐ 72 HR ☒ STANDARD

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____/____/____

SPECIAL INSTRUCTIONS:

*As, Cd, Cr, Cu, Pb, Hg, Ni, Se, Ag, Se, Ag, Zn

**MS/MSD FOR METALS, PAHS ~~AND PESTICIDES~~ BG ONLY

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	EPA 1640/7470A Metals*	EPA 8270C SIM PAHS	EOA 8270C SIM PCB CONGENERS	EPA 8081A OC PESTICIDES	ORGANOTINS	MS/MSD**	COMMENTS
1	Elutriate- Sed		6/28/11	15:00	SW		X	X	X	X	X	X	

Relinquished by: (Signature) Dannyle	Received by: (Signature)	Date: 6/30/11	Time: 1156
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 11-06-1971

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: AMEC

DATE: 06/30/11

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 1.1 °C + 0.5 °C (CF) = 1.6 °C ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: ☐ Air ☐ Filter Initial: D.L

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: D.L

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: D.L

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☒ 6/30/11	☑	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☑1AGB 6 ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐500PB ☐500PB**na**

☑250PB 2 ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** DL

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** WSC

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **znna:** $ZnAc_2$+NaOH **f:** Field-filtered **Scanned by:** WSC

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Additional Individual Core Sediment Chemistry

Calscience
Environmental & Marine Chemistry Laboratories

CALSCIENCE

WORK ORDER NUMBER: 11-08-0758

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: AMEC Environment & Infrastructure

Client Project Name: Port of Los Angeles - 1015101913

Attention: Barry Snyder
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Approved for release on 08/18/2011 by:
Danielle Gonsman
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety. Note that the Chain-of-Custody Record and Sample Receipt Form are integral parts of this report.

Calscience
Environmental & Marine Chemistry Laboratories

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Work Order Number: 11-08-0758

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Calscience Environmental Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 11-08-0758
Project Name: Port of Los Angeles / 1015101913

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the sediment samples.

Sample Condition on Receipt

Six sediment samples (housed in 16-oz glass containers) were received for this project on August 10, 2011. The samples were transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures. The temperature of the samples upon receipt at the laboratory was 2.4°C. All samples were given laboratory identification numbers, logged into the Laboratory Information Management System (LIMS) and then stored under refrigeration pending sediment chemistry testing in accordance with the project SAP.

Tests Performed

Oil and Grease by EPA 413.2M
TRPH by EPA 418.1M
Trace Metals by EPA 6020/7471A
Chlorinated Pesticides by EPA 8081A
PCB Congeners by EPA 8270C SIM
PAHs by EPA 8270C SIM
Total Solids by SM 2540B
Organotins by Krone et al.

Data Summary

The sample results and reporting limits were dry weight corrected.

All samples were homogenized prior to preparation and analysis.

<u>Holding times</u>

All holding times were met unless otherwise noted.

The samples were received past the EPA Method recommended holding times (in solid samples) for all analyses (with the exception of Trace Metals by EPA 6020). However, we have been advised by the client that these samples were frozen after collection (prior to receipt at the laboratory) and remained in that condition until received by Calscience. Calscience follows standard industry practice and Puget Sound Protocol, which states the holding times for sediment samples may be extended up to one year if kept frozen after collection. Therefore, the results have not been flagged as exceeding the EPA recommended holding times.

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Calibration

Frequency and control criteria for initial and continuing calibration verifications were met.

Reporting Limits

All Method Detection Limits were met. The Organotins and TRPH results were evaluated to the MDL, and where applicable, "J" flags were reported.

Blanks

Concentrations of target analytes in the method blank were found to be below reporting limits for all testing.

Laboratory Control Samples

A Laboratory Control Sample (LCS) analysis was performed at the required frequencies, and unless otherwise noted, all parameters were within the established control limits.

Matrix Spikes

Matrix spike analyses were performed for each applicable analysis on both non-project samples and AMEC project samples. All parameters for the AMEC POLA sample matrix spikes were within the established control limits with the following exceptions.

Station 4-Top was used for Organotins matrix spiking and the Tetrabutyltin and Tributyltin matrix spikes and RPDs were outside the control limits. However, since the associated MSD, LCS and LCSD recoveries (plus LCS RPDs) were in control, the data are released with no further action.

Station 5-Bottom was used for the EPA 8081A Chlorinated Pesticides matrix spikes, and the MS, MSD and/or RPDs for several analytes exceeded the control limits due to matrix interference. Yet, since the LCS/LCSD recoveries and RPDs were within the control limits, the results are released with no further qualification.

EPA 8270C SIM PAH matrix spikes were performed on sample Station 5-Bottom and the MS, MSD and/or RPD recoveries for many PAHs fell outside their established control limits. The results have been flagged with the appropriate qualifiers and are released with no further action since the associated LCS/LCSD recoveries and RPDs were in control.

Surrogates

Surrogate recoveries for all applicable tests and samples were within the established control limits with the following exceptions.

The Decachlorobiphenyl surrogate recovery (by EPA 8081A) was above the established control limits in sample Station 4-Bottom due to matrix interference. However, since the

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surrogate recovery was confirmed by re-analysis, and the 2, 4, 5, 6-Tetrachloro-m-Xylene surrogate was within the control limits, the results are released with no further action.

Acronyms

LCS/LCSD- Laboratory Control Sample/Laboratory Control Sample Duplicate
PDS/PDSD- Post Digestion Spike/Post Digestion Spike Duplicate
MS/MSD- Matrix Spike/Matrix Spike Duplicate
ME-Marginal Exceedance
RPD- Relative Percent Difference

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 2540 B

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 3-Top	**11-08-0758-1-A**	**06/07/11 13:35**	**Sediment**	**N/A**	**08/11/11**	**08/11/11 14:00**	**B0811TSB2**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	58.0	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 4-Top	**11-08-0758-2-A**	**06/07/11 15:00**	**Sediment**	**N/A**	**08/11/11**	**08/11/11 14:00**	**B0811TSB2**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	63.4	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 5-Top	**11-08-0758-3-A**	**06/07/11 16:00**	**Sediment**	**N/A**	**08/11/11**	**08/11/11 14:00**	**B0811TSB2**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	64.9	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 3-Bottom	**11-08-0758-4-A**	**06/07/11 13:35**	**Sediment**	**N/A**	**08/11/11**	**08/11/11 14:00**	**B0811TSB2**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	53.6	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 4-Bottom	**11-08-0758-5-A**	**06/07/11 15:00**	**Sediment**	**N/A**	**08/11/11**	**08/11/11 14:00**	**B0811TSB2**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	69.7	0.100	1		%

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 5-Bottom	**11-08-0758-6-A**	**06/07/11 16:00**	**Sediment**	**N/A**	**08/11/11**	**08/11/11 14:00**	**B0811TSB2**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	69.9	0.100	1		%

Return to Contents

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 2540 B

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-05-019-1,707**	**N/A**	**Solid**	**N/A**	**08/11/11**	**08/11/11 14:00**	**B0811TSB2**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	ND	0.100	1		%

Return to Contents

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	Extraction
		Method:	EPA 413.2M

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 3-Top	**11-08-0758-1-A**	**06/07/11 13:35**	**Sediment**	**IR #1**	**08/15/11**	**08/15/11 17:37**	**110815L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Units
Oil and Grease	45	17	6.9	1		mg/kg

Station 4-Top	**11-08-0758-2-A**	**06/07/11 15:00**	**Sediment**	**IR #1**	**08/15/11**	**08/15/11 17:37**	**110815L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Units
Oil and Grease	56	16	6.3	1		mg/kg

Station 5-Top	**11-08-0758-3-A**	**06/07/11 16:00**	**Sediment**	**IR #1**	**08/15/11**	**08/15/11 17:37**	**110815L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Units
Oil and Grease	83	15	6.2	1		mg/kg

Station 3-Bottom	**11-08-0758-4-A**	**06/07/11 13:35**	**Sediment**	**IR #1**	**08/15/11**	**08/15/11 17:37**	**110815L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Units
Oil and Grease	180	19	7.5	1		mg/kg

Station 4-Bottom	**11-08-0758-5-A**	**06/07/11 15:00**	**Sediment**	**IR #1**	**08/15/11**	**08/15/11 17:37**	**110815L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Units
Oil and Grease	110	14	5.7	1		mg/kg

Station 5-Bottom	**11-08-0758-6-A**	**06/07/11 16:00**	**Sediment**	**IR #1**	**08/15/11**	**08/15/11 17:37**	**110815L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Units
Oil and Grease	65	14	5.7	1		mg/kg

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	Extraction
		Method:	EPA 413.2M

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-07-019-97**	**N/A**	**Solid**	**IR #1**	**08/15/11**	**08/15/11 17:37**	**110815L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units
Oil and Grease	ND	10	4.0	1		mg/kg

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	Extraction
		Method:	EPA 418.1M

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 3-Top	**11-08-0758-1-A**	**06/07/11 13:35**	**Sediment**	**IR #1**	**08/15/11**	**08/15/11 17:19**	**110815L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Units
TRPH	36	17	7.0	1		mg/kg

Station 4-Top	**11-08-0758-2-A**	**06/07/11 15:00**	**Sediment**	**IR #1**	**08/15/11**	**08/15/11 17:19**	**110815L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Units
TRPH	36	16	6.4	1		mg/kg

Station 5-Top	**11-08-0758-3-A**	**06/07/11 16:00**	**Sediment**	**IR #1**	**08/15/11**	**08/15/11 17:19**	**110815L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Units
TRPH	47	15	6.2	1		mg/kg

Station 3-Bottom	**11-08-0758-4-A**	**06/07/11 13:35**	**Sediment**	**IR #1**	**08/15/11**	**08/15/11 17:19**	**110815L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Units
TRPH	90	19	7.5	1		mg/kg

Station 4-Bottom	**11-08-0758-5-A**	**06/07/11 15:00**	**Sediment**	**IR #1**	**08/15/11**	**08/15/11 17:19**	**110815L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Units
TRPH	62	14	5.8	1		mg/kg

Station 5-Bottom	**11-08-0758-6-A**	**06/07/11 16:00**	**Sediment**	**IR #1**	**08/15/11**	**08/15/11 17:19**	**110815L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Units
TRPH	51	14	5.8	1		mg/kg

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	Extraction
		Method:	EPA 418.1M

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-07-015-1,783**	**N/A**	**Solid**	**IR #1**	**08/15/11**	**08/15/11 17:19**	**110815L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units
TRPH	ND	10	4.0	1		mg/kg

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 3-Top	**11-08-0758-1-A**	**06/07/11 13:35**	**Sediment**	**GC 51**	**08/11/11**	**08/16/11 14:54**	**110811L15A**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.7	1		Endosulfan II	ND	1.7	1	
Alpha-BHC	ND	1.7	1		Endosulfan Sulfate	ND	1.7	1	
Beta-BHC	ND	1.7	1		Endrin	ND	1.7	1	
Delta-BHC	ND	1.7	1		Endrin Aldehyde	ND	1.7	1	
Gamma-BHC	ND	1.7	1		Endrin Ketone	ND	1.7	1	
Chlordane	ND	17	1		Heptachlor	ND	1.7	1	
Dieldrin	ND	1.7	1		Heptachlor Epoxide	ND	1.7	1	
Trans-nonachlor	ND	1.7	1		Methoxychlor	ND	1.7	1	
2,4'-DDD	ND	1.7	1		Toxaphene	ND	34	1	
2,4'-DDE	ND	1.7	1		Alpha Chlordane	ND	1.7	1	
2,4'-DDT	ND	1.7	1		Oxychlordane	ND	1.7	1	
4,4'-DDD	ND	1.7	1		Gamma Chlordane	ND	1.7	1	
4,4'-DDE	2.9	1.7	1		Cis-nonachlor	ND	1.7	1	
4,4'-DDT	ND	1.7	1		Total DDTs	2.9	1.7	1	
Endosulfan I	ND	1.7	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	65	50-130		Decachlorobiphenyl	61	50-130	

Station 4-Top	**11-08-0758-2-A**	**06/07/11 15:00**	**Sediment**	**GC 51**	**08/11/11**	**08/15/11 12:22**	**110811L15A**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.6	1		Endosulfan II	ND	1.6	1	
Alpha-BHC	ND	1.6	1		Endosulfan Sulfate	ND	1.6	1	
Beta-BHC	ND	1.6	1		Endrin	ND	1.6	1	
Delta-BHC	ND	1.6	1		Endrin Aldehyde	ND	1.6	1	
Gamma-BHC	ND	1.6	1		Endrin Ketone	ND	1.6	1	
Chlordane	ND	16	1		Heptachlor	ND	1.6	1	
Dieldrin	ND	1.6	1		Heptachlor Epoxide	ND	1.6	1	
Trans-nonachlor	ND	1.6	1		Methoxychlor	ND	1.6	1	
2,4'-DDD	ND	1.6	1		Toxaphene	ND	32	1	
2,4'-DDE	ND	1.6	1		Alpha Chlordane	ND	1.6	1	
2,4'-DDT	ND	1.6	1		Gamma Chlordane	ND	1.6	1	
4,4'-DDD	ND	1.6	1		Oxychlordane	ND	1.6	1	
4,4'-DDE	7.8	1.6	1		Cis-nonachlor	ND	1.6	1	
4,4'-DDT	ND	1.6	1		Total DDTs	7.8	1.6	1	
Endosulfan I	ND	1.6	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	65	50-130		Decachlorobiphenyl	68	50-130	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

7440 Lincoln Way, Garden Grove, CA 92841-1427 · TEL:(714) 895-5494 · FAX: (714) 894-7501

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 5-Top	**11-08-0758-3-A**	**06/07/11 16:00**	**Sediment**	**GC 51**	**08/11/11**	**08/15/11 12:36**	**110811L15A**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.5	1		Endosulfan II	ND	1.5	1	
Alpha-BHC	ND	1.5	1		Endosulfan Sulfate	ND	1.5	1	
Beta-BHC	ND	1.5	1		Endrin	ND	1.5	1	
Delta-BHC	ND	1.5	1		Endrin Aldehyde	ND	1.5	1	
Gamma-BHC	ND	1.5	1		Endrin Ketone	ND	1.5	1	
Chlordane	ND	15	1		Heptachlor	ND	1.5	1	
Dieldrin	ND	1.5	1		Heptachlor Epoxide	ND	1.5	1	
Trans-nonachlor	ND	1.5	1		Methoxychlor	ND	1.5	1	
2,4'-DDD	ND	1.5	1		Toxaphene	ND	31	1	
2,4'-DDE	2.3	1.5	1		Alpha Chlordane	ND	1.5	1	
2,4'-DDT	ND	1.5	1		Oxychlordane	ND	1.5	1	
4,4'-DDD	ND	1.5	1		Gamma Chlordane	ND	1.5	1	
4,4'-DDE	15	3.1	2		Cis-nonachlor	ND	1.5	1	
4,4'-DDT	ND	1.5	1		Total DDTs	17	1.5	1	
Endosulfan I	ND	1.5	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	82	50-130		Decachlorobiphenyl	73	50-130	

Station 3-Bottom	**11-08-0758-4-A**	**06/07/11 13:35**	**Sediment**	**GC 51**	**08/11/11**	**08/15/11 15:31**	**110811L15A**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.9	1		Endosulfan II	ND	1.9	1	
Alpha-BHC	ND	1.9	1		Endosulfan Sulfate	ND	1.9	1	
Beta-BHC	ND	1.9	1		Endrin	ND	1.9	1	
Delta-BHC	ND	1.9	1		Endrin Aldehyde	ND	1.9	1	
Gamma-BHC	ND	1.9	1		Endrin Ketone	ND	1.9	1	
Chlordane	ND	19	1		Heptachlor	ND	1.9	1	
Dieldrin	ND	1.9	1		Heptachlor Epoxide	ND	1.9	1	
Trans-nonachlor	ND	1.9	1		Methoxychlor	ND	1.9	1	
2,4'-DDD	ND	1.9	1		Toxaphene	ND	37	1	
2,4'-DDE	ND	1.9	1		Alpha Chlordane	ND	1.9	1	
2,4'-DDT	ND	1.9	1		Oxychlordane	ND	1.9	1	
4,4'-DDD	ND	1.9	1		Gamma Chlordane	ND	1.9	1	
4,4'-DDE	5.7	1.9	1		Cis-nonachlor	ND	1.9	1	
4,4'-DDT	ND	1.9	1		Total DDTs	5.7	1.9	1	
Endosulfan I	ND	1.9	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	88	50-130		Decachlorobiphenyl	75	50-130	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 4-Bottom	**11-08-0758-5-A**	**06/07/11 15:00**	**Sediment**	**GC 51**	**08/11/11**	**08/15/11 15:46**	**110811L15A**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.4	1		Endosulfan II	ND	1.4	1	
Alpha-BHC	ND	1.4	1		Endosulfan Sulfate	ND	1.4	1	
Beta-BHC	ND	1.4	1		Endrin	ND	1.4	1	
Delta-BHC	ND	1.4	1		Endrin Aldehyde	ND	1.4	1	
Gamma-BHC	ND	1.4	1		Endrin Ketone	ND	1.4	1	
Chlordane	ND	14	1		Heptachlor	ND	1.4	1	
Dieldrin	ND	1.4	1		Heptachlor Epoxide	ND	1.4	1	
Trans-nonachlor	ND	1.4	1		Methoxychlor	ND	1.4	1	
2,4'-DDD	1.8	1.4	1		Toxaphene	ND	29	1	
2,4'-DDE	8.9	1.4	1		Alpha Chlordane	ND	1.4	1	
2,4'-DDT	ND	1.4	1		Gamma Chlordane	ND	1.4	1	
4,4'-DDD	ND	1.4	1		Oxychlordane	ND	1.4	1	
4,4'-DDE	130	29	20		Cis-nonachlor	ND	1.4	1	
4,4'-DDT	ND	1.4	1		Total DDTs	140	1.4	1	
Endosulfan I	ND	1.4	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	129	50-130		Decachlorobiphenyl	138	50-130	2,7

Station 5-Bottom	**11-08-0758-6-A**	**06/07/11 16:00**	**Sediment**	**GC 51**	**08/11/11**	**08/15/11 16:00**	**110811L15A**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.4	1		Endosulfan II	ND	1.4	1	
Alpha-BHC	ND	1.4	1		Endosulfan Sulfate	ND	1.4	1	
Beta-BHC	ND	1.4	1		Endrin	ND	1.4	1	
Delta-BHC	ND	1.4	1		Endrin Aldehyde	ND	1.4	1	
Gamma-BHC	ND	1.4	1		Endrin Ketone	ND	1.4	1	
Chlordane	ND	14	1		Heptachlor	ND	1.4	1	
Dieldrin	ND	1.4	1		Heptachlor Epoxide	ND	1.4	1	
Trans-nonachlor	ND	1.4	1		Methoxychlor	ND	1.4	1	
2,4'-DDD	ND	1.4	1		Toxaphene	ND	29	1	
2,4'-DDE	3.3	1.4	1		Alpha Chlordane	ND	1.4	1	
2,4'-DDT	ND	1.4	1		Oxychlordane	ND	1.4	1	
4,4'-DDD	5.1	1.4	1		Gamma Chlordane	ND	1.4	1	
4,4'-DDE	28	7.2	5		Cis-nonachlor	ND	1.4	1	
4,4'-DDT	9.1	1.4	1		Total DDTs	46	1.4	1	
Endosulfan I	ND	1.4	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	64	50-130		Decachlorobiphenyl	60	50-130	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-858-106**	**N/A**	**Solid**	**GC 51**	**08/11/11**	**08/15/11 11:53**	**110811L15A**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.0	1		Endosulfan II	ND	1.0	1	
Alpha-BHC	ND	1.0	1		Endosulfan Sulfate	ND	1.0	1	
Beta-BHC	ND	1.0	1		Endrin	ND	1.0	1	
Delta-BHC	ND	1.0	1		Endrin Aldehyde	ND	1.0	1	
Gamma-BHC	ND	1.0	1		Endrin Ketone	ND	1.0	1	
Chlordane	ND	10	1		Heptachlor	ND	1.0	1	
Dieldrin	ND	1.0	1		Heptachlor Epoxide	ND	1.0	1	
Trans-nonachlor	ND	1.0	1		Methoxychlor	ND	1.0	1	
2,4'-DDD	ND	1.0	1		Toxaphene	ND	20	1	
2,4'-DDE	ND	1.0	1		Alpha Chlordane	ND	1.0	1	
2,4'-DDT	ND	1.0	1		Oxychlordane	ND	1.0	1	
4,4'-DDD	ND	1.0	1		Gamma Chlordane	ND	1.0	1	
4,4'-DDE	ND	1.0	1		Cis-nonachlor	ND	1.0	1	
4,4'-DDT	ND	1.0	1		Total DDTs	ND	1.0	1	
Endosulfan I	ND	1.0	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	100	50-130		Decachlorobiphenyl	86	50-130	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 3-Bottom	**11-08-0758-4-A**	**06/07/11 13:35**	**Sediment**	**GC/MS BBB**	**08/11/11**	**08/15/11 20:27**	**110811L13**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acenaphthene	ND	19	1		Fluoranthene	650	19	1	
Acenaphthylene	100	19	1		Fluorene	36	19	1	
Anthracene	320	19	1		Indeno (1,2,3-c,d) Pyrene	300	19	1	
Benzo (a) Anthracene	480	19	1		2-Methylnaphthalene	ND	19	1	
Benzo (a) Pyrene	1200	190	10		1-Methylnaphthalene	ND	19	1	
Benzo (b) Fluoranthene	1500	190	10		1-Methylphenanthrene	ND	19	1	
Benzo (e) Pyrene	710	19	1		Naphthalene	ND	19	1	
Benzo (g,h,i) Perylene	270	19	1		Perylene	260	19	1	
Benzo (k) Fluoranthene	1300	190	10		Phenanthrene	120	19	1	
Biphenyl	ND	19	1		Pyrene	4000	190	10	
Chrysene	1300	190	10		1,6,7-Trimethylnaphthalene	ND	19	1	
Dibenz (a,h) Anthracene	99	19	1		Total PAHs	12000	19	1	
2,6-Dimethylnaphthalene	ND	19	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	56	14-146		Nitrobenzene-d5	89	18-162	
p-Terphenyl-d14	77	34-148					

Station 4-Bottom	**11-08-0758-5-A**	**06/07/11 15:00**	**Sediment**	**GC/MS BBB**	**08/11/11**	**08/15/11 22:07**	**110811L13**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acenaphthene	1800	720	50		Fluoranthene	9200	720	50	
Acenaphthylene	280	14	1		Fluorene	700	14	1	
Anthracene	1800	720	50		Indeno (1,2,3-c,d) Pyrene	370	14	1	
Benzo (a) Anthracene	2700	720	50		2-Methylnaphthalene	76	14	1	
Benzo (a) Pyrene	2100	720	50		1-Methylnaphthalene	360	14	1	
Benzo (b) Fluoranthene	2700	720	50		1-Methylphenanthrene	670	14	1	
Benzo (e) Pyrene	1400	720	50		Naphthalene	390	14	1	
Benzo (g,h,i) Perylene	300	14	1		Perylene	430	14	1	
Benzo (k) Fluoranthene	2000	720	50		Phenanthrene	2800	720	50	
Biphenyl	60	14	1		Pyrene	9100	720	50	
Chrysene	4000	720	50		1,6,7-Trimethylnaphthalene	28	14	1	
Dibenz (a,h) Anthracene	150	14	1		Total PAHs	41000	14	1	
2,6-Dimethylnaphthalene	71	14	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	69	14-146		Nitrobenzene-d5	83	18-162	
p-Terphenyl-d14	66	34-148					

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs
		Units:	ug/kg

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 5-Bottom	**11-08-0758-6-A**	**06/07/11 16:00**	**Sediment**	**GC/MS BBB**	**08/11/11**	**08/15/11 21:42**	**110811L13**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acenaphthene	ND	14	1		Fluoranthene	680	14	1	
Acenaphthylene	75	14	1		Fluorene	25	14	1	
Anthracene	340	14	1		Indeno (1,2,3-c,d) Pyrene	310	14	1	
Benzo (a) Anthracene	1300	140	10		2-Methylnaphthalene	ND	14	1	
Benzo (a) Pyrene	1300	140	10		1-Methylnaphthalene	ND	14	1	
Benzo (b) Fluoranthene	1200	140	10		1-Methylphenanthrene	71	14	1	
Benzo (e) Pyrene	630	14	1		Naphthalene	15	14	1	
Benzo (g,h,i) Perylene	260	14	1		Perylene	250	14	1	
Benzo (k) Fluoranthene	1200	140	10		Phenanthrene	90	14	1	
Biphenyl	ND	14	1		Pyrene	2400	140	10	
Chrysene	1700	140	10		1,6,7-Trimethylnaphthalene	ND	14	1	
Dibenz (a,h) Anthracene	120	14	1		Total PAHs	11000	14	1	
2,6-Dimethylnaphthalene	18	14	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	108	14-146		Nitrobenzene-d5	134	18-162	
p-Terphenyl-d14	74	34-148					

Method Blank	**099-14-097-56**	**N/A**	**Solid**	**GC/MS BBB**	**08/11/11**	**08/15/11 17:32**	**110811L13**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acenaphthene	ND	10	1		2,6-Dimethylnaphthalene	ND	10	1	
Acenaphthylene	ND	10	1		Fluoranthene	ND	10	1	
Anthracene	ND	10	1		Fluorene	ND	10	1	
Benzo (a) Anthracene	ND	10	1		Indeno (1,2,3-c,d) Pyrene	ND	10	1	
Benzo (a) Pyrene	ND	10	1		2-Methylnaphthalene	ND	10	1	
Benzo (b) Fluoranthene	ND	10	1		1-Methylnaphthalene	ND	10	1	
Benzo (e) Pyrene	ND	10	1		1-Methylphenanthrene	ND	10	1	
Benzo (g,h,i) Perylene	ND	10	1		Naphthalene	ND	10	1	
Benzo (k) Fluoranthene	ND	10	1		Perylene	ND	10	1	
Biphenyl	ND	10	1		Phenanthrene	ND	10	1	
Chrysene	ND	10	1		Pyrene	ND	10	1	
Dibenz (a,h) Anthracene	ND	10	1		1,6,7-Trimethylnaphthalene	ND	10	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	96	14-146		Nitrobenzene-d5	112	18-162	
p-Terphenyl-d14	92	34-148					

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 3-Top	**11-08-0758-1-A**	**06/07/11 13:35**	**Sediment**	**GC/MS HHH**	**08/11/11**	**08/16/11 19:08**	**110811L17**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.7	1		PCB128	ND	1.7	1	
PCB018	2.8	1.7	1		PCB132	ND	1.7	1	
PCB028	6.0	1.7	1		PCB138/158	4.2	1.7	1	
PCB031	ND	1.7	1		PCB141	ND	1.7	1	
PCB033	ND	1.7	1		PCB149	2.3	1.7	1	
PCB037	ND	1.7	1		PCB151	ND	1.7	1	
PCB044	3.1	1.7	1		PCB153	4.0	1.7	1	
PCB049	22	1.7	1		PCB156	ND	1.7	1	
PCB052	3.0	1.7	1		PCB157	ND	1.7	1	
PCB056	ND	1.7	1		PCB167	ND	1.7	1	
PCB060	ND	1.7	1		PCB168	ND	1.7	1	
PCB066	ND	1.7	1		PCB169	ND	1.7	1	
PCB070	ND	1.7	1		PCB170	ND	1.7	1	
PCB074	ND	1.7	1		PCB174	ND	1.7	1	
PCB077	ND	1.7	1		PCB177	ND	1.7	1	
PCB081	ND	1.7	1		PCB180	1.9	1.7	1	
PCB087	1.8	1.7	1		PCB183	ND	1.7	1	
PCB095	2.1	1.7	1		PCB184	ND	1.7	1	
PCB097	5.3	1.7	1		PCB187	ND	1.7	1	
PCB099	ND	1.7	1		PCB189	ND	1.7	1	
PCB101	4.2	1.7	1		PCB194	ND	1.7	1	
PCB105	ND	1.7	1		PCB195	ND	1.7	1	
PCB110	2.1	1.7	1		PCB200	ND	1.7	1	
PCB114	ND	1.7	1		PCB201	ND	1.7	1	
PCB118	2.1	1.7	1		PCB203	ND	1.7	1	
PCB119	ND	1.7	1		PCB206	ND	1.7	1	
PCB123	ND	1.7	1		PCB209	ND	1.7	1	
PCB126	ND	1.7	1		Total PCB Congeners	67	1.7	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	119	50-125		p-Terphenyl-d14	117	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 4-Top	**11-08-0758-2-A**	**06/07/11 15:00**	**Sediment**	**GC/MS HHH**	**08/11/11**	**08/16/11 19:35**	**110811L17**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.6	1		PCB128	2.1	1.6	1	
PCB018	2.4	1.6	1		PCB132	ND	1.6	1	
PCB028	4.5	1.6	1		PCB138/158	9.2	1.6	1	
PCB031	ND	1.6	1		PCB141	1.7	1.6	1	
PCB033	ND	1.6	1		PCB149	5.5	1.6	1	
PCB037	ND	1.6	1		PCB151	2.3	1.6	1	
PCB044	3.8	1.6	1		PCB153	8.6	1.6	1	
PCB049	14	1.6	1		PCB156	1.8	1.6	1	
PCB052	4.0	1.6	1		PCB157	2.4	1.6	1	
PCB056	ND	1.6	1		PCB167	ND	1.6	1	
PCB060	ND	1.6	1		PCB168	ND	1.6	1	
PCB066	2.3	1.6	1		PCB169	ND	1.6	1	
PCB070	2.3	1.6	1		PCB170	2.9	1.6	1	
PCB074	ND	1.6	1		PCB174	2.1	1.6	1	
PCB077	ND	1.6	1		PCB177	ND	1.6	1	
PCB081	ND	1.6	1		PCB180	3.8	1.6	1	
PCB087	3.3	1.6	1		PCB183	ND	1.6	1	
PCB095	5.2	1.6	1		PCB184	ND	1.6	1	
PCB097	6.1	1.6	1		PCB187	2.3	1.6	1	
PCB099	2.2	1.6	1		PCB189	ND	1.6	1	
PCB101	7.7	1.6	1		PCB194	1.7	1.6	1	
PCB105	4.7	1.6	1		PCB195	ND	1.6	1	
PCB110	6.1	1.6	1		PCB200	ND	1.6	1	
PCB114	3.2	1.6	1		PCB201	ND	1.6	1	
PCB118	6.3	1.6	1		PCB203	ND	1.6	1	
PCB119	ND	1.6	1		PCB206	ND	1.6	1	
PCB123	ND	1.6	1		PCB209	ND	1.6	1	
PCB126	2.0	1.6	1		Total PCB Congeners	130	1.6	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	107	50-125		p-Terphenyl-d14	88	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 5-Top	**11-08-0758-3-A**	**06/07/11 16:00**	**Sediment**	**GC/MS HHH**	**08/11/11**	**08/16/11 20:02**	**110811L17**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.5	1		PCB128	2.7	1.5	1	
PCB018	2.2	1.5	1		PCB132	ND	1.5	1	
PCB028	5.0	1.5	1		PCB138/158	15	1.5	1	
PCB031	ND	1.5	1		PCB141	2.3	1.5	1	
PCB033	2.1	1.5	1		PCB149	8.6	1.5	1	
PCB037	ND	1.5	1		PCB151	2.8	1.5	1	
PCB044	5.7	1.5	1		PCB153	13	1.5	1	
PCB049	10	1.5	1		PCB156	2.1	1.5	1	
PCB052	7.2	1.5	1		PCB157	2.8	1.5	1	
PCB056	ND	1.5	1		PCB167	ND	1.5	1	
PCB060	ND	1.5	1		PCB168	ND	1.5	1	
PCB066	4.0	1.5	1		PCB169	ND	1.5	1	
PCB070	4.0	1.5	1		PCB170	3.0	1.5	1	
PCB074	1.8	1.5	1		PCB174	2.6	1.5	1	
PCB077	ND	1.5	1		PCB177	ND	1.5	1	
PCB081	ND	1.5	1		PCB180	5.2	1.5	1	
PCB087	5.0	1.5	1		PCB183	ND	1.5	1	
PCB095	8.3	1.5	1		PCB184	ND	1.5	1	
PCB097	7.2	1.5	1		PCB187	2.9	1.5	1	
PCB099	3.8	1.5	1		PCB189	ND	1.5	1	
PCB101	13	1.5	1		PCB194	ND	1.5	1	
PCB105	5.9	1.5	1		PCB195	ND	1.5	1	
PCB110	11	1.5	1		PCB200	ND	1.5	1	
PCB114	1.6	1.5	1		PCB201	ND	1.5	1	
PCB118	11	1.5	1		PCB203	ND	1.5	1	
PCB119	ND	1.5	1		PCB206	ND	1.5	1	
PCB123	1.7	1.5	1		PCB209	ND	1.5	1	
PCB126	ND	1.5	1		Total PCB Congeners	170	1.5	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	97	50-125		p-Terphenyl-d14	98	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 3-Bottom	**11-08-0758-4-A**	**06/07/11 13:35**	**Sediment**	**GC/MS HHH**	**08/11/11**	**08/16/11 20:29**	**110811L17**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.9	1		PCB128	ND	1.9	1	
PCB018	3.0	1.9	1		PCB132	ND	1.9	1	
PCB028	7.3	1.9	1		PCB138/158	5.3	1.9	1	
PCB031	ND	1.9	1		PCB141	ND	1.9	1	
PCB033	ND	1.9	1		PCB149	3.2	1.9	1	
PCB037	2.7	1.9	1		PCB151	2.0	1.9	1	
PCB044	4.5	1.9	1		PCB153	4.3	1.9	1	
PCB049	27	1.9	1		PCB156	ND	1.9	1	
PCB052	5.3	1.9	1		PCB157	2.0	1.9	1	
PCB056	ND	1.9	1		PCB167	ND	1.9	1	
PCB060	ND	1.9	1		PCB168	ND	1.9	1	
PCB066	ND	1.9	1		PCB169	ND	1.9	1	
PCB070	2.0	1.9	1		PCB170	ND	1.9	1	
PCB074	ND	1.9	1		PCB174	ND	1.9	1	
PCB077	ND	1.9	1		PCB177	ND	1.9	1	
PCB081	ND	1.9	1		PCB180	2.3	1.9	1	
PCB087	2.6	1.9	1		PCB183	ND	1.9	1	
PCB095	3.1	1.9	1		PCB184	ND	1.9	1	
PCB097	7.7	1.9	1		PCB187	ND	1.9	1	
PCB099	ND	1.9	1		PCB189	ND	1.9	1	
PCB101	6.2	1.9	1		PCB194	ND	1.9	1	
PCB105	5.9	1.9	1		PCB195	ND	1.9	1	
PCB110	2.9	1.9	1		PCB200	ND	1.9	1	
PCB114	ND	1.9	1		PCB201	ND	1.9	1	
PCB118	3.1	1.9	1		PCB203	ND	1.9	1	
PCB119	ND	1.9	1		PCB206	ND	1.9	1	
PCB123	ND	1.9	1		PCB209	ND	1.9	1	
PCB126	ND	1.9	1		Total PCB Congeners	100	1.9	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	100	50-125		p-Terphenyl-d14	88	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 4-Bottom	**11-08-0758-5-A**	**06/07/11 15:00**	**Sediment**	**GC/MS HHH**	**08/11/11**	**08/16/11 20:56**	**110811L17**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.4	1		PCB128	11	1.4	1	
PCB018	5.6	1.4	1		PCB132	ND	1.4	1	
PCB028	8.5	1.4	1		PCB138/158	54	1.4	1	
PCB031	ND	1.4	1		PCB141	12	1.4	1	
PCB033	ND	1.4	1		PCB149	30	1.4	1	
PCB037	ND	1.4	1		PCB151	7.1	1.4	1	
PCB044	13	1.4	1		PCB153	47	1.4	1	
PCB049	17	1.4	1		PCB156	7.0	1.4	1	
PCB052	27	1.4	1		PCB157	6.9	1.4	1	
PCB056	3.5	1.4	1		PCB167	1.9	1.4	1	
PCB060	ND	1.4	1		PCB168	ND	1.4	1	
PCB066	8.5	1.4	1		PCB169	1.6	1.4	1	
PCB070	15	1.4	1		PCB170	7.6	1.4	1	
PCB074	4.8	1.4	1		PCB174	7.1	1.4	1	
PCB077	2.8	1.4	1		PCB177	3.1	1.4	1	
PCB081	ND	1.4	1		PCB180	14	1.4	1	
PCB087	19	1.4	1		PCB183	3.5	1.4	1	
PCB095	33	1.4	1		PCB184	ND	1.4	1	
PCB097	23	1.4	1		PCB187	7.3	1.4	1	
PCB099	14	1.4	1		PCB189	ND	1.4	1	
PCB101	50	1.4	1		PCB194	2.6	1.4	1	
PCB105	20	1.4	1		PCB195	ND	1.4	1	
PCB110	43	1.4	1		PCB200	ND	1.4	1	
PCB114	3.0	1.4	1		PCB201	ND	1.4	1	
PCB118	38	1.4	1		PCB203	2.8	1.4	1	
PCB119	1.6	1.4	1		PCB206	1.9	1.4	1	
PCB123	5.2	1.4	1		PCB209	ND	1.4	1	
PCB126	ND	1.4	1		Total PCB Congeners	580	1.4	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	81	50-125		p-Terphenyl-d14	81	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 5-Bottom	**11-08-0758-6-A**	**06/07/11 16:00**	**Sediment**	**GC/MS HHH**	**08/11/11**	**08/17/11 15:39**	**110811L17**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.4	1		PCB128	6.5	1.4	1	
PCB018	ND	1.4	1		PCB132	ND	1.4	1	
PCB028	3.7	1.4	1		PCB138/158	33	1.4	1	
PCB031	ND	1.4	1		PCB141	7.0	1.4	1	
PCB033	ND	1.4	1		PCB149	19	1.4	1	
PCB037	ND	1.4	1		PCB151	4.8	1.4	1	
PCB044	9.0	1.4	1		PCB153	31	1.4	1	
PCB049	12	1.4	1		PCB156	4.2	1.4	1	
PCB052	13	1.4	1		PCB157	4.2	1.4	1	
PCB056	4.5	1.4	1		PCB167	ND	1.4	1	
PCB060	2.3	1.4	1		PCB168	ND	1.4	1	
PCB066	8.5	1.4	1		PCB169	ND	1.4	1	
PCB070	9.8	1.4	1		PCB170	6.9	1.4	1	
PCB074	4.6	1.4	1		PCB174	5.3	1.4	1	
PCB077	2.2	1.4	1		PCB177	2.1	1.4	1	
PCB081	ND	1.4	1		PCB180	11	1.4	1	
PCB087	11	1.4	1		PCB183	2.6	1.4	1	
PCB095	19	1.4	1		PCB184	ND	1.4	1	
PCB097	13	1.4	1		PCB187	6.0	1.4	1	
PCB099	10	1.4	1		PCB189	ND	1.4	1	
PCB101	29	1.4	1		PCB194	2.9	1.4	1	
PCB105	13	1.4	1		PCB195	ND	1.4	1	
PCB110	25	1.4	1		PCB200	ND	1.4	1	
PCB114	ND	1.4	1		PCB201	ND	1.4	1	
PCB118	26	1.4	1		PCB203	2.6	1.4	1	
PCB119	ND	1.4	1		PCB206	1.8	1.4	1	
PCB123	2.1	1.4	1		PCB209	ND	1.4	1	
PCB126	ND	1.4	1		Total PCB Congeners	370	1.4	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	113	50-125		p-Terphenyl-d14	77	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-417-3**	**N/A**	**Solid**	**GC/MS HHH**	**08/11/11**	**08/15/11 13:16**	**110811L17**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.0	1		PCB128	ND	1.0	1	
PCB018	ND	1.0	1		PCB132	ND	1.0	1	
PCB028	ND	1.0	1		PCB138/158	ND	1.0	1	
PCB031	ND	1.0	1		PCB141	ND	1.0	1	
PCB033	ND	1.0	1		PCB149	ND	1.0	1	
PCB037	ND	1.0	1		PCB151	ND	1.0	1	
PCB044	ND	1.0	1		PCB153	ND	1.0	1	
PCB049	ND	1.0	1		PCB156	ND	1.0	1	
PCB052	ND	1.0	1		PCB157	ND	1.0	1	
PCB056	ND	1.0	1		PCB167	ND	1.0	1	
PCB060	ND	1.0	1		PCB168	ND	1.0	1	
PCB066	ND	1.0	1		PCB169	ND	1.0	1	
PCB070	ND	1.0	1		PCB170	ND	1.0	1	
PCB074	ND	1.0	1		PCB174	ND	1.0	1	
PCB077	ND	1.0	1		PCB177	ND	1.0	1	
PCB081	ND	1.0	1		PCB180	ND	1.0	1	
PCB087	ND	1.0	1		PCB183	ND	1.0	1	
PCB095	ND	1.0	1		PCB184	ND	1.0	1	
PCB097	ND	1.0	1		PCB187	ND	1.0	1	
PCB099	ND	1.0	1		PCB189	ND	1.0	1	
PCB101	ND	1.0	1		PCB194	ND	1.0	1	
PCB105	ND	1.0	1		PCB195	ND	1.0	1	
PCB110	ND	1.0	1		PCB200	ND	1.0	1	
PCB114	ND	1.0	1		PCB201	ND	1.0	1	
PCB118	ND	1.0	1		PCB203	ND	1.0	1	
PCB119	ND	1.0	1		PCB206	ND	1.0	1	
PCB123	ND	1.0	1		PCB209	ND	1.0	1	
PCB126	ND	1.0	1		Total PCB Congeners	ND	1.0	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	117	50-125		p-Terphenyl-d14	107	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	Organotins by Krone et al.
		Units:	ug/kg
Project: Port of Los Angeles - 1015101913			Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 3-Top	**11-08-0758-1-A**	**06/07/11 13:35**	**Sediment**	**GC/MS Y**	**08/11/11**	**08/12/11 20:24**	**110811L18**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	ND	5.2	1.0	1		Tetrabutyltin	ND	5.2	0.62	1	
Monobutyltin	ND	5.2	1.7	1		Tributyltin	210	5.2	0.58	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	94	50-130	

Station 4-Top	**11-08-0758-2-A**	**06/07/11 15:00**	**Sediment**	**GC/MS Y**	**08/11/11**	**08/12/11 20:56**	**110811L18**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	21	4.7	0.95	1		Tetrabutyltin	ND	4.7	0.56	1	
Monobutyltin	ND	4.7	1.5	1		Tributyltin	45	4.7	0.53	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	93	50-130	

Station 5-Top	**11-08-0758-3-A**	**06/07/11 16:00**	**Sediment**	**GC/MS Y**	**08/11/11**	**08/12/11 21:28**	**110811L18**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	22	4.6	0.92	1		Tetrabutyltin	ND	4.6	0.55	1	
Monobutyltin	ND	4.6	1.5	1		Tributyltin	21	4.6	0.52	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	87	50-130	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	Organotins by Krone et al.
		Units:	ug/kg
Project: Port of Los Angeles - 1015101913			Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 3-Bottom	**11-08-0758-4-A**	**06/07/11 13:35**	**Sediment**	**GC/MS Y**	**08/11/11**	**08/16/11 14:21**	**110811L18**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	ND	28	5.6	5		Tetrabutyltin	ND	28	3.3	5	
Monobutyltin	ND	28	9.1	5		Tributyltin	530	28	3.1	5	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	79	50-130	

Station 4-Bottom	**11-08-0758-5-A**	**06/07/11 15:00**	**Sediment**	**GC/MS Y**	**08/11/11**	**08/12/11 22:34**	**110811L18**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	21	4.3	0.86	1		Tetrabutyltin	ND	4.3	0.51	1	
Monobutyltin	ND	4.3	1.4	1		Tributyltin	23	4.3	0.48	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	67	50-130	

Station 5-Bottom	**11-08-0758-6-A**	**06/07/11 16:00**	**Sediment**	**GC/MS Y**	**08/11/11**	**08/12/11 23:06**	**110811L18**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	17	4.3	0.86	1		Tetrabutyltin	ND	4.3	0.51	1	
Monobutyltin	ND	4.3	1.4	1		Tributyltin	27	4.3	0.48	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	93	50-130	

Method Blank	**099-07-016-862**	**N/A**	**Solid**	**GC/MS Y**	**08/11/11**	**08/12/11 15:32**	**110811L18**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	ND	3.0	0.60	1		Tetrabutyltin	ND	3.0	0.36	1	
Monobutyltin	ND	3.0	0.97	1		Tributyltin	ND	3.0	0.33	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	80	50-130	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020
		Units:	mg/kg
Project: Port of Los Angeles - 1015101913			Page 1 of 2

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 3-Top	**11-08-0758-1-A**	**06/07/11 13:35**	**Sediment**	**ICP/MS 04**	**08/11/11**	**08/12/11 13:54**	**110811L08**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	10.5	0.172	1		Nickel	25.0	0.172	1	
Cadmium	0.483	0.172	1		Selenium	0.548	0.172	1	
Chromium	41.7	0.172	1		Silver	0.233	0.172	1	
Copper	103	0.172	1		Zinc	130	1.72	1	
Lead	31.5	0.172	1						

Station 4-Top	**11-08-0758-2-A**	**06/07/11 15:00**	**Sediment**	**ICP/MS 04**	**08/11/11**	**08/12/11 13:59**	**110811L08**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	11.6	0.158	1		Nickel	26.1	0.158	1	
Cadmium	0.588	0.158	1		Selenium	0.638	0.158	1	
Chromium	47.7	0.158	1		Silver	0.309	0.158	1	
Copper	96.5	0.158	1		Zinc	148	1.58	1	
Lead	72.2	0.158	1						

Station 5-Top	**11-08-0758-3-A**	**06/07/11 16:00**	**Sediment**	**ICP/MS 04**	**08/11/11**	**08/12/11 14:04**	**110811L08**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	9.80	0.154	1		Nickel	21.0	0.154	1	
Cadmium	0.602	0.154	1		Selenium	0.436	0.154	1	
Chromium	46.0	0.154	1		Silver	0.280	0.154	1	
Copper	68.0	0.154	1		Zinc	126	1.54	1	
Lead	44.1	0.154	1						

Station 3-Bottom	**11-08-0758-4-A**	**06/07/11 13:35**	**Sediment**	**ICP/MS 04**	**08/11/11**	**08/12/11 14:20**	**110811L08**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	12.8	0.187	1		Nickel	29.4	0.187	1	
Cadmium	0.668	0.187	1		Selenium	0.658	0.187	1	
Chromium	49.1	0.187	1		Silver	0.285	0.187	1	
Copper	87.4	0.187	1		Zinc	147	1.87	1	
Lead	38.4	0.187	1						

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020
		Units:	mg/kg
Project: Port of Los Angeles - 1015101913			Page 2 of 2

Client Sample Number	Lab Sample Number	Date /Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 4-Bottom	**11-08-0758-5-A**	**06/07/11 15:00**	**Sediment**	**ICP/MS 04**	**08/11/11**	**08/12/11 14:26**	**110811L08**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	21.6	0.143	1		Nickel	30.2	0.143	1	
Cadmium	1.24	0.143	1		Selenium	0.792	0.143	1	
Chromium	90.0	0.143	1		Silver	0.531	0.143	1	
Copper	141	0.143	1		Zinc	217	1.43	1	
Lead	120	0.143	1						

Station 5-Bottom	**11-08-0758-6-A**	**06/07/11 16:00**	**Sediment**	**ICP/MS 04**	**08/11/11**	**08/12/11 14:31**	**110811L08**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	11.7	0.143	1		Nickel	21.8	0.143	1	
Cadmium	0.953	0.143	1		Selenium	0.369	0.143	1	
Chromium	69.3	0.143	1		Silver	0.469	0.143	1	
Copper	81.0	0.143	1		Zinc	164	1.43	1	
Lead	83.8	0.143	1						

Method Blank	**096-10-002-2,040**	**N/A**	**Solid**	**ICP/MS 04**	**08/11/11**	**08/12/11 12:15**	**110811L08**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	ND	0.100	1		Nickel	ND	0.100	1	
Cadmium	ND	0.100	1		Selenium	ND	0.100	1	
Chromium	ND	0.100	1		Silver	ND	0.100	1	
Copper	ND	0.100	1		Zinc	ND	1.00	1	
Lead	ND	0.100	1						

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Station 3-Top	**11-08-0758-1-A**	**06/07/11 13:35**	**Sediment**	**Mercury**	**08/12/11**	**08/12/11 13:23**	**110812L02**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.182	0.0346	1		mg/kg

Station 4-Top	**11-08-0758-2-A**	**06/07/11 15:00**	**Sediment**	**Mercury**	**08/12/11**	**08/12/11 13:25**	**110812L02**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.245	0.0316	1		mg/kg

Station 5-Top	**11-08-0758-3-A**	**06/07/11 16:00**	**Sediment**	**Mercury**	**08/12/11**	**08/12/11 13:27**	**110812L02**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.239	0.0309	1		mg/kg

Station 3-Bottom	**11-08-0758-4-A**	**06/07/11 13:35**	**Sediment**	**Mercury**	**08/12/11**	**08/12/11 13:37**	**110812L02**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.227	0.0374	1		mg/kg

Station 4-Bottom	**11-08-0758-5-A**	**06/07/11 15:00**	**Sediment**	**Mercury**	**08/12/11**	**08/12/11 13:39**	**110812L02**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.755	0.0288	1		mg/kg

Station 5-Bottom	**11-08-0758-6-A**	**06/07/11 16:00**	**Sediment**	**Mercury**	**08/12/11**	**08/12/11 13:41**	**110812L02**

-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Units
Mercury	0.428	0.0287	1		mg/kg

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: Port of Los Angeles - 1015101913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-452-219**	**N/A**	**Solid**	**Mercury**	**08/12/11**	**08/12/11 13:12**	**110812L02**

Parameter	Result	RL	DF	Qual	Units
Mercury	ND	0.0200	1		mg/kg

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	08/10/11
Work Order No:	11-08-0758
Preparation:	EPA 3050B
Method:	EPA 6020

Project Port of Los Angeles - 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
11-08-0860-1	**Sediment**	**ICP/MS 04**	**08/11/11**	**08/12/11**	**110811S08**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	113	118	80-120	4	0-20	
Cadmium	110	112	80-120	1	0-20	
Chromium	114	117	80-120	2	0-20	
Copper	113	110	80-120	1	0-20	
Lead	125	129	80-120	1	0-20	3
Nickel	103	105	80-120	1	0-20	
Selenium	95	104	80-120	9	0-20	
Silver	102	103	80-120	1	0-20	
Zinc	4X	4X	80-120	4X	0-20	Q

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

AMEC Environment & Infrastructure		Date Received	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020

Project: Port of Los Angeles - 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS / PDSD Batch Number
11-08-0860-1	**Sediment**	**ICP/MS 04**	**08/11/11**	**08/12/11**	**110811S08**

Parameter	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	98	96	75-125	1	0-20	
Cadmium	97	95	75-125	2	0-20	
Chromium	94	90	75-125	2	0-20	
Copper	87	85	75-125	1	0-20	
Lead	107	96	75-125	3	0-20	
Nickel	87	85	75-125	2	0-20	
Selenium	92	90	75-125	3	0-20	
Silver	87	86	75-125	0	0-20	
Zinc	4X	4X	75-125	4X	0-20	Q,X

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 2540 B

Project: Port of Los Angeles - 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
Station 5-Top	**Sediment**	**N/A**	**08/11/11**	**08/11/11**	**B0811TSD2**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Solids, Total	64.9	65.0	0	0-10	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	Extraction
		Method:	EPA 413.2M

Project Port of Los Angeles - 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
11-08-0971-1	**Sediment**	**IR #1**	**08/15/11**	**08/15/11**	**110815S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Oil and Grease	80	78	55-135	2	0-30	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	Extraction
		Method:	EPA 418.1M

Project Port of Los Angeles - 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
11-08-0971-1	**Sediment**	**IR #1**	**08/15/11**	**08/15/11**	**110815S02**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TRPH	82	86	55-135	4	0-30	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure		Date Received:	08/10/11
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project Port of Los Angeles - 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Station 3-Top	**Sediment**	**Mercury**	**08/12/11**	**08/12/11**	**110812S02**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	90	89	76-136	1	0-16	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	08/10/11
Work Order No:	11-08-0758
Preparation:	EPA 3545
Method:	Organotins by Krone et al.

Project Port of Los Angeles - 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Station 4-Top	**Sediment**	**GC/MS Y**	**08/11/11**	**08/12/11**	**110811S18**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	27	108	50-130	121	0-20	3,4
Tributyltin	23	82	50-130	73	0-20	3,4

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	08/10/11
Work Order No:	11-08-0758
Preparation:	EPA 3545
Method:	EPA 8081A

Project Port of Los Angeles - 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Station 5-Bottom	**Sediment**	**GC 51**	**08/11/11**	**08/15/11**	**110811S15A**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aldrin	64	57	50-135	13	0-25	
Alpha-BHC	71	64	50-135	10	0-25	
Beta-BHC	99	84	50-135	16	0-25	
Delta-BHC	74	64	50-135	15	0-25	
Gamma-BHC	62	55	50-135	12	0-25	
Dieldrin	83	74	50-135	12	0-25	
4,4'-DDD	89	74	50-135	10	0-25	
4,4'-DDE	142	89	50-135	10	0-25	3
4,4'-DDT	113	0	50-135	100	0-25	3,4
Endosulfan I	64	55	50-135	16	0-25	
Endosulfan II	76	63	50-135	20	0-25	
Endosulfan Sulfate	68	57	50-135	18	0-25	
Endrin	83	70	50-135	16	0-25	
Endrin Aldehyde	55	46	50-135	16	0-25	3
Endrin Ketone	98	83	50-135	16	0-25	
Heptachlor	71	62	50-135	14	0-25	
Heptachlor Epoxide	100	89	50-135	12	0-25	
Methoxychlor	20	19	50-135	8	0-25	3
Alpha Chlordane	73	62	50-135	16	0-25	
Gamma Chlordane	66	56	50-135	16	0-25	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	08/10/11
Work Order No:	11-08-0758
Preparation:	EPA 3545
Method:	EPA 8270C SIM PAHs

Project Port of Los Angeles - 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Station 5-Bottom	**Sediment**	**GC/MS BBB**	**08/11/11**	**08/15/11**	**110811S13**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Acenaphthene	108	98	40-160	10	0-20	
Acenaphthylene	160	134	40-160	13	0-20	
Anthracene	304	298	40-160	1	0-20	3
Benzo (a) Anthracene	393	300	40-160	7	0-20	3
Benzo (a) Pyrene	976	503	40-160	28	0-20	3,4
Benzo (b) Fluoranthene	1237	756	40-160	27	0-20	3,4
Benzo (g,h,i) Perylene	116	46	40-160	27	0-20	4
Benzo (k) Fluoranthene	988	333	40-160	44	0-20	3,4
Chrysene	519	571	40-160	3	0-20	3
Dibenz (a,h) Anthracene	88	69	40-160	11	0-20	
Fluoranthene	635	382	40-160	26	0-20	3,4
Fluorene	106	95	40-160	9	0-20	
Indeno (1,2,3-c,d) Pyrene	162	66	40-160	29	0-20	3,4
2-Methylnaphthalene	102	92	40-160	11	0-20	
1-Methylnaphthalene	98	91	40-160	7	0-20	
Naphthalene	103	84	40-160	18	0-20	
Phenanthrene	137	133	40-160	2	0-20	
Pyrene	1704	866	40-160	28	0-46	3

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	08/10/11
Work Order No:	11-08-0758
Preparation:	EPA 3545
Method:	EPA 8270C SIM PCB Congeners

Project Port of Los Angeles - 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
Station 3-Top	**Sediment**	**GC/MS HHH**	**08/11/11**	**08/17/11**	**110811S17A**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
PCB008	106	115	50-125	8	0-30	
PCB018	100	106	50-125	6	0-30	
PCB028	110	120	50-125	9	0-30	
PCB044	106	118	50-125	11	0-30	
PCB052	104	117	50-125	11	0-30	
PCB066	114	123	50-125	8	0-30	
PCB077	111	119	50-125	6	0-30	
PCB101	109	117	50-125	7	0-30	
PCB105	116	122	50-125	5	0-30	
PCB118	117	125	50-125	6	0-30	
PCB126	108	112	50-125	4	0-30	
PCB128	112	115	50-125	3	0-30	
PCB153	109	116	50-125	6	0-30	
PCB170	98	100	50-125	3	0-30	
PCB180	112	115	50-125	3	0-30	
PCB187	110	114	50-125	3	0-30	
PCB195	119	121	50-125	1	0-30	
PCB206	105	104	50-125	1	0-30	
PCB209	114	110	50-125	3	0-30	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Environment & Infrastructure		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020

Project: Port of Los Angeles - 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
096-10-002-2,040	**Solid**	**ICP/MS 04**	**08/11/11**	**08/12/11**	**110811L08**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	89	88	80-120	0	0-20	
Cadmium	93	93	80-120	0	0-20	
Chromium	88	88	80-120	0	0-20	
Copper	93	94	80-120	2	0-20	
Lead	96	97	80-120	2	0-20	
Nickel	88	87	80-120	1	0-20	
Selenium	95	94	80-120	1	0-20	
Silver	89	90	80-120	1	0-20	
Zinc	93	95	80-120	2	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Environment & Infrastructure		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	Extraction
		Method:	EPA 413.2M

Project: Port of Los Angeles - 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-019-97	**Solid**	**IR #1**	**08/15/11**	**08/15/11**	**110815L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Oil and Grease	110	99	70-130	11	0-30	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Environment & Infrastructure		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	Extraction
		Method:	EPA 418.1M

Project: Port of Los Angeles - 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-015-1,783	**Solid**	**IR #1**	**08/15/11**	**08/15/11**	**110815L02**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TRPH	103	97	70-130	5	0-30	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Environment & Infrastructure		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: Port of Los Angeles - 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-452-219	**Solid**	**Mercury**	**08/12/11**	**08/12/11**	**110812L02**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	102	100	82-124	1	0-16	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Environment & Infrastructure		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	Organotins by Krone et al.

Project: Port of Los Angeles - 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-016-862	**Solid**	**GC/MS Y**	**08/11/11**	**08/12/11**	**110811L18**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	106	113	50-130	6	0-20	
Tributyltin	82	82	50-130	0	0-20	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Environment & Infrastructure		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A

Project: Port of Los Angeles - 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-858-106	**Solid**	**GC 51**	**08/11/11**	**08/15/11**	**110811L15A**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Aldrin	77	78	50-135	36-149	2	0-25	
Alpha-BHC	86	88	50-135	36-149	2	0-25	
Beta-BHC	108	110	50-135	36-149	1	0-25	
Delta-BHC	81	84	50-135	36-149	4	0-25	
Gamma-BHC	92	94	50-135	36-149	2	0-25	
Dieldrin	86	89	50-135	36-149	3	0-25	
4,4'-DDD	94	99	50-135	36-149	5	0-25	
4,4'-DDE	102	107	50-135	36-149	4	0-25	
4,4'-DDT	96	102	50-135	36-149	6	0-25	
Endosulfan I	79	81	50-135	36-149	3	0-25	
Endosulfan II	83	86	50-135	36-149	4	0-25	
Endosulfan Sulfate	82	86	50-135	36-149	5	0-25	
Endrin	88	93	50-135	36-149	6	0-25	
Endrin Aldehyde	63	63	50-135	36-149	1	0-25	
Endrin Ketone	98	103	50-135	36-149	5	0-25	
Heptachlor	88	91	50-135	36-149	3	0-25	
Heptachlor Epoxide	66	68	50-135	36-149	3	0-25	
Methoxychlor	91	96	50-135	36-149	5	0-25	
Alpha Chlordane	88	91	50-135	36-149	3	0-25	
Gamma Chlordane	82	85	50-135	36-149	3	0-25	

Total number of LCS compounds : 20
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Environment & Infrastructure		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-08-0758
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PAHs

Project: Port of Los Angeles - 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-097-56	**Solid**	**GC/MS BBB**	**08/11/11**	**08/15/11**	**110811L13**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Acenaphthene	94	96	48-108	38-118	2	0-11	
Acenaphthylene	91	92	40-160	20-180	1	0-20	
Anthracene	73	73	40-160	20-180	0	0-20	
Benzo (a) Anthracene	85	85	40-160	20-180	0	0-20	
Benzo (a) Pyrene	91	90	40-160	20-180	1	0-20	
Benzo (b) Fluoranthene	94	93	40-160	20-180	1	0-20	
Benzo (g,h,i) Perylene	72	72	40-160	20-180	1	0-20	
Benzo (k) Fluoranthene	92	93	40-160	20-180	1	0-20	
Chrysene	88	88	40-160	20-180	0	0-20	
Dibenz (a,h) Anthracene	72	70	40-160	20-180	2	0-20	
Fluoranthene	88	88	40-160	20-180	1	0-20	
Fluorene	95	96	40-160	20-180	2	0-20	
Indeno (1,2,3-c,d) Pyrene	75	75	40-160	20-180	1	0-20	
2-Methylnaphthalene	88	86	40-160	20-180	1	0-20	
1-Methylnaphthalene	98	99	40-160	20-180	1	0-20	
Naphthalene	98	98	40-160	20-180	0	0-20	
Phenanthrene	89	89	40-160	20-180	0	0-20	
Pyrene	89	88	40-160	20-180	0	0-16	

Total number of LCS compounds : 18

Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: N/A
Work Order No: 11-08-0758
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners

Project: Port of Los Angeles - 1015101913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-417-3	**Solid**	**GC/MS HHH**	**08/11/11**	**08/15/11**	**110811L17**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
PCB008	114	115	50-125	38-138	1	0-30	
PCB018	105	107	50-125	38-138	2	0-30	
PCB028	109	110	50-125	38-138	1	0-30	
PCB044	106	108	50-125	38-138	2	0-30	
PCB052	101	103	50-125	38-138	3	0-30	
PCB066	109	110	50-125	38-138	1	0-30	
PCB077	108	108	50-125	38-138	0	0-30	
PCB101	107	108	50-125	38-138	1	0-30	
PCB105	103	105	50-125	38-138	1	0-30	
PCB118	107	108	50-125	38-138	2	0-30	
PCB126	97	98	50-125	38-138	1	0-30	
PCB128	103	105	50-125	38-138	1	0-30	
PCB153	102	104	50-125	38-138	2	0-30	
PCB170	102	102	50-125	38-138	1	0-30	
PCB180	102	102	50-125	38-138	0	0-30	
PCB187	101	102	50-125	38-138	0	0-30	
PCB195	125	124	50-125	38-138	1	0-30	
PCB206	109	109	50-125	38-138	0	0-30	
PCB209	117	122	50-125	38-138	4	0-30	

Total number of LCS compounds : 19
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 11-08-0758

Qualifier	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS/LCSD Recovery Percentage is within Marginal Exceedance (ME) Control Limit range.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 08/09/11

PAGE: 1 OF 1

LABORATORY CLIENT: AMEC Earth & Infrastructure

ADDRESS: 9210 Sky Park Ct. # 200

CITY: San Diego, CA 92123

TEL: 858-354-8340 | FAX: 858-300-4301 | E-MAIL: barry.snyder@amec.com

CLIENT PROJECT NAME / NUMBER: Port of Los Angeles - 1015101913

PROJECT CONTACT: Barry Snyder

SAMPLER(S): (SIGNATURE)

P.O. NO.:

QUOTE NO.:

LAB USE ONLY: 11-08-0758

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48HR ☐ 72 HR ☒ 5 DAYS ☐ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY): ☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____/____/____

SPECIAL INSTRUCTIONS:
5-Day turnaround time. Contact Barry Snyder with questions (858-354-8340)
Report results in dry-weight. Return any remaining sample volume to AMEC
Test PAHs on 'bottom' samples only.

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	Oil & Grease (EPA 413.2M)	TRPH (418.1)	DDTs (8081A)	TBT-Organotins	PCBs Congeners (8270C)	PAHs (8270C)	Metals (6020/7471A)	Percent Solids (%)
1	Station 3 - Top	POLA 167-169	06/07/11	1335	Sed	1	X	X	X	X	X	X	X	X
2	Station 4 - Top	POLA 167-169	06/07/11	1500	Sed	1	X	X	X	X	X	X	X	X
3	Station 5 - Top	POLA 167-169	06/07/11	1600	Sed	1	X	X	X	X	X	X	X	X
4	Station 3 - Bottom	POLA 167-169	06/07/11	1335	Sed	1	X	X	X	X	X	X	X	X
5	Station 4 - Bottom	POLA 167-169	06/07/11	1500	Sed	1	X	X	X	X	X	X	X	X
6	Station 5 - Bottom	POLA 167-169	06/07/11	1600	Sed	1	X	X	X	X	X	X	X	X

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Kimbrell Gobasi	CEL	08/10/11	1325
	CEL	08/10/11	1715

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 11-08-0758

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: AMEC

DATE: 08/10/11

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 1.9 °C + 0.5 °C (CF) = 2.4 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Initial: VG

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: VG

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: RM

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☑8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐500PB ☐500PB**na**

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** RM

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** WSC

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **znna:** $ZnAc_2$+NaOH **f:** Field-filtered **Scanned by:** WSC

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APPENDIX C2

ANALYTICAL CHEMISTRY REPORTS
SUPPLEMENTAL EVENT

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Calscience
Environmental & Marine Chemistry Laboratories

CALSCIENCE

WORK ORDER NUMBER: 11-09-1614

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: AMEC Environment & Infrastructure

Client Project Name: 101510913

Attention: Barry Snyder
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Approved for release on 10/6/2011 by:
Danielle Gonsman
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety. Note that the Chain-of-Custody Record and Sample Receipt Form are integral parts of this report.

Calscience
Environmental & Marine Chemistry Laboratories

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Work Order Number: 11-09-1614

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Calscience Environmental Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 11-09-1614
Project Name: 101510913

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the sediment samples.

Sample Condition on Receipt

Six sediment samples (housed in 16-oz glass containers) were received for this project on September 23, 2011. The samples were transferred to the laboratory in an ice-chest with wet ice, following strict chain-of-custody (COC) procedures. The temperature of the samples upon receipt at the laboratory was 3.6°C. All samples were given laboratory identification numbers, logged into the Laboratory Information Management System (LIMS) and then stored under refrigeration pending sediment chemistry testing.

Tests Performed

Trace Metals by EPA 6020/7471A
Chlorinated Pesticides by EPA 8081A
PCB Congeners by EPA 8270C SIM
PAHs, Phenols and Phthalates by EPA 8270C SIM
Organotins by Krone et al.
Total Solids by SM 2540B

Data Summary

The sample results and reporting limits were dry weight corrected.

All samples were homogenized prior to preparation and analysis.

Holding times

All holding times were met.

Calibration

Frequency and control criteria for initial and continuing calibration verifications were met.

Reporting Limits

All Method Detection Limits were met. The Organotins results were evaluated to the MDL, and where applicable, “J” flags were reported.

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Blanks

Concentrations of target analytes in the method blank were found to be below reporting limits for all testing.

Laboratory Control Samples

A Laboratory Control Sample (LCS) analysis was performed at the required frequencies, and unless otherwise noted, all parameters were within the established control limits.

Matrix Spikes

Matrix spike analyses were performed for each applicable analysis on AMEC project sample A1. All parameters were within the established control limits with the following exceptions.

The Arsenic and Lead matrix spike and/or matrix spike duplicate recoveries (by EPA 6020) were above the established control limits. However, since the Arsenic and Lead PDS/PDSD and LCS/LCSD recoveries were in control, the data are released with no further action.

The MS and MSD recoveries for Tributyltin and Tetrabutyltin were outside the established control limits. However, the results have been flagged with the appropriate qualifiers and are released with no further action since the associated LCS/LCSD recoveries were in control.

The MS, MSD and/or RPD values for two of the Chlorinated Pesticides (by EPA 8081A) fell outside their established control limits due to matrix interference. Yet, since the LCS, LCSD and RPDs were within the control limits, the results are released with no further qualification.

Surrogates

Surrogate recoveries for all applicable tests and samples were within the established control limits with the following exceptions.

Laboratory Duplicate

A laboratory duplicate was created for this project using Sample A2. The Laboratory Duplicate was analyzed for the requested analyses and the precision between the two samples was acceptable.

Acronyms

LCS/LCSD- Laboratory Control Sample/Laboratory Control Sample Duplicate
PDS/PDSD- Post Digestion Spike/Post Digestion Spike Duplicate
MS/MSD- Matrix Spike/Matrix Spike Duplicate

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ME-Marginal Exceedance
RPD- Relative Percent Difference

7440 Lincoln Way, Garden Grove, CA 92841-1427 • TEL:(714) 895-5494 • FAX:(714) 894-7501

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 2540 B

Project: 101510913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A1	**11-09-1614-1-A**	**09/23/11 12:00**	**Sediment**	**N/A**	**09/26/11**	**09/26/11 16:00**	**B0926TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	79.8	0.100	1		%

A2	**11-09-1614-2-A**	**09/23/11 12:00**	**Sediment**	**N/A**	**09/26/11**	**09/26/11 16:00**	**B0926TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	81.1	0.100	1		%

A3	**11-09-1614-3-A**	**09/23/11 12:00**	**Sediment**	**N/A**	**09/26/11**	**09/26/11 16:00**	**B0926TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	76.1	0.100	1		%

B1	**11-09-1614-4-A**	**09/22/11 16:00**	**Sediment**	**N/A**	**09/26/11**	**09/26/11 16:00**	**B0926TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	72.1	0.100	1		%

B2	**11-09-1614-5-A**	**09/22/11 16:00**	**Sediment**	**N/A**	**09/26/11**	**09/26/11 16:00**	**B0926TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	75.7	0.100	1		%

B3	**11-09-1614-6-A**	**09/22/11 16:00**	**Sediment**	**N/A**	**09/26/11**	**09/26/11 16:00**	**B0926TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	77.7	0.100	1		%

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 2540 B

Project: 101510913

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A2 (LAB DUP)	**11-09-1614-7-A**	**09/23/11 12:00**	**Sediment**	**N/A**	**09/26/11**	**09/26/11 16:00**	**B0926TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	81.1	0.100	1		%

Method Blank		**099-05-019-1,741**	**N/A**	**Solid**	**N/A**	**09/26/11**	**09/26/11 16:00**	**B0926TSB1**

Parameter	Result	RL	DF	Qual	Units
Solids, Total	ND	0.100	1		%

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: 101510913			Page 1 of 4

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A1	**11-09-1614-1-A**	**09/23/11 12:00**	**Sediment**	**GC 51**	**09/27/11**	**09/28/11 19:59**	**110927L06**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.3	1		Endosulfan II	ND	1.3	1	
Alpha-BHC	ND	1.3	1		Endosulfan Sulfate	ND	1.3	1	
Beta-BHC	ND	1.3	1		Endrin	ND	1.3	1	
Delta-BHC	ND	1.3	1		Endrin Aldehyde	ND	1.3	1	
Gamma-BHC	ND	1.3	1		Endrin Ketone	ND	1.3	1	
Chlordane	ND	13	1		Heptachlor	ND	1.3	1	
Dieldrin	ND	1.3	1		Heptachlor Epoxide	ND	1.3	1	
Trans-nonachlor	ND	1.3	1		Methoxychlor	ND	1.3	1	
2,4'-DDD	ND	1.3	1		Toxaphene	ND	25	1	
2,4'-DDE	ND	1.3	1		Alpha Chlordane	ND	1.3	1	
2,4'-DDT	ND	1.3	1		Oxychlordane	ND	1.3	1	
4,4'-DDD	ND	1.3	1		Gamma Chlordane	ND	1.3	1	
4,4'-DDE	ND	1.3	1		Cis-nonachlor	ND	1.3	1	
4,4'-DDT	1.4	1.3	1		Total DDTs	1.4	1.3	1	
Endosulfan I	ND	1.3	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	59	50-130		Decachlorobiphenyl	52	50-130	

A2	**11-09-1614-2-A**	**09/23/11 12:00**	**Sediment**	**GC 51**	**09/27/11**	**09/28/11 20:13**	**110927L06**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.2	1		Endosulfan II	ND	1.2	1	
Alpha-BHC	ND	1.2	1		Endosulfan Sulfate	ND	1.2	1	
Beta-BHC	ND	1.2	1		Endrin	ND	1.2	1	
Delta-BHC	ND	1.2	1		Endrin Aldehyde	ND	1.2	1	
Gamma-BHC	ND	1.2	1		Endrin Ketone	ND	1.2	1	
Chlordane	ND	12	1		Heptachlor	ND	1.2	1	
Dieldrin	ND	1.2	1		Heptachlor Epoxide	ND	1.2	1	
Trans-nonachlor	ND	1.2	1		Methoxychlor	ND	1.2	1	
2,4'-DDD	ND	1.2	1		Toxaphene	ND	25	1	
2,4'-DDE	ND	1.2	1		Alpha Chlordane	ND	1.2	1	
2,4'-DDT	ND	1.2	1		Oxychlordane	ND	1.2	1	
4,4'-DDD	ND	1.2	1		Gamma Chlordane	ND	1.2	1	
4,4'-DDE	ND	1.2	1		Cis-nonachlor	ND	1.2	1	
4,4'-DDT	ND	1.2	1		Total DDTs	ND	1.2	1	
Endosulfan I	ND	1.2	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	83	50-130		Decachlorobiphenyl	71	50-130	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

7440 Lincoln Way, Garden Grove, CA 92841-1427 · TEL:(714) 895-5494 · FAX: (714) 894-7501

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: 101510913			Page 2 of 4

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A3	**11-09-1614-3-A**	**09/23/11 12:00**	**Sediment**	**GC 51**	**09/27/11**	**09/28/11 20:28**	**110927L06**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.3	1		Endosulfan II	ND	1.3	1	
Alpha-BHC	ND	1.3	1		Endosulfan Sulfate	ND	1.3	1	
Beta-BHC	ND	1.3	1		Endrin	ND	1.3	1	
Delta-BHC	ND	1.3	1		Endrin Aldehyde	ND	1.3	1	
Gamma-BHC	ND	1.3	1		Endrin Ketone	ND	1.3	1	
Chlordane	ND	13	1		Heptachlor	ND	1.3	1	
Dieldrin	ND	1.3	1		Heptachlor Epoxide	ND	1.3	1	
Trans-nonachlor	ND	1.3	1		Methoxychlor	ND	1.3	1	
2,4'-DDD	ND	1.3	1		Toxaphene	ND	26	1	
2,4'-DDE	ND	1.3	1		Alpha Chlordane	ND	1.3	1	
2,4'-DDT	ND	1.3	1		Gamma Chlordane	ND	1.3	1	
4,4'-DDD	ND	1.3	1		Oxychlordane	ND	1.3	1	
4,4'-DDE	ND	1.3	1		Cis-nonachlor	ND	1.3	1	
4,4'-DDT	ND	1.3	1		Total DDTs	ND	1.3	1	
Endosulfan I	ND	1.3	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	91	50-130		Decachlorobiphenyl	72	50-130	

B1	**11-09-1614-4-A**	**09/22/11 16:00**	**Sediment**	**GC 51**	**09/27/11**	**09/29/11 15:02**	**110927L06**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.4	1		Endosulfan II	ND	1.4	1	
Alpha-BHC	ND	1.4	1		Endosulfan Sulfate	ND	1.4	1	
Beta-BHC	ND	1.4	1		Endrin	ND	1.4	1	
Delta-BHC	ND	1.4	1		Endrin Aldehyde	ND	1.4	1	
Gamma-BHC	ND	1.4	1		Endrin Ketone	ND	1.4	1	
Chlordane	ND	14	1		Heptachlor	ND	1.4	1	
Dieldrin	ND	1.4	1		Heptachlor Epoxide	ND	1.4	1	
Trans-nonachlor	ND	1.4	1		Methoxychlor	ND	1.4	1	
2,4'-DDD	ND	1.4	1		Toxaphene	ND	28	1	
2,4'-DDE	2.6	1.4	1		Alpha Chlordane	ND	1.4	1	
2,4'-DDT	ND	1.4	1		Gamma Chlordane	ND	1.4	1	
4,4'-DDD	ND	1.4	1		Oxychlordane	ND	1.4	1	
4,4'-DDE	4.2	1.4	1		Cis-nonachlor	ND	1.4	1	
4,4'-DDT	ND	1.4	1		Total DDTs	6.9	1.4	1	
Endosulfan I	ND	1.4	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	54	50-130		Decachlorobiphenyl	88	50-130	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: 101510913			Page 3 of 4

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B2	**11-09-1614-5-A**	**09/22/11 16:00**	**Sediment**	**GC 51**	**09/27/11**	**09/28/11 20:56**	**110927L06**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.3	1		Endosulfan II	ND	1.3	1	
Alpha-BHC	ND	1.3	1		Endosulfan Sulfate	ND	1.3	1	
Beta-BHC	ND	1.3	1		Endrin	ND	1.3	1	
Delta-BHC	ND	1.3	1		Endrin Aldehyde	ND	1.3	1	
Gamma-BHC	ND	1.3	1		Endrin Ketone	ND	1.3	1	
Chlordane	ND	13	1		Heptachlor	ND	1.3	1	
Dieldrin	ND	1.3	1		Heptachlor Epoxide	ND	1.3	1	
Trans-nonachlor	ND	1.3	1		Methoxychlor	ND	1.3	1	
2,4'-DDD	ND	1.3	1		Toxaphene	ND	26	1	
2,4'-DDE	ND	1.3	1		Alpha Chlordane	ND	1.3	1	
2,4'-DDT	ND	1.3	1		Gamma Chlordane	ND	1.3	1	
4,4'-DDD	ND	1.3	1		Oxychlordane	ND	1.3	1	
4,4'-DDE	ND	1.3	1		Cis-nonachlor	ND	1.3	1	
4,4'-DDT	ND	1.3	1		Total DDTs	ND	1.3	1	
Endosulfan I	ND	1.3	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	60	50-130		Decachlorobiphenyl	66	50-130	

B3	**11-09-1614-6-A**	**09/22/11 16:00**	**Sediment**	**GC 51**	**09/27/11**	**09/28/11 21:11**	**110927L06**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.3	1		Endosulfan II	ND	1.3	1	
Alpha-BHC	ND	1.3	1		Endosulfan Sulfate	ND	1.3	1	
Beta-BHC	ND	1.3	1		Endrin	ND	1.3	1	
Delta-BHC	ND	1.3	1		Endrin Aldehyde	ND	1.3	1	
Gamma-BHC	ND	1.3	1		Endrin Ketone	ND	1.3	1	
Chlordane	ND	13	1		Heptachlor	ND	1.3	1	
Dieldrin	ND	1.3	1		Heptachlor Epoxide	ND	1.3	1	
Trans-nonachlor	ND	1.3	1		Methoxychlor	ND	1.3	1	
2,4'-DDD	ND	1.3	1		Toxaphene	ND	26	1	
2,4'-DDE	ND	1.3	1		Alpha Chlordane	ND	1.3	1	
2,4'-DDT	ND	1.3	1		Gamma Chlordane	ND	1.3	1	
4,4'-DDD	ND	1.3	1		Oxychlordane	ND	1.3	1	
4,4'-DDE	ND	1.3	1		Cis-nonachlor	ND	1.3	1	
4,4'-DDT	ND	1.3	1		Total DDTs	ND	1.3	1	
Endosulfan I	ND	1.3	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	94	50-130		Decachlorobiphenyl	78	50-130	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8081A
		Units:	ug/kg
Project: 101510913			Page 4 of 4

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A2 (LAB DUP)	**11-09-1614-7-A**	**09/23/11 12:00**	**Sediment**	**GC 51**	**09/27/11**	**09/28/11 21:25**	**110927L06**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.2	1		Endosulfan II	ND	1.2	1	
Alpha-BHC	ND	1.2	1		Endosulfan Sulfate	ND	1.2	1	
Beta-BHC	ND	1.2	1		Endrin	ND	1.2	1	
Delta-BHC	ND	1.2	1		Endrin Aldehyde	ND	1.2	1	
Gamma-BHC	ND	1.2	1		Endrin Ketone	ND	1.2	1	
Chlordane	ND	12	1		Heptachlor	ND	1.2	1	
Dieldrin	ND	1.2	1		Heptachlor Epoxide	ND	1.2	1	
Trans-nonachlor	ND	1.2	1		Methoxychlor	ND	1.2	1	
2,4'-DDD	ND	1.2	1		Toxaphene	ND	25	1	
2,4'-DDE	ND	1.2	1		Alpha Chlordane	ND	1.2	1	
2,4'-DDT	ND	1.2	1		Oxychlordane	ND	1.2	1	
4,4'-DDD	ND	1.2	1		Gamma Chlordane	ND	1.2	1	
4,4'-DDE	ND	1.2	1		Cis-nonachlor	ND	1.2	1	
4,4'-DDT	ND	1.2	1		Total DDTs	ND	1.2	1	
Endosulfan I	ND	1.2	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	77	50-130		Decachlorobiphenyl	50	50-130	

Method Blank	**099-12-858-113**	**N/A**	**Solid**	**GC 51**	**09/27/11**	**09/28/11 17:34**	**110927L06**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Aldrin	ND	1.0	1		Endosulfan II	ND	1.0	1	
Alpha-BHC	ND	1.0	1		Endosulfan Sulfate	ND	1.0	1	
Beta-BHC	ND	1.0	1		Endrin	ND	1.0	1	
Delta-BHC	ND	1.0	1		Endrin Aldehyde	ND	1.0	1	
Gamma-BHC	ND	1.0	1		Endrin Ketone	ND	1.0	1	
Chlordane	ND	10	1		Heptachlor	ND	1.0	1	
Dieldrin	ND	1.0	1		Heptachlor Epoxide	ND	1.0	1	
Trans-nonachlor	ND	1.0	1		Methoxychlor	ND	1.0	1	
2,4'-DDD	ND	1.0	1		Toxaphene	ND	20	1	
2,4'-DDE	ND	1.0	1		Alpha Chlordane	ND	1.0	1	
2,4'-DDT	ND	1.0	1		Oxychlordane	ND	1.0	1	
4,4'-DDD	ND	1.0	1		Gamma Chlordane	ND	1.0	1	
4,4'-DDE	ND	1.0	1		Cis-nonachlor	ND	1.0	1	
4,4'-DDT	ND	1.0	1		Total DDTs	ND	1.0	1	
Endosulfan I	ND	1.0	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,5,6-Tetrachloro-m-Xylene	88	50-130		Decachlorobiphenyl	73	50-130	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg
Project: 101510913			Page 1 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A1	**11-09-1614-1-A**	**09/23/11 12:00**	**Sediment**	**GC/MS MM**	**09/27/11**	**09/28/11 17:40**	**110927L05**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Isophorone	ND	13	1		Benzo (b) Fluoranthene	ND	13	1	
1-Methylnaphthalene	ND	13	1		Benzo (g,h,i) Perylene	ND	13	1	
2,4,5-Trichlorophenol	ND	13	1		Benzo (k) Fluoranthene	15	13	1	
2,4,6-Trichlorophenol	ND	13	1		Bis(2-Ethylhexyl) Phthalate	ND	13	1	
2,4-Dichlorophenol	ND	13	1		Butyl Benzyl Phthalate	ND	13	1	
2,4-Dimethylphenol	ND	13	1		Chrysene	ND	13	1	
2,4-Dinitrophenol	ND	630	1		Di-n-Butyl Phthalate	ND	13	1	
2-Chlorophenol	ND	13	1		Di-n-Octyl Phthalate	ND	13	1	
2-Methylnaphthalene	ND	13	1		Dibenz (a,h) Anthracene	ND	13	1	
2-Methylphenol	ND	13	1		Diethyl Phthalate	ND	13	1	
2-Nitrophenol	ND	13	1		Dimethyl Phthalate	ND	13	1	
3/4-Methylphenol	ND	13	1		Fluoranthene	ND	13	1	
4,6-Dinitro-2-Methylphenol	ND	630	1		Fluorene	ND	13	1	
4-Chloro-3-Methylphenol	ND	13	1		Indeno (1,2,3-c,d) Pyrene	ND	13	1	
4-Nitrophenol	ND	630	1		Naphthalene	ND	13	1	
Acenaphthene	ND	13	1		Pentachlorophenol	ND	630	1	
Acenaphthylene	ND	13	1		Phenanthrene	ND	13	1	
Anthracene	ND	13	1		Phenol	ND	13	1	
Benzo (a) Anthracene	ND	13	1		Pyrene	27	13	1	
Benzo (a) Pyrene	31	13	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	79	32-143		2-Fluorobiphenyl	49	14-146	
2-Fluorophenol	61	15-138		Nitrobenzene-d5	43	18-162	
p-Terphenyl-d14	74	34-148		Phenol-d6	70	17-141	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg
Project: 101510913			Page 2 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A2	**11-09-1614-2-A**	**09/23/11 12:00**	**Sediment**	**GC/MS MM**	**09/27/11**	**09/28/11 18:57**	**110927L05**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Isophorone	ND	12	1		Benzo (b) Fluoranthene	ND	12	1	
1-Methylnaphthalene	ND	12	1		Benzo (g,h,i) Perylene	ND	12	1	
2,4,5-Trichlorophenol	ND	12	1		Benzo (k) Fluoranthene	ND	12	1	
2,4,6-Trichlorophenol	ND	12	1		Bis(2-Ethylhexyl) Phthalate	ND	12	1	
2,4-Dichlorophenol	ND	12	1		Butyl Benzyl Phthalate	ND	12	1	
2,4-Dimethylphenol	ND	12	1		Chrysene	ND	12	1	
2,4-Dinitrophenol	ND	620	1		Di-n-Butyl Phthalate	ND	12	1	
2-Chlorophenol	ND	12	1		Di-n-Octyl Phthalate	ND	12	1	
2-Methylnaphthalene	ND	12	1		Dibenz (a,h) Anthracene	ND	12	1	
2-Methylphenol	ND	12	1		Diethyl Phthalate	ND	12	1	
2-Nitrophenol	ND	12	1		Dimethyl Phthalate	ND	12	1	
3/4-Methylphenol	ND	12	1		Fluoranthene	ND	12	1	
4,6-Dinitro-2-Methylphenol	ND	620	1		Fluorene	ND	12	1	
4-Chloro-3-Methylphenol	ND	12	1		Indeno (1,2,3-c,d) Pyrene	ND	12	1	
4-Nitrophenol	ND	620	1		Naphthalene	ND	12	1	
Acenaphthene	ND	12	1		Pentachlorophenol	ND	620	1	
Acenaphthylene	ND	12	1		Phenanthrene	ND	12	1	
Anthracene	ND	12	1		Phenol	ND	12	1	
Benzo (a) Anthracene	ND	12	1		Pyrene	ND	12	1	
Benzo (a) Pyrene	ND	12	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	78	32-143		2-Fluorobiphenyl	54	14-146	
2-Fluorophenol	59	15-138		Nitrobenzene-d5	48	18-162	
p-Terphenyl-d14	70	34-148		Phenol-d6	68	17-141	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg
Project: 101510913			Page 3 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A3	**11-09-1614-3-A**	**09/23/11 12:00**	**Sediment**	**GC/MS MM**	**09/27/11**	**09/28/11 19:23**	**110927L05**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Isophorone	ND	13	1		Benzo (b) Fluoranthene	ND	13	1	
1-Methylnaphthalene	ND	13	1		Benzo (g,h,i) Perylene	ND	13	1	
2,4,5-Trichlorophenol	ND	13	1		Benzo (k) Fluoranthene	ND	13	1	
2,4,6-Trichlorophenol	ND	13	1		Bis(2-Ethylhexyl) Phthalate	ND	13	1	
2,4-Dichlorophenol	ND	13	1		Butyl Benzyl Phthalate	ND	13	1	
2,4-Dimethylphenol	ND	13	1		Chrysene	ND	13	1	
2,4-Dinitrophenol	ND	660	1		Di-n-Butyl Phthalate	ND	13	1	
2-Chlorophenol	ND	13	1		Di-n-Octyl Phthalate	ND	13	1	
2-Methylnaphthalene	ND	13	1		Dibenz (a,h) Anthracene	ND	13	1	
2-Methylphenol	ND	13	1		Diethyl Phthalate	ND	13	1	
2-Nitrophenol	ND	13	1		Dimethyl Phthalate	ND	13	1	
3/4-Methylphenol	ND	13	1		Fluoranthene	ND	13	1	
4,6-Dinitro-2-Methylphenol	ND	660	1		Fluorene	ND	13	1	
4-Chloro-3-Methylphenol	ND	13	1		Indeno (1,2,3-c,d) Pyrene	ND	13	1	
4-Nitrophenol	ND	660	1		Naphthalene	ND	13	1	
Acenaphthene	ND	13	1		Pentachlorophenol	ND	660	1	
Acenaphthylene	ND	13	1		Phenanthrene	ND	13	1	
Anthracene	ND	13	1		Phenol	ND	13	1	
Benzo (a) Anthracene	ND	13	1		Pyrene	ND	13	1	
Benzo (a) Pyrene	ND	13	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	71	32-143		2-Fluorobiphenyl	61	14-146	
2-Fluorophenol	60	15-138		Nitrobenzene-d5	52	18-162	
p-Terphenyl-d14	67	34-148		Phenol-d6	63	17-141	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg
Project: 101510913			Page 4 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B1	**11-09-1614-4-A**	**09/22/11 16:00**	**Sediment**	**GC/MS MM**	**09/27/11**	**09/28/11 21:06**	**110927L05**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Isophorone	ND	14	1		Benzo (b) Fluoranthene	880	14	1	
1-Methylnaphthalene	ND	14	1		Benzo (g,h,i) Perylene	190	14	1	
2,4,5-Trichlorophenol	ND	14	1		Benzo (k) Fluoranthene	710	14	1	
2,4,6-Trichlorophenol	ND	14	1		Bis(2-Ethylhexyl) Phthalate	43	14	1	
2,4-Dichlorophenol	ND	14	1		Butyl Benzyl Phthalate	ND	14	1	
2,4-Dimethylphenol	ND	14	1		Chrysene	1600	14	1	
2,4-Dinitrophenol	ND	690	1		Di-n-Butyl Phthalate	ND	14	1	
2-Chlorophenol	ND	14	1		Di-n-Octyl Phthalate	ND	14	1	
2-Methylnaphthalene	ND	14	1		Dibenz (a,h) Anthracene	47	14	1	
2-Methylphenol	ND	14	1		Diethyl Phthalate	ND	14	1	
2-Nitrophenol	ND	14	1		Dimethyl Phthalate	ND	14	1	
3/4-Methylphenol	ND	14	1		Fluoranthene	2800	14	1	
4,6-Dinitro-2-Methylphenol	ND	690	1		Fluorene	46	14	1	
4-Chloro-3-Methylphenol	ND	14	1		Indeno (1,2,3-c,d) Pyrene	280	14	1	
4-Nitrophenol	ND	690	1		Naphthalene	ND	14	1	
Acenaphthene	33	14	1		Pentachlorophenol	ND	690	1	
Acenaphthylene	83	14	1		Phenanthrene	210	14	1	
Anthracene	920	14	1		Phenol	ND	14	1	
Benzo (a) Anthracene	1100	14	1		Pyrene	2800	14	1	
Benzo (a) Pyrene	810	14	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	76	32-143		2-Fluorobiphenyl	52	14-146	
2-Fluorophenol	51	15-138		Nitrobenzene-d5	44	18-162	
p-Terphenyl-d14	73	34-148		Phenol-d6	62	17-141	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg
Project: 101510913			Page 5 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B2	**11-09-1614-5-A**	**09/22/11 16:00**	**Sediment**	**GC/MS MM**	**09/27/11**	**09/28/11 20:40**	**110927L05**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Isophorone	ND	13	1		Benzo (b) Fluoranthene	190	13	1	
1-Methylnaphthalene	ND	13	1		Benzo (g,h,i) Perylene	44	13	1	
2,4,5-Trichlorophenol	ND	13	1		Benzo (k) Fluoranthene	170	13	1	
2,4,6-Trichlorophenol	ND	13	1		Bis(2-Ethylhexyl) Phthalate	16	13	1	
2,4-Dichlorophenol	ND	13	1		Butyl Benzyl Phthalate	ND	13	1	
2,4-Dimethylphenol	ND	13	1		Chrysene	280	13	1	
2,4-Dinitrophenol	ND	660	1		Di-n-Butyl Phthalate	ND	13	1	
2-Chlorophenol	ND	13	1		Di-n-Octyl Phthalate	ND	13	1	
2-Methylnaphthalene	ND	13	1		Dibenz (a,h) Anthracene	ND	13	1	
2-Methylphenol	ND	13	1		Diethyl Phthalate	ND	13	1	
2-Nitrophenol	ND	13	1		Dimethyl Phthalate	ND	13	1	
3/4-Methylphenol	ND	13	1		Fluoranthene	550	13	1	
4,6-Dinitro-2-Methylphenol	ND	660	1		Fluorene	16	13	1	
4-Chloro-3-Methylphenol	ND	13	1		Indeno (1,2,3-c,d) Pyrene	60	13	1	
4-Nitrophenol	ND	660	1		Naphthalene	ND	13	1	
Acenaphthene	ND	13	1		Pentachlorophenol	ND	660	1	
Acenaphthylene	14	13	1		Phenanthrene	42	13	1	
Anthracene	96	13	1		Phenol	ND	13	1	
Benzo (a) Anthracene	160	13	1		Pyrene	710	13	1	
Benzo (a) Pyrene	170	13	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	89	32-143		2-Fluorobiphenyl	55	14-146	
2-Fluorophenol	68	15-138		Nitrobenzene-d5	51	18-162	
p-Terphenyl-d14	78	34-148		Phenol-d6	77	17-141	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg
Project: 101510913			Page 6 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B3	**11-09-1614-6-A**	**09/22/11 16:00**	**Sediment**	**GC/MS MM**	**09/27/11**	**09/28/11 19:49**	**110927L05**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Isophorone	ND	13	1		Benzo (b) Fluoranthene	28	13	1	
1-Methylnaphthalene	ND	13	1		Benzo (g,h,i) Perylene	26	13	1	
2,4,5-Trichlorophenol	ND	13	1		Benzo (k) Fluoranthene	28	13	1	
2,4,6-Trichlorophenol	ND	13	1		Bis(2-Ethylhexyl) Phthalate	ND	13	1	
2,4-Dichlorophenol	ND	13	1		Butyl Benzyl Phthalate	ND	13	1	
2,4-Dimethylphenol	ND	13	1		Chrysene	39	13	1	
2,4-Dinitrophenol	ND	640	1		Di-n-Butyl Phthalate	ND	13	1	
2-Chlorophenol	ND	13	1		Di-n-Octyl Phthalate	ND	13	1	
2-Methylnaphthalene	ND	13	1		Dibenz (a,h) Anthracene	ND	13	1	
2-Methylphenol	ND	13	1		Diethyl Phthalate	ND	13	1	
2-Nitrophenol	ND	13	1		Dimethyl Phthalate	ND	13	1	
3/4-Methylphenol	ND	13	1		Fluoranthene	140	13	1	
4,6-Dinitro-2-Methylphenol	ND	640	1		Fluorene	ND	13	1	
4-Chloro-3-Methylphenol	ND	13	1		Indeno (1,2,3-c,d) Pyrene	25	13	1	
4-Nitrophenol	ND	640	1		Naphthalene	ND	13	1	
Acenaphthene	ND	13	1		Pentachlorophenol	ND	640	1	
Acenaphthylene	ND	13	1		Phenanthrene	ND	13	1	
Anthracene	15	13	1		Phenol	ND	13	1	
Benzo (a) Anthracene	26	13	1		Pyrene	150	13	1	
Benzo (a) Pyrene	39	13	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	61	32-143		2-Fluorobiphenyl	51	14-146	
2-Fluorophenol	49	15-138		Nitrobenzene-d5	42	18-162	
p-Terphenyl-d14	59	34-148		Phenol-d6	52	17-141	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg
Project: 101510913			Page 7 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A2 (LAB DUP)	**11-09-1614-7-A**	**09/23/11 12:00**	**Sediment**	**GC/MS MM**	**09/27/11**	**09/28/11 20:14**	**110927L05**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Isophorone	ND	12	1		Benzo (b) Fluoranthene	ND	12	1	
1-Methylnaphthalene	ND	12	1		Benzo (g,h,i) Perylene	ND	12	1	
2,4,5-Trichlorophenol	ND	12	1		Benzo (k) Fluoranthene	ND	12	1	
2,4,6-Trichlorophenol	ND	12	1		Bis(2-Ethylhexyl) Phthalate	ND	12	1	
2,4-Dichlorophenol	ND	12	1		Butyl Benzyl Phthalate	ND	12	1	
2,4-Dimethylphenol	ND	12	1		Chrysene	ND	12	1	
2,4-Dinitrophenol	ND	620	1		Di-n-Butyl Phthalate	ND	12	1	
2-Chlorophenol	ND	12	1		Di-n-Octyl Phthalate	ND	12	1	
2-Methylnaphthalene	ND	12	1		Dibenz (a,h) Anthracene	ND	12	1	
2-Methylphenol	ND	12	1		Diethyl Phthalate	ND	12	1	
2-Nitrophenol	ND	12	1		Dimethyl Phthalate	ND	12	1	
3/4-Methylphenol	ND	12	1		Fluoranthene	ND	12	1	
4,6-Dinitro-2-Methylphenol	ND	620	1		Fluorene	ND	12	1	
4-Chloro-3-Methylphenol	ND	12	1		Indeno (1,2,3-c,d) Pyrene	ND	12	1	
4-Nitrophenol	ND	620	1		Naphthalene	ND	12	1	
Acenaphthene	ND	12	1		Pentachlorophenol	ND	620	1	
Acenaphthylene	ND	12	1		Phenanthrene	ND	12	1	
Anthracene	ND	12	1		Phenol	ND	12	1	
Benzo (a) Anthracene	ND	12	1		Pyrene	ND	12	1	
Benzo (a) Pyrene	ND	12	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	76	32-143		2-Fluorobiphenyl	77	14-146	
2-Fluorophenol	74	15-138		Nitrobenzene-d5	69	18-162	
p-Terphenyl-d14	79	34-148		Phenol-d6	72	17-141	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM
		Units:	ug/kg
Project: 101510913			Page 8 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-413-332**	**N/A**	**Solid**	**GC/MS MM**	**09/27/11**	**09/28/11 16:48**	**110927L05**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Isophorone	ND	10	1		Benzo (b) Fluoranthene	ND	10	1	
1-Methylnaphthalene	ND	10	1		Benzo (g,h,i) Perylene	ND	10	1	
2,4,5-Trichlorophenol	ND	10	1		Benzo (k) Fluoranthene	ND	10	1	
2,4,6-Trichlorophenol	ND	10	1		Bis(2-Ethylhexyl) Phthalate	ND	10	1	
2,4-Dichlorophenol	ND	10	1		Butyl Benzyl Phthalate	ND	10	1	
2,4-Dimethylphenol	ND	10	1		Chrysene	ND	10	1	
2,4-Dinitrophenol	ND	500	1		Di-n-Butyl Phthalate	ND	10	1	
2-Chlorophenol	ND	10	1		Di-n-Octyl Phthalate	ND	10	1	
2-Methylnaphthalene	ND	10	1		Dibenz (a,h) Anthracene	ND	10	1	
2-Methylphenol	ND	10	1		Diethyl Phthalate	ND	10	1	
2-Nitrophenol	ND	10	1		Dimethyl Phthalate	ND	10	1	
3/4-Methylphenol	ND	10	1		Fluoranthene	ND	10	1	
4,6-Dinitro-2-Methylphenol	ND	500	1		Fluorene	ND	10	1	
4-Chloro-3-Methylphenol	ND	10	1		Indeno (1,2,3-c,d) Pyrene	ND	10	1	
4-Nitrophenol	ND	500	1		Naphthalene	ND	10	1	
Acenaphthene	ND	10	1		Pentachlorophenol	ND	500	1	
Acenaphthylene	ND	10	1		Phenanthrene	ND	10	1	
Anthracene	ND	10	1		Phenol	ND	10	1	
Benzo (a) Anthracene	ND	10	1		Pyrene	ND	10	1	
Benzo (a) Pyrene	ND	10	1						

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2,4,6-Tribromophenol	46	32-143		2-Fluorobiphenyl	73	14-146	
2-Fluorophenol	60	15-138		Nitrobenzene-d5	65	18-162	
p-Terphenyl-d14	71	34-148		Phenol-d6	58	17-141	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg
Project: 101510913			Page 1 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A1	**11-09-1614-1-A**	**09/23/11 12:00**	**Sediment**	**GC/MS HHH**	**09/27/11**	**09/30/11 17:54**	**110927L07**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.3	1		PCB128	ND	1.3	1	
PCB018	ND	1.3	1		PCB132	ND	1.3	1	
PCB028	ND	1.3	1		PCB138/158	ND	1.3	1	
PCB031	ND	1.3	1		PCB141	ND	1.3	1	
PCB033	ND	1.3	1		PCB149	ND	1.3	1	
PCB037	ND	1.3	1		PCB151	ND	1.3	1	
PCB044	ND	1.3	1		PCB153	ND	1.3	1	
PCB049	ND	1.3	1		PCB156	ND	1.3	1	
PCB052	ND	1.3	1		PCB157	ND	1.3	1	
PCB056	ND	1.3	1		PCB167	ND	1.3	1	
PCB060	ND	1.3	1		PCB168	ND	1.3	1	
PCB066	ND	1.3	1		PCB169	ND	1.3	1	
PCB070	ND	1.3	1		PCB170	ND	1.3	1	
PCB074	ND	1.3	1		PCB174	ND	1.3	1	
PCB077	ND	1.3	1		PCB177	ND	1.3	1	
PCB081	ND	1.3	1		PCB180	ND	1.3	1	
PCB087	ND	1.3	1		PCB183	ND	1.3	1	
PCB095	ND	1.3	1		PCB184	ND	1.3	1	
PCB097	ND	1.3	1		PCB187	ND	1.3	1	
PCB099	ND	1.3	1		PCB189	ND	1.3	1	
PCB101	ND	1.3	1		PCB194	ND	1.3	1	
PCB105	ND	1.3	1		PCB195	ND	1.3	1	
PCB110	ND	1.3	1		PCB200	ND	1.3	1	
PCB114	ND	1.3	1		PCB201	ND	1.3	1	
PCB118	ND	1.3	1		PCB203	ND	1.3	1	
PCB119	ND	1.3	1		PCB206	ND	1.3	1	
PCB123	ND	1.3	1		PCB209	ND	1.3	1	
PCB126	ND	1.3	1		Total PCB Congeners	ND	1.3	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	85	50-125		p-Terphenyl-d14	119	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg
Project: 101510913			Page 2 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A2	**11-09-1614-2-A**	**09/23/11 12:00**	**Sediment**	**GC/MS HHH**	**09/27/11**	**10/04/11 15:46**	**110927L07**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.2	1		PCB128	ND	1.2	1	
PCB018	ND	1.2	1		PCB132	ND	1.2	1	
PCB028	ND	1.2	1		PCB138/158	ND	1.2	1	
PCB031	ND	1.2	1		PCB141	ND	1.2	1	
PCB033	ND	1.2	1		PCB149	ND	1.2	1	
PCB037	ND	1.2	1		PCB151	ND	1.2	1	
PCB044	ND	1.2	1		PCB153	ND	1.2	1	
PCB049	ND	1.2	1		PCB156	ND	1.2	1	
PCB052	ND	1.2	1		PCB157	ND	1.2	1	
PCB056	ND	1.2	1		PCB167	ND	1.2	1	
PCB060	ND	1.2	1		PCB168	ND	1.2	1	
PCB066	ND	1.2	1		PCB169	ND	1.2	1	
PCB070	ND	1.2	1		PCB170	ND	1.2	1	
PCB074	ND	1.2	1		PCB174	ND	1.2	1	
PCB077	ND	1.2	1		PCB177	ND	1.2	1	
PCB081	ND	1.2	1		PCB180	ND	1.2	1	
PCB087	ND	1.2	1		PCB183	ND	1.2	1	
PCB095	ND	1.2	1		PCB184	ND	1.2	1	
PCB097	ND	1.2	1		PCB187	ND	1.2	1	
PCB099	ND	1.2	1		PCB189	ND	1.2	1	
PCB101	ND	1.2	1		PCB194	ND	1.2	1	
PCB105	ND	1.2	1		PCB195	ND	1.2	1	
PCB110	ND	1.2	1		PCB200	ND	1.2	1	
PCB114	ND	1.2	1		PCB201	ND	1.2	1	
PCB118	ND	1.2	1		PCB203	ND	1.2	1	
PCB119	ND	1.2	1		PCB206	ND	1.2	1	
PCB123	ND	1.2	1		PCB209	ND	1.2	1	
PCB126	ND	1.2	1		Total PCB Congeners	ND	1.2	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	61	50-125		p-Terphenyl-d14	104	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg
Project: 101510913			Page 3 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A3	**11-09-1614-3-A**	**09/23/11 12:00**	**Sediment**	**GC/MS HHH**	**09/27/11**	**09/30/11 18:47**	**110927L07**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.3	1		PCB128	ND	1.3	1	
PCB018	ND	1.3	1		PCB132	ND	1.3	1	
PCB028	ND	1.3	1		PCB138/158	ND	1.3	1	
PCB031	ND	1.3	1		PCB141	ND	1.3	1	
PCB033	ND	1.3	1		PCB149	ND	1.3	1	
PCB037	ND	1.3	1		PCB151	ND	1.3	1	
PCB044	ND	1.3	1		PCB153	ND	1.3	1	
PCB049	ND	1.3	1		PCB156	ND	1.3	1	
PCB052	ND	1.3	1		PCB157	ND	1.3	1	
PCB056	ND	1.3	1		PCB167	ND	1.3	1	
PCB060	ND	1.3	1		PCB168	ND	1.3	1	
PCB066	ND	1.3	1		PCB169	ND	1.3	1	
PCB070	ND	1.3	1		PCB170	ND	1.3	1	
PCB074	ND	1.3	1		PCB174	ND	1.3	1	
PCB077	ND	1.3	1		PCB177	ND	1.3	1	
PCB081	ND	1.3	1		PCB180	ND	1.3	1	
PCB087	ND	1.3	1		PCB183	ND	1.3	1	
PCB095	ND	1.3	1		PCB184	ND	1.3	1	
PCB097	ND	1.3	1		PCB187	ND	1.3	1	
PCB099	ND	1.3	1		PCB189	ND	1.3	1	
PCB101	ND	1.3	1		PCB194	ND	1.3	1	
PCB105	ND	1.3	1		PCB195	ND	1.3	1	
PCB110	ND	1.3	1		PCB200	ND	1.3	1	
PCB114	ND	1.3	1		PCB201	ND	1.3	1	
PCB118	ND	1.3	1		PCB203	ND	1.3	1	
PCB119	ND	1.3	1		PCB206	ND	1.3	1	
PCB123	ND	1.3	1		PCB209	ND	1.3	1	
PCB126	ND	1.3	1		Total PCB Congeners	ND	1.3	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	62	50-125		p-Terphenyl-d14	108	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg
Project: 101510913			Page 4 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B1	**11-09-1614-4-A**	**09/22/11 16:00**	**Sediment**	**GC/MS HHH**	**09/27/11**	**10/04/11 18:05**	**110927L07**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.4	1		PCB128	ND	1.4	1	
PCB018	ND	1.4	1		PCB132	ND	1.4	1	
PCB028	ND	1.4	1		PCB138/158	ND	1.4	1	
PCB031	ND	1.4	1		PCB141	ND	1.4	1	
PCB033	ND	1.4	1		PCB149	ND	1.4	1	
PCB037	ND	1.4	1		PCB151	ND	1.4	1	
PCB044	ND	1.4	1		PCB153	ND	1.4	1	
PCB049	2.6	1.4	1		PCB156	ND	1.4	1	
PCB052	ND	1.4	1		PCB157	ND	1.4	1	
PCB056	ND	1.4	1		PCB167	ND	1.4	1	
PCB060	ND	1.4	1		PCB168	ND	1.4	1	
PCB066	ND	1.4	1		PCB169	ND	1.4	1	
PCB070	ND	1.4	1		PCB170	ND	1.4	1	
PCB074	ND	1.4	1		PCB174	ND	1.4	1	
PCB077	ND	1.4	1		PCB177	ND	1.4	1	
PCB081	ND	1.4	1		PCB180	ND	1.4	1	
PCB087	ND	1.4	1		PCB183	ND	1.4	1	
PCB095	ND	1.4	1		PCB184	ND	1.4	1	
PCB097	ND	1.4	1		PCB187	ND	1.4	1	
PCB099	ND	1.4	1		PCB189	ND	1.4	1	
PCB101	ND	1.4	1		PCB194	ND	1.4	1	
PCB105	ND	1.4	1		PCB195	ND	1.4	1	
PCB110	ND	1.4	1		PCB200	ND	1.4	1	
PCB114	ND	1.4	1		PCB201	ND	1.4	1	
PCB118	ND	1.4	1		PCB203	ND	1.4	1	
PCB119	ND	1.4	1		PCB206	ND	1.4	1	
PCB123	ND	1.4	1		PCB209	ND	1.4	1	
PCB126	ND	1.4	1		Total PCB Congeners	2.6	1.4	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	65	50-125		p-Terphenyl-d14	72	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg
Project: 101510913			Page 5 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B2	**11-09-1614-5-A**	**09/22/11 16:00**	**Sediment**	**GC/MS HHH**	**09/27/11**	**10/04/11 18:31**	**110927L07**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.3	1		PCB128	ND	1.3	1	
PCB018	ND	1.3	1		PCB132	ND	1.3	1	
PCB028	ND	1.3	1		PCB138/158	ND	1.3	1	
PCB031	ND	1.3	1		PCB141	ND	1.3	1	
PCB033	ND	1.3	1		PCB149	ND	1.3	1	
PCB037	ND	1.3	1		PCB151	ND	1.3	1	
PCB044	ND	1.3	1		PCB153	ND	1.3	1	
PCB049	ND	1.3	1		PCB156	ND	1.3	1	
PCB052	ND	1.3	1		PCB157	ND	1.3	1	
PCB056	ND	1.3	1		PCB167	ND	1.3	1	
PCB060	ND	1.3	1		PCB168	ND	1.3	1	
PCB066	ND	1.3	1		PCB169	ND	1.3	1	
PCB070	ND	1.3	1		PCB170	ND	1.3	1	
PCB074	ND	1.3	1		PCB174	ND	1.3	1	
PCB077	ND	1.3	1		PCB177	ND	1.3	1	
PCB081	ND	1.3	1		PCB180	ND	1.3	1	
PCB087	ND	1.3	1		PCB183	ND	1.3	1	
PCB095	ND	1.3	1		PCB184	ND	1.3	1	
PCB097	ND	1.3	1		PCB187	ND	1.3	1	
PCB099	ND	1.3	1		PCB189	ND	1.3	1	
PCB101	ND	1.3	1		PCB194	ND	1.3	1	
PCB105	ND	1.3	1		PCB195	ND	1.3	1	
PCB110	ND	1.3	1		PCB200	ND	1.3	1	
PCB114	ND	1.3	1		PCB201	ND	1.3	1	
PCB118	ND	1.3	1		PCB203	ND	1.3	1	
PCB119	ND	1.3	1		PCB206	ND	1.3	1	
PCB123	ND	1.3	1		PCB209	ND	1.3	1	
PCB126	ND	1.3	1		Total PCB Congeners	ND	1.3	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	83	50-125		p-Terphenyl-d14	90	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg
Project: 101510913			Page 6 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B3	**11-09-1614-6-A**	**09/22/11 16:00**	**Sediment**	**GC/MS HHH**	**09/27/11**	**09/30/11 20:06**	**110927L07**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.3	1		PCB128	ND	1.3	1	
PCB018	ND	1.3	1		PCB132	ND	1.3	1	
PCB028	ND	1.3	1		PCB138/158	ND	1.3	1	
PCB031	ND	1.3	1		PCB141	ND	1.3	1	
PCB033	ND	1.3	1		PCB149	ND	1.3	1	
PCB037	ND	1.3	1		PCB151	ND	1.3	1	
PCB044	ND	1.3	1		PCB153	ND	1.3	1	
PCB049	ND	1.3	1		PCB156	ND	1.3	1	
PCB052	ND	1.3	1		PCB157	ND	1.3	1	
PCB056	ND	1.3	1		PCB167	ND	1.3	1	
PCB060	ND	1.3	1		PCB168	ND	1.3	1	
PCB066	ND	1.3	1		PCB169	ND	1.3	1	
PCB070	ND	1.3	1		PCB170	ND	1.3	1	
PCB074	ND	1.3	1		PCB174	ND	1.3	1	
PCB077	ND	1.3	1		PCB177	ND	1.3	1	
PCB081	ND	1.3	1		PCB180	ND	1.3	1	
PCB087	ND	1.3	1		PCB183	ND	1.3	1	
PCB095	ND	1.3	1		PCB184	ND	1.3	1	
PCB097	ND	1.3	1		PCB187	ND	1.3	1	
PCB099	ND	1.3	1		PCB189	ND	1.3	1	
PCB101	ND	1.3	1		PCB194	ND	1.3	1	
PCB105	ND	1.3	1		PCB195	ND	1.3	1	
PCB110	ND	1.3	1		PCB200	ND	1.3	1	
PCB114	ND	1.3	1		PCB201	ND	1.3	1	
PCB118	ND	1.3	1		PCB203	ND	1.3	1	
PCB119	ND	1.3	1		PCB206	ND	1.3	1	
PCB123	ND	1.3	1		PCB209	ND	1.3	1	
PCB126	ND	1.3	1		Total PCB Congeners	ND	1.3	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	85	50-125		p-Terphenyl-d14	118	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg
Project: 101510913			Page 7 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A2 (LAB DUP)	**11-09-1614-7-A**	**09/23/11 12:00**	**Sediment**	**GC/MS HHH**	**09/27/11**	**10/04/11 16:14**	**110927L07**

Comment(s): -Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.2	1		PCB128	ND	1.2	1	
PCB018	ND	1.2	1		PCB132	ND	1.2	1	
PCB028	ND	1.2	1		PCB138/158	ND	1.2	1	
PCB031	ND	1.2	1		PCB141	ND	1.2	1	
PCB033	ND	1.2	1		PCB149	ND	1.2	1	
PCB037	ND	1.2	1		PCB151	ND	1.2	1	
PCB044	ND	1.2	1		PCB153	ND	1.2	1	
PCB049	ND	1.2	1		PCB156	ND	1.2	1	
PCB052	ND	1.2	1		PCB157	ND	1.2	1	
PCB056	ND	1.2	1		PCB167	ND	1.2	1	
PCB060	ND	1.2	1		PCB168	ND	1.2	1	
PCB066	ND	1.2	1		PCB169	ND	1.2	1	
PCB070	ND	1.2	1		PCB170	ND	1.2	1	
PCB074	ND	1.2	1		PCB174	ND	1.2	1	
PCB077	ND	1.2	1		PCB177	ND	1.2	1	
PCB081	ND	1.2	1		PCB180	ND	1.2	1	
PCB087	ND	1.2	1		PCB183	ND	1.2	1	
PCB095	ND	1.2	1		PCB184	ND	1.2	1	
PCB097	ND	1.2	1		PCB187	ND	1.2	1	
PCB099	ND	1.2	1		PCB189	ND	1.2	1	
PCB101	ND	1.2	1		PCB194	ND	1.2	1	
PCB105	ND	1.2	1		PCB195	ND	1.2	1	
PCB110	ND	1.2	1		PCB200	ND	1.2	1	
PCB114	ND	1.2	1		PCB201	ND	1.2	1	
PCB118	ND	1.2	1		PCB203	ND	1.2	1	
PCB119	ND	1.2	1		PCB206	ND	1.2	1	
PCB123	ND	1.2	1		PCB209	ND	1.2	1	
PCB126	ND	1.2	1		Total PCB Congeners	ND	1.2	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	55	50-125		p-Terphenyl-d14	85	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM PCB Congeners
		Units:	ug/kg
Project: 101510913			Page 8 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-417-5**	**N/A**	**Solid**	**GC/MS HHH**	**09/27/11**	**10/04/11 12:09**	**110927L07**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
PCB008	ND	1.0	1		PCB128	ND	1.0	1	
PCB018	ND	1.0	1		PCB132	ND	1.0	1	
PCB028	ND	1.0	1		PCB138/158	ND	1.0	1	
PCB031	ND	1.0	1		PCB141	ND	1.0	1	
PCB033	ND	1.0	1		PCB149	ND	1.0	1	
PCB037	ND	1.0	1		PCB151	ND	1.0	1	
PCB044	ND	1.0	1		PCB153	ND	1.0	1	
PCB049	ND	1.0	1		PCB156	ND	1.0	1	
PCB052	ND	1.0	1		PCB157	ND	1.0	1	
PCB056	ND	1.0	1		PCB167	ND	1.0	1	
PCB060	ND	1.0	1		PCB168	ND	1.0	1	
PCB066	ND	1.0	1		PCB169	ND	1.0	1	
PCB070	ND	1.0	1		PCB170	ND	1.0	1	
PCB074	ND	1.0	1		PCB174	ND	1.0	1	
PCB077	ND	1.0	1		PCB177	ND	1.0	1	
PCB081	ND	1.0	1		PCB180	ND	1.0	1	
PCB087	ND	1.0	1		PCB183	ND	1.0	1	
PCB095	ND	1.0	1		PCB184	ND	1.0	1	
PCB097	ND	1.0	1		PCB187	ND	1.0	1	
PCB099	ND	1.0	1		PCB189	ND	1.0	1	
PCB101	ND	1.0	1		PCB194	ND	1.0	1	
PCB105	ND	1.0	1		PCB195	ND	1.0	1	
PCB110	ND	1.0	1		PCB200	ND	1.0	1	
PCB114	ND	1.0	1		PCB201	ND	1.0	1	
PCB118	ND	1.0	1		PCB203	ND	1.0	1	
PCB119	ND	1.0	1		PCB206	ND	1.0	1	
PCB123	ND	1.0	1		PCB209	ND	1.0	1	
PCB126	ND	1.0	1		Total PCB Congeners	ND	1.0	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
2-Fluorobiphenyl	88	50-125		p-Terphenyl-d14	93	50-125	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	Organotins by Krone et al.
		Units:	ug/kg
Project: 101510913			Page 1 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A1	**11-09-1614-1-A**	**09/23/11 12:00**	**Sediment**	**GC/MS Y**	**09/27/11**	**10/03/11 22:28**	**110927L18**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	3.3	3.8	0.82	1	J	Tetrabutyltin	ND	3.8	0.97	1	
Monobutyltin	ND	3.8	0.82	1		Tributyltin	6.2	3.8	0.72	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	110	50-130	

A2	**11-09-1614-2-A**	**09/23/11 12:00**	**Sediment**	**GC/MS Y**	**09/27/11**	**10/03/11 19:11**	**110927L18**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	ND	3.7	0.81	1		Tetrabutyltin	ND	3.7	0.95	1	
Monobutyltin	ND	3.7	0.81	1		Tributyltin	ND	3.7	0.71	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	121	50-130	

A3	**11-09-1614-3-A**	**09/23/11 12:00**	**Sediment**	**GC/MS Y**	**09/27/11**	**10/03/11 19:44**	**110927L18**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	ND	3.9	0.86	1		Tetrabutyltin	ND	3.9	1.0	1	
Monobutyltin	ND	3.9	0.86	1		Tributyltin	ND	3.9	0.76	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	119	50-130	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	Organotins by Krone et al.
		Units:	ug/kg
Project: 101510913			Page 2 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B1	**11-09-1614-4-A**	**09/22/11 16:00**	**Sediment**	**GC/MS Y**	**09/27/11**	**10/03/11 20:17**	**110927L18**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	43	4.2	0.91	1		Tetrabutyltin	ND	4.2	1.1	1	
Monobutyltin	ND	4.2	0.91	1		Tributyltin	42	4.2	0.80	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	123	50-130	

B2	**11-09-1614-5-A**	**09/22/11 16:00**	**Sediment**	**GC/MS Y**	**09/27/11**	**10/03/11 20:49**	**110927L18**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	3.1	4.0	0.86	1	J	Tetrabutyltin	ND	4.0	1.0	1	
Monobutyltin	ND	4.0	0.86	1		Tributyltin	7.5	4.0	0.76	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	123	50-130	

B3	**11-09-1614-6-A**	**09/22/11 16:00**	**Sediment**	**GC/MS Y**	**09/27/11**	**10/03/11 21:22**	**110927L18**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	ND	3.9	0.84	1		Tetrabutyltin	ND	3.9	0.99	1	
Monobutyltin	ND	3.9	0.84	1		Tributyltin	ND	3.9	0.74	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	122	50-130	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	Organotins by Krone et al.
		Units:	ug/kg
Project: 101510913			Page 3 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A2 (LAB DUP)	**11-09-1614-7-A**	**09/23/11 12:00**	**Sediment**	**GC/MS Y**	**09/27/11**	**10/03/11 21:55**	**110927L18**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.
-Results are reported on a dry weight basis.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	ND	3.7	0.81	1		Tetrabutyltin	ND	3.7	0.95	1	
Monobutyltin	ND	3.7	0.81	1		Tributyltin	ND	3.7	0.71	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	128	50-130	

Method Blank	**099-07-016-876**	**N/A**	**Solid**	**GC/MS Y**	**09/27/11**	**09/30/11 17:16**	**110927L18**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Dibutyltin	ND	3.0	0.65	1		Tetrabutyltin	ND	3.0	0.77	1	
Monobutyltin	ND	3.0	0.65	1		Tributyltin	ND	3.0	0.58	1	

Surrogates:	REC (%)	Control Limits	Qual
Tripentyltin	81	50-130	

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7440 Lincoln Way, Garden Grove, CA 92841-1427 · TEL:(714) 895-5494 · FAX: (714) 894-7501

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3050B / EPA 7471A Total
		Method:	EPA 6020 / EPA 7471A
		Units:	mg/kg
Project: 101510913			Page 1 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A1	**11-09-1614-1-A**	**09/23/11 12:00**	**Sediment**	**ICP/MS 04**	**09/26/11**	**09/27/11 04:51**	**110926L03**

Comment(s): -Mercury analysis was performed on 09/27/11 11:13 with batch 110926L05.
-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	5.75	0.125	1		Mercury	ND	0.0251	1	
Cadmium	ND	0.125	1		Nickel	5.94	0.125	1	
Chromium	7.48	0.125	1		Selenium	ND	0.125	1	
Copper	7.24	0.125	1		Silver	ND	0.125	1	
Lead	2.29	0.125	1		Zinc	24.4	1.25	1	

A2	**11-09-1614-2-A**	**09/23/11 12:00**	**Sediment**	**ICP/MS 04**	**09/26/11**	**09/27/11 04:57**	**110926L03**

Comment(s): -Mercury analysis was performed on 09/27/11 11:15 with batch 110926L05.
-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	7.06	0.123	1		Mercury	ND	0.0247	1	
Cadmium	ND	0.123	1		Nickel	6.40	0.123	1	
Chromium	7.73	0.123	1		Selenium	ND	0.123	1	
Copper	7.44	0.123	1		Silver	ND	0.123	1	
Lead	2.16	0.123	1		Zinc	29.4	1.23	1	

A3	**11-09-1614-3-A**	**09/23/11 12:00**	**Sediment**	**ICP/MS 04**	**09/26/11**	**09/27/11 05:02**	**110926L03**

Comment(s): -Mercury analysis was performed on 09/27/11 11:17 with batch 110926L05.
-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	6.64	0.131	1		Mercury	ND	0.0263	1	
Cadmium	ND	0.131	1		Nickel	6.40	0.131	1	
Chromium	8.28	0.131	1		Selenium	ND	0.131	1	
Copper	7.75	0.131	1		Silver	ND	0.131	1	
Lead	1.97	0.131	1		Zinc	23.0	1.31	1	

B1	**11-09-1614-4-A**	**09/22/11 16:00**	**Sediment**	**ICP/MS 04**	**09/26/11**	**09/27/11 05:07**	**110926L03**

Comment(s): -Mercury analysis was performed on 09/27/11 11:19 with batch 110926L05.
-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	6.64	0.139	1		Mercury	0.241	0.0278	1	
Cadmium	0.339	0.139	1		Nickel	14.4	0.139	1	
Chromium	21.8	0.139	1		Selenium	0.224	0.139	1	
Copper	41.9	0.139	1		Silver	ND	0.139	1	
Lead	40.3	0.139	1		Zinc	72.6	1.39	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3050B / EPA 7471A Total
		Method:	EPA 6020 / EPA 7471A
		Units:	mg/kg
Project: 101510913			Page 2 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B2	**11-09-1614-5-A**	**09/22/11 16:00**	**Sediment**	**ICP/MS 04**	**09/26/11**	**09/27/11 05:12**	**110926L03**

Comment(s): -Mercury analysis was performed on 09/27/11 11:21 with batch 110926L05.
-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	3.46	0.132	1		Mercury	0.0322	0.0265	1	
Cadmium	0.151	0.132	1		Nickel	8.06	0.132	1	
Chromium	10.8	0.132	1		Selenium	ND	0.132	1	
Copper	9.97	0.132	1		Silver	ND	0.132	1	
Lead	4.85	0.132	1		Zinc	37.9	1.32	1	

B3	**11-09-1614-6-A**	**09/22/11 16:00**	**Sediment**	**ICP/MS 04**	**09/26/11**	**09/27/11 05:59**	**110926L03**

Comment(s): -Mercury analysis was performed on 09/27/11 11:28 with batch 110926L05.
-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	3.35	0.129	1		Mercury	0.0555	0.0258	1	
Cadmium	0.132	0.129	1		Nickel	7.03	0.129	1	
Chromium	8.80	0.129	1		Selenium	0.159	0.129	1	
Copper	6.86	0.129	1		Silver	ND	0.129	1	
Lead	2.61	0.129	1		Zinc	25.9	1.29	1	

A2 (LAB DUP)	**11-09-1614-7-A**	**09/23/11 12:00**	**Sediment**	**ICP/MS 04**	**09/26/11**	**09/27/11 06:05**	**110926L03**

Comment(s): -Mercury analysis was performed on 09/27/11 11:30 with batch 110926L05.
-Results are reported on a dry weight basis.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	7.59	0.123	1		Mercury	ND	0.0247	1	
Cadmium	ND	0.123	1		Nickel	6.10	0.123	1	
Chromium	7.83	0.123	1		Selenium	ND	0.123	1	
Copper	6.70	0.123	1		Silver	ND	0.123	1	
Lead	1.97	0.123	1		Zinc	22.2	1.23	1	

Method Blank	**099-12-452-228**	**N/A**	**Solid**	**Mercury**	**09/26/11**	**09/27/11 11:01**	**110926L05**

Comment(s): -Preparation/analysis for Mercury was performed by EPA 7471A.

Parameter	Result	RL	DF	Qual
Mercury	ND	0.0200	1	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3050B / EPA 7471A Total
		Method:	EPA 6020 / EPA 7471A
		Units:	mg/kg
Project: 101510913			Page 3 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**096-10-002-2,084**	**N/A**	**Solid**	**ICP/MS 04**	**09/26/11**	**09/27/11 03:59**	**110926L03**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Arsenic	ND	0.100	1		Nickel	ND	0.100	1	
Cadmium	ND	0.100	1		Selenium	ND	0.100	1	
Chromium	ND	0.100	1		Silver	ND	0.100	1	
Copper	ND	0.100	1		Zinc	ND	1.00	1	
Lead	ND	0.100	1						

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	09/23/11
Work Order No:	11-09-1614
Preparation:	EPA 3050B
Method:	EPA 6020

Project 101510913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
A1	**Sediment**	**ICP/MS 04**	**09/26/11**	**09/27/11**	**110926S03**

Parameter	SPIKE ADDED	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	25.00	121	121	80-120	0	0-20	3
Cadmium	25.00	106	115	80-120	8	0-20	
Chromium	25.00	109	114	80-120	4	0-20	
Copper	25.00	113	115	80-120	2	0-20	
Lead	25.00	121	117	80-120	3	0-20	3
Nickel	25.00	106	112	80-120	5	0-20	
Selenium	25.00	105	105	80-120	0	0-20	
Silver	12.50	108	116	80-120	7	0-20	
Zinc	25.00	110	111	80-120	1	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

AMEC Environment & Infrastructure		Date Received	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020

Project: 101510913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS / PDSD Batch Number
A1	**Sediment**	**ICP/MS 04**	**09/26/11**	**09/27/11**	**110926S03**

Analysis Comment: As and Se were analyzed by DRC-mode.

Parameter	SPIKE ADDED	PDS %REC	PDSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	25.00	109	102	75-125	6	0-20	
Cadmium	25.00	98	98	75-125	0	0-20	
Chromium	25.00	98	95	75-125	2	0-20	
Copper	25.00	98	96	75-125	1	0-20	
Lead	25.00	101	99	75-125	2	0-20	
Nickel	25.00	96	96	75-125	1	0-20	
Selenium	25.00	107	101	75-125	5	0-20	
Silver	12.50	92	91	75-125	1	0-20	
Zinc	25.00	82	79	75-125	2	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

AMEC Environment & Infrastructure		Date Received:	09/23/11
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	N/A
		Method:	SM 2540 B

Project: 101510913

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
A1	**Sediment**	**N/A**	**09/26/11**	**09/26/11**	**B0926TSD1**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Solids, Total	79.8	79.7	0	0-10	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	09/23/11
Work Order No:	11-09-1614
Preparation:	EPA 7471A Total
Method:	EPA 7471A

Project 101510913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
A1	**Sediment**	**Mercury**	**09/26/11**	**09/27/11**	**110926S05**

Parameter	SPIKE ADDED	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	0.8350	111	108	76-136	2	0-16	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	09/23/11
Work Order No:	11-09-1614
Preparation:	EPA 3545
Method:	Organotins by Krone et al.

Project 101510913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
A1	**Sediment**	**GC/MS Y**	**09/27/11**	**09/30/11**	**110927S18A**

Parameter	SPIKE ADDED	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	100.0	165	157	50-130	5	0-20	3
Tributyltin	100.0	140	142	50-130	1	0-20	3

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	09/23/11
Work Order No:	11-09-1614
Preparation:	EPA 3545
Method:	EPA 8270C SIM

Project 101510913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
A1	**Sediment**	**GC/MS MM**	**09/27/11**	**09/28/11**	**110927S05**

Parameter	SPIKE ADDED	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
2,4,6-Trichlorophenol	1000	88	81	40-160	8	0-20	
2,4-Dichlorophenol	1000	77	70	40-160	9	0-20	
2-Methylphenol	1000	81	77	40-160	6	0-20	
2-Nitrophenol	1000	81	76	40-160	6	0-20	
4-Chloro-3-Methylphenol	1000	81	75	40-160	8	0-20	
Acenaphthene	1000	86	80	40-106	8	0-20	
Benzo (a) Pyrene	1000	91	85	17-163	7	0-20	
Chrysene	1000	30	28	17-168	7	0-20	
Di-n-Butyl Phthalate	1000	87	81	40-160	6	0-20	
Dimethyl Phthalate	1000	86	80	40-160	7	0-20	
Fluoranthene	1000	88	83	26-137	5	0-20	
Fluorene	1000	90	84	59-121	7	0-20	
Naphthalene	1000	77	74	21-133	4	0-20	
Phenanthrene	1000	86	82	54-120	5	0-20	
Phenol	1000	74	71	40-160	4	0-20	
Pyrene	1000	76	71	6-156	7	0-46	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	09/23/11
Work Order No:	11-09-1614
Preparation:	EPA 3545
Method:	EPA 8081A

Project 101510913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
A1	**Sediment**	**GC 51**	**09/27/11**	**09/28/11**	**110927S06**

Parameter	SPIKE ADDED	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Aldrin	5.000	58	66	50-135	13	0-25	
Alpha-BHC	5.000	55	59	50-135	8	0-25	
Beta-BHC	5.000	62	66	50-135	7	0-25	
Delta-BHC	5.000	54	55	50-135	1	0-25	
Gamma-BHC	5.000	55	59	50-135	5	0-25	
Dieldrin	5.000	57	70	50-135	20	0-25	
4,4'-DDD	5.000	72	89	50-135	20	0-25	
4,4'-DDE	5.000	74	81	50-135	9	0-25	
4,4'-DDT	5.000	49	62	50-135	16	0-25	3
Endosulfan I	5.000	54	60	50-135	11	0-25	
Endosulfan II	5.000	69	77	50-135	10	0-25	
Endosulfan Sulfate	5.000	61	62	50-135	2	0-25	
Endrin	5.000	74	78	50-135	5	0-25	
Endrin Aldehyde	5.000	53	59	50-135	11	0-25	
Endrin Ketone	5.000	68	72	50-135	5	0-25	
Heptachlor	5.000	62	70	50-135	12	0-25	
Heptachlor Epoxide	5.000	55	63	50-135	14	0-25	
Methoxychlor	5.000	62	72	50-135	14	0-25	
Alpha Chlordane	5.000	60	82	50-135	31	0-25	4
Gamma Chlordane	5.000	54	64	50-135	16	0-25	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received:	09/23/11
Work Order No:	11-09-1614
Preparation:	EPA 3545
Method:	EPA 8270C SIM PCB Congeners

Project 101510913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
A1	**Sediment**	**GC/MS HHH**	**09/27/11**	**10/04/11**	**110927S07**

Parameter	SPIKE ADDED	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
PCB008	25.00	99	100	50-125	1	0-30	
PCB018	25.00	95	96	50-125	1	0-30	
PCB028	25.00	97	97	50-125	0	0-30	
PCB044	25.00	96	96	50-125	0	0-30	
PCB052	25.00	94	93	50-125	0	0-30	
PCB066	25.00	97	97	50-125	0	0-30	
PCB077	25.00	99	99	50-125	0	0-30	
PCB101	25.00	99	99	50-125	1	0-30	
PCB105	25.00	98	97	50-125	1	0-30	
PCB118	25.00	100	99	50-125	0	0-30	
PCB126	25.00	93	92	50-125	1	0-30	
PCB128	25.00	100	100	50-125	0	0-30	
PCB153	25.00	97	97	50-125	0	0-30	
PCB170	25.00	91	92	50-125	0	0-30	
PCB180	25.00	101	101	50-125	1	0-30	
PCB187	25.00	99	99	50-125	1	0-30	
PCB195	25.00	109	111	50-125	1	0-30	
PCB206	25.00	106	106	50-125	0	0-30	
PCB209	25.00	110	111	50-125	1	0-30	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Environment & Infrastructure		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3050B
		Method:	EPA 6020

Project: 101510913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
096-10-002-2,084	**Solid**	**ICP/MS 04**	**09/26/11**	**09/27/11**	**110926L03**

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	25.00	109	102	80-120	7	0-20	
Cadmium	25.00	101	101	80-120	0	0-20	
Chromium	25.00	103	102	80-120	2	0-20	
Copper	25.00	108	107	80-120	1	0-20	
Lead	25.00	102	102	80-120	0	0-20	
Nickel	25.00	106	105	80-120	1	0-20	
Selenium	25.00	99	97	80-120	2	0-20	
Silver	12.50	94	94	80-120	0	0-20	
Zinc	25.00	102	99	80-120	2	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Environment & Infrastructure		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 7471A Total
		Method:	EPA 7471A

Project: 101510913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-452-228	**Solid**	**Mercury**	**09/26/11**	**09/27/11**	**110926L05**

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	0.8350	100	99	82-124	2	0-16	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Environment & Infrastructure		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	Organotins by Krone et al.

Project: 101510913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-016-876	**Solid**	**GC/MS Y**	**09/27/11**	**09/30/11**	**110927L18**

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	100.0	87	90	50-130	3	0-20	
Tributyltin	100.0	89	85	50-130	4	0-20	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Environment & Infrastructure		Date Received:	N/A
9210 Sky Park Court, Suite 200		Work Order No:	11-09-1614
San Diego, CA 92123-4302		Preparation:	EPA 3545
		Method:	EPA 8270C SIM

Project: 101510913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-413-332	**Solid**	**GC/MS MM**	**09/27/11**	**09/28/11**	**110927L05**

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
2,4,6-Trichlorophenol	1000	56	56	40-160	20-180	1	0-20	
2,4-Dichlorophenol	1000	65	64	40-160	20-180	1	0-20	
2-Methylphenol	1000	73	73	40-160	20-180	0	0-20	
2-Nitrophenol	1000	52	51	40-160	20-180	2	0-20	
4-Chloro-3-Methylphenol	1000	69	69	40-160	20-180	0	0-20	
Acenaphthene	1000	76	76	48-108	38-118	1	0-11	
Benzo (a) Pyrene	1000	78	78	17-163	0-187	0	0-20	
Chrysene	1000	25	25	17-168	0-193	1	0-20	
Di-n-Butyl Phthalate	1000	76	75	40-160	20-180	2	0-20	
Dimethyl Phthalate	1000	76	75	40-160	20-180	1	0-20	
Fluoranthene	1000	76	75	26-137	8-156	2	0-20	
Fluorene	1000	80	79	59-121	49-131	0	0-20	
Naphthalene	1000	75	76	21-133	2-152	0	0-20	
Phenanthrene	1000	77	76	54-120	43-131	1	0-20	
Phenol	1000	67	67	40-160	20-180	0	0-20	
Pyrene	1000	68	68	28-106	15-119	0	0-16	

Total number of LCS compounds : 16
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Environment & Infrastructure	Date Received:	N/A
9210 Sky Park Court, Suite 200	Work Order No:	11-09-1614
San Diego, CA 92123-4302	Preparation:	EPA 3545
	Method:	EPA 8081A

Project: 101510913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-858-113	**Solid**	**GC 51**	**09/27/11**	**09/28/11**	**110927L06**

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Aldrin	6.500	57	64	50-135	36-149	11	0-25	
Alpha-BHC	6.500	61	68	50-135	36-149	12	0-25	
Beta-BHC	6.500	69	77	50-135	36-149	11	0-25	
Delta-BHC	6.500	55	62	50-135	36-149	11	0-25	
Gamma-BHC	6.500	65	73	50-135	36-149	12	0-25	
Dieldrin	6.500	64	71	50-135	36-149	11	0-25	
4,4'-DDD	6.500	68	79	50-135	36-149	14	0-25	
4,4'-DDE	6.500	73	81	50-135	36-149	10	0-25	
4,4'-DDT	6.500	81	88	50-135	36-149	9	0-25	
Endosulfan I	6.500	58	65	50-135	36-149	11	0-25	
Endosulfan II	6.500	78	84	50-135	36-149	7	0-25	
Endosulfan Sulfate	6.500	59	63	50-135	36-149	8	0-25	
Endrin	6.500	79	86	50-135	36-149	8	0-25	
Endrin Aldehyde	6.500	66	73	50-135	36-149	10	0-25	
Endrin Ketone	6.500	69	79	50-135	36-149	14	0-25	
Heptachlor	6.500	62	69	50-135	36-149	11	0-25	
Heptachlor Epoxide	6.500	57	64	50-135	36-149	10	0-25	
Methoxychlor	6.500	68	80	50-135	36-149	17	0-25	
Alpha Chlordane	6.500	63	70	50-135	36-149	11	0-25	
Gamma Chlordane	6.500	56	63	50-135	36-149	12	0-25	

Total number of LCS compounds : 20
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

AMEC Environment & Infrastructure
9210 Sky Park Court, Suite 200
San Diego, CA 92123-4302

Date Received: N/A
Work Order No: 11-09-1614
Preparation: EPA 3545
Method: EPA 8270C SIM PCB Congeners

Project: 101510913

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-417-5	**Solid**	**GC/MS HHH**	**09/27/11**	**10/03/11**	**110927L07**

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
PCB008	50.00	95	97	50-125	38-138	2	0-30	
PCB018	50.00	92	94	50-125	38-138	2	0-30	
PCB028	50.00	97	96	50-125	38-138	1	0-30	
PCB044	50.00	96	95	50-125	38-138	1	0-30	
PCB052	50.00	94	93	50-125	38-138	1	0-30	
PCB066	50.00	100	97	50-125	38-138	3	0-30	
PCB077	50.00	94	90	50-125	38-138	4	0-30	
PCB101	50.00	101	99	50-125	38-138	2	0-30	
PCB105	50.00	99	97	50-125	38-138	2	0-30	
PCB118	50.00	102	99	50-125	38-138	2	0-30	
PCB126	50.00	90	87	50-125	38-138	4	0-30	
PCB128	50.00	102	100	50-125	38-138	2	0-30	
PCB153	50.00	99	97	50-125	38-138	2	0-30	
PCB170	50.00	92	92	50-125	38-138	0	0-30	
PCB180	50.00	103	102	50-125	38-138	2	0-30	
PCB187	50.00	102	100	50-125	38-138	2	0-30	
PCB195	50.00	115	114	50-125	38-138	1	0-30	
PCB206	50.00	102	100	50-125	38-138	1	0-30	
PCB209	50.00	107	107	50-125	38-138	0	0-30	

Total number of LCS compounds : 19
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 11-09-1614

Qualifier	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS/LCSD Recovery Percentage is within Marginal Exceedance (ME) Control Limit range.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

11-09-1614

DATE:

PAGE: 1 OF 1

LABORATORY CLIENT: AMEC Environment & Infrastructure

ADDRESS: 9210 Sky Park Ct. Ste 200

CITY: San Diego, CA 92123

TEL: 858-300-4300 | FAX: 858-300-4301 | E-MAIL: barry.snyder@amec.com

CLIENT PROJECT NAME / NUMBER: 101510913

PROJECT CONTACT: Barry Snyder

SAMPLER(S): (SIGNATURE) Bt A Snyd

P.O. NO.:

QUOTE NO.:

LAB USE ONLY: 0 9 - 1 6 1 4

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48HR ☐ 72 HR ☐ 5 DAYS ☒ Standard

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY): ☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ___/___/___

SPECIAL INSTRUCTIONS
Report results in dry weight.
Please contact Barry Snyder with any questions.
Analyte list & Detection limits provided

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION/ DESCRIPTION	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	Please list tests required	Total Solids (SM 2540 B)	Metals including Mercury (6020/6010B and 7471A)	PAHs (8270C)	Chlorinated Pesticides (8081A)	PCB Congeners (8270C SIM)	Phenols (8270C SIM)	Phthalates (8270C SIM)	Organotins (Rice/Krone)
1	A1	POLA Berth 167-169	9/23/11	1200	sed	1		X	X	X	X	X	X	X	X
2	A2	POLA Berth 167-169	9/23/11	1200	sed	1		X	X	X	X	X	X	X	X
3	A3	POLA Berth 167-169	9/23/11	1200	sed	1		X	X	X	X	X	X	X	X
4	B1	POLA Berth 167-169	9/22/11	1600	sed	1		X	X	X	X	X	X	X	X
5	B2	POLA Berth 167-169	9/22/11	1600	sed	1		X	X	X	X	X	X	X	X
6	B3	POLA Berth 167-169	9/22/11	1600	sed	1		X	X	X	X	X	X	X	X

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Bt A M	Dannyle CZL	9-23-11	15:25
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

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Phase II Analytical Methods and Detection Limits

Analyte	Analysis Method	Sediment Target Detection Limits[a,b]
Total Solids	SM 2540 B	0.1%
Arsenic (As)	6020/6010B[d]	0.1 mg/kg
Cadmium (Cd)	6020/6010B[d]	0.1 mg/kg
Chromium (Cr)	6020/6010B[d]	0.1 mg/kg
Copper (Cu)	6020/6010B[d]	0.1 mg/kg
Lead (Pb)	6020/6010B[d]	0.1 mg/kg
Mercury (Hg)	7471A[d]	0.02 mg/kg
Nickel (Ni)	6020/6010B[d]	0.1 mg/kg
Selenium (Se)	6020/6010B[d]	0.1 mg/kg
Silver (Ag)	6020/6010B[d]	0.1 mg/kg
Zinc (Zn)	6020/6010B[d]	2.0 mg/kg
PAHs[e]	8270C SIM[d]	20 µg/kg
Chlorinated Pesticides[f]	8081A[d]	0.5 to 30 µg/kg
PCB Congeners[g]	8270C SIM	1.0 µg/kg
Phenols	8270C SIM[d]	20 to 100 µg/kg
Phthalates	8270C SIM[d]	10 µg/kg
Organotins	Rice/Krone[h]	1.0 µg/kg

Notes:

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

b Reporting limits were provided by Calscience Environmental Laboratories, Inc.

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

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

e Includes naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b,k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene.

f Includes aldrin, □-BHC, □-BHC, □-BHC (lindane), □-BHC, chlordane, 2,4- and 4,4-DDD, 2,4- and 4,4-DDE, 2,4- and 4,4-DDT, dieldrin, endosulfan I and II, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, and toxaphene.

g PCBs (sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194,201, and 206)

µg/kg micrograms per kilogram (parts per billion)

mg/kg milligrams per kilogram (parts per million),

PAH polycyclic aromatic hydrocarbon

PCB polychlorinated biphenyl

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 11-09-1614

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: AMEC

DATE: 09/23/11

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 3.1 °C + 0.5 °C (CF) = 3.6 °C ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Initial: D.L

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: D.L

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: D.L

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☑16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐500PB ☐500PB**na**

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** DL

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** YL

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **znna:** $ZnAc_2$+NaOH **f:** Field-filtered **Scanned by:** YL

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